

MWVG

Midwest Generation, LLC
Waukegan Generating Station

East Ash Pond Closure Plan



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Issue Purpose: Use

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1.0 INTRODUCTION & PURPOSE

Federal CCR Rule Reference: 40 CFR 257.102(b)

Pursuant to 40 CFR 257.102(b), this document provides the written closure plan for the East Ash Pond at Midwest Generation, LLC's (MWG) Waukegan Generating Station ("Station") in Waukegan, Illinois. The East Ash Pond is a coal combustion residual (CCR) surface impoundment as defined in 40 CFR 257.53. MWG intends to close this CCR surface impoundment by leaving the impounded CCR in place and installing a final cover system over the impoundment in accordance with 40 CFR 257.102(d). This plan describes the steps necessary to close the East Ash Pond in this manner.

2.0 CLOSURE PLAN NARRATIVE DESCRIPTION

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(i) & 257.102(d)(1)

Pursuant to 40 CFR 257.102(d), the East Ash Pond will be closed by leaving the CCR in-place and installing a final cover system over the impoundment. The final cover system will be designed in accordance with the requirements outlined in 40 CFR 257.102(d)(3) and as described in the following sections of this closure plan.

The anticipated closure-in-place of the East Ash Pond will be performed in accordance with the following sequential steps:

1. Ceasing all CCR and non-CCR inflows to the East Ash Pond;
2. Drawing down free surface water in the pond by evaporation and by draining water into the Recycle Water Sump in the northwest corner of the pond;
3. Once the water elevation is below the Recycle Water Sump's overflow weir elevation, promoting additional drainage and dewatering by:
 - a. Excavating sumps and trenches within the ash material;
 - b. Using portable pumps as necessary to remove additional water by pumping water over the weir into the Recycle Water Sump; and/or
 - c. Utilizing earthmoving equipment to move the ash within the pond;
4. Upon completion of dewatering and stabilization of the impounded ash, grading the ash material to establish the slopes of the final cover system. Placing and grading general fill material within the pond if enough ash is not available in the pond to establish the slope of the final cover system;
5. Installing the infiltration-control layer of final cover system;
6. Installing the erosion-control layer over the infiltration-control layer;
7. Seeding the erosion-control layer; and
8. Initiating post-closure monitoring of vegetation, groundwater, and final cover system integrity.

3.0 FINAL COVER SYSTEM DESCRIPTION

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(iii) & 257.102(d)(1)

Pursuant to the closure performance standards prescribed in 40 CFR 257.102(d)(1), the final cover system encapsulating the CCR in the East Ash Pond will:

1. Minimize the post-closure infiltration of liquid into the CCR;
2. Minimize the risk of release of CCR or contaminated run-off to the ground or surface waters, or to the atmosphere;
3. Preclude the probability of future impoundment of water, sediment, or slurry;
4. Provide major slope stability to prevent sloughing of the final cover system during the post-closure care period;
5. Minimize future maintenance; and
6. Allow closure activities to be completed as quickly as practical consistent with recognized and generally accepted good engineering practices.

In addition to the preceding performance criteria, the final cover system installed over the East Ash Pond must meet the design criteria promulgated by 40 CFR 257.102(d)(3), which requires the final cover system to consist of at least two layers: a lower, infiltration-control layer and an upper, erosion-control layer. MWG plans to install a final cover system over the East Ash Pond that consists of a 60-mil HDPE geomembrane (or another geosynthetic material) under a minimum of six inches of vegetated, earthen material.

3.1 ESTABLISH GRADE & SUPPORT FOR FINAL COVER SYSTEM

Federal CCR Rule Reference: 40 CFR 257.102(d)(1)(ii), 257.102(d)(1)(iii), & 257.102(d)(3)(i)(D)

To accomplish the performance requirements stipulated by 40 CFR 257.102(d), the CCR remaining in the East Ash Pond will be graded to direct non-contact storm water run-off to the Recycle Water Sump in the northwestern corner of the pond. Additional general fill material will be placed in the pond to establish the lines and grades for this storm water management scheme if sufficient quantities of CCR are not present in the pond for this purpose at the time of closure. The slopes of this foundation layer for the East Ash Pond's final cover system will be steep enough to prevent storm water from ponding over the cap but flat enough to limit erosion caused by the storm water run-off. These slopes will also be designed to accommodate potential settling and subsidence while maintaining a positive drainage strategy. Finally, the foundation layer slopes (and the final cover system in general) will also include measures that provide slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period.

3.2 INFILTRATION-CONTROL LAYER

Federal CCR Rule Reference: 40 CFR 257.102(d)(1)(i) & 257.102(d)(3)(ii)(A)

An infiltration-control layer will be placed on top of the graded CCR (and general fill if necessary) to minimize the infiltration of liquids through the East Ash Pond during its post-closure life. The infiltration-control layer will control, minimize, and eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere.

Pursuant to 40 CFR 257.102(d)(3)(i)(A) and (B), the infiltration-control layer for the East Ash Pond's final cover system must:

- Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} cm/sec, whichever is less; and
- Contain a minimum of 18 inches of earthen material.

The East Ash Pond has a 60-mil HDPE geomembrane liner, and therefore the pond's final cover system must have a permeability that is equal to or less than the effective permeability of this geomembrane liner. In lieu of using earthen materials to minimize the infiltration of liquids through the closed pond, MWG plans to install an alternative infiltration-control layer pursuant to 40 CFR 257.102(d)(3)(ii)(A). To provide an equivalent or superior reduction in infiltration as the infiltration-control layer specified in 40 CFR 257.102(d)(3)(i)(A) and (B), MWG plans to install a 60-mil HDPE geomembrane for the final cover system's infiltration-control layer or another geosynthetic material that has an equivalent hydraulic flux of not more than 1×10^{-7} cm/sec.

3.3 EROSION-CONTROL LAYER

Federal CCR Rule Reference: 40 CFR 257.102(d)(3)(ii)(B)

An erosion-control layer consisting of a minimum of six inches of earthen material capable of sustaining native plant growth will be provided to minimize erosion of the final cover system. The erosion-control layer will also be designed to minimize root penetration into the infiltration-control layer.

4.0 ESTIMATED MAXIMUM INVENTORY OF CCR

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(iv)

Detailed records of the maximum inventory of CCR ever stored in the East Ash Pond are not available. For the purposes of this closure plan, the maximum CCR inventory for the pond is conservatively based on the estimated maximum capacity of the pond, which is 184,000 cubic yards..

5.0 ESTIMATED COVER SURFACE AREA

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(v)

The estimated final cover surface area for the East Ash Pond is 9.8 acres. It is estimated that this area represents the largest surface area that will ever require a final cover at any point over the pond's active life.

6.0 CLOSURE SCHEDULE

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(vi)

Closure of the East Ash Pond is estimated to be completed by 2025. Table 1 lists the major milestones necessary for closing the East Ash Pond and the expected duration for completing each milestone. Prior to initiating closure, a notice of intent to close will be prepared in accordance with 40 CFR 257.102(g). Initiation of closure activities will occur once all flows into the East Ash Pond have ceased and any of the following actions have been completed pursuant to 40 CFR 257.102(e)(3):

- Taken any steps necessary to implement this written closure plan,
- Submitted a completed application for any permit or permit modification required by the Illinois Environmental Protection Agency (EPA), or
- Taken any steps necessary to comply with any Illinois EPA standard that is a prerequisite, or is otherwise applicable, to initiation or completing closure of the East Ash Pond

Table 1 – Planning Level Schedule for Closing the East Ash Pond

Activity	Estimated Duration
Prepare Closure Construction Design Documents	8 Months
Obtain Closure Construction Permit from Illinois EPA	12 Months
Cease All Flows into East Ash Pond	--
Draw Down Water & Dewater Impounded Ash	14 Months
Grade Dewatered Ash	3 Months
Install Final Cover System	3 Months
Complete and Certify Closure	--

7.0 AMENDMENTS TO CLOSURE PLAN

Federal CCR Rule Reference: 40 CFR 257.102(b)(3)

This closure plan will be amended in accordance with 40 CFR 257.102(b)(3) if a change in the operation of the East Ash Pond would substantially affect this closure plan or if an unanticipated event necessitates a revision to this closure plan. Any and all amendments to this closure plan will be certified by a qualified professional engineer registered in the State of Illinois in accordance with 40 CFR 257.102(b)(4).

8.0 COMPLETION OF CLOSURE ACTIVITIES

Federal CCR Rule Reference: 40 CFR 257.102(f)(3)

Upon completion of all closure activities for the East Ash Pond, MWG will obtain a certification from an independent, qualified professional engineer licensed in the State of Illinois verifying that the East Ash Pond has been closed in accordance with the closure plan in effect at the time of closure and in accordance with the corresponding construction permit issued by the Illinois EPA.

9.0 CERTIFICATION

Federal CCR Rule Reference: 40 CFR 257.102(b)(4)

I certify that this amendment to the closure plan for the East Ash Pond meets the requirements for a written closure plan pursuant to 40 CFR 257.102(b).

I certify that this document was prepared by me or under my direct supervision and that I am a licensed professional engineer under the laws of the State of Illinois.

Certified By: Thomas J. Dehlin

Date: April 9, 2021

Seal:

