

CLOSURE PLAN

OAC 252:517-15-7 (b)

Bottom Ash Pond

Northeastern 3&4 Power Station
Oologah, Oklahoma

Initial: October, 2016
Revised: October, 2018
Revised: April, 2022

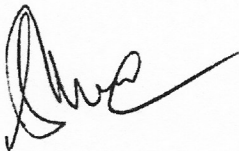
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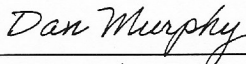


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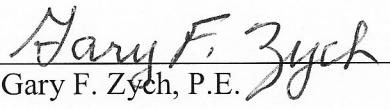
CLOSURE PLAN
OAC 252:517-15-7(b)
NORTHEASTERN 3&4 POWER STATION
BOTTOM ASH POND

PREPARED BY: 
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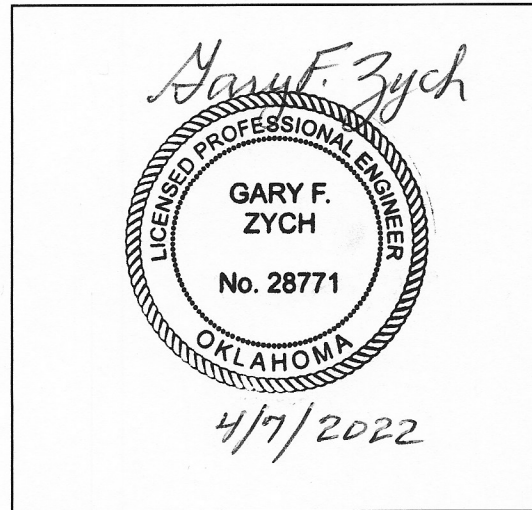
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REVIEWED BY: 
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DATE: 4/6/2022

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Manager – AEP Geotechnical Engineering

DATE: 4/7/2022



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.

I certify to the best of my knowledge, information, and belief that design of the final cover system as described in this closure plan meets the requirements of OAC 252:517-15-7.

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Revised April, 2022 – Updated document to reference Bottom Ash Pond Draft Permit ODEQ Internal Review (November 2021).

1.0 OBJECTIVE

This report was prepared by AEP- Geotechnical Engineering Services (GES) section to fulfill requirements of OAC 252:517-15-7(b) for Closure Plans of Existing CCR Surface Impoundments.

2.0 DESCRIPTION OF THE CCR UNIT

The Northeastern 3&4 Power Station is located near the City of Oologah, Rogers County, Oklahoma. It is owned and operated by Public Service Company of Oklahoma (PSO). The facility operates one surface impoundment for storing CCR called the Bottom Ash Pond.

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, 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.

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 Northeastern Bottom Ash Pond will be closed by closure in place. The closure will consist of regrading the existing onsite materials and the installation of an impermeable cap with vegetative cover. The existing surface will be graded to achieve a gently sloping surface to promote surface water runoff. The regraded surface will be covered with a flexible geomembrane system and 2-feet of soil fill consisting of an 18" soil infiltration layer and 6" of earthen material that is capable of sustaining native plant growth. The surface soil will be seeded and mulched to promote the growth of a vegetative cover.

4.0 CLOSURE IN PLACE OAC 252:517-15-7 (b)(1)(C)

[If closure of the CCR unit will be accomplished by leaving the CCR in place, a description of the final cover system, designed in accordance with paragraph(d) of this section, and the methods and procedures to be used to install the final cover. The closure plan must also discuss how the final cover system will achieve the performance standards specified in paragraph (d) of this section.]

The final cover system will consist of a flexible geomembrane that will have a permeability that is less than or equal to the permeability of the natural subsoils and is no greater than 1×10^{-5} cm/sec. The geomembrane will be installed directly over the graded and prepared CCR material. Over the geomembrane will be installed an infiltration layer consisting of 18" of earthen material and a surface layer consisting of 6" of earthen material that is capable of sustaining native plant growth. The final cover will be seeded and mulched to promote growth of a vegetative cover. The final cover slope will be a minimum of 2% and will convey water to an OPDES permitted outfall.

Prior to installation of the final cover system the impoundment be drained of the free water and the ash and soil material will be regraded to provide a stable subgrade.

4.1 CLOSURE PERFORMANCE STANDARDS OAC 252:517-15-7 (d)(1)

4.1.1 SECTION OAC 252:517-15-7(d)(1)(A)

[Control, minimize or eliminate, 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.]

The final cover system will cover the CCR material and will have a permeability that is less than or equal to the permeability of the natural subsoils and is no greater than 1×10^{-5} cm/sec.

4.1.2 SECTION OAC 252:517-15-7(d)(1)(B)

[Preclude the probability of future impoundment of water, sediment, or slurry.]

The impoundment will be gently graded to a minimum slope of 2% to prevent the ponding of water sediment or slurry.

4.1.3 SECTION OAC 252:517-15-7(d)(1)(C)

[Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period.]

The final cover system will be gently graded with a minimum of 2% slope. The final configuration of the impoundment will meet the stability requirements to prevent the sloughing or movement of the final cover system during the closure and post-closure care period.

4.1.4 SECTION OAC 252:517-15-7(d)(1)(D)

[Minimize the need for further maintenance of the CCR unit.]

The impoundment will be vegetated to prevent erosion. Maintenance of the final cover system will include mowing.

4.1.5 SECTION OAC 252:517-15-7(d)(1)(E)

[Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.]

The CCR unit will be closed in a timeframe consistent with recognized and generally accepted good engineering practices. A tentative schedule is provided below.

Bottom Ash Pond Closure Activities and Schedule

#	Activity/Task	Start –Complete Date
1	Perform site investigations	January – September 2024
2	Perform site survey	March – August 2024
3	Perform engineering and design	January –September 2024
4	Prepare engineering document and construction drawings	March – December 2024
5*	Submit environmental and construction permits for approval (by October 2024)	Oct 2024 – September 2025 (approvals within 12 months)
6	Review plant future needs/repurpose pond	October 2024 – November 2026
7	Notification to ODEQ prior to start of pond closure	December 31, 2026
8	Erosion and sediment control	December 2026 – January 2027
9	Pond Closure	January 2027 – November 2028
10	Contact and non-contact water management	November 2026 – November 2028
11	Preparing site, dewatering, and regrading pond	January 2027 – August 2027
12	Installation of cap/cover system	June 2027 – September 2028
13	Stormwater management system	August 2027 – September 2028
14	Complete pond closure	October 2028
15	Prepare and submit construction certification report	November 2028 – February 2029

*Note: Item 5 (Submit environmental and construction permits for approval): We will submit a Tier II permit modification (252:4-7-59(2)(B)) as well as Notice of Intent (NOI) for an OKR10 construction permit/SWP3.

4.2 DRAINING AND STABILIZING OF THE SURFACE IMPOUNDMENT OAC

252:517-15-7(d)(2)

[The owner or operator of a CCR surface impoundment of any lateral expansion of a CCR surface impoundment must meet the requirements of paragraph (d)(2)(A) and (B) of this section prior to installing the final cover system required under paraphrph (d)(3) of this section.]

4.2.1 SECTION OAC 252:517-15-7(d)(2)(A)

[Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residue.]

As part of closure of the CCR unit, all free water will be removed.

4.2.2 SECTION OAC 252:517-15-7(d)(2)(B)

[Remaining waste must be stabilized sufficient to support the final cover system.]

The remaining waste that make up the subgrade of the final cover system will be stabilized by removal of free liquids and providing bridging as necessary.

4.3 FINAL COVER SYSTEM OAC 252:517-15-7 (d)(3)

[If a CCR unit is closed by leaving CCR in place, the owner or operator must install a final cover system that is designed to minimize infiltration and erosion, and at a minimum, meets the requirements of paragraph (d)(3)(A) of this section, or the requirements of the alternative final cover system specified in paragraph (d)(3)(B) of this section.

The final cover system must be designed and constructed to meet the criteria in paragraphs (d)(3)(A)(i) through (iv) of this section. The design of the final cover system must be included in the written closure plan.]

The final cover system will consist of a flexible geomembrane that will have a permeability that is less than or equal to the permeability of the natural subsoils and is no greater than 1×10^{-5} cm/sec. The geomembrane will be installed directly over the graded and prepared CCR material. Over the geomembrane will be installed an infiltration layer consisting of 18" of earthen material and a surface layer consisting of 6" of earthen material that is capable of sustaining native plant growth. The final cover will be seeded and mulched to promote growth of a vegetative cover. The final cover slope will be a minimum of 2% and will convey water to an OPDES permitted outfall. The final cover slope will be a minimum of 2% to accommodate settling and subsidence.

5.0 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 580,800 Cubic Yards.

6.0 ESTIMATE OF LARGEST AREA OF CCR REQUIRING COVER OAC 252:517-15-7 (b)(1)(E)

[An estimate of the largest area of CCR unit ever requiring a final cover]

The largest area of the CCR unit ever requiring a final cover is 72 acres.

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.]

A tentative schedule is provided in 4.1.5 Section OAC 252:517-15-7(d)(1)(E)