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August 28, 2024

Mr. Ryan Bennett, Environmental Analyst
Associated Electric Cooperative, Inc.
2814 S. Golden, P.O. Box 754
Springfield, MO 65801-0754

Re: Pond 001, Cell 1 Professional Engineering Annual Inspection of CCR Impoundment
AECI PO No. TH-116945

Dear Mr. Bennett:

GREDELL Engineering Resources, Inc. (GER) conducted the annual inspection by a qualified professional engineer of Pond 001, Cell 1 at Associated Electric Cooperative's (AECI) Thomas Hill Energy Center (THEC), as required by 40 CFR 257.83 (b) to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted engineering standards. Wayne Elliott, E.I., GER, under the supervision of Bruce Dawson, P.E., GER, conducted an on-site inspection of Pond 001, Cell 1 (Cell 1) on August 15, 2024. The following is the inspection report required by 40 CFR 257.83 (b) (2).

REVIEW OF AVAILABLE INFORMATION

Per 40 CFR 257.83 (b) (1), this inspection included:

> ***(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).*

GER reviewed the following documents as part of this inspection:

- Weekly inspection reports for 2023 and 2024 provided by AECI THEC,
- "Cell 001 Closure and Reconfiguration" Permit Drawings, Thomas Hill Energy Center, Clifton Hill, Missouri by Haley & Aldrich, Inc., Cleveland, Ohio, dated July 2021, Project No. 128064-017, and
- "Pond 001, Cell 1 Professional Engineering Annual Inspection of CCR Impoundment" dated August 28, 2023 by GER.

ON-SITE OBSERVATIONS

Per 40 CFR 257.83 (b) (1), this inspection included:

> ***(ii)*** *A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures;*

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There were no visible signs of distress or malfunction of Cell 1 or its appurtenant structures at the time of this inspection.

(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 reinforced concrete principal spillway inlet structure of Cell 1 appeared to be intact, stable, and properly aligned. The structure displayed no signs of concrete spalling or cracking that would impair structural integrity, there was no visible exposed reinforcing steel, and the structure appeared to be in functional vertical and horizontal alignment. The principal spillway structure can be fitted with stop logs to control impoundment levels and stop logs were in place at the time of this inspection. The principal spillway discharges via a 30-inch diameter reinforced concrete pipe. Direct observation of the principal spillway discharge pipe will require remote controlled inline camera inspection or confined space entry protocols and was not attempted during this inspection. The visible ends of the pipe were intact and appeared to be in good condition.

Per 40 CFR 257.83 (b) (2), the following observations are noted:

(i) *Any changes in geometry of the impounding structure since the previous annual inspection;*

There were no obvious visible changes to the impounding structure since the prior annual inspection by GER in 2023. The embankment crest and slopes were of uniform line and grade. There was no discernible sag, slumping, bulging or other geometric indications of adverse embankment or embankment foundation performance.

(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 of Cell 1.

(iii) *The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection;*

GER is not aware of any minimum and maximum water level or CCR records for Cell 1. The water level in Cell 1 was approximately elevation 736.1 feet, NAVD 88. Water depth at the principal spillway riser structure was approximately 2.0 feet, and the water depth at the more shallow eastern edge of the pond was approximately 1.0 feet. CCR in the cell was negligible.

(iv) *The storage capacity of the impounding structure at the time of the inspection;*

Based on Cell 001 Closure and Reconfiguration Permit Drawings, Thomas Hill Energy Center, Clifton Hill, Missouri by Haley & Aldrich, Inc., Cleveland, Ohio, dated July 2021, Project No. 128064-017, GER

estimated the available storage capacity of Cell 1 with all stop logs installed at the principal spillway inlet structure (elevation 743 feet) is about 25 acre-feet.

(v) *The approximate volume of the impounded water and CCR at the time of the inspection;*

There was no significant volume of CCR within Cell 1 at the time of this inspection. The volume of water at the time of inspection is approximately 2.2 acre feet.

(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 Cell 1 structures, nor any observed existing conditions disrupting or having the potential to disrupt the operation and safety of Cell 1 and its appurtenant structures.

(vii) *Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.*

None observed.

Per 40 CFR 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.*

No visual evidence of a deficiency or release was identified during this inspection.

GENERAL COMMENTS and RECOMMENDATIONS

The interior berm slopes in Cell 1 are armored with clean rock fill, and erosion of this rock fill was observed in the previous 2023 annual inspection by GER in the northeast corner of the cell along both sides of the inlet pipe. This minor erosion was observed to have been repaired in 2024. GER recommends continued weekly monitoring of this area.

Minor erosion of the gravel parking lot southwest of the CDT and the gravel ramp accessing the bottom of Cell 1 was observed in the 2024 inspection. Backfilling the erosion and regrading is recommended along with continued monitoring of these areas.

This previous 2023 annual inspection noted limited pooling in equipment ruts directly south of the CDT at the toe of the embankment. This pooling was not observed in 2024. The facility area had been receiving rainfall during the weeks leading up to the inspections in 2023 and 2024. Weekly monitoring should continue to evaluate possible seepage in these areas.

An area of sparsely vegetated ground approximately 40-feet long and 30-feet wide was noted extending west from the northeast corner of Cell 1 beginning at the upper edge of the clean rock armor. A second small area of sparse vegetation was noted 100 feet west of the northeast corner of Cell 1. We recommend that areas of bare ground or sparse vegetation be overseeded with an appropriate seed mix during the fall seeding season.

This concludes the 2024 annual inspection by a qualified professional engineer of Pond 001, Cell 1 at Associated Electric Cooperative's Thomas Hill Energy Center, as required by 40 CFR 257.83 (b). GER appreciates this opportunity to serve AECI THEC. If you have any questions or require additional information, please contact me at (573) 659-9078.

Sincerely,

STATE OF MISSOURI
BRUCE DAWSON
NUMBER E-22331
REGISTERED PROFESSIONAL ENGINEER

8/28/24

Bruce Dawson, P.E.
Principal Geotechnical Engineer, Vice President

C: Thomas R. Gredell, P.E., President
Mikel C. Carlson, R.G., Principal Geologist, Vice President
Jerret Fisher, Safety & Environmental Specialist, AECI - THEC