

CLOSURE PLAN

CFR 257.102(b)

Pond 1

Clinch Power Plant
Russell County, Virginia

July 2017

Prepared for: Appalachian Power Company

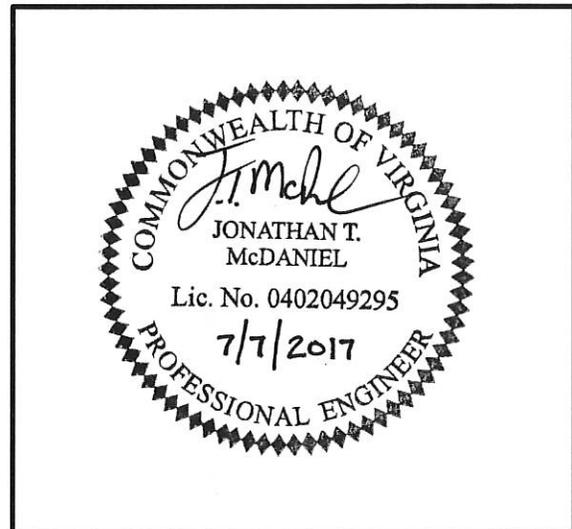
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CLOSURE PLAN
CFR 257.102(b)
CLINCH POWER PLANT
POND 1



I certify to the best of my knowledge, information, and belief that the information contained in this closure plan meets the requirements of 40 CFR § 257.102

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 40 CFR § 257.102.

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1.0 OBJECTIVE

This report was prepared by Amec Foster Wheeler Environment & Infrastructure, Inc. to fulfill requirements of CFR 257.102(b) for Closure Plans of CCR Surface Impoundments.

2.0 DESCRIPTION OF THE CCR UNIT

The Clinch River Plant is located in Russell County, Virginia near the community of Carbo, to the south of the intersection of Route 616 and Route 665, as shown in Figure 1, Site Location Map. Ash Pond 1 is approximately located to the northeast of the Clinch River Plant and north of the confluence of Dumps Creek and the Clinch River.

Pond 1 is considered a side-hill impoundment built around an existing hillside. Pond 1 was constructed by engineered earthen embankments approximately 65 feet (ft.) high on the west, south, and east sides and existing natural side slope topography along the north side. These embankments have been reconstructed and raised three times between 1955 and 1971 to provide additional storage volume. The pond was used for sluicing and settling of ash byproducts. Pond 1 is approximately 22.8 acres in size and consists of Pond 1A and Pond 1B that is separated by a splitter dike.

3.0 DESCRIPTION OF CLOSURE PLAN 257.102(b)(1)(i)

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

The Clinch River Pond 1 will be closed by closure in place. The closure will consist of re-grading 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 30 mil PVC flexible membrane liner covered by double-sided geocomposite drainage net, covered by 24 inch thick vegetated soil cover. The surface soil will be seeded and mulched to promote the growth of a vegetative cover.

4.0 CLOSURE IN PLACE 257.102 (b)(1)(iii)

[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 and double-sided geocomposite drainage net 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 CCR material. Over the geomembrane, a double-sided geocomposite will be placed. Over the geocomposite, 24 inches of soil cover will be placed 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 slopes will convey water to VPDES permitted outfalls.

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

4.1 CLOSURE PERFORMANCE STANDARDS 257.102 (d)(1)

4.1.1 SECTION 257.102(d)(1)(i)

[Control, minimize or 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.]

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 257.102(d)(1)(ii)

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

The impoundment will be gently graded to prevent the ponding of water.

4.1.3 SECTION 257.102(d)(1)(iii)

[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. 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 257.102(d)(1)(iv)

[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 257.102(d)(1)(v)

[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. See section 7.0 for a detailed schedule.

4.2 DRAINING AND STABILIZING OF THE SURFACE IMPOUNDMENT

257.102(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)(i) and (ii) of this section prior to installing the final cover system required under paragraph (d)(3) of this section.]

4.2.1 SECTION 257.102(d)(2)(i)

[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 257.102(d)(2)(ii)

[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 257.102 (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)(i) of this section, or the requirements of the alternative final cover system specified in paragraph (d)(3)(ii) of this section.

The final cover system must be designed and constructed to meet the criteria in paragraphs (d)(3)(i)(A) through (D) 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 30-mil 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 CCR material. Over the geomembrane, a double-sided geocomposite will be placed. Over the geocomposite, 24 inches of soil cover will be placed 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 slopes will convey water to VPDES permitted outfalls.

5.0 ESTIMATE OF MAXIMUM CCR VOLUME 257.102 (b)(1)(iv)

[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 2,110,000 Cubic Yards.

6.0 ESTIMATE OF LARGEST AREA OF CCR REQUIRING COVER 257.102 (b)(1)(v)

[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 26 acres.

7.0 CLOSURE SCHEDULE 257.102(b)(1)(vi)

[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.]

Clinch River Pond 1 Closure is anticipated to take no longer than two construction seasons. Below is an estimated milestone schedule for the project. Schedule is dependent upon State permits and weather.

- | | |
|---|---------------|
| ➤ Acquiring State Permits | June 2017 |
| ➤ Contractor Mobilization | June 2017 |
| ➤ Begin Construction of Storm Water Controls | June 2017 |
| ➤ Begin Pond 1A Grading and Subgrade Preparation | June 2017 |
| ➤ Begin Installation of Pond 1A Geosynthetic Liner | August 2017 |
| ➤ Begin Installation of Pond 1A Final Cover Soil | October 2017 |
| ➤ Complete Pond 1A Seeding and Mulching | November 2017 |
| ➤ Begin Draining Pond 1B | July 2017 |
| ➤ Begin Pond 1B Grading and Subgrade Preparation | August 2017 |
| ➤ Begin Installation of Pond 1B Geosynthetic Liner | October 2017 |
| ➤ Complete Installation of Pond 1B Final Cover Soil | December 2017 |
| ➤ Complete all Seeding and Mulching | December 2017 |
| ➤ Demobilization | January 2018 |