

CLOSURE PLAN

OAC 252:517-15-7 (b)

Bottom Ash Pond

Northeastern Power Station Unit 3
Oologah, Oklahoma

Initial: October, 2016
Rev. 1: May, 2019
Rev. 2: April, 2022
Rev. 3: August, 2022
Rev. 4: April, 2023
Rev.5: November, 2023

Prepared for: Public Service Company of Oklahoma
Oologah, Oklahoma

Prepared by: American Electric Power Service Corporation
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Document Number: GERS-23-003

CLOSURE PLAN
OAC 252:517-15-7(b)
NORTHEASTERN POWER STATION UNIT 3
BOTTOM ASH POND

PREPARED BY:  DATE: 11-13-2023
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APPROVED BY:  DATE: 11/28/2023
Bryan W. Brunton, P.E.
Manager, AEP Geotechnical Engineering



I certify to the best of my knowledge, information, and belief that the information contained in this closure plan meets the requirements of OAC 252:517-15-7.

Table of CONTENTS

1.0 OBJECTIVE.....	4
2.0 DESCRIPTION OF THE CCR UNIT.....	4
3.0 DESCRIPTION OF CLOSURE PLAN OAC 252:517-15-7 (b)(1)(A).....	5
4.0 DESCRIPTION OF THE CLOSURE BY REMOVAL PROCEDURES	
OAC 252:517-15-7 (b)(1)(B)	5
5.0 CLOSURE BY REMOVAL OF CCR OAC 252:517-15-7 (c).....	7
6.0 ESTIMATE OF MAXIMUM CCR VOLUME OAC 252:517-15-7 (b)(1)(D)	7
7.0 CLOSURE SCHEDULE OAC 252:517-15-7 (b)(1)(F).....	8
8.0 CLOSURE PLAN AMENDMENTS	9

1.0 OBJECTIVE

This report was prepared by American Electric Power (AEP) - Geotechnical Engineering Services (GES) section to fulfill requirements of OAC 252:517-15-7(b) Written Closure Plan for an existing coal combustion residuals (CCR) Surface Impoundment. The purpose of this Closure Plan is to, among other required elements, describe the means and methods of American Electric Power/Public Service Company of Oklahoma's (AEP/PSO's) current proposed approach to initiate and complete closure of the Northeastern Power Station's (NES's) Bottom Ash Pond (BAP) including the schedule for closure activities.

2.0 DESCRIPTION OF THE CCR UNIT

The new NES Unit 3 is located near the City of Oologah, Rogers County, Oklahoma. It is owned and operated by the PSO. The facility operates one surface impoundment for storing CCR and non-CCR waste streams called the BAP (Figure 1).

The embankment is about 4,200 feet long, encompassing about 72 acres with about 34 acres of surface water. The dam crest gradually increases in elevation from about 630 feet-msl at the north berm east of the auxiliary spillway, to about elevation 639 feet-msl at the south berm where it meets the coal storage area on the east side. The embankment was constructed across a first order tributary to Fourmile Creek leaving the site to the south where the embankment is at its highest height, 38 feet from the crest to the toe of the dam. A railroad track extends the length of the crest, typically used to remove empty coal cars from the site. Bottom ash is handled wet and sluiced to the BAP, it is also available for beneficial reuse.



Figure 1 – Site Layout of Bottom Ash Pond (BAP)

3.0 DESCRIPTION OF CLOSURE PLAN OAC 252:517-15-7 (b)(1)(A)

[A narrative description of how the CCR unit will be closed in accordance with this section]

The NES's BAP will be closed by removal of the CCR material and non-CCR materials. Currently there is no documented release from this CCR unit.

4.0 DESCRIPTION OF THE CLOSURE BY REMOVAL PROCEDURES

OAC 252:517-15-7 (b)(1)(B)

[If closure of the CCR unit will be accomplished through removal of CCR from the CCR unit, a description of the procedures to remove the CCR and decontaminate the CCR unit in accordance with paragraph (c) of this section]

Approvals and Permits:

- Prior to initiating closure of the NES's BAP, AEP/PSO will begin working with Oklahoma Department of Environmental Quality (ODEQ) Wastewater Department on a permit for the future wastewater pond.
- Prior to initiating closure of the NES's BAP, AEP/PSO will secure Oklahoma Department of Environmental Quality (ODEQ) Solid Waste Department's approval of this closure plan.
- Prior to initiating the approved closure activities, AEP/PSO will obtain a stormwater construction permit, if more than one (1) acre area will be disturbed.

New Wastewater Pond

AEP/PSO is planning to install a new wastewater pond outside the footprint of the BAP in order to manage the waste/process waters generated by the power plant. The new wastewater pond is planned to be ready to receive waste/process waters generated by the power plant prior to the permanent closure of the BAP. PSO/AEP plans to perform an engineering investigation/study and a conceptual design review for a final selection of the wastewater pond location and design details.

BAP Closure Activities

Prior to initiating the closure activities, the actual means and methods for physically removing the CCR materials from the BAP (for example dewatering, excavation, or dredging of the bottom ash) will be determined following an evaluation of the quantity of CCR material remaining in the BAP and any nature and extent evaluation of any area outside the BAP that might have been affected by a release from the BAP. If draining the pond is selected as the means and method, a water management plan, outlining how the water will be managed will be submitted prior to the start of closure activities for ODEQ approval. Variation in the depth of CCR material is expected throughout the pond deposits, but for illustration a typical cross section of the BAP is illustrated in Figure 2.

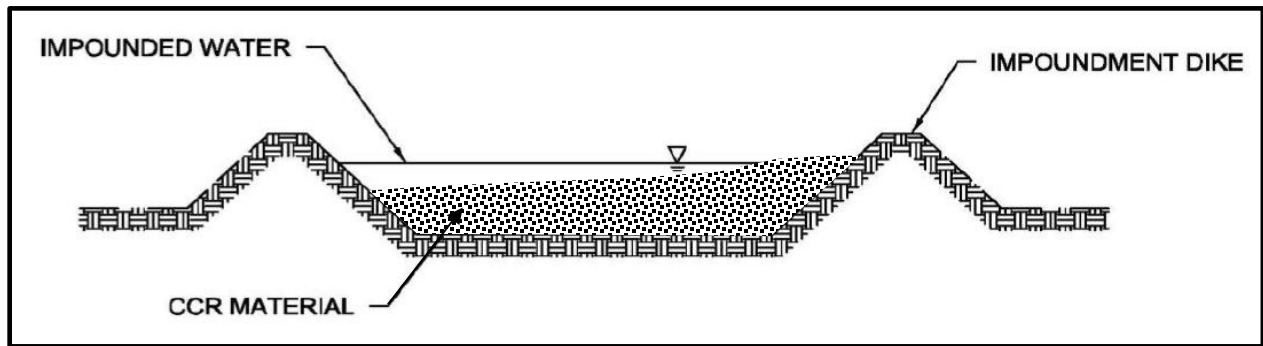


Figure 2 -Typical Cross Section of The Bottom Ash Pond

Certification that all CCR materials have been removed from the BAP will be based upon visual observations. Removal of the CCR and non-CCR materials will continue until it is visually confirmed that all materials have been removed, at which point an additional 12 inches of materials will be removed. If top of rock (or hard) surface is encountered, no additional excavation will be conducted. Excavation depths will be surveyed.

Visual Sampling Criteria

Visual observation/sampling/classification will be performed by an independent QA/QC consultant to verify that the CCR material has been removed from the BAP. Following removal of all the CCR and non-CCR materials, an additional 12 inches of native soils will be removed in order to make sure that the pond is completely free of all the materials. The Professional Engineer (P.E.) will certify that closure by removal has been completed in accordance with the OAC 252:517-15-7.

The QA/QC consultant is responsible to classify CCR and non-CCR materials those will be encountered at the BAP during removal activities. Various materials (e.g. bottom ash, coal fines, soils/rock) expected in the pond will be classified based on color, texture, consistency, and moisture. The results of the subsurface investigation will also be used in the identification of various materials as a reference. It is expected that the CCR material and coal fines will be gray, grayish brown, or black in color and equivalent to silty sandy soils. The native soils will be light brown, clay, silty clay, and underlain by limestone.

Management of the Excavated CCR Materials:

Temporary storage areas for dewatering the removed CCR or non-CCR materials will be established in the northeast and east sections of the BAP, since those areas are relatively dry. Dewatering of the CCR materials will take place within the existing embankment. Dewatering may also be conducted through mechanical means such as creating a series of berms and ditches, using a disc dry out the materials and/or mixing in fly ash or other solidifying materials (i.e. lime, polymer) as needed. The water generated during the dewatering process will be routed back to the BAP where it will be treated and discharged according with the Plant's OPDES permit. Loading and hauling of the dry materials will be done in that staging area and the dewatered materials will be transported to the on-site CCR landfill for disposal.

Onsite CCR Landfill

The onsite CCR landfill is active and permitted for disposal of CCR waste. All the CCR materials generated by the plant is disposed of at the onsite landfill or for beneficial use. Based on the current projection and remaining capacity estimate of the landfill to be 900,000 cubic-yards, the landfill is expected to have enough capacity for disposal of all the CCR and non-CCR materials from the BAP.

5.0 CLOSURE BY REMOVAL OF CCR OAC 252:517-15-7 (c)

[Closure by removal of CCR. An owner or operator may elect to close a CCR unit by removing and decontaminating all areas affected by releases from the CCR unit. CCR removal and decontamination of the CCR unit are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to OAC 252:517-9-6(h) for constituents listed in Appendix B to this Chapter.]

Closure of the CCR unit will be completed when all CCR materials in the unit and any areas affected by releases from the CCR unit have been removed and when groundwater monitoring demonstrates that all concentrations of the assessment monitoring constituents listed in Appendix B to this chapter of OAC 252 do not exceed the groundwater protection standards established pursuant to OAC 252:517-9-6(h). Upon completion of the CCR removal, a certification from a qualified professional engineer (PE) licensed in the State of Oklahoma will be obtained to verify that closure has been completed in accordance with the closure plan. The PE certification will be incorporated into the notification of completion of a CCR unit. AEP/PSO will submit a certification report to ODEQ Solid Waste Department that all CCR and non-CCR materials have been removed from the BAP. The report will contain the elements outlined in OAC 252:517-15-3(a)(c).

6.0 ESTIMATE OF MAXIMUM CCR VOLUME OAC 252:517-15-7 (b)(1)(D)

[An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.]

The estimated maximum CCR volume ever on-site is estimated 580,800 cubic-yards. A new quantity survey will be performed to verify the quantity prior to the closure activities.

7.0 CLOSURE SCHEDULE OAC 252:517-15-7(b)(1)(F)

[A schedule for completing all activities necessary to satisfy the closure criteria in the section, including an estimate of the year in which all closure activities for the CCR unit will be completed. The schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including identification of major milestones such as coordinating with and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phases of the CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of the CCR unit closure.]

On December 5, 2018 AEP/PSO submitted to ODEQ a demonstration to close the bottom ash pond according to the Alternate Closure Requirements (ACR) in OAC 252:517-15-8(f)(2). Permanent Cessation of Coal Fired Boiler(s) by a certain date. On February 8, 2013, a settlement agreement was signed between AEP/PSO and the State of Oklahoma, the Oklahoma Department of Environmental Quality, the Sierra Club, and the US Environmental Protection Agency which set a closure date no later than December 31, 2026 for the coal-fired boiler Unit 3. The ACR was accepted by ODEQ on April 11, 2019.

Additionally, under OAC 525:517-15-7(f)(1), AEP/PSO must close the impoundment within five years of commencing closure activities. Since the impoundment footprint is greater than 40 acres, the closure timeline may be extended in up to two-year increments, for a maximum of five extensions. OAC 252:517-15-7(b)(1)(f) and (f)(2)(A) require a site-specific demonstration to support the need for two-year extensions beyond the five-year closure period timeframe. The demonstration must show that closure within five years of commencement is not feasible due to factors beyond AEP/PSO's control. The CCR unit will be closed by removal and as such stabilization and final cover items will not be performed and therefore not included. AEP/PSO's proposed closure schedule is as follows.

Bottom Ash Pond Closure Activities and Tentative Schedule

#	Activity/Task	Start –Complete Date
1	Perform site investigation	Q1-Q3, 2024
2	Perform site survey	Q1-Q2, 2024
3	Prepare engineering document and construction drawings	Q2-Q4, 2024
4	Procurement, and contractor selection	Q1, 2025
5	Submit environmental and construction permits for approval (by Q3, 2024)	Q3, 2024 – Q3, 2025 (approval within 12 months, by Q3, 2025)
6	Installation of Erosion and sediment controls	Q1, 2026
7	Initiate Pond Closure activities	Q1, 2026
8	Prepare site, dewatering/dredging/excavation	Q1-Q2, 2026
9	Notification of intent to close a CCR unit to ODEQ prior to start of final pond closure	Q1, 2027
10	Complete removal of CCR materials, collect final groundwater monitoring samples/submit groundwater monitoring report to ODEQ for approval	Q2, 2026 – Q3, 2028
11	Stormwater management system	Q2, 2026 – Q3, 2028
12	Prepare and submit closure certification/notification report	Q2, 2028
13	BAP closure complete	October 2028

Notes:

- (i) New wastewater pond is planned to be in service (Q4, 2026), and Reroute non-CCR wastewater to new wastewater pond (Q1, 2027).
- (ii) Item 6 (Submit environmental and construction permits for approval): We will submit a revised closure plan selected closure by removal means and method and a Notice of Intent (NOI) for an OKR10 construction permit/SWP3, if needed.

8.0 CLOSURE PLAN AMENDMENTS

In accordance with OAC 252:517-15-7-(b)(3), this closure plan may be amended when or if there is a change in operation of the CCR unit that would substantially affect the written closure plan; or before or after closure activities have commenced, unanticipated events necessitate a revision

of the written closure plan. Prior to commencing field closure activities, the closure plan will be amended at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event that requires the need to revise the existing written closure plan. Any significant substantive changes to the closure plan after closure activities have commenced will be communicated to the ODEQ prior to implementation in the field. After such an event, the closure plan will be amended no later than 30 days.

This Closure Plan and any future revisions will be placed in the Plant’s Operating Record in accordance with OAC 252:517-19. A record of revisions made to this document is included below.

Record of Plan Revisions		
Revision Number	Date	Revision Description
0	October 2016	Original document
1	October 2018	Updated document to reference ODEQ CCR and OPDES regulations.
2	April 2022	Updated document to reference a schedule of activities and reference BAP draft permit ODEQ internal review comments (Nov 2021).
3	August 2022	Updated entire document to reference Closure by removal. Added Section 8.0.
4	April, 2023	Revised to address ODEQ items of the NOD, dated 2-28-2023.
5	November 2023	Revised to address ODEQ items of the NOD, dated August 3, 2023

January 11, 2024

Ms. Rebecca Jones, P.G.
American Electric Power – Northeastern Power Station
P.O. Box 220
Oologah, OK 74053-0220

Re: Revised Closure Plan – Bottom Ash Pond
Public Service Company of Oklahoma, Northeastern Power Station, Rogers County
Solid Waste Permit No.: None

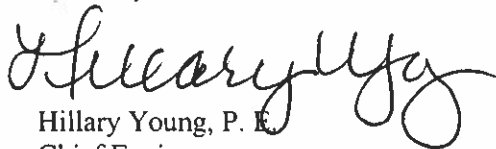
Dear Ms. Jones:

On November 28, 2023, the Oklahoma Department of Environmental Quality (DEQ) received the Revised Closure Plan from the Public Service Company of Oklahoma's Northeastern Power Station (AEP-NES). The Revised Closure Plan was submitted in response to the notice of deficiency (NOD) issued by DEQ on August 3, 2023. The Revised Closure Plan proposes to accomplish final closure of the Bottom Ash Pond (BAP) by removal of coal combustion residuals (CCR) in accordance with Oklahoma Administrative Code (OAC) 252:517-15-7(c).

DEQ has reviewed the Revised Closure Plan in reference to OAC 252:517-15-7(b) and found the deficiencies identified in the August 3, 2023 letter to be resolved. At least 180 days prior to initiating closure, AEP-NES must provide DEQ the final determination of the means and method for removing the CCR material (i.e. dewatering, excavation, or dredging). The information provided should also include erosion and sediment controls, stormwater management system, and any water management plan.

The Revised Closure Plan is approved with the above stated condition. DEQ will continue the technical review of the Permit Application for the BAP. If you have any questions, please contact Kaylee Daneshmand of my staff at (405) 702-5196 or Kaylee.daneshmand@deq.ok.gov.

Sincerely,



Hillary Young, P. E.
Chief Engineer
Land Protection Division

HY/kd

cc: Michael Thomas, DEQ Water Quality Division
Mark Barton, Plant Manager, American Electric Power-Northeastern Power Station
Sam Miller, American Electric Power-Northeastern Power Station