

CLOSURE PLAN

CFR 257.102(b)

CCR Landfill

John E. Amos Plant
Putnam County, West Virginia

October 2016
(Revised July 2019)
(Revised March 2026)

Prepared for: Appalachian Power Company

1530 Winfield Rd,
Winfield, West Virginia 25213

Prepared by: American Electric Power Service Corporation


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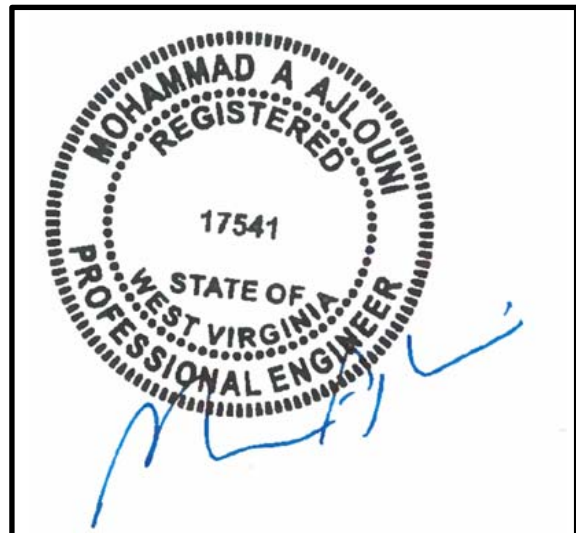
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CLOSURE PLAN
CFR 257.102(b)
JOHN E. AMOS PLANT
CCR LANDFILL

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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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Attachment A

1.0 OBJECTIVE

This report was prepared by AEP - Geotechnical Engineering Services (GES) section to fulfill requirements of 40 CFR 257.102(b) for Closure Plans of Existing CCR Units.

2.0 DESCRIPTION OF THE CCR UNIT

The John E. Amos Power Plant is located near Winfield, West Virginia.

It is owned and operated by Appalachian Power Company (APCO). The facility operates a landfill for the disposal of CCR materials.

The landfill is permitted by the West Virginia Department of Environmental Protection, Permit No. SWF9013/WV0116254. The landfill consists of 9 cells that will encompass 191.9 acres for a permitted fill capacity of 39.1 million cubic yards.

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]

Closure of the landfill will be done in accordance with the Closure Plan permitted by the West Virginia Department of Environmental Protection. The closure will consist of regrading the existing onsite materials and the installation of an impermeable cap with vegetative cover. At least six inches of soil will be placed over CCR material and graded to promote surface water runoff. The regraded surface will be covered with a 50-mil High Density Polyethylene (HDPE) Integrated Drainage System (IDS) geomembrane, or equivalent, covered by 18 inch thick vegetated soil cover. The surface 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 liner with an integrated geocomposite drainage system, or equivalent, that will have a permeability that is less than or equal to the permeability of the bottom liner and is no greater than 1×10^{-5} cm/sec. The geomembrane will be installed over a minimum of 6 inches of graded soil overlaying CCR material. The integrated geocomposite drainage system will be on the topside of the HDPE IDS geomembrane. Over the HDPE IDS geomembrane, a non-woven geotextile will be placed. Directly over the geotextile, 18 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 the NPDES permitted outfalls.

4.1 CLOSURE PERFORMANCE STANDARDS 257.102 (d)(1)

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

[Control, minimize or eliminate, the maximum extent possible 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 is designed to minimize infiltration into the landfill.

4.1.2 SECTION 257.102(d)(1)(ii)

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

The final surface areas will be graded to a minimum slope of 1.5% on the benches and 3% elsewhere to prevent the ponding of surface water runoff. Drainage features will be designed to have positive drainage.

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 composed of 3:1 slopes terminating along benches that are graded with a minimum of 1.5% slope. The final configuration of the facility 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 facility 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. As the fill reaches the approved final grades, periodic closure activities may occur.

4.2 DRAINING AND STABILIZING OF CCR UNITS 257.102(d)(2)

[The owner or operator of any CCR unit must meet the requirements of paragraphs (d)(2)(i) and (ii) of this section prior to installing the final cover system required under paragraph (d)(3) of this section.]

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

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

All material placed in the landfill is required to meet the paint filter test. The majority of material placed in the landfill contains minimal moisture. If needed, material is subsequently dried and stabilized as part of final placement. A leachate collection system that includes chimney drains is in place to drain any stormwater that contacts the placed waste or infiltrates the temporary cover soils. The resulting waste mass does not contain free liquids and is sufficiently stable to support the final cover system.

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 owner or operator may select an alternative final cover system design, provided the alternative final cover system is designed and constructed to meet the criteria in paragraphs (d)(3)(ii)(A) through (C) of this section. The design of the final cover system must be included in the written closure plan required by paragraph (b) of this section.]

The final cover system will consist of a flexible geomembrane liner with an integrated geocomposite drainage system, or equivalent, that will have a permeability that is less than or equal to the permeability of the bottom liner and is no greater than 1×10^{-5} cm/sec. The geomembrane will be installed over a graded soil overlaying CCR material as allowed in the WVDEP permit. The geocomposite drainage net will be on the topside of the HDPE IDS geomembrane. Over the HDPE IDS geomembrane, a non-woven geotextile will be placed. Directly over the geotextile, 18 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 the NPDES permitted outfalls. The written certification from a qualified professional engineer that the design of the alternate final cover system meets the requirements of section 257.102(d)(3) is included in Attachment A.

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 maximum CCR volume permitted for this facility is 39.1 million 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 at any time is approximately 100 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.]

The John E. Amos landfill will be closed in place periodically throughout the life of the facility. At this time, the facility will close upon retirement of the power plant. Once the CCR unit requires closure, a detailed schedule to satisfy this section will be prepared and the Plan amended.

Record of Plan Revisions		
Revision Number	Date	Revision Description
0	October 2016	Original Document
1	July 2019	Revise final cover from a 2 ft thick soil cap to a Coal Combustion Residuals compliant cap that has been approved by the West Virginia Dept. of Environmental Protection
2	March 2026	Revised Section 4.2 to reflect change in 40CFR257.102(d)(2) from applicability to "Surface Impoundment" to "CCR Unit", update miscellaneous clarifying language, and updated Alternative Final Cover System Design Certification in Attachment A

Attachment A

Professional Engineer Certification

The alternative final cover system design for the John E. Amos FGD Landfill was prepared by GAI Consultants (GAI). This Certification/Statement of Professional Opinion is limited to the information available to GAI at the time the Report was written. On the basis of and subject to the foregoing, it is my professional opinion as a Professional Engineer licensed in the State of West Virginia, that the alternative cover design has been prepared in accordance with good and accepted engineering practices as exercised by other engineers practicing in the same discipline(s), under similar circumstances and at the time and in the same locale. It is my professional opinion that the alternative cover design was prepared consistent with the requirements of the state of West Virginia 33 CSR 1B and the United States Environmental Protection Agency's 40 CFR 257.102(d)(3) as published in 80 Fed. Reg. 21302 and 89 Fed. Reg. 38950 and meets the requirements of these three regulatory publications.

The use of the words "certification" and/or "certify" in this document shall be interpreted and construed as a Statement of Professional Opinion, and is not and shall not be interpreted or construed as a guarantee, warranty or legal opinion.

Engineer: John R. Klamut

