CLOSURE PLAN

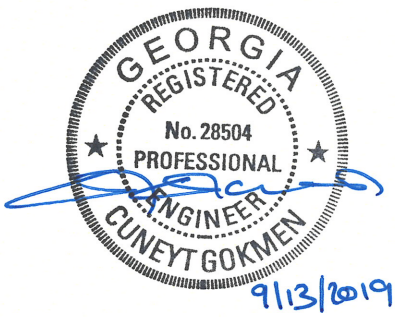
PLANT WANSLEY ASH POND 1 (AP-1) CLOSURE

HEARD AND CARROLL COUNTIES, GEORGIA

FOR

Georgia Power

SEPTEMBER 2019



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LIST OF ACRONYMS

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
CQA	construction quality assurance
DSM	deep soil mix
GA EPD	Georgia Environmental Protection Division
GPC	Georgia Power Company
GWSCC	Georgia Water Soil Conservation Commission
HDPE	high-density polyethylene
LLDPE	linear low-density polyethylene
P.E.	Professional Engineer

1. INTRODUCTION

This Closure Plan is included as part of the permit application package being submitted to Georgia Environmental Protection Division (GA EPD) to close Ash Pond AP-1, an existing coal combustion residuals (CCR) surface impoundment at Plant Wansley, located in Heard and Carroll Counties near Carrollton, Georgia. This Closure Plan has been prepared for Georgia Power Company (GPC) pursuant to the Federal CCR Rule in Title 40 of the Code of Federal Regulations (CFR) §257 (40 CFR §257) and the State CCR Rule in Chapter 391-3-4-.10 of the Georgia Rules for Solid Waste Management for Closure of CCR Surface Impoundment Units.

2. GENERAL

GPC will close AP-1 in a manner that minimizes the need for further maintenance and minimizes the potential of post-closure release of contaminants to the ground or surface waters. The written closure plan presented subsequently in this document and the Closure Drawings included in Section 9 of Part A of the permit application present the closure design and provide guidance on the sequence of closure. These documents are supplemented by engineering analyses and calculations contained in the Engineering Report in Section 2 of Part B of the permit application.

3. NOTIFICATION

GPC will submit a Notice of Intent to Close AP-1 to the GA EPD Director upon initiating closure of AP-1. Closure activities will commence no later than 30 days following final receipt of waste, either CCR or any non-CCR waste streams, or Permit issuance by GA EPD. GPC will complete all closure activities for AP-1 in accordance with this Closure Plan within the timeframe allowed by Rule 391-3-4-.10(7)(b). Additionally, required information will be noted on the property deed and recorded.

4. SURVEY CONTROL

A survey of the permit boundary is provided on Drawing 3 in the Closure Drawings. All areas within which CCR has been deposited have been located to the best of GPC's ability and surveyed by a Registered Surveyor who provided a legal description of the CCR management boundary.

5. OPERATING CRITERIA

Pursuant to State CCR Rule 391-3-4-.10(9)(c)5.(iii), AP-1's operating criteria required by 40 CFR §257.80, 40 CFR §257.82, and 40 CFR §257.83 are met as described below.

- Air criteria are being implemented while the surface impoundment is operating, in accordance with the Plant Wansley Fugitive Dust Control Plan included as Section 6.3.6 of this Closure Plan.

- Hydrologic and hydraulic capacity requirements are being addressed while the surface impoundment is operating, as documented in the Plant Wansley AP-1 Inflow Design Flood

Control System Plan dated October 12, 2016, and included in the CCR Postings (Section 5 of Part B in this permit application)

- Inspection requirements for CCR surface impoundments as set forth in 40 CFR §257.83 are being performed while the surface impoundment is operating. The inspection reporting, related recordkeeping, and notification are included under the inspection criteria included as Section 6.3.11 in this Closure Plan.

6. WRITTEN CLOSURE PLAN

6.1 OVERVIEW

Pursuant to State CCR Rule 391-3-4-.10(7)(c), AP-1 will be closed in accordance with this Closure Plan. An initial written closure plan was posted to the GPC CCR compliance website on October 17, 2016. This written closure plan may be amended by GPC at any time. Moreover, as required by 391-3-4-.10(7)(b) [40 CFR §257.102(b)(3)(ii)], this closure plan must be amended whenever (i) there is a change in the operation of the CCR unit that would substantially affect the written closure plan or (ii) before or after closure activities have commenced, unanticipated events necessitate a revision of the written closure plan. The time frames for amendment to the written closure plan will be in accordance with those specified in 391-3-4-.10(7)(b) [40 CFR §257.102(b)(3)(iii)].

An overview of the closure approach is provided below. More detailed descriptions of the phased sequencing of closure and associated procedures are provided subsequently.

- A containment structure will be constructed through AP-1 to create a Closure-by-Removal Area to the west and a Consolidation Area to the east. CCR from the Closure-by-Removal Area will be dredged/excavated and placed within the Consolidation Area.

- Within the Closure-by-Removal, CCR will be removed at a minimum to the bottom of AP-1, that being the visual interface between CCR and the residuum, plus an additional 6 inches. An additional 6 inches may be removed, for a total of 12 inches, for overdredge allowance. CCR removal is discussed subsequently in this Closure Plan.

- A final cover system will be installed over the Consolidation Area. The final cover will consist of either a soil-geosynthetic composite cover system or ClosureTurf® (i.e., synthetic engineered turf) cover system. If a soil-geosynthetic cover system is used, the cover will be vegetated with a native grass species and other suitable grasses to provide erosion protection, establish a diverse grassland habitat, and provide attractive aesthetics. If ClosureTurf® is used, a synthetic engineered turf material will

be placed as the top layer of the final cover system to provide erosion protection and an appearance similar to native vegetation.

- The final cover system will be graded with a dome-shaped configuration to promote surface water runoff back to the Closure-by-Removal, with top-deck grades at least 5 percent that slopes to 10 and 15 percent side slopes (between drainage benches) that turn into a perimeter channel. Both final cover system alternatives will virtually eliminate infiltration of surface water into the closed CCR unit while promoting stormwater runoff away from the Consolidation Area.

These closure activities and features are further described in the remainder of this Closure Plan.

6.2 CLOSURE STEPS

Implementation of the AP-1 closure will be completed in steps, consisting of the following general sequence of activities:

- Site preparation, including but not limited to, clearing trees, grading, constructing access roadways and laydown construction areas, and installing erosion and sediment controls
- Construction of a deep soil mix (DSM) containment structure with a concrete secant pile wall facing bifurcating the CCR pond into two areas (i.e., a 205-acre Closure-by-Removal Area and a 138-acre cap in-place area, which is also referred to as the Consolidation Area)
- Removal of free water and in situ dewatering or stabilization of the CCR, as necessary, within the Consolidation Area
- Dredging of the CCR from the Closure-by-Removal Area
- Dewatering and placement of the dredged material within the Consolidation Area
- Final grading of the Consolidation Area for capping
- Installation of a final cover system and surface water management system over the Consolidation Area

The site layout, presenting the extents of the permit boundary and limit of the final cover system, is presented in the Closure Drawings. This closure plan addresses the entire scope of closure activities for AP-1.

6.3 PROCEDURES DURING CLOSURE

6.3.1 Dewatering and Stabilization

Dewatering will be performed by removing free water (i.e., open pooled water) from the Consolidation Area of AP-1. Water levels within the Closure by Removal Area will be maintained at the lowest operating levels to support CCR removal efforts by dredging methods. Dewatering will occur throughout the closure construction process using both in-situ and ex-situ dewatering techniques. Examples of in-situ dewatering techniques that will be considered for use include trench drains, wellpoints, and deep wells. Examples of ex-situ dewatering techniques that will be considered for use include gravity dewatering (settling basins), belt filter press dewatering, recessed chamber filter press dewatering, centrifuge dewatering, geotextile tube dewatering, windrowing, and absorbent desiccation. The contractor will have the latitude to propose dewatering means and methods to best meet the project requirements in a way that satisfies the design criteria and requirements. During closure, specific contractor-proposed means and methods will be submitted to and approved by GPC.

6.3.2 Liquids Management

Following the start of closure construction, any CCR-contact water that needs to be discharged from the pond will be routed through an on-site water treatment plant (WTP) prior to discharge through the current outfall structure (Outfall 01C) in accordance with the National Pollutant Discharge Elimination System (NPDES) permit requirements and the GA EPD approved Dewatering Plan. This Dewatering Plan will be submitted to GA EPD Watershed Protection Branch for review and approval prior to commencing dewatering activities.

Noncontact stormwater will be managed in accordance with applicable stormwater and erosion and sediment control requirements and will be conveyed through appropriate stormwater management features and erosion and sediment controls.

6.3.3 Dredging and CCR Removal Activities

CCR within the Closure by Removal Area will be dredged (or excavated in areas with limited to no free water) and transported to the Consolidation Area. The dredge surface presented in the Closure Drawings is 1 foot (12 inches) below the bottom of CCR surface. These 12 inches incorporate 6 inches of native soil removed beneath visible CCR and 6 inches of over-dredge tolerance. Both hydraulic and mechanical dredging will likely be used. CCR removal at localized areas on the banks of the surface impoundment may be conducted with conventional excavation methods, as needed. It’s generally assumed that the

Contractor will remove CCR from the southwest of AP-1 working east towards the containment structure. As removal progresses, verification will be performed in accordance with Section 6.3.4 below. This removal will reduce the total CCR containment area of 343 acres (existing conditions) to the Consolidation Area of 138 acres (final conditions).

6.3.4 CCR Removal Verification Protocol

Removal of CCR from the Closure by Removal Area will be conducted in accordance with the requirements below:

- CCR removal activities will be observed by the construction quality assurance consultant (CQA Consultant). Observations will be made with reference to a 200-foot by 200-foot (approximately one point per acre) alphanumeric Site grid system established for the closure project. Each grid location will be assigned a unique label for reference and documentation purposes.

- As stated above in Section 6.3.3, it's anticipated that dredging and removal activities will progress from the west end of the CCR unit to the east (western dike to the separator dike). The CQA Consultant and Contractor will establish dredge management units (DMUs) prior to the commencement of work. Each DMU will consist of several certification points set-up by the 200-foot by 200-foot certification grid. When CCR removal within an individual DMU has been complete and verified by the CQA Consultant, that DMU will be closed. The following steps detail how a DMU will be closed.

- The contractor will dredge CCR from the Closure by Removal Area to the target dredge elevation, the interface between CCR and the native soils. The estimated bottom of CCR surface in AP-1, shown in the Closure Drawings, was developed based on the preconstruction topography and subsequent Site investigations. Complete details on this surface are provided in the notes on Drawing 2 of the Closure Drawings.

- Once the target dredge elevation has been achieved in a DMU by the contractor, the surface will be observed and documented in accordance with the grid system established by the CQA Consultant. For the surface above the pool elevation (i.e. outside the water) the surface will be visually inspected to verify that all CCR has been removed. Below the pool elevation, core samples (via probes, vibracores, or other similar sampling method) will be obtained at each grid point to document the removal of CCR. The cores will be photographed by the CQA Consultant for documentation. For locations both above and below the pool elevation a Munsell chart will be used to visually identify native soils.

- If no CCR is visible in a core, or thru the visual inspection of the areas above the pool elevation, that 200-foot by 200-foot grid will be considered complete. If CCR is visible within the core sample, or thru the visual inspection of the areas above the pool elevation, either i) the entire 200-foot by 200-foot grid will be dredged again and re-inspected to verify that no CCR is visible; or ii) additional inspections completed within that area to delineate the extent of additional CCR that must be removed. Dredging and re-inspection will then be conducted in those areas of the 200-foot by 200-foot grid to verify that all CCR has been removed.

- A hydrographic survey of the DMU will be performed to establish the Closure by Removal surface within the specific DMU.

- An additional 6 inches (at a minimum, where technically feasible [e.g. competent rock will not be removed]) of native soils will then be dredged from the bottom of the DMU as CCR contact material.

- Removal of the additional 6 inches across the will be verified by another hydrographic survey. The CQA Consultant will compare the two surveys to confirm removal. Areas without a minimum of 6 inches of removal will again be dredged and surveyed.

- Upon confirmation by the CQA Consultant that all CCR and a minimum of 6 inches of native soil have been removed from the DMU no further dredging activities will be conducted and the DMU will be closed.

- All field activities performed by the CQA Consultant to support verification of CCR removal will be documented in a Closure Certification Report that will be submitted to GA EPD upon closure completion.

6.3.5 CCR Placement

CCR from the Closure by Removal Area will be placed in the Consolidation Area, which involves placing dredged CCR on the stabilized surface of existing CCR within the Consolidation Area. The dredged CCR will be sufficiently dewatered and stacked (either in geotextile tubes or compacted lifts) until the top of CCR elevations shown on the Closure Drawings are reached. CCR placement and compaction efforts will be conducted in general accordance with the requirements below:

- Hydraulically dredged CCR will be pumped to the Consolidation Area and dewatered. One potential method for dewatering is the use of geotextile tubes, which provide two potential options for placement and compaction of

CCR. Geotextile tubes may be placed in one area of the Consolidation Area, used to dewater and cut open so that CCR can be hauled, placed, and compacted in lifts. Alternatively, the geotextile tubes can be placed such that the CCR could remain with the tubes and left in place. In this scenario, the geotextile tubes would be stacked to achieve closure grades. Stacked geotextile tubes left in place will be done so in accordance with criteria established by the Design Engineer to ensure long term stability, and as observed by the CQA Consultant.

- Regardless of placement method, the placed CCR will be firm and unyielding to create the final CCR surface and stormwater conveyance features.

- Sediments deposited as a result of erosion may be present at the toes of slopes and temporary drainage ditches. Prior to waste placement following periods of inclement weather, areas of potential sedimentation will be inspected. Soft or loose material will be removed or reworked before continuing waste placement. The sediment areas will be reworked, moisture conditioned (if necessary), and compacted to a firm and unyielding condition prior to placement of the next lift.

- At the end of each day's activities, any CCR surface outside of geotextile tubes will be sealed to the extent possible with a smooth drum roller or other methods. Prior to placement of subsequent lifts, sealed CCR surface will be lightly scarified using a dozer or other equipment to promote lift bonding.

- The working area will be limited to the extent practical, and proper dust control measures will be implemented. Proposed dust control measures are described in Section 6.3.6 (Fugitive Dust Control Plan) of this Closure Plan.

The compacted CCR will support the final cover system and reduce short- and long-term settlements. The contractor will perform a field pilot study to evaluate the optimum material placement methods (geotextile tubes, lift thickness, optimum moisture window, type of compaction equipment, and number of passes). Modifications to the general placement procedures described above may be considered based on actual field conditions (e.g., variability in ash properties and placement operations, dust control, material workability).

6.3.6 Fugitive Dust Control Plan

The purpose of this fugitive dust control plan is to demonstrate compliance with the fugitive dust requirements in GA EPD Rule 391-3-4.10 and 40 CFR § 257.80 (b)(1) through (7) of the CCR Final Rule. See 80 Fed. Reg. 21,302 (April 17, 2015). EPA defines fugitive dust as "solid airborne particulate matter that contains or is

derived from CCR, emitted from any source other than through a stack, or chimney." [40 CFR § 257.53; incorporated by reference in GA EPD Rule 391-3-4.10(2)(a)].

This fugitive dust plan identifies and describes the CCR fugitive dust control measures that GPC Plant Wansley will use to minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR units, roads, and other CCR management and material handling activities. The fugitive dust control measures that will be used are presented below:

- Fugitive dust originating from the closure of the AP-1 will be controlled using water suppression and compaction.
- CCR that is transported via truck will be conditioned to appropriate moisture content to reduce the potential for fugitive dust.
- Water suppression will be used, as needed, to control fugitive dust on facility roads used to transport CCR and other CCR management areas.
- Speed limits will be used to reduce the potential for fugitive dust.
- Trucks used to transport CCR are filled to or under capacity to reduce the potential for material spillage.

The fugitive dust control measures identified and described in this Closure Plan were selected based upon an evaluation of site-specific conditions at AP-1, including the physical properties of CCR, the specific closure construction activities, weather conditions, and operating conditions.

GPC personnel and/or their contractors will assess the effectiveness of the control measures by performing visual observations of AP-1 and surrounding areas. Appropriate corrective actions for fugitive dust will be implemented as necessary. Logs will be used to record the use of water-spray equipment.

Should a complaint be received from a citizen regarding a CCR fugitive dust event at the facility, the complaint will be documented and investigated. Appropriate steps will be taken, including any corrective action, if needed.

Amendments to the fugitive dust control plan may be made at any time as required due a change in conditions that would affect the in-place plan. All revisions to the fugitive dust control plan will be documented and placed in the operating record.

6.3.7 Surface Water Management

The surface water management features shown on the Closure Drawings will be constructed to manage surface water runoff following closure of the Site. During construction, surface water from the Site will be directed toward the Closure-by-Removal Area. Diversions and perimeter channels will be constructed around the perimeter of the Consolidation Area and on the final cover system to divert run-on to and convey runoff from the Site, respectively. The design criteria, narrative descriptions, and calculations for the surface water management system after final closure are provided in Section 2.9 of Part B (Surface Water and Contact Water Management Plan) of this permit application.

Prior to the start of closure construction, the outlet structure from AP-1 will be closed for gravity flow for the duration of the closure construction. Any water that needs to be discharged from AP-1 will be routed through the Water Treatment Plant prior to discharge at the permitted Outfall 01C.

6.3.8 Equipment Decontamination

Before removing a piece of equipment that has been in contact with CCR from the active work area of AP-1, the equipment will be cleaned with water. CCR residues generated during this cleaning will be placed in the Consolidation Area prior to completion of the final cover system. Water generated from this activity will be managed as contact water.

6.3.9 Site Security

A fence, natural site features, or buffers will be used to restrict access to the Site. In addition, access to Plant Wansley property will be controlled by security personnel. All gates will be locked, and a sign will be placed at the entrance to the CCR pond as discussed in Section 8 (Post-Closure Plan).

6.3.10 Groundwater Monitoring

Groundwater will be monitored in accordance with Section 6 (Groundwater Monitoring Plan) of Part A in this permit application.

6.3.11 Operational Inspections

Inspections will be conducted by a qualified person at intervals not exceeding seven days to examine AP-1 for appearances of structural weakness and discharge of all outlets of hydraulic structures; and at intervals not exceeding 30 days to monitor all CCR unit instrumentation as described in 391-3-4-.10(5)(b) [40 CFR §257.83(a)(1)]. An annual inspection will be conducted by a qualified

professional engineer, also in accordance with391-3-4-.10(5)(b) [40 CFR §257.83(b)].

6.4 CLOSURE DESIGN FEATURES

The proposed closure plan includes the following features:

- The containment structure, consisting of a DSM containment structure and a secant pile facing, will be constructed to meet United States Army Corp of Engineers and Federal Highway Administration standards, as presented in the calculation packages.

- The final pond closure grades have been designed with gentle slopes to blend in with the existing natural topography of the site and surrounding areas. The final pond closure grades will generally range from a maximum of 15 percent (to limit slope erosion potential and maintain geotechnical stability) to a minimum of 5 percent (to prevent ponding of water on top of the final cover system). The surface water management features on the final cover system (i.e., valleys and perimeter channels) have slopes generally ranging from 0.5 percent to 1.0 percent.

- The final cover system will consist of either a conventional soil-geosynthetic cover system or an alternate ClosureTurf® cover system.

- The final cover system alternatives would essentially eliminate infiltration of surface water into the retained CCRs and promote surface runoff of precipitation away from the Consolidation Area.

- The final closure grades incorporate valleys, perimeter channels, and other surface water management features to prevent erosion and to direct surface water runoff into the surface water management system. The surface water management system will improve surface water quality, regulate surface water runoff rate, and reduce the flooding potential of downstream areas. Additional information on the surface water management system is presented in Section 2.9 (Final Cover Surface Water Management System Design and Analysis) of Part B in this permit application.

6.4.1 Containment Structure

The containment structure will consist of two major design components: DSM and concrete secant pile wall facing.

The containment structure's primary task is to act as a geotechnical structure to contain the 16 million cubic yards of consolidated CCR. After an extensive review of technologies, it was determined that a gravity structure was the most constructible due to Site conditions (height of structure, as well as varying depths of minimal to 70 feet of native soil above partially weathered rock and bedrock).

Within the gravity structure technologies, the DSM method was selected. DSM involves the addition of Portland cement, via large diameter augers (4–10 feet in diameter), to the existing subsurface to improve the geotechnical properties. The DSM structure will extend through the CCR and into the native soils, as depicted in the Closure Drawings. The design of the DSM containment structure is presented in Section 2 (Engineering Report) of Part B in this permit application. While currently designed for 100% replacement (i.e., 100% of the area within the structure will be stabilized), the design will be further optimized via finite element model to be developed as part of the detailed design process.

In addition to providing geotechnical containment structure, a concrete secant pile wall facing will be installed on the upgradient end of the DSM zone as an advanced engineering measure. Not relying on the secant pile for structural support of the DSM, its purpose is to provide a physical and hydraulic break between the Closure-by-Removal and Consolidation Areas. The secant pile facing will extend to at least the depth of the DSM. Final dimensions of the concrete secants will be refined in the detailed design process.

6.4.2 Final Cover System

CCR placed within the Consolidation Area will be dewatered, moisture conditioned (as necessary), spread, compacted, and capped with the final cover system described in this permit application. Protective and vegetative soil for the final cover system will be secured from an approved GA EPD off-site borrow area. Final cover grades will range from 5 percent to 15 percent except for surface water drainage conveyance features on the final cover system (i.e., valleys and perimeter channels), which will have slopes generally ranging from 0.5 percent to 1.0 percent, post settlement.

The final cover system will consist of, from bottom to top, a minimum 40-mil thick textured high-density polyethylene (HDPE) or linear low-density polyethylene (LLDPE) geomembrane, a double-sided geocomposite drainage layer, an 18-inch-thick protective soil layer, and a 6-inch-thick vegetative soil layer. An alternate final cover system consisting of ClosureTurf® (i.e., a 50-mil thick HDPE or LLDPE geomembrane, engineered turf, and a minimum 0.5-inch thickness of sand infill) is also proposed. Details of the both final cover systems are provided on the Closure drawings.

The standard and alternate final cover systems will provide the following benefits:

a. The final cover system will control and essentially eliminate infiltration of liquids into the CCR, release of CCR into the environment, and flow of CCR-contact water from the CCR pond to surface waters. This will be accomplished

by using an essentially impermeable geomembrane as part of the final cover system. The geomembrane will isolate the CCR from the surrounding environment and essentially eliminate infiltration into the CCR relative to existing conditions. The final cover system will be installed over the entire Consolidation Area, eliminating direct exposure of CCR to the surrounding environment.

b. As required by regulation, the final cover system will preclude the probability of future impoundment of water, sediment, or CCR slurry. This will be accomplished by providing positive drainage for surface water runoff from the cover system to the Closure-by-Removal Area and limiting surface water run-on. Surface water conveyance structures will be lined to resist erosion during the design storm event and to minimize surface water infiltration. Further details can be found in Section 2.9 (Final Closure Surface Water Management System Design) of Part B of this permit application.

c. The final cover system design includes measures that provide for adequate levels of slope stability, to prevent the sloughing or movement of the final cover system during the closure and post-closure care periods. Slope stability analyses have been completed to confirm the stability of the CCR pond under both closure and post-closure conditions. Slope stability factor of safety design criteria will be achieved for static, seismic, liquefaction, and end-of-construction conditions. Additionally, the veneer stability of the final cover system was evaluated to verify that minimum interface shear strengths needed to meet design criteria can be achieved for each interface within the cover system, for both static and seismic conditions. Slope stability analyses are included in Section 2.4 (Closure Stability Calculation Package) of Part B in this permit application.

d. The final cover system is designed to minimize the need for further maintenance of the CCR pond. This minimization will be accomplished by consolidating CCR within the Consolidation Area from a 343-acres to 138-acres, thereby reducing the total area requiring maintenance. Installation of the final cover system on relatively shallow grades will further limit the need for maintenance.

e. Final cover system construction will be completed in the shortest amount of time consistent with recognized, generally accepted, and appropriate engineering practice. This schedule will be accomplished by using a phased construction approach designed to allow closure construction to be efficiently implemented. As top of CCR elevations are reached in phases during closure construction, the final cover system will be installed on those areas while other phases are either being filled, prepared for filling, and/or

dewatered. This staged approach will allow multiple construction activities to occur simultaneously, shortening the total construction duration.

A testing and documentation program will be administered during placement of the final cover system to provide verification that the final cover materials are constructed in accordance with the design specifications. A list of testing methods, frequency of testing, and material specifications is provided in the Section 5 (Construction Quality Assurance Plan and Material Specifications) of Part A in this permit application.

6.5 ACHIEVEMENT OF CLOSURE PERFORMANCE STANDARDS

Closure of AP-1, as reflected in this Closure Plan and the accompanying permit application, is designed and will be constructed to achieve applicable closure performance standards of 391-3-4-.10(7)(b) [40 CFR §257.102(d)] for the reasons described below.

- The final cover system will control and minimize infiltration of liquids into the CCR, release of CCR into the environment, and flow of contaminated runoff from AP-1 to groundwater or surface waters or to the atmosphere. This will be accomplished by using a virtually impermeable geomembrane as part of the final cover system. The geomembrane will isolate the CCR from the surrounding environment and essentially eliminate infiltration into the CCR relative to existing conditions. The final cover system will be installed over the entire Consolidation Area, eliminating direct exposure of CCR to the surrounding environment.

- Both proposed final cover system options are alternatives to the final cover system prescribed in 391-3-4-.10(7)(b) [40 CFR §257.102(d)(3)(i)], and both alternatives have been designed and will be constructed to virtually eliminate infiltration into the CCR. The proposed final cover system alternatives will also have erosion layers that provide equivalent protection from wind and water erosion as the erosion layer of the prescribed final cover. An equivalency demonstration is included in the final cover system calculations in Section 2.6 (Final Cover HELP Analysis and Equivalency Demonstration) of Part B in this permit application.

- The final cover system is configured to preclude the probability of future impoundment of water, sediment, or CCR slurry in AP-1. This will be accomplished by the grading and layout of the final cover system, and by the stormwater management and control system that will be installed (resulting in positive drainage for stormwater runoff from the final cover system and limiting stormwater run-on). Surface water conveyance structures are designed with appropriate channel lining materials to resist erosion during the design storm event and to minimize surface water infiltration.

- The final cover system is designed to minimize the need for further maintenance of AP-1. This will be accomplished by consolidating CCR within AP-1 from an approximately 343-acre area into an approximately 138-acre area, thereby reducing the total area requiring maintenance by about 60 percent. Additionally, the stormwater management system features on the final cover and in adjacent final closed areas are configured and spaced in a manner to minimize post-closure erosion and adequately handle flows from the design storm, also contributing to minimized need for post-closure maintenance of AP-1.

- Final cover system construction will be completed in the shortest amount of time consistent with recognized and generally accepted and appropriate engineering practice. This will be accomplished by using a phased construction approach designed to allow closure construction to be efficiently implemented. As final CCR elevations are reached in phases during closure construction, the final cover system will be installed incrementally on those areas while other phases of AP-1 closure are active. This approach will allow multiple construction activities to be performed in parallel, shortening the total construction duration compared to conducting the construction activities in series.

- This Closure Plan includes provisions for eliminating free liquids and stabilizing the CCR through dewatering and through CCR placement and compaction methods prior to installing the final cover system.

6.6 MAXIMUM INVENTORY OF CCR

AP-1 currently contains an estimated 16 million cubic yards of in-place CCR; all of which will be placed into the Consolidation Area. The CCR is expected to undergo volumetric shrinkage once dredged, dewatered, and placed in the Consolidation Area. It is estimated that the volumetric reduction of the dredged CCR will be on the order of 10 to 15 percent.

6.7 LARGEST AREA REQUIRING FINAL COVER

Based on the closure strategy presented herein, the CCR from AP-1 will be moved to the 138-acre Consolidation Area. This entire area will receive the final cover, thus the largest area ever requiring final cover under the proposed consolidation and in-place closure is 138 acres.

6.8 SCHEDULE FOR COMPLETING ACTIVITIES

A list of closure activities and milestones is provided subsequently in Section 15 (Closure Schedule) of this Closure Plan, and a schedule with estimated time frames is presented in Table 1. The closure schedule and milestones are based on estimates of the approximate time frames necessary to implement closure activities. Closure will be conducted in

phases, but it should be recognized that not all activities on the closure schedule will occur on a continuous basis throughout their scheduled durations.

7. CERTIFICATION OF CLOSURE

In accordance with State CCR Rule 391-3-4-.10(7)(e) and 40 CFR §257.102(f)(3), upon completion of closure activities, a P.E. registered in Georgia will prepare and submit a closure report to the GA EPD Director. The closure report will be completed on forms provided by GA EPD. Once the GA EPD Director concurs with the closure report, closure will be deemed complete and the Site will begin the post-closure care period.

GPC will also submit to GA EPD confirmation that a notation on the property deed, inclusive of the AP-1 permit boundary, has been recorded in accordance with State CCR Rule 391-3-4.10(7)(f).

8. DIRECTIONAL INFORMATIONAL SIGNS

Signs will be posted at the entrance gate notifying users of the closed CCR pond, and a telephone number for emergencies will be printed on the sign.

9. REMOVAL OF CCR FROM CONSOLIDATION AREA

CCR are not currently planned to be reclaimed from AP-1 during the closure period. If CCR are reclaimed during the closure period, the Consolidation Area may be revised to a smaller footprint, or soil fill may be used to replace the CCR volume removed and to achieve the original permit grades for the final cover system. Additional design measures will be implemented to address civil, geotechnical, surface water, groundwater, and environmental components of reclaiming CCRs from the Consolidation Area. If the consolidated footprint is reduced, or it is not feasible to use soil fill to achieve the original permit grades, the closure design will be revised to develop new closure grades following the completion of the ash reclamation process and to implement changes to the closure design. In either case, GPC will prepare a Waste Removal Plan and request written approval from GA EPD prior to conducting any such activity.

10. VEGETATIVE PLAN

The conventional soil and geosynthetic final cover system alternate contain two layers of soil: (i) a protective soil layer (bottom) and (ii) a vegetative cover layer (top). The vegetative cover layer serves as the erosion control layer and is designed to promote vegetative growth while limiting wind and water erosion. To promote growth of vegetation, the vegetative layer of the final cover system and the soil ground surface of disturbed project areas will be seeded, limed, and fertilized within two weeks of the layer's installation. The types of vegetation to be seeded, the applicable planting dates, and the associated seed and fertilizer specifications, application rates, and application methods will comply with the disturbed area stabilization (with permanent vegetation) details in the Closure Drawings. The source of these details is the Georgia Water Soil Conservation Commission (GWSCC).

Seedbed preparation, consisting of tillage (or pitting or trenching for steep slopes) and lime and fertilizer incorporation will occur prior to conventional seed planting methods. Although not required, seedbed preparation will be used, if judged beneficial, for hydraulic seeding planting methods (in this case, lime and fertilizer would be incorporated into the slurry mix). Mulching will be required for permanent vegetation applications.

During temporary lapses in construction activity, temporary stabilization measures will be installed on exposed areas within 14 days of disturbance and in accordance with the disturbed area stabilization (with mulching only) or disturbed area stabilization (with temporary seeding) details in the Closure Drawings. These details are also from GWSCC.

For the alternative final cover system (ClosureTurf®), the system is composed of a geomembrane overlain by an engineered synthetic turf and sand infill material. Vegetation will not be required for areas final covered with ClosureTurf®.

11. SITE EQUIPMENT NEEDED

GPC will make adequate equipment available to ensure that closure requirements are executed correctly and efficiently. Should said equipment not be available, backup equipment may be obtained from rental companies.

12. SEDIMENT REMOVAL

On a periodic basis during closure, accumulated sediment will be removed when necessary from drop inlets, drainage pipes, diversion ditches, and other drainage structures.

13. EROSION AND SEDIMENT CONTROL

Upon closure, all ditches, diversion berms, culverts, riprap, and other drainage structures serving disturbed areas, but not already built, will be constructed and placed according to the Closure Drawings.

14. COST OF CLOSURE

Estimates for the cost of closure will be provided under separate cover per discussions with GA EPD on May 30, 2019. A narrative has been added to note the acreage the estimate is based on, the year in which estimates were completed, and that costs will be adjusted annually for inflation.

15. CLOSURE SCHEDULE

Once the decision has been made by GPC that AP-1 closure can commence, the schedule of major milestones and approximate timeframes shown below will be followed over the approximately 11-year closure period:

i. Notify GA EPD of intent to close within 30 days of final receipt of CCR.

ii. Provide GA EPD with the date of final CCR receipt.

iii. Prepare an accurate legal description of the permit boundary and the entire property.

iv. Prepare the contractor laydown areas.

v. Install erosion and sediment control systems serving disturbed areas.

vi. Construct access platform for the containment structure.

vii. Construct DSM containment structure.

viii. Construct concrete secant pile facing on the DSM containment structure.

ix. Complete dredging and dewatering.

x. Complete final grading and install final cover system.

xi. Conduct Site revegetation and restoration (initiate vegetative plan).

xii. Provide notification of closure to the GA EPD Director and on the Plant Wansley AP-1 website within 30 days of completion of closure of AP-1.

xiii. Prepare accurate boundary survey and legal description of final CCR management boundary.

xiv. Provide the Closure Report to the GA EPD Director. The report will be prepared by a P.E. registered in Georgia. On all deeds of real property used for CCR storage, a notice of surface impoundment use will be included along with the date the surface impoundment operation commenced and terminated, and an accurate legal description of the actual location of the closed surface impoundment.

xv. Submit to the GA EPD Director confirmation that the information required in the preceding closure schedule item has been noted on the property deed and recorded.

The anticipated closure schedule is provided in Table 1. Since the closure schedule is anticipated to exceed five years, GPC will request two-year extensions as necessary to complete closure. Each two-year extension request (up to five total) made to the GA EPD Director will provide the factual circumstances demonstrating the need for extension.

16. RECORDKEEPING/NOTIFICATION/INTERNET REQUIREMENTS

GPC will comply with the requirements of State CCR Rule 391-3-4-.10(8), which references the recordkeeping requirements of 40 CFR §257.105(i), closure notification requirements specified in 40 CFR §257.106(i), and closure internet requirements in 40 CFR §257.107(i).

17. LEGAL DESCRIPTION

A survey drawing (plat) and legal description of the permit boundary, prepared by a Registered Professional Surveyor, is included on Drawing 3 of the Closure Drawings (Section 9 of Part A in this permit application). The as-designed final limit of CCR is defined on the Closure Drawings for the Consolidation Area. Upon completion of closure, the actual final limit of CCR will be confirmed and documented in the Closure Report.

18. WRITTEN POST-CLOSURE PLAN

Pursuant to State CCR Rule 391-3-4-.10(7)(g), post-closure care of the CCR unit will be conducted in accordance with the applicable requirements of 40 CFR §257.104. State CCR Rule 391-3-4-.10(9)(c)5.(v) requires that the permit application include an explanation of how the applicable regulatory post-closure care requirements will be met. Accordingly, a written Post-Closure Plan, describing the post-closure care that will be conducted, is included as Section 8 of Part A of this permit application.

TABLE

TABLE 1 - ANTICIPATED CLOSURE SCHEDULE FOR ASH POND AP-1

PLANT WANSLEY, GEORGIA POWER COMPANY, HEARD AND CARROLL COUNTIES, GEORGIA

Closure Activity	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10		Year 11	
Notify GA EPD of intent to close																						
Provide GA EPD with date of final CCR receipt																						
Prepare accurate legal description of permit boundary																						
Prepare and develop the contractor laydown areas																						
Install and maintain erosion and sediment control systems serving disturbed areas																						
Construct access platform																						
Construct deep soil mixing																						
Construct secant pile																						
Complete hydraulic dredging and dewatering																						
Complete mechanical dredging and dewatering																						
Complete final grading and install final cover system																						
Conduct site revegetation and restoration																						
Provide notice of closure within 30 days of closure completion																						
Prepare boundary survey and accurate legal description of final CCR management boundary																						
Provide the closure report to the Director																						
Submit to the Director confirmation that the notation on the property deed has been recorded																						