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

August 28, 2025
File No. 0212832

Associated Electric Cooperative, Inc.
Thomas Hill Energy Center
5693 Highway F
Clifton Hill, Missouri, 65244

Attention: Mr. Ryan Bennett
Environmental Analyst

Subject: 2025 Annual Inspection by a Qualified Professional Engineer
Cell 003, Thomas Hill Energy Center
Clifton Hill, Missouri

Dear Mr. Bennett:

Enclosed please find the 2025 Annual Inspection Report for the Associated Electric Cooperative, Inc. (AECI) Cell 003 located at the Thomas Hill Energy Center (THEC) in Clifton Hill, Missouri.

Haley & Aldrich, Inc. completed a site visit for the inspection of the CCR surface impoundment Cell 003 on July 29, 2025. This work was performed on behalf of AECI in accordance with the United States Environmental Protection Agency's Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 40 Code of Federal Regulations Part 257, Subpart D, effective October 19, 2015, including subsequent revisions.

The scope of the work was to: i) complete a review of available information on the impoundment; ii) perform a visual inspection of the impoundment; and iii) prepare the enclosed report. Thank you for inviting us to complete this inspection and please feel free to contact us if you wish to discuss the contents of the report.

Sincerely yours,
HALEY & ALDRICH, INC.

Steven F. Putrich, P.E.
Senior Associate – Principal Consultant

Lee Saunders
Project Manager

cc: Curtis Stundebeck – AECI, Principal Engineer
Jerret Fisher – AECI, Safety & Environmental Specialist
Jason Pokorny – Haley & Aldrich, CCR Program Manager

Enclosures

HALEY ALDRICH

www.haleyaldrich.com

REPORT ON

2025 ANNUAL INSPECTION BY A QUALIFIED PROFESSIONAL ENGINEER
CELL 003 CCR SURFACE IMPOUNDMENT
THOMAS HILL ENERGY CENTER
CLIFTON HILL, MISSOURI

By
Haley & Aldrich, Inc.
Cleveland, OH

For
Associated Electric Cooperative, Inc.
Thomas Hill Energy Center
Clifton Hill, Missouri

File No. 0212832
August 2025

Table of Contents

Page

List of Figures ii
List of Appendices ii

1. Description of Project 1

1.1 INTRODUCTION 1
1.1.1 Authority 1
1.1.2 Purpose of Work 1
1.2 DESCRIPTION OF PROJECT 1
1.2.1 Location 1
1.2.2 Owner/Operator 2
1.2.3 Background of the Impoundment 2
1.3 OPERATIONS AND MAINTENANCE PROCEDURES 2

2. CCR Rule Inspection Report Requirements 3

2.1 40 C.F.R. § 257.83(B)(1) – ANNUAL INSPECTIONS BY A QUALIFIED PROFESSIONAL ENGINEER 3
2.2 40 C.F.R. § 257.83(B)(2) – INSPECTION REPORT 4

3. Inspection Summary and Recommendations 6

3.1 OVERALL IMPOUNDMENT CONDITION OBSERVED 6
3.2 RECOMMENDATIONS 6

4. Certification 7

List of Figures

Figure No.	Title
1	Project Location Map
2	Site Area and Photo Location Map

List of Appendices

Appendix	Title
A	Photo Log

1. Description of Project

1.1 INTRODUCTION

1.1.1 Authority

Haley & Aldrich, Inc. (Haley & Aldrich) was contracted by Associated Electric Cooperative, Inc. (AECI; the Owner) to perform an Annual Inspection of the CCR surface impoundment Cell 003 (pond or Unit) located at the AECI Thomas Hill Energy Center (THEC) in Clifton Hill, Missouri. This work was completed in accordance with the United States (U.S.) Environmental Protection Agency's (EPA's) Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals (CCR) from Electric Utilities, 40 Code of Federal Regulations (C.F.R.) Part 257, Subpart D (Rule), effective October 19, 2015, including subsequent revisions, specifically 40 C.F.R. § 257.83(b).

1.1.2 Purpose of Work

The purpose of this annual inspection was to observe and evaluate the current condition of the CCR surface impoundment and to assess that the design, construction, operation, and maintenance of the CCR surface impoundment is consistent with recognized and generally accepted good engineering practice and standards. The visual inspection is intended to identify signs of distress or malfunction of the CCR surface impoundment, should they exist. This report addresses any signs of potential structural weaknesses and conditions that are disrupting (or have the potential to disrupt) the operations and safety of the CCR surface impoundment – that is, any deficiencies in the context of the CCR Rule, specifically 40 C.F.R. § 257.83(b)(5) – if identified.

The inspection is divided into three parts: i) a review of available information on the CCR surface impoundment (provided by AECI); ii) a visual inspection of the CCR surface impoundment (performed by Haley & Aldrich); and iii) preparation of the enclosed Haley & Aldrich report presenting observations and recommendations for any repairs or corrective measures, as deemed necessary.

1.2 DESCRIPTION OF PROJECT

1.2.1 Location

Cell 003 is a CCR surface impoundment located to the south of the Thomas Hill Energy Center in Clifton Hill, Missouri off U.S. Highway F as shown on **Figure 1**. The plant and impoundment have restricted access, with full-time security. The general configuration of the impoundment is shown in **Figure 2**.

1.2.2 Owner/Operator

The CCR surface impoundment Cell 003 is owned, operated, and maintained by AECI. Additional details are provided below.

	Impoundment Owner/Caretaker
Name	Associated Electric Cooperative, Inc. Thomas Hill Energy Center
Mailing Address	5693 Highway F
Town, State, Zip	Clifton Hill, MO 65244

1.2.3 Background of the Impoundment

Cell 003 was originally designed by Burns & McDonnell in 1978-1979 and was constructed shortly thereafter; in 1984-1985, the present-day embankment and outlet structure were constructed. It operated as part of the "Ash Pond 1" multi-unit wastewater treatment system at THEC and was used as a wet storage of fly ash, bottom ash, boiler slag and sediments from the coal pile runoff. Cell 003 historically received decant water and suspended CCR from Cell 001 via an earthen bypass channel which flowed from Cell 001 and around the non-CCR Cell 002 impoundment, discharging into the northwest corner of Cell 003.

CCR material in the northeastern portion of Cell 003 (approximately 1.5 acres) was removed in 2020 to accommodate the Cell 002 reconfiguration and East Ditch construction. The impoundment ceased receipt of CCR and non-CCR wastestreams generated by THEC as of December 29, 2022 and AECI issued the notification of intent to initiate closure of a CCR surface impoundment on January 27, 2023. CCR removal activities began in March 2025 following completion of initial pond dewatering.

1.3 OPERATIONS AND MAINTENANCE PROCEDURES

Cell 003 is operated and maintained by AECI personnel. Prior to the initiation of closure, former operations and maintenance activities included regulating water levels in the impoundment, regulating and monitoring wastewater discharges to Cell 003, regularly mowing grass, seeding of thinly vegetated areas, control of woody growth, repair of erosions as needed, and weekly inspections. Some of these activities have been modified/ halted to accommodate the ongoing closure activities at the impoundment.

AECI personnel monitor and inspect the impoundment at least once every seven days and maintain inspection results in the operating record as required by the CCR Rule. These weekly inspections include a visual inspection and review of:

- Run-on and run-off controls (including erosion and sediment controls, where applicable);
- Freeboard and pool area;
- Vegetation around the impoundment and embankments;
- Outlet structure and stop logs (including principal spillway); and
- Other indicators of structural stability of the impoundment.

Haley & Aldrich reviewed weekly inspection records for 2025 as part of the annual inspection, which noted all items as meeting expectations (i.e., no need for improvement).

2. CCR Rule Inspection Report Requirements

2.1 40 C.F.R. § 257.83(b)(1) – ANNUAL INSPECTIONS BY A QUALIFIED PROFESSIONAL ENGINEER

40 C.F.R. §257.83(b)(1)(i): A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., CCR unit design and construction information required by §§ 257.73(c)(1) and 257.74(c)(1), previous periodic structural stability assessments required under §§ 257.73(d) and 257.74(d), the results of inspections by a qualified person, and results of previous annual inspections).

Seven-day inspection records performed by qualified AECI staff during 2025 and previous annual inspections were reviewed as part of this annual inspection. Haley & Aldrich spoke with AECI personnel during the site visit on July 29, 2025 regarding the background, operations, and maintenance of the impoundment. Information provided by AECI personnel has been incorporated into this report.

The 2024 Annual Inspection performed by Gredell Engineering Resources, Inc. (GER) on August 15, 2024 listed rapid drawdown induced scarps along the north side of the downstream embankment of Cell 003. The size and frequency of the scarps did not raise a major concern for the embankment stability or operation of the structure. It was suggested to regularly monitor the area to determine when maintenance is appropriate.

The following documents were also reviewed regarding the status and condition of the CCR unit:

- Fugitive Dust Control Plan (October 2015) and Annual Fugitive Dust Control Reports;
- Inflow Design Flood Control System Plan (October 2021);
- Annual Groundwater Monitoring and Corrective Action Reports;
- Period Hazard Potential Classification Assessment (October 2021);
- Periodic Structural Stability Assessment (October 2021);
- Inspection Deficiencies and Remedies Memo (May 2021);
- History of Construction (October 2016); and
- Any work orders generated as a result of the inspections.

Any comments and recommendations resulting from these reviews are provided in **Section 3**, below.

40 C.F.R. §257.83(b)(1)(ii): A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures.

There were no visible signs of distress or malfunction of the CCR surface impoundment Cell 003 or its appurtenant structures at the time of the inspection. The impoundment did not show signs of deviation from the original design.

40 C.F.R. §257.83(b)(1)(iii): A visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.

The outlet structure from Cell 003 consists of a rectangular concrete drop inlet tower equipped with 60 in. wide concrete stop logs. The reinforced concrete principal spillway inlet structure that penetrates the common Cell 003/004 embankment appeared to be intact, stable and properly aligned. Since the commencement of the closure activities, the water inside the impoundment has been removed and the hydraulic structure has not been utilized as per normal operations. The Cell 003 emergency spillway consists of an 18-ft wide riprap-lined channel which is approximately 2 feet in depth located across the crest of the south dike. To provide vehicle access across the riprapped channel, the riprap has been topped off with a layer of crushed stone within the limits of access road. The emergency spillway also appeared to be structurally sound and showed no signs of distress.

2.2 40 C.F.R. § 257.83(b)(2) – INSPECTION REPORT

The qualified professional engineer must prepare a report following each inspection that addresses the following:

40 C.F.R. §257.83(b)(2)(i): Any changes in geometry of the impounding structure since the previous annual inspection.

No changes in geometry of the impounding structure since the previous annual inspection were observed. There was no discernible sag, slumping, bulging or other geometric indications of adverse embankment or slope performance. The embankment showed no signs of instability or unusual movement and had no noticeable deviation from its design. Haley & Aldrich also observed the old berm, located just north of the existing present-day embankment and abandoned in place during the 1984-1985 modifications.

40 C.F.R. §257.83(b)(2)(ii): The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection.

There is no instrumentation pertinent to Cell 003.

40 C.F.R. §257.83(b)(2)(iii): The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection.

Haley & Aldrich is not aware of the maximum depth and elevation of the impounded water and CCR since the previous annual inspection. At the time of the inspection, there was no water present in Cell 003. CCR was observed to be approximately 0 to 8 feet deep in Cell 003 during the inspection. Removal of all remaining water and CCR is anticipated to be completed by the end of 2025.

40 C.F.R. §257.83(b)(2)(iv): The storage capacity of the impounding structure at the time of the inspection.

The remaining storage capacity of the CCR surface impoundment Cell 003 at the time of the inspection is approximately 150 acre-feet.

40 C.F.R. §257.83(b)(2)(v): The approximate volume of the impounded water and CCR at the time of the inspection.

Based on the ongoing CCR removal operations on-site, the approximate volume of the impounded water and CCR at the time of the inspection is estimated to be 50 acre-feet.

40 C.F.R. §257.83(b)(2)(vi): Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures.

There were no appearances of actual or potential structural weakness of the CCR surface impoundment Cell 003. There were no observed conditions disrupting or having the potential to disrupt the operation and safety of the CCR unit and appurtenant structures.

40 C.F.R. §257.83(b)(2)(vii): Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.

At the time of the inspection there were no discernible changes which could have affected the stability or operation of Cell 003 since the previous inspection.

3. Inspection Summary and Recommendations

3.1 OVERALL IMPOUNDMENT CONDITION OBSERVED

Overall, the CCR surface impoundment was observed to be stable and broadly consistent with recognized and generally accepted good engineering standards. Visual inspection of the existing conditions of the impoundment did not indicate any actual or potential structural weakness of the impoundment, or any actual or potential disruptions to normal operations and safety of the impoundment. No changes in overall impoundment geometry were noted since the previous annual inspection, except commencement of CCR removal activities inside the impoundment.

The following items were noted during our site visit. We recommend these be closely reviewed during weekly inspections, as applicable, to proactively mitigate and ensure they do not develop into potential interruptions in the future:

- Vegetation over six inches in height on the slopes of the embankment; and
- Minor rutting of the embankment road.

3.2 RECOMMENDATIONS

Although no deficiencies were identified at the time of the inspection, as referenced 40 C.F.R. § 257.83(b)(5) – *if a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken* – we recommend the following measures be undertaken to address items listed in **Section 3.1** in support of on-going maintenance and operational activities:

- Fill in/ level out the rutting around the impoundment gravel road.
- Maintain vegetation to six inches in height or less.
- Monitor for growth of tall, woody, and invasive vegetation and remove by hand-cutting and/or use of light equipment.

4. Certification

The assessment of the general condition of the CCR surface impoundment Cell 003 is based upon available data and visual observation as described herein. Detailed investigation and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of this report.

In reviewing this report, it should be recognized that the described condition of the CCR surface impoundment is based on visual observations of field conditions at the time of inspection, along with other data made available by AECI to the inspection team. It is important to note that the condition of an impoundment depends on numerous and constantly changing internal and external conditions and is evolutionary in nature. It would be incorrect to assume that the present condition of the impoundment will continue to represent the condition of the impoundment at some point in the future.

In my professional opinion and based on the information presented in this report, the physical condition and ongoing operations and maintenance of the impoundment Cell 003 at the AECI THEC is consistent with recognized and generally accepted good engineering standards and practice.

Signed: _____

Qualified Professional Engineer

Print Name: Steven F. Putrich
Missouri License No.: 2014035813
Title: Principal Consultant
Company: Haley & Aldrich, Inc.

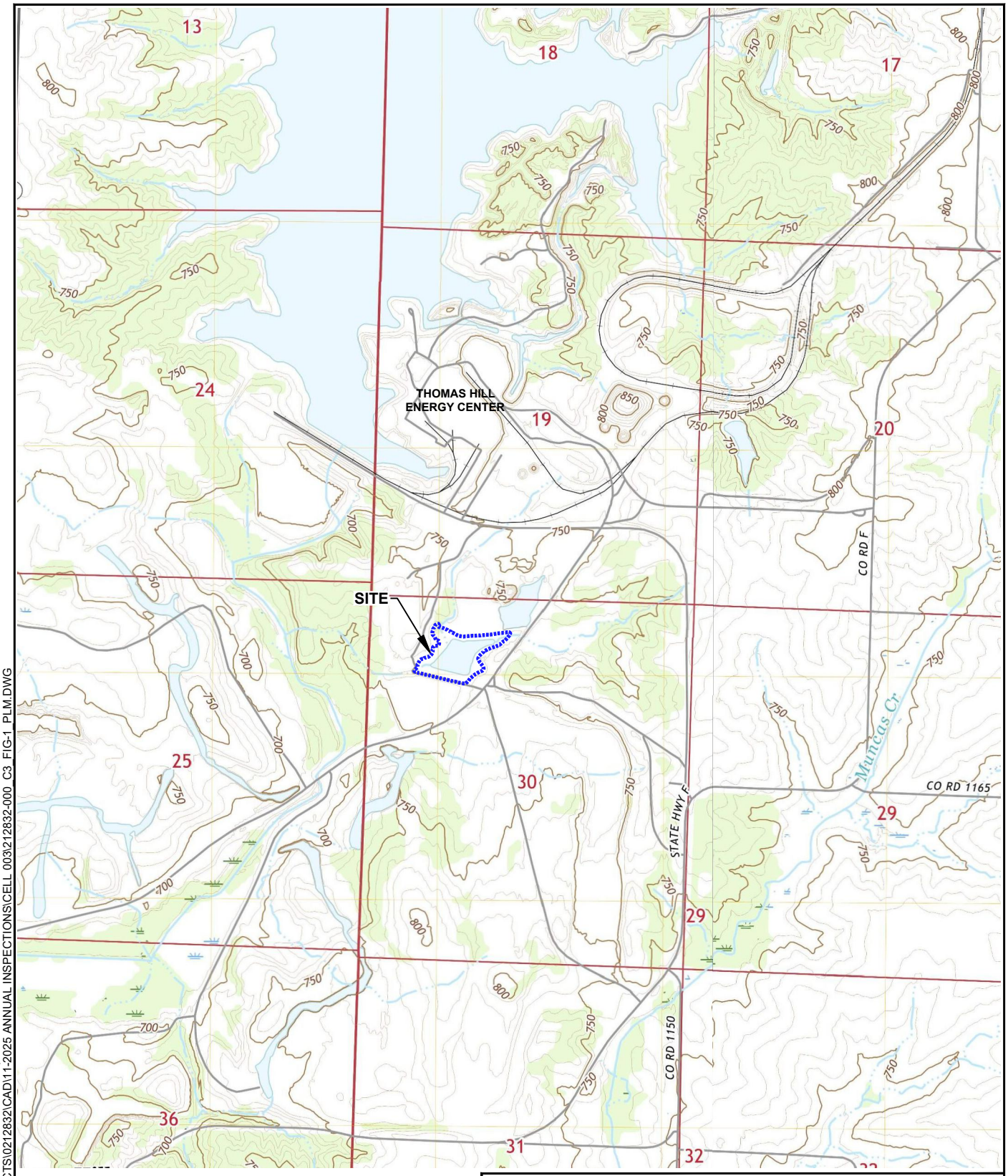
Professional Engineer's Seal and date:

Steven F. Putrich

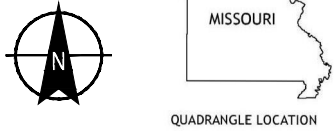
Digitally signed by Steven F. Putrich
Date: 2025.08.28 19:41:04 -04'00'

HALEY ALDRICH

FIGURES



MAP SOURCE:
PRAIRIE HILL AND COLLEGE MOUND QUADRANGLES
MISSOURI, 7.5-MINUTE SERIES, 2021



QUADRANGLE LOCATION

HALEY ALDRICH

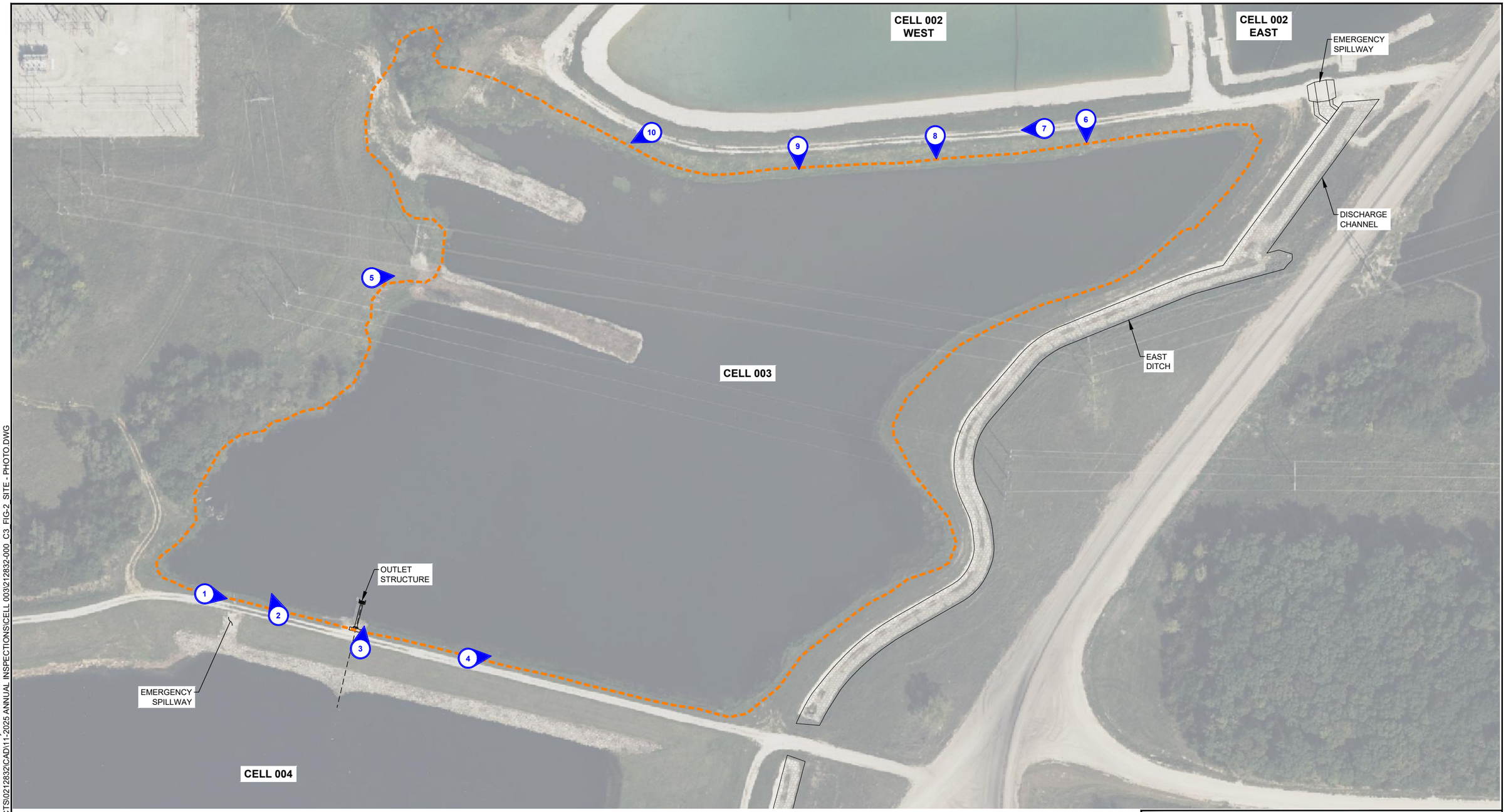
ANNUAL CCR SURFACE IMPOUNDMENT INSPECTION
ASSOCIATED ELECTRIC COOPERATIVE, INC.
THOMAS HILL ENERGY CENTER - CELL 003
CLIFTON HILL, MISSOURI

PROJECT LOCATION MAP

APPROXIMATE SCALE: 1IN = 2000 FT
AUGUST 2025

FIGURE 1

KAUR, RAVLEEN Printed: 8/25/2025 6:35 PM Layout: FIGURE 1
\\HALEYALDRICH\SHARE\CF\PROJECTS\0212832\CAD\11-2025 ANNUAL INSPECTIONS\CELL 003\212832-000_C3_FIG-1_PLM.DWG



LEGEND

- APPROXIMATE LIMITS OF CELL
- 1 PHOTO LOCATION/DIRECTION

NOTES

1. AERIAL IMAGE FROM AUTODESK GEOLOCATION BING MAPS, MOST CURRENT AVAILABLE AS OF FIGURE DATE.
2. LIMITS OF THE CELL BASED ON EXISTING TOPOGRAPHY SURVEYED BY ENGINEERING SURVEYS & SERVICES (ESS) IN MARCH 2023. HORIZONTAL CONTROL IS BASED ON NAD83 DATUM. VERTICAL CONTROL IS BASED ON NAVD88.

N

0 120 240
SCALE IN FEET

HALEY ALDRICH

ANNUAL CCR SURFACE IMPOUNDMENT INSPECTION
ASSOCIATED ELECTRIC COOPERATIVE, INC.
THOMAS HILL ENERGY CENTER - CELL 003
CLIFTON HILL, MISSOURI

SITE AREA AND PHOTO LOCATION MAP

SCALE: AS SHOWN
AUGUST 2025

FIGURE 2

KAUR, RAVLEEN Printed: 8/27/2025 1:22 PM Layout: FIGURE 2
\\HALEYALDRICH\SHARE\CF\PROJECTS\0212832\CAD\11-2025 ANNUAL INSPECTIONS\CELL 003\212832-000_C3_FIG-2_SITE - PHOTO.DWG

APPENDIX A
Photo Log

APPENDIX A – PHOTO LOG
Thomas Hill Energy Center – CCR Surface Impoundment Cell 003 Annual Inspection
Clifton Hill, Missouri
File No. 0212832
Date Photographs Taken: 7/29/25

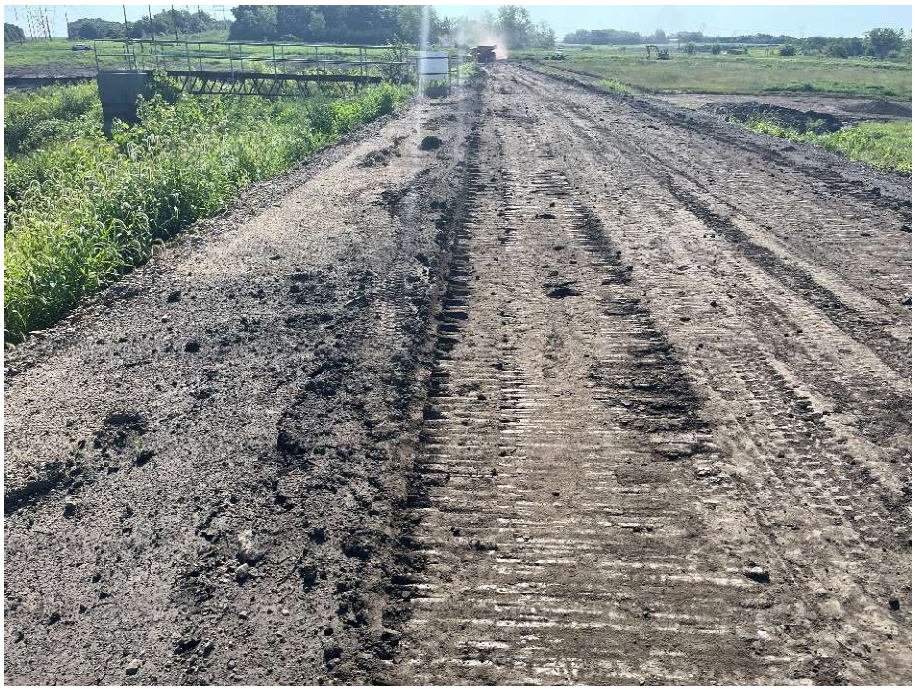


Photo 1: Access road on Cell 003 embankment crest (looking east)

Photo 2: Southwest corner of Cell 003 (looking northwest)

Photo 3: Outlet structure of Cell 003 (looking north)

Photo 4: Abandoned old berm located north of present-day embankment (looking northeast)

Photo 5: Typical view of the impoundment (looking east)

Photo 6: Northeast corner of the impoundment (looking south)

Photo 7: Access road along Cell 002 embankment, north side of Cell 003 (looking west)

Photo 8: Observation well HAOW-002-A on the Cell 002 embankment, north side of Cell 003

Photo 9: Typical view of the impoundment (looking south)

Photo 10: Northwest corner of the impoundment (looking southwest)