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2020 – 2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

BOTTOM ASH POND
JEFFREY ENERGY CENTER
ST. MARYS, KANSAS

by Haley & Aldrich, Inc.
Cleveland, Ohio

for Evergy Kansas Central, Inc.
Topeka, Kansas

File No. 0129778-045
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Revision No.	Date	Notes

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This Annual Groundwater Monitoring and Corrective Action Report documents the groundwater monitoring program for the Jeffrey Energy Center (JEC) inactive Bottom Ash Pond (BAP) consistent with applicable sections of Code of Federal Regulations Title 40 §§ 257.90 through 257.98, and describes activities conducted from July 2020 through June 2021 and documents compliance with the U.S. Environmental Protection Agency Coal Combustion Residual Rule. I certify that the 2020 – 2021 Annual Groundwater Monitoring and Corrective Action Report for the JEC BAP is, to the best of my knowledge, accurate and complete.

Signed: 

Professional Geologist

Print Name:	Mark Nicholls
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Title:	Technical Expert 2
Company:	Haley & Aldrich, Inc.

1. Introduction

This 2020 – 2021 Annual Groundwater Monitoring and Corrective Action Report (Annual Report) addresses the inactive Bottom Ash Pond (BAP) at the Jeffrey Energy Center (JEC), operated by Evergy Kansas Central, Inc. (Evergy). This Annual Report was developed in accordance with the U.S. Environmental Protection Agency (USEPA) 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 BAP consistent with applicable sections of 257.90 through 257.98, and describes activities conducted in the prior calendar year (July 2020 through June 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 narrative describing how each Rule requirement has been met.

Evergy prepared and placed in the facility's operating record a notification of intent to initiate closure of the BAP by December 17, 2015. Due to the USEPA Extension of Compliance Deadlines for Certain Inactive Surface Impoundments, Response to Partial Vacatur effective October 4, 2016, in accordance with the requirement under § 257.100(e)(1), the alternative reporting timeframes specified in § 257.100(e)(2) through (6) are applicable for the BAP.

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 (July 1, 2020), the BAP was operating under an assessment monitoring program in compliance with 40 CFR § 257.95.

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

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

At the end of the current annual reporting period (June 30, 2021), the BAP was operating under an assessment monitoring program in compliance with 40 CFR § 257.95.

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

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

1.1.3.1 40 CFR § 257.90(e)(6)(iii)(a)

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

The BAP is operating under an assessment monitoring program; therefore, no statistical evaluations were completed on Appendix III constituents from July 2020 through June 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.

An assessment monitoring program was initiated on January 13, 2020 for the BAP with a notification establishing assessment monitoring provided February 12, 2020 to meet the requirements of 40 CFR § 257.95. The BAP remained in assessment monitoring from July 2020 through June 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;

No statistically significant levels were identified above the groundwater protection standard for those constituents listed in Appendix IV to this part from July 2020 through June 2021 for the BAP.

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 from July 2020 through June 2021 for this unit. The BAP remained in assessment monitoring during this annual period.

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 BAP from July 2020 through June 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 from July 2020 through June 2021 for this unit. The BAP remained in assessment monitoring during this annual period.

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 BAP remains in assessment 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 from July 2020 through June 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) of this section.

Evergy has installed and certified a groundwater monitoring system at the JEC BAP. The BAP is subject to the groundwater monitoring and corrective action requirements described under 40 CFR §§ 257.90 through 257.98. This document addresses the requirement for the Owner/Operator to prepare an Annual Report per § 257.90(e).

2.2 40 CFR § 257.90(e) – SUMMARY

Annual groundwater monitoring and corrective action report. For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1).

This Annual Report describes monitoring completed and actions taken for the groundwater monitoring system at the JEC BAP as required by the Rule. Groundwater sampling and analysis was conducted in accordance with the requirements described in § 257.93, and the status of the groundwater monitoring program described in § 257.94 and § 257.95 is also provided in this report. This Annual Report documents the applicable groundwater-related activities completed in the calendar year from July 2020 through June 2021.

2.2.1 Status of the Groundwater Monitoring Program

The BAP remained in the assessment monitoring program through June 2021.

2.2.2 Key Actions Completed

The 2019 – 2020 Annual Groundwater Monitoring and Corrective Action Report was completed in July 2020 for the time period July 2019 through June 2020. Statistical evaluation was completed in July 2020 on analytical data from the March 2020 assessment monitoring sampling event.

A semi-annual assessment monitoring sampling event was completed in September 2020 for detected Appendix IV constituents identified from the December 2019 annual assessment monitoring sampling event. Statistical evaluation was completed in January 2021 on analytical data from the September 2020 semi-annual assessment monitoring sampling event.

An annual assessment monitoring sampling event was completed on November 30, 2020 to identify detected Appendix IV constituents for subsequent semi-annual sampling events planned for March 2021 and September 2021. Semi-annual assessment monitoring sampling was completed in March 2021 for detected Appendix IV constituents identified during the November 2021 annual monitoring event. Statistical evaluation of the results from the March 2021 semi-annual assessment monitoring sampling event are due to be completed in July 2021 and will be reported in the next annual report. The JEC BAP Groundwater Monitoring System Certification was updated in May 2021 to document monitoring system changes as described in Section 2.3.2.

2.2.3 Problems Encountered

No noteworthy problems (i.e., problems could include damaged wells, issues with sample collection or lack of sampling, or problems with analytical analysis) were encountered at the BAP from July 2020 through June 2021.

2.2.4 Actions to Resolve Problems

No problems were encountered at the BAP from July 2020 through June 2021; therefore, no actions to resolve the problems were required.

2.2.5 Project Key Activities for Upcoming Year

Key activities planned for July 2021 through June 2022 include the 2020 – 2021 Annual Groundwater Monitoring and Corrective Action Report, statistical analysis of assessment monitoring analytical data collected in March 2021, semi-annual assessment monitoring and subsequent statistical evaluations, and annual assessment monitoring.

2.3 40 CFR § 257.90(e) – INFORMATION

At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

2.3.1 40 CFR § 257.90(e)(1) – CCR Unit and Monitoring Well Network

A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

As required by § 257.90(e)(1), a map showing the locations of the CCR unit and associated upgradient and downgradient monitoring wells for the JEC BAP is included in this report as Figure 1.

2.3.2 40 CFR § 257.90(e)(2) – Monitoring System Changes

Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

No monitoring wells were installed or decommissioned from July 2020 to June 2021. Monitoring well TPZ-GR-4 was added to the monitoring well network in May 2021 as a side gradient piezometer to support the groundwater elevations and flow direction.

2.3.3 40 CFR § 257.90(e)(3) – Summary of Sampling Events

In addition to all the monitoring data obtained under § 257.90 through § 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

In accordance with § 257.95(b), three independent assessment monitoring samples from each background and downgradient monitoring well were collected from July 2020 through June 2021. A summary including sample names, dates of sample collection, field parameters, and monitoring data obtained for the groundwater monitoring program for the BAP is presented in Table I of this report. Groundwater potentiometric elevation contour maps associated with each groundwater monitoring sampling event in July 2020 through June 2021 are provided in Figures 2 through 4.

2.3.4 40 CFR § 257.90(e)(4) – Monitoring Transition Narrative

A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

The assessment monitoring program was initiated on January 13, 2020 with a notification establishing assessment monitoring provided on February 12, 2020 to meet the requirements of 40 CFR § 257.95. The BAP remained in assessment monitoring from July 2020 through June 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 257.95 of the Rule. It is understood that there are supplemental references in §§ 257.90 through 257.98 that must be placed in the Annual Report. The following requirements include relevant and required information in the Annual Report for activities completed from July 2020 through June 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. 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.

This unit is in assessment monitoring; therefore, no detection monitoring alternative source 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).

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

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

Include the recorded concentrations required by paragraph (d)(1) of this section, identify the background concentrations established under § 257.94(b), and identify the groundwater protection

standards established under paragraph (d)(2) of this section in the annual groundwater monitoring and corrective action report required by § 257.90(e).

An assessment monitoring program has been implemented at the CCR unit since January 13, 2020. Three rounds of assessment monitoring sampling were completed from July 2020 through June 2021. Analytical results for both downgradient and upgradient wells are provided in Table I. The background concentrations (upper tolerance limits) and groundwater protection standards established for detected Appendix IV constituents for the BAP are included in Tables II and III. The background concentrations and groundwater protection standards provided in Tables II and III were utilized for the statistical evaluations completed from July 2020 through June 2021 for the March 2020 and September 2020 semi-annual assessment monitoring sampling events, respectively.

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

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

No assessment monitoring alternative source demonstration or certification was required from July 2020 through June 2021. The BAP remained in assessment monitoring during this annual period.

2.3.5.6 40 CFR § 257.96(a) – Demonstration for Additional Time for Assessment of Corrective Measures

Within 90 days of finding that any constituent listed in appendix IV to this part has been detected at a statistically significant level exceeding the groundwater protection standard defined under § 257.95(h), or immediately upon detection of a release from a CCR unit, the owner or operator must initiate an assessment of corrective measures to prevent further releases, to remediate any releases and to restore affected area to original conditions. The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances. The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority attesting that the demonstration is accurate. The 90-day deadline to complete the assessment of corrective measures may be extended for no longer than 60 days. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by

§ 257.90(e), in addition to the certification by a qualified professional engineer or the approval from the Participating State Director or approval from EPA where EPA is the permitting authority.

No assessment of corrective measures was required to be initiated from July 2020 through June 2021; therefore, no demonstration or certification is applicable for this unit.

TABLES

TABLE I
SUMMARY OF ANALYTICAL RESULTS - ASSESSMENT MONITORING
EVERGY KANSAS CENTRAL, INC.
JEFFREY ENERGY CENTER
BOTTOM ASH POND (INACTIVE)
ST. MARYS, KANSAS

Location	Upgradient			Downgradient											
	IBA-4			IBA-1				IBA-2			IBA-3				
Measure Point (TOC)	1201.86			1171.65				1171.66			1164.95				
Sample Name	IBA-04-091420	IBA-4-113020	IBA-4-030421	IBA-01-091420	IBA-1-113020	IBA-1-030421	IBA-DUP-030421	IBA-02-091420	IBA-2-113020	IBA-2-030421	IBA-03-091420	DUP-IBA-091420	IBA-3-113020	DUP-IBA-113020	IBA-3-030421
Sample Date	9/14/2020	11/30/2020	3/4/2021	9/14/2020	11/30/2020	3/4/2021	3/4/2021	9/14/2020	11/30/2020	3/4/2021	9/14/2020	9/14/2020	11/30/2020	11/30/2020	3/4/2021
Final Lab Report Date	9/28/2020	12/10/2020	3/17/2021	9/28/2020	12/10/2020	3/17/2021	3/17/2021	9/28/2020	12/10/2020	3/17/2021	9/28/2020	9/28/2020	12/10/2020	12/10/2020	3/17/2021
Final Lab Report Revision Date	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Final Radiation Lab Report Date	N/A	12/23/2020	N/A	N/A	12/23/2020	N/A	N/A	N/A	12/23/2020	N/A	N/A	N/A	12/23/2020	12/23/2020	N/A
Final Radiation Lab Report Revision Date	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lab Data Reviewed and Accepted	10/23/2020	1/13/2021	4/16/2021	10/23/2020	1/13/2021	4/16/2021	4/16/2021	10/23/2020	1/13/2021	4/16/2021	10/23/2020	10/23/2020	1/13/2021	1/13/2021	4/16/2021
Depth to Water (ft btoc)	53.92	54.89	54.93	26.00	27.50	25.94	-	27.36	28.91	27.75	31.24	-	32.20	-	31.65
Temperature (Deg C)	19.28	13.48	15.55	17.84	13.78	14.33	-	19.38	12.12	17.56	24.94	-	14.30	-	18.69
Conductivity (µS/cm)	903	940	2073	2040	2160	3060	-	1640	1730	2950	1820	-	1970	-	3280
Turbidity (NTU)	0.0	3.1	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0
Boron, Total (mg/L)	**0.25**	-	**0.23**	**0.38**	-	**0.37**	**0.37**	**0.21**	-	**0.21**	**0.29**	**0.29**	-	-	**0.28**
Calcium, Total (mg/L)	**106**	-	**106**	**304**	-	**302**	**313**	**216**	-	**227**	**256**	**256**	-	-	**258**
Chloride (mg/L)	**19.3**	-	**18.6**	**134**	-	**125**	**125**	**127**	-	**111**	**141**	**137**	-	-	**124**
Fluoride (mg/L)	**0.58**	**0.64**	**0.52**	**0.31**	**0.43**	< 0.20	< 0.20	**0.36**	**0.35**	< 0.20	**0.30**	**0.30**	**0.37**	**0.37**	< 0.20
Sulfate (mg/L)	**173**	-	**177**	**875**	-	**863**	**802**	**632**	-	**608**	**848**	**819**	-	-	**778**
pH (su)	**7.1**	-	**7.4**	**7.0**	-	**7.2**	**7.1**	**7.2**	-	**6.9**	**7.3**	**7.2**	-	-	**7.0**
TDS (mg/L)	**623**	-	**689**	**1670**	-	**1710**	**1680**	**1270**	-	**1340**	**1650**	**1600**	-	-	**1570**
Antimony, Total (mg/L)	-	< 0.0010	-	-	< 0.0010	-	-	-	< 0.0010	-	-	-	< 0.0010	< 0.0010	-
Arsenic (mg/L)	-	< 0.0010	-	-	< 0.0010	-	-	-	< 0.0010	-	-	-	< 0.0010	< 0.0010	-
Barium, Total (mg/L)	**0.019**	**0.019**	**0.019**	**0.029**	**0.031**	**0.030**	**0.031**	**0.028**	**0.030**	**0.028**	**0.017**	**0.018**	**0.019**	**0.020**	**0.019**
Beryllium, Total (mg/L)	-	< 0.0010	-	-	< 0.0010	-	-	-	< 0.0010	-	-	-	< 0.0010	< 0.0010	-
Cadmium, Total (mg/L)	-	< 0.00050	-	-	< 0.00050	-	-	-	< 0.00050	-	-	-	< 0.00050	< 0.00050	-
Chromium, Total (mg/L)	-	< 0.0050	-	-	< 0.0050	-	-	-	< 0.0050	-	-	-	< 0.0050	< 0.0050	-
Cobalt, Total (mg/L)	<0.0010	< 0.0010	< 0.0010	**0.0016**	**0.0022**	**0.0020**	**0.0019**	<0.0010	**0.0011**	**0.0011**	**0.0014**	**0.0014**	**0.0017**	**0.0016**	**0.0017**
Lead, Total (mg/L)	-	< 0.010	-	-	< 0.010	-	-	-	< 0.010	-	-	-	< 0.010	< 0.010	-
Lithium, Total (mg/L)	**0.040**	**0.039**	**0.035**	**0.022**	**0.020**	**0.015**	**0.013**	**0.023**	**0.026**	**0.019**	**0.024**	**0.018**	**0.022**	**0.023**	**0.021**
Molybdenum, Total (mg/L)	**0.0019**	**0.0020**	**0.0018**	**0.0076**	**0.0081**	**0.0073**	**0.0069**	**0.0022**	**0.0022**	**0.0023**	**0.0022**	**0.0021**	**0.0020**	**0.0021**	**0.0022**
Selenium, Total (mg/L)	-	< 0.0010	-	-	< 0.0010	-	-	-	< 0.0010	-	-	-	< 0.0010	< 0.0010	-
Thallium, Total (mg/L)	-	< 0.0010	-	-	< 0.0010	-	-	-	< 0.0010	-	-	-	< 0.0010	< 0.0010	-
Mercury, Total (mg/L)	-	< 0.00020	-	-	< 0.00020	-	-	-	< 0.00020	-	-	-	< 0.00020	< 0.00020	-
Fluoride (mg/L)	**0.58**	**0.64**	**0.52**	**0.31**	**0.43**	< 0.20	< 0.20	**0.36**	**0.35**	< 0.20	**0.30**	**0.30**	**0.37**	**0.37**	< 0.20
Radium-226 & 228 Combined (pCi/L)	-	1.08 ± 1.00 (1.72)	-	-	0.000 ± 0.553 (0.967)	-	-	-	0.779 ± 0.712 (1.07)	-	-	-	0.343 ± 0.584 (0.982)	0.468 ± 0.783 (1.36)	-

Notes & Abbreviations:

Radiological results are presented as activity plus or minus uncertainty with minimum detectable concentration (MDC).

Bold value: *Detection above laboratory reporting limit or MDC .*

µS/cm = micro Siemens per centimeter

Deg C = degrees Celsius

ft btoc = feet below top of casing

mg/L = milligrams per liter

N/A = Not Applicable

NTU = Nephelometric Turbidity Unit

pCi/L = picoCuries per liter

su = standard unit

TDS = total dissolved solids

TOC = top of casing

TABLE II
ASSESSMENT GROUNDWATER MONITORING - DETECTED APPENDIX IV GWPS
MARCH 2020 SAMPLING EVENT
JEFFREY ENERGY CENTER
BOTTOM ASH POND (INACTIVE)

Well Number	Background Value[1]	GWPS
CCR Appendix-IV Barium, Total (mg/L)		
MW-IBA-4 (upgradient)	0.0229	NA
MW-IBA-1		2
MW-IBA-2		2
MW-IBA-3		2
CCR Appendix-IV Cobalt, Total (mg/L)		
MW-IBA-4 (upgradient)	0.001	NA
MW-IBA-1		0.006
MW-IBA-2		0.006
MW-IBA-3		0.006
CCR Appendix-IV Fluoride, Total (mg/L)		
MW-IBA-4 (upgradient)	0.653	NA
MW-IBA-1		4.0
MW-IBA-2		4.0
MW-IBA-3		4.0
CCR Appendix-IV Lithium, Total (mg/L)		
MW-IBA-4 (upgradient)	0.0382	NA
MW-IBA-1		0.040
MW-IBA-2		0.040
MW-IBA-3		0.040
CCR Appendix-IV Molybdenum, Total (mg/L)		
MW-IBA-4 (upgradient)	0.0024	NA
MW-IBA-1		0.100
MW-IBA-2		0.100
MW-IBA-3		0.100

Notes and Abbreviations:

[1] Interwell background value based on background data collected through March 2019.

CCR = Coal Combustion Residuals

GWPS = Groundwater Protection Standard

mg/L = milligrams per Liter

NA = Not Applicable

TABLE III
ASSESSMENT GROUNDWATER MONITORING - DETECTED APPENDIX IV GWPS
SEPTEMBER 2020 SAMPLING EVENT
JEFFREY ENERGY CENTER
BOTTOM ASH POND (INACTIVE)

Well Number	Background Value[1]	GWPS
CCR Appendix-IV Barium, Total (mg/L)		
MW-IBA-4 (upgradient)	0.0229	NA
MW-IBA-1		2
MW-IBA-2		2
MW-IBA-3		2
CCR Appendix-IV Cobalt, Total (mg/L)		
MW-IBA-4 (upgradient)	0.001	NA
MW-IBA-1		0.006
MW-IBA-2		0.006
MW-IBA-3		0.006
CCR Appendix-IV Fluoride, Total (mg/L)		
MW-IBA-4 (upgradient)	0.632[2]	NA
MW-IBA-1		4.0
MW-IBA-2		4.0
MW-IBA-3		4.0
CCR Appendix-IV Lithium, Total (mg/L)		
MW-IBA-4 (upgradient)	0.0382	NA
MW-IBA-1		0.040
MW-IBA-2		0.040
MW-IBA-3		0.040
CCR Appendix-IV Molybdenum, Total (mg/L)		
MW-IBA-4 (upgradient)	0.0024	NA
MW-IBA-1		0.100
MW-IBA-2		0.100
MW-IBA-3		0.100

Notes and Abbreviations:

[1] Interwell background value based on background data collected through March 2019.

[2] Interwell background value based on background data collected through September 2020.

CCR = Coal Combustion Residuals

GWPS = Groundwater Protection Standard

mg/L = milligrams per Liter

NA = Not Applicable

FIGURES

LEGEND

- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- BOTTOM ASH POND (INACTIVE)

NOTES

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

N

0 330 660

SCALE IN FEET

HALEY ALDRICH

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

BOTTOM ASH POND (INACTIVE) LOCATION MAP

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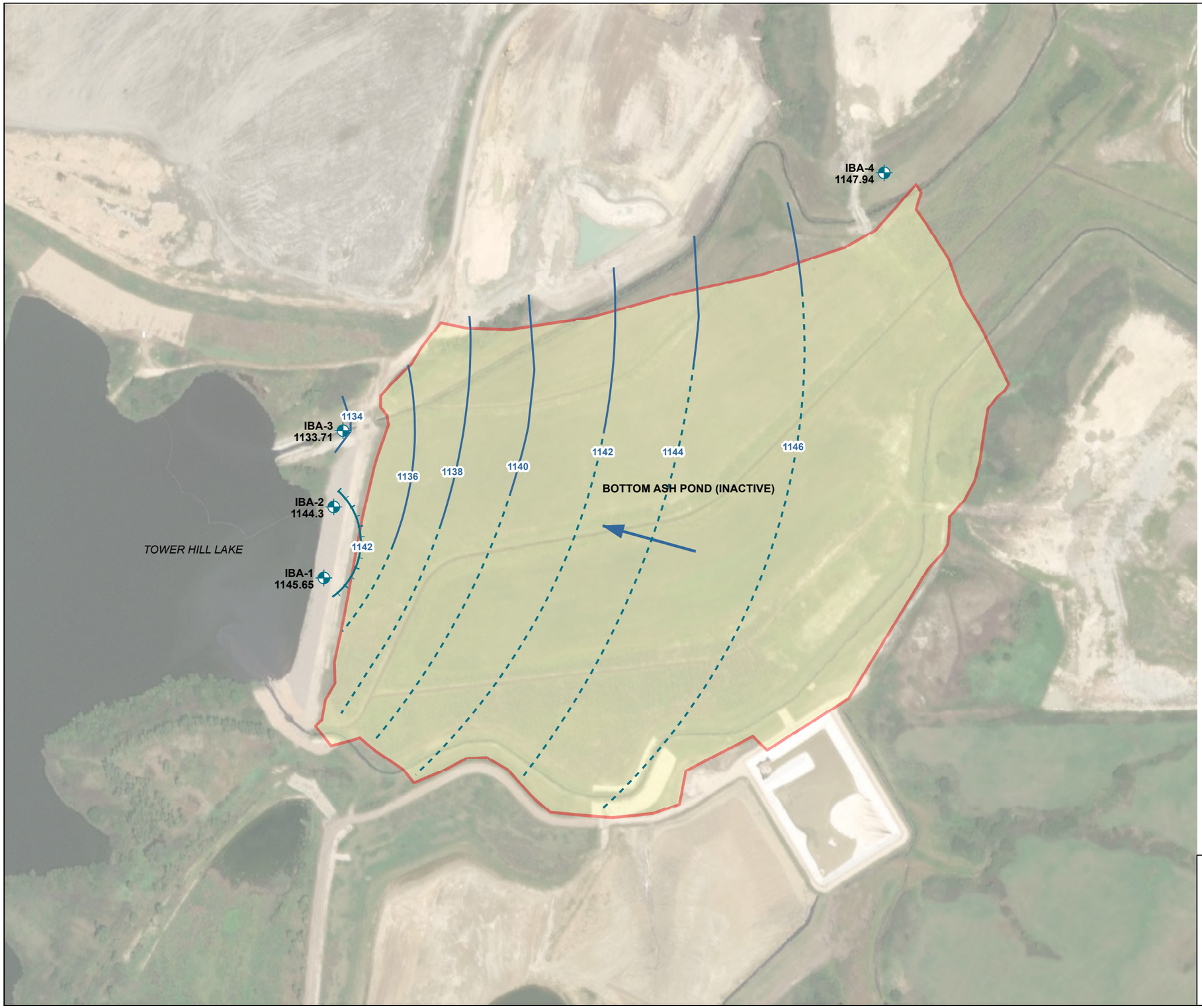
JULY 2021

FIGURE 1



LEGEND

- IBA-3 1132.75 — MONITORING WELL WITH GROUNDWATER ELEVATION (FEET AMSL), SEPREMBER 2020
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC ESTIMATED ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- APPROXIMATE GROUNDWATER POTENTIOMETRIC ESTIMATED ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- GROUNDWATER FLOW DIRECTION
- BOTTOM ASH POND (INACTIVE)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 14 SEPTEMBER 2020.
3. AMSL = ABOVE MEAN SEA LEVEL.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019

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0 330 660
SCALE IN FEET

HALEY ALDRICH

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

BOTTOM ASH POND (INACTIVE) GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP SEPTEMBER 14, 2020

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FIGURE 2

LEGEND

- **IBA-3 1132.75** MONITORING WELL WITH GROUNDWATER ELEVATION (FEET AMSL), NOVEMBER 2020
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC ESTIMATED ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- APPROXIMATE GROUNDWATER POTENTIOMETRIC ESTIMATED ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- GROUNDWATER FLOW DIRECTION
- BOTTOM ASH POND (INACTIVE)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 30 NOVEMBER 2020.
3. AMSL = ABOVE MEAN SEA LEVEL.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019

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SCALE IN FEET

HALEY ALDRICH

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

BOTTOM ASH POND (INACTIVE) GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP NOVEMBER 30, 2020

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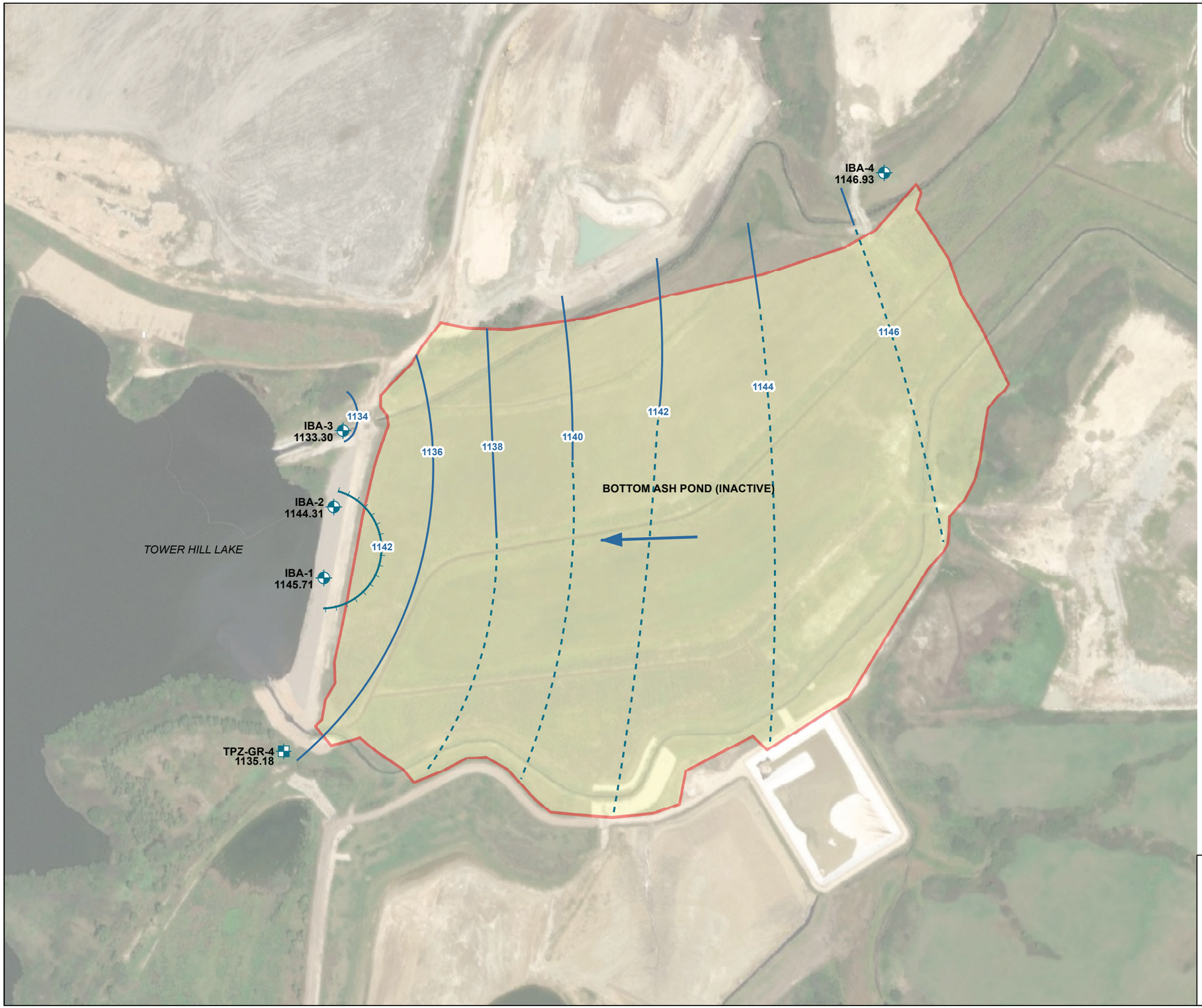
JULY 2021

FIGURE 3



LEGEND

- **IBA-3 1132.75** — MONITORING WELL WITH GROUNDWATER ELEVATION (FEET AMSL), MARCH 2021
- MONITORING WELL
- PIEZOMETER OBSERVATION ONLY
- GROUNDWATER POTENTIOMETRIC ESTIMATED ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- APPROXIMATE GROUNDWATER POTENTIOMETRIC ESTIMATED ELEVATION CONTOUR, 2-FT INTERVAL (AMSL)
- GROUNDWATER FLOW DIRECTION
- BOTTOM ASH POND (INACTIVE)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER POTENTIOMETRIC ELEVATIONS WERE MEASURED 04 MARCH 2021.
3. AMSL = ABOVE MEAN SEA LEVEL.
4. AERIAL IMAGERY SOURCE: ESRI, 3 SEPTEMBER 2019

N

0 330 660
SCALE IN FEET

HALEY ALDRICH

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

BOTTOM ASH POND (INACTIVE) GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR MAP MARCH 4, 2021

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JULY 2021

FIGURE 4