EMERGENCY ACTION PLAN

MEREDOSIA COAL COMBUSTION RESIDUALS SURFACE IMPOUNDMENTS (CCR SIs)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY W1370300005

PREPARED BY:

AMEREN ENERGY GENERATING COMPANY

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1.0 PURPOSE

The purpose of this Emergency Action Plan (EAP) is three-fold:

A. to define the procedures which will be used to identify unusual conditions which may endanger Meredosia CCR SIs and specify the actions to be taken to mitigate any such dangerous condition;

B. to define specific responsibilities and procedures which will be followed to notify appropriate Ameren personnel; and

C. to safeguard lives and reduce property damage in the event of an emergency.

Pursuant to 35 Ill. Adm. Code 845.520(b) the EAP must:

1) Define the events or circumstances involving the CCR surface impoundment that represent a safety emergency, along with a description of the procedures that will be followed to detect a safety emergency in a timely manner;

2) Define responsible persons, their respective responsibilities, and notification procedures for a safety emergency involving the CCR surface impoundment;

3) Provide contact information of emergency responders;

4) Include a map that delineates the downstream area that would be affected if a CCR surface impoundment fails and a physical description of the CCR surface impoundment; and

5) Include provisions for an annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR surface impoundment and the local emergency responders.

2.0 DESCRIPTION

This EAP has been prepared for the AmerenEnergy Medina Valley Cogen, LLC (Ameren) former Meredosia CCR SIs. Ameren completed closure activities for the Bottom Ash and Fly Ash ponds in 2018-2019. Ameren completed closure of the Old Ash pond in the early 1970's.

The Old Ash Pond was decommissioned and capped during the 1970's (Kleinfelder West, Inc., 2011). Ameren completed closure activities for the Fly Ash Pond and Bottom Ash Pond in 2018-2019 in accordance with the Closure Plan (Geotechnology, Inc., 2018a) approved by the Illinois EPA. Closure activities, which included grading, placement of a high-density polyethylene (HDPE) geomembrane covered with ClosureTurf®/ArmorFill® synthetic turf, and construction of surface water control structures, began in March 2018 and were completed as of December 5, 2018. The current groundwater monitoring network comprises 12 monitoring wells, including five installed in October 2010 (APW-1 through APW-5), four installed in October 2015 (APW-6 through APW-9), and three installed in August 2018 (APW-10 through APW-12). The monitoring wells were installed to define the lateral extent of impacts on site, as well as to assist in future groundwater monitoring of remedial actions.

In conjunction with Ameren's request for approval of the Closure Plan, Ameren submitted a Groundwater Management Zone Plan, Fly Ash and Bottom Ash Pond, Meredosia Power Station (Geotechnology, Inc., 2016b) and a request to establish the Groundwater Management Zone (GMZ) pursuant to 35 IAC 620.250(a)(2): Ash Ponds Closure, Groundwater Management Zone Application, dated October 17, 2017, which was approved by the Illinois Environmental Protection Agency (IEPA) on November 1, 2017.

In accordance with the Agency approved Closure/Post-Closure Plan, inspections of the cover system are performed on a quarterly schedule. Routine maintenance activities are performed at the Fly Ash Pond and Bottom Ash Pond, as needed and as soon as practicable after issues are identified, and may include recontouring the ground surface, repairing drainage channels, repairing and replacing lining material, revegetating areas, and removing woody vegetation. Maintenance activities can be found in more detail in the Post-Closure Care Plan (Geotechnology, Inc., 2018b). Site inspections include assessment of the condition and need for repair of final cover and vegetation, as wells as fencing, monitoring points, and surface water control features.

3.0 CLASSIFICATION OF EMERGENCY CONDITIONS

3.1 Failure Has Occurred or Is Imminent –CONDITION A

Failure shall be deemed imminent for any of the following conditions:

A. a breach in the earth embankment; or

B. sudden and severe sliding or cracking of the earth embankment; or

3.2 Potential Failure Situation Is Developing – CONDITION B

This is a situation where a failure may eventually occur but actions may be taken to moderate or alleviate failure. A failure situation shall be deemed to be developing for any of the following conditions:

A. unaccounted for seepage or any increase in the rate of flow of any existing seep;

B. muddy water discharge from any part of the earth embankment or concrete joints, cracks, or openings; or

C. “boils” forming in the embankment or downstream areas;

4.0 PROBLEMS - DETECTION, EVALUATION AND RESPONSE

The following problems are indicators of a potential or actual emergency.

4.1 Burrow Holes

Animal burrows should be backfilled as fully as possible with impervious material as soon as practicable upon their discovery. If rodents become a nuisance, an effective rodent control program, as approved by the Illinois Department of Natural Resources District Wildlife Biologist, should be implemented. Note: some animal holes (such as crayfish) will have soil pushed out around the hole in a circular fashion which may look like a 'boil' (see discussion below). These areas should be watched for the movement of water and soil particles from the holes to determine whether they are boils.

4.2 Cracks

A. Some cracking of the embankment's surface soils may occur when they become dry and is to be expected during prolonged periods of little or no rain. No action is required for this situation except to monitor the condition to ensure the detection of possible more serious problems as described below.

B. A longitudinal crack can indicate the beginning of a slide or an uneven settlement of the embankment and therefore must be periodically monitored. If appreciable growth in any dimension is noted, a qualified engineer should be contacted for assistance in the evaluation of the crack and recommended repairs.

C. A transverse (across from upstream to downstream) crack can indicate uneven settlement or the loss of support below the crack and therefore must be periodically monitored If appreciable growth in any dimension is noted, a qualified engineer should be contacted for evaluation of the crack and recommended action.

4.3 Seepage

A. Seepage areas on the downstream embankment slope, or in any other area downstream of the embankment, may exhibit little or no surface water or very minor seeps. This condition may be caused by infiltration of rainwater and is typically not serious. No action is required for this situation except to note the location and monitor the condition to ensure the detection of possible more serious problems as described below.

B. If a wet area develops moderate seeps of clear or relatively clear water but the rate of flow <u>is not</u> increasing, the flow should be measured periodically

and observed for any changes in water clarity. No immediate action is required except to note and record the flow rate and clarity for future comparison.

C. If a wet area develops moderate seeps of clear or relatively clear water and the rate of flow is increasing, the flow must be measured periodically and any changes in water clarity must be noted and recorded. The downstream area should be inspected for any new seeps and **a qualified engineer should be contacted for an immediate inspection.** The condition should be observed and monitored constantly for any further changes in flow rate or clarity unless directed otherwise by the engineer.

4.4 Boils

Boils are deposits of soil particles in the form of a cone around a point of discharging water. Boils can vary from a few inches to several feet in diameter and may occur 2 to 3 feet apart or in isolated locations. Evaluation of and response to the problem is the same as noted under the **Seepage** discussions above for the various flow conditions, i.e., clear and constant, clear and increasing, and cloudy or muddy and increasing.

4.5 Slides

A slide is the movement of a portion of the embankment, either the upstream or downstream slope, toward the toe of the embankment. The following are three possible slide conditions, listed in order of severity.

A. The slide does not pass through the crest. **A qualified engineer should be consulted before any repairs are initiated to determine the cause of the slide and to recommend any modifications to prevent future slides**. The downstream side of the embankment should be watched for the emergence of any water either through the slide or opposite the slide. If discharging water is noted, the area of the slide should be treated as a seepage location and monitored as noted above.

B. The slide passes through the crest. This condition is critical. **A qualified engineer shall be retained immediately for an inspection, evaluation and recommended action.**

5.0 SPECIFIC RESPONSIBILITIES UNDER THE PLAN

5.1 Ameren Personnel Responsibilities

A. Onsite Personnel

The Meredosia electric generating plant has not been operational since 2011. All buildings and structures have been removed from the site. Ameren does not have any employees at the site on a regular basis. Individuals enter the site for purposes of monitoring post-closure conditions as provided in the IEPA approved post-closure plan.

B. EAP Coordinator

The Ameren Manager of Environmental Services, Craig Giesmann, 314-315-3035. is the EAP coordinator and will be responsible for all EAP related activities, including preparing revisions to the EAP and conducting exercises related to the EAP. Mr. Giesmann will be the EAP contact if any involved parties have questions about the plan. Following termination of any emergency, the EAP coordinator will complete a follow-up evaluation with all responders during the emergency. The results of the evaluation and any recommended procedural changes to the Emergency Action Plan will be documented in a written report. The report will be provided to any emergency responders whose responsibilities may be affected by the changes.

C. Annual Meeting

The Meredosia electric generating plant has not been operational since 2011. The Bottom Ash and Fly Ash ponds closed in 2018-2019 and are being monitored under the terms of the IEPA approved post-closure care plan. Because of the low risk of any emergency impacting human health or the environment due to the site already being in post-closure, Ameren has not held annual face-to-face meetings or exercises with local emergency responders since post-closure began in 2019. Ameren will begin holding an annual meeting with local emergency responders in 2022 face-to-face, in person or electronically. Ameren will document the annual face-to-face meeting with local emergency responders as required by Section 845.520(b)(5) and will place this documentation in the facility's operating record as required by Section 845.800(d)(11).

5.2 Non-Ameren Personnel Notification Responsibilities

A. Morgan County 911 Communication Center

For **Emergency Condition A**, the Morgan County 911 Communication Center will:

a. contact the Morgan County ESDA Coordinator;

b. contact the IDOT operations office, and communication center concerning the emergency; and
c. contact the Morgan County Highway Department.

For **Emergency Condition B**, the Morgan County 911 Communication Center will contact the Morgan County ESDA Coordinator.

B. Morgan County Sheriff

As appropriate, the Morgan County Sheriff's Office will coordinate the closure of affected local roads with county and township personnel.

C. Morgan County ESDA Coordinator

As appropriate, the Morgan County, ESDA Coordinator will provide supporting services during and after the emergency.

6.0 INUNDATION AREA

6.1 Inundation Maps

In September 2017, Ameren submitted to the Illinois Department of Natural Resources (IDNR) a request for a permit change status at the Meredosia site to de-classify the embankments at the Fly Ash Pond and Closed Ash Pond as abandoned dams. A liquefaction analysis performed by Geotechnology was provided. Geotechnology performed liquefaction analysis of the impounded material within Fly Ash Pond and Old Ash Pond. In summary, six – approximately 25 feet deep cone penetration test (CPT) soundings were performed in the Old Ash Pond and eight- approximately 25 feet CPT soundings were performed in the Fly Ash Pond. Direct push samples from the impounded ash were collected to a depth of approximately 24 feet in the Old Ash Pond and approximately 24 feet in the Fly Ash Pond. The CPT data indicates interbedded layers of material that respond to CPT advancement similar to clay, silty clay, silty sand, and sand in the Fly Ash Pond and interbedded layers of sand and silty sand in the Old Ash Pond. The laboratory testing indicated the sampled material in the Fly Ash Pond was fine grained in nature having approximately 98 and 99 percent passing the #200 sieve. The sampled material in the Old Ash Pond indicated the material is coarser in nature with approximately 4 percent passing the #200 sieve. Geotechnology analyzed the CPT data for liquefaction potential and dynamic (post liquefaction) settlement utilizing a design PGA of 0.08g and an earthquake magnitude of 7.5. The analysis incorporated the results of the laboratory tests to refine the fines content within the soundings.

Based on the liquefaction results there were not potentially liquefiable layers identified within the impounded ash. The final surface configuration for the impoundments were designed to prevent re-saturation of the impounded material by using a cap system. Based on this information, Ameren requested that the embankments at Fly Ash Pond and Closed Ash Pond be de-classified and removed from regulatory jurisdiction.

In April 2019 as a result of the physical modifications resulting from completion of the IEPA approved closure and considering the conclusion of the investigation, IDNR stated the status of the impoundments as follows:

> Bottom Ash Pond – IL50707 – A portion of the embankment has been removed. The structure is no longer capable of impoundment and does not meet the definition of a dam under the Part 3702 rules.
>
> Fly Ash Pond – IL50708 – The investigation shows that the material within the structure is no longer capable of acting as a fluid. By definition, the structure is no longer intended to provide impoundment and is not considered to be a dam.

> Old Ash Pond – IL50709 – The investigation shows that the material within the structure is no longer capable of acting as a fluid. By definition, the structure is no longer intended to provide impoundment and is not considered to be a dam.

IDNR concluded that there were no structures at the Meredosia Power Station which are jurisdictional under the Part 3702 rules. No further reporting was required and access by IDNR for inspection of the structures was no longer required.

Based on the results of the liquefaction analysis and the seismic and static stability analysis performed by Geotechnology, there is a very low risk of surface manifestation of liquefaction or damage to the Fly Ash Pond and Closed Ash Pond embankments during a seismic event. Since there is a low risk of surface manifestation of liquefaction or damage to the embankments during a seismic event, inundation maps are not appropriate relative to the Meredosia CCR SIs.

6.2 Potentially Impacted Structures List

Ameren has not identified any residential or other structures that could potentially be impacted in an emergency.

Licensed Professional Signature

I hereby affirm that all information and design contained in this Emergency Action Plan is true and accurate to the best of my knowledge and belief in accordance with good engineering practice.

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Signature: Michael J. Wagstaff Date: 10/27/2021