

ASH POND CLOSURE PLAN

PLANT MCMANUS
INACTIVE ASH POND AP-1
GLYNN COUNTY, GEORGIA

FOR



Georgia
Power

FEBRUARY 2021



ENVIRONMENTAL PROTECTION DIVISION

Approved
Solid Waste Management Program

Approved By: _____



TABLE OF CONTENTS

1.	GENERAL	1
2.	NOTIFICATION	1
3.	BOUNDARY SURVEY AND LEGAL DESCRIPTION	1
4.	WRITTEN CLOSURE NARRATIVE	1
4.1	FUGITIVE DUST CONTROL PLAN	2
4.2	ORGANICS MANAGEMENT	3
4.3	POND DEWATERING AND WASTE WATER TREATMENT SYSTEM	3
4.4	STORM WATER AND CONTACT WATER MANAGEMENT	4
4.5	EROSION, SEDIMENTATION, AND POLLUTION CONTROL (ES&PC)	4
4.6	CCR EXCAVATION	4
4.7	EARTHEN FILL	6
4.8	VEGETATIVE PLAN	6
4.9	PERMIT DRAWINGS	6
5.	SURFACE IMPOUNDMENT INSPECTIONS	6
6.	GROUNDWATER MONITORING WELL INSPECTIONS	8
7.	GROUNDWATER MONITORING	8
8.	RESTORATION	8
9.	ON-GOING PLANT OPERATIONS AND MAINTENANCE	9
10.	COST OF CLOSURE AND FINANCIAL ASSURANCE	9
11.	REPORTS - CERTIFICATION OF CCR REMOVAL/CLOSURE REPORT	10
12.	DEED NOTIFICATION	10
13.	CLOSURE SCHEDULE	10
14.	RECORDKEEPING/NOTIFICATION/INTERNET REQUIREMENTS	10

1. GENERAL

This Closure Plan addresses the requirements of the Georgia Environmental Protection Division's (GA EPD) State CCR Rule 391-3-4-.10. This Plan describes the methodology for closure of the surface impoundment, Ash Pond 1 (AP-1) at the Clifford B. McManus Power Plant (Plant McManus), located in Brunswick, Georgia. Plant McManus is located on Crispen Island east of the Turtle River. The Plant is surrounded by tidal marsh and is accessed by a single access road (Crispen Boulevard).

AP-1 is currently being closed by removing all CCR from the former surface impoundment footprint and disposing at an off-site Subtitle D landfill that is permitted by GA EPD to receive CCR. CCR removal activities began in the second quarter of 2016.

2. NOTIFICATION

Georgia Power completed a *Notification of Intent to Initiate Closure, Plant McManus Inactive CCR Surface Impoundment*, certified by Richard K. Lowe, P.E., a Georgia Licensed Professional Engineer on December 7, 2015. Georgia Power will substantially complete all closure construction activities of AP-1 in accordance with this Closure Plan within five (5) years following the beginning of closure.

3. BOUNDARY SURVEY AND LEGAL DESCRIPTION

The boundary survey of the proposed CCR Permit Boundary and written Legal Description of the proposed CCR Permit Boundary are provided in Sheet 3 in Exhibit 8. The total area bounded by the CCR permit boundary is approximately 104 acres (referred to as the Site hereafter).

4. WRITTEN CLOSURE NARRATIVE

The purpose of this Closure Plan is to describe the methodology that is being implemented to close the Plant McManus ash pond consistent with recognized and generally accepted engineering practices. The procedures to complete closure by removal include clearing and grubbing; dewatering; excavating and transporting the CCR to a permitted, off-site landfill and confirming that all the CCR material has been removed by excavating no less than six (6) inches of soil underlying the bottom of the CCR.

Decontamination of the CCR Unit will be conducted in a three-step process:

1. All visible CCR shall be removed from the unit and placed in an appropriately permitted solid waste facility. Visual observations and use of the Munsell Soil Color Chart will be used to confirm that all visible ash has been excavated from the former CCR footprint. Additional laboratory methods, such as light microscopy, may be employed.
2. A minimum of 6 inches of soil beneath the visible CCR footprint will be excavated and placed in an appropriately permitted solid waste facility.

3. Groundwater monitoring of the former CCR unit will be conducted for a minimum period of 5 years or continue until groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to 40 CFR 257.95(h) for Appendix IV constituents.

The CCR is being removed by first dewatering the ash pond sufficiently for safe access by earth-moving equipment. The CCR is excavated and transported to a central location within the ash pond, whereby the CCR is stacked and conditioned as necessary to reduce its moisture content, tested in accordance with ASTM D2216, to a level appropriate for off-site transportation and receipt by a Subtitle D Municipal Solid Waste landfill permitted by GA EPD to receive CCR. Periodic testing of the stacked CCR is performed in accordance with ASTM D2216 to ensure consistent moisture content. The CCR is transported to the off-site landfill by truck.

CCR removal equipment shall be physically cleaned to the extent that is practically possible to remove all visible ash after use. Cleaning activities will take place within the footprint of AP-1. All solid material from the cleaning process will be consolidated and hauled to an appropriately permitted solid waste facility.

Georgia Power will amend the Closure Plan whenever there is a change that would substantially affect the Closure Plan or unanticipated events necessitate a revision of the closure plan. The Closure Plan will be amended no later than 30 days following a triggering event.

4.1 FUGITIVE DUST CONTROL PLAN

The purpose of this fugitive dust control plan is to demonstrate compliance with the fugitive dust requirements in CCR Rule 391-3-4-.10(5)(a).

This fugitive dust control plan identifies and describes the CCR fugitive dust control measures that Georgia Power Plant McManus uses to minimize CCR from becoming airborne during closure activities, including CCR fugitive dust originating from the ash pond, roads, and material handling activities.

GA EPD State CCR Rule 391-3-4-.10(2)(a) (incorporating 40 CFR § 257.53 by reference) defines “CCR 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.”

Fugitive dust originating from the AP-1 closure activities is principally controlled using water suppression.

The fugitive dust control measures identified and described in this plan were adopted and implemented based upon an evaluation of site-specific conditions and are applicable and appropriate for the Plant McManus ash pond closure. Evaluation included assessing the effectiveness of the fugitive dust control measures for the facility, taking into consideration various factors such as site conditions, weather conditions, and operating conditions.

CCR that is transported via truck for off-site disposal is conditioned to a moisture content appropriate to reduce the potential for fugitive dust.

Water suppression is used as needed to control fugitive dust on facility roads used to transport CCR and other CCR management areas.

Speed limits are utilized 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 and will be covered prior to transport.

Georgia Power and construction personnel assess the effectiveness of the control measures by performing visual observations of the ash pond and surrounding areas and implementing appropriate corrective actions for fugitive dust, as necessary. Logs are used to record the utilization of water-spray equipment.

If a complaint is 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.

An Annual Fugitive Dust Control report for AP-1 is posted on the Georgia Power website under Environmental Compliance.

4.2 ORGANICS MANAGEMENT

Woody vegetation (trees and brush) was removed prior to excavating the CCR from AP-1. The wood waste (no CCR present) such as trees/logs or brush, was cut above the ground surface. The wood waste (e.g. logs) was chipped for on-site use and disposed in an off-site landfill. Vegetation stumps or roots within the CCR were managed with the CCR to an off-site, permitted landfill.

4.3 POND DEWATERING AND WASTE WATER TREATMENT SYSTEM

Dewatering includes removing water using a variety of methods, including but not limited to passive, gravity-based methods (e.g. rim ditches) and active dewatering methods (e.g. pumps and well points) as needed to allow for CCR excavation and transportation. CCR contact water and legacy wastewater from AP-1 is further treated by an on-site wastewater treatment system (WWTS). Water is managed and discharged in accordance with the site's approved NPDES Industrial Wastewater Discharge Individual Permit.

Plant McManus currently discharges storm water under NPDES Industrial Discharge Permit GA0003794, effective March 1, 2018. This NPDES permit governs discharges into Burnett Creek in the Satilla River Basin from outfall No. 0-2. The permit establishes effluent limitations and monitoring requirements, which Georgia Power follows for discharges from the water treatment system.

Consistent with the NPDES Permit, a written Ash Pond Dewatering Plan was developed to describe the processes, monitoring, and sampling activities during closure activities to meet the NPDES permit requirements. The Ash Pond Dewatering Plan was approved by the Watershed Protection Branch of the GA EPD on January 10, 2017.

The Ash Pond Dewatering Plan describes procedures to remove CCR-contact water as needed to allow for the safe CCR excavation and transportation. CCR-contact water is treated at the on-site wastewater treatment system (WWTS).

The on-site Wastewater Treatment System (WWTS) treats legacy wastewater and CCR contact water generated during ash pond closure activities. Georgia Power treats the wastewater to meet the NPDES permit effluent discharge requirements. The WWTS will not be decommissioned until all CCR material has been removed from the footprint of AP-1 and water treatment is no longer necessary.

4.4 STORM WATER AND CONTACT WATER MANAGEMENT

Hydrologic and Hydraulic Capacity Design is included in Part B (Inflow Design Flood Control System Plan). Run-on storm water and run-off CCR-contact water (storm water that has come into contact with CCR) during CCR removal is controlled with best management practices such as channels, diversion berms, and pumps and managed in AP-1. A phased execution for the CCR removal is being followed to effectively contain CCR-contact water until CCR removal is verified as complete. The ash pond excavation area serves as a detention/retention basin to contain CCR-contact water within the excavation (e.g. ash pond). Water that contacts CCR is treated by the on-site WWTS in accordance with the Ash Pond Dewatering Plan and in compliance with the NPDES permit.

4.5 EROSION, SEDIMENTATION, AND POLLUTION CONTROL (ES&PC)

Erosion, Sediment and Pollution Control (ES&PC) measures are implemented in accordance with the *Manual for Erosion and Sediment Control in Georgia*. ES&PC measures are in place and will be maintained throughout the duration of the CCR removal activities as applicable.

All construction activities performed to close the Plant McManus AP-1 CCR unit will take place within or around the limits of AP-1 and the discharge of waters associated with construction activities will occur under the existing Plant McManus National Pollutant Discharge Elimination System (NPDES) Permit GA0003794. Upon completion of ash removal activities, Georgia Power will ensure that any discharge of industrial storm water or construction storm water are permitted under the applicable General Permit. An appropriate and comprehensive system of best management practices required by the Georgia Water Quality Control Act and in accordance with the current version of the *Manual for Erosion and Sediment Control in Georgia* will be included in the ES&PC Plan to manage discharges.

4.6 CCR EXCAVATION

Estimate of CCR Material Volume to Be Removed

The ash pond, prior to disturbance, consisted of an approximate 20-acre shallow-water pond and approximately 60 acres of "upland CCR." The "upland CCR" was densely vegetated with trees and shrubs. The CCR was sluiced from the former plant to the ash pond at its southwest corner (plant-side of Crispin Blvd). The thickness of the CCR in the upland area was estimated to average

approximately 5-feet; the average thickness of ash in the shallow portion of the approximate 20-acre pond was estimated to average approximately 1.5 ft. Based on these assumptions prior to commencement of closure activities, the volume of the ash was estimated to be approximately 550,000 cubic yards.

The volume of CCR estimated to be removed does not include removal of the 6-inches of native soil underlying the base of the CCR.

Removal Procedures and Criteria

The earthen dike and primary/secondary spillway (e.g. NPDES outfall structure) will remain intact during and after ash removal. It is expected that the former ash pond may fill with storm water to the outlet weir invert elevation of 4.5 ft MSL after all the CCR has been removed. Following completion of CCR removal and GA EPD's approval of the removal activities, Georgia Power may modify and/or remove the primary/secondary spillway structure.

There is existing power transmission infrastructure located within the ash pond limits that are present and that will remain in place and functional during and after ash pond closure. Specifically, there are transmission super structures including guy wires located in the southwestern area of the pond. Concurrent with scheduled maintenance of the transmission structures, the CCR was removed and the transmission towers and guy wires were reinstalled following CCR removal. In the area of the transmission tower and guy wire maintenance pad in the northeast section of the site, no CCR was encountered in this area during CCR removal activities (please refer to the Certification of Removal Report dated November 20, 2019.)

In the context of this Closure Plan, "CCR removal criteria" refers to the process of verifying and documenting that all CCR has been removed from the ash pond. The ash pond is known to contain a mixture of fly and bottom ash collectively referred to as "CCR."

The visual verification of CCR removal defines and documents the CCR/soil interface. Once the CCR/marsh interface has been visually verified, an additional minimum six (6) inches of foundation soils below the CCR/marsh interface is removed. The procedures to confirm CCR removal are detailed in the CQA Plan.

After CCR-removal areas are confirmed by the CQA staff, on-site native soils are used to construct ditches and berms along the perimeter to ensure completed CCR-removal areas are not exposed to CCR or contact water. Ditches are used to promote drainage and convey runoff to areas where the water can be pumped and treated for discharge. Berms are used to isolate the clean area and prevent the intrusion of contact water from the surrounding CCR-containing areas. As the work progresses across the site the ditches/berms are constructed and moved as needed to preserve and isolate the post CCR removal areas. Soils utilized in the closure of AP-1 will originate from the AP-1 dike and, if necessary, appropriately permitted off-site sources. No new on-site borrow area will be established as part of this closure project.

CQA staff monitor the protection measures used to isolate the post CCR removal areas. Post-CCR removal areas that are exposed to storm water will not require re-working as long as the CQA

staff have ensured that the protection measures described above are in place and performing as intended.

4.7 EARTHEN FILL

After the CCR is removed and the subgrade soils have been over-excavated, fill material may be placed to restore the removal area to approximately the pre-pond conditions. Soil may be imported from on or off-site as needed and will be placed to promote positive drainage, support permanent vegetation, and minimize erosion.

4.8 VEGETATIVE PLAN

Disturbed areas associated with or disturbed as a result of the closure through removal of AP-1, will be grassed and maintained in accordance with the following schedules. A vegetative cover in certain areas will be established after removal activities are completed. Some areas in the former ash pond removal area will be inundated with storm water due to the berm and primary spillway which will remain following closure. The invert elevation of the primary spillway may incur ponded water to elevation 4.5 feet MSL. The vegetation plan described in the following is applicable to those areas not inundated by ponded storm water.

Seeding Table

Area	Sowing Season	Species	Seed Rate
Permanent	10/1 to 2/28	Common Bermuda (Unhulled)	10 lb/ac
	3/1 to 6/30	Common Bermuda (Hulled)	10 lb/ac
	1/1 to 12/31	Bahia	60 lb/ac
Temporary	8/15 to 4/15	Ryegrass	40 lb/ac
	4/16 to 8/14	Millet	40 lb/ac

4.9 PERMIT DRAWINGS

Drawings depicting pre-closure conditions and final conditions (post-ash removal) are included in PART A Exhibit 8. Pre-closure conditions drawings show recent 2014 topography (prior to commencement of ash removal) and site features. The Final Conditions Plan portrays the horizontal limits of the anticipated ash excavation (including 6 inches below ash) and anticipated post-ash removal grades. An as-built of the final condition will be provided in the Certification of CCR Removal report submitted following completion of CCR removal activities.

5. SURFACE IMPOUNDMENT INSPECTIONS

Surface impoundment inspections during closure activities will continue to be performed in accordance with 40 CFR 257.83 until CCR removal has been completed.

7-day Inspections

Georgia Power currently inspects the compacted soil dike of AP-1 at intervals not exceeding seven (7) days. The 7-day inspections are made by a Qualified Person and include observation

and documentation of any appearance of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the closure activities or the safety of the surface impoundment.

Additionally, at intervals not exceeding seven days, the discharge primary spillway located at the northwestern corner of AP-1 is inspected for abnormal discoloration, flow, or discharge of debris or sediment.

Georgia Power records these inspections on a form that is filed in the facility's operating record.

If a potential deficiency or release is identified during an inspection, Georgia Power will remedy the deficiency or release. Georgia Power will prepare documentation detailing the corrective measures taken and place it in the facility's operating record.

Annual Inspections

As required by Chapter 391-3-4-.10(5)(b), which incorporates the operating criteria listed in 40 CFR 257.80, 40 CFR 257.82, and 257.83 of the Federal CCR Rules, a Professional Engineer registered in Georgia inspects AP-1 on an annual basis. The inspection includes, at a minimum:

- a. A visual inspection of AP-1 to identify signs of distress or malfunction of the compacted soil dike and/or the principal spillway.
- b. A review of available information regarding the status and condition of AP-1, including, but not limited to, files available in the facility's operating record such as:
 - i. The results of weekly inspections and the results of previous annual inspections,
 - ii. Files available in the operating record and other conditions which have disrupted or have the potential to disrupt the closure activities or safety of AP-1.

Annual Reporting

At the completion of each annual inspection per 40 CFR 257.83(b), the Professional Engineer who completed the inspection will prepare an annual report that includes the following:

- a. Any changes in geometry of the impounding structure since the previous annual inspection.
- b. The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection.
- c. The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection.
- d. The storage capacity of the impounding structure at the time of the inspection.
- e. The approximate volume of the impounded water and CCR at the time of the inspection.
- f. Any appearances of an actual or potential structural weakness of the CCR unit in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures.
- g. Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.

Annual Inspection Reports for the Plant McManus AP-1, which meet the requirement of Chapter 391-3-4-.10(5) of the Georgia Rules, can be found online at Georgia Power Company website under Environmental Compliance Information.

6. GROUNDWATER MONITORING WELL INSPECTIONS

In accordance with the Georgia Water Well Standards Act (O.C.G.A. §12-5-120), at least once every five years, the owner of the property on which a monitoring well is constructed shall have the monitoring well(s) inspected by a professional engineer or professional geologist, who shall direct appropriate remedial corrective work to be performed if the well does not conform to standards.

7. GROUNDWATER MONITORING

Georgia Power shall monitor groundwater semi-annually pursuant to the requirements defined in the Groundwater Monitoring Plan included in the permit. GPC proposes to monitor groundwater for a period of five (5) years after the CCR has been removed from AP-1 to confirm that groundwater constituent concentrations are not detected at statistically significant levels above the groundwater protection standards established in State CCR Rule 391-3-4-.10(6)(b), which reference the constituents in the Federal CCR Rule Subpart D, Appendix III and IV. A demonstration certified by a Qualified Groundwater Scientist will be submitted to EPD for approval documenting that groundwater constituent concentrations are not detected at statistically significant levels above the groundwater protection standards established in Rule 391-3-4-.10(6)(b) for constituents listed in Appendix IV. Evaluation criteria may include but are not limited to, additional sampling, analysis, calculations, and/or modeling to demonstrate compliance with 391-3-4-.10(7)(b) as determined by the Qualified Groundwater Scientist and approved by EPD.

8. RESTORATION

Plant McManus will remain an active power generation facility after removal of CCR from the surface impoundment, and the best use of the area is to continue to serve as a wastewater treatment pond for any residual CCR impacted water that may be present. No new industrial wastewater streams will be introduced into the surface impoundment now that the completion of dewatering activities and removal of CCR are complete. The pond will provide any remaining treatment function until final regulatory closure is achieved in accordance with the Solid Waste Rules and Solid Waste Permit. Surface water discharges from the CCR unit will continue to be managed under the NPDES Wastewater Permit in coordination with the Watershed Protection Branch as detailed in an updated NPDES Permit Application submitted to the Wastewater Regulatory Program. Maintenance of the surface impoundment, including the earth berm (north of Crispen Blvd) and primary spillway structure (NPDES outfall structure), will continue during the post CCR removal period that includes groundwater monitoring. Following regulatory closure certification, Georgia Power may elect to remove the earthen berm and NPDES outfall structure.

9. ON-GOING PLANT OPERATIONS AND MAINTENANCE

Activities needed to construct, maintain, replace or repair systems for electric power generation or its delivery (such as subsurface piping, electrical appurtenances, transmission structures, etc.) may be conducted at Georgia Power’s discretion within the CCR permit boundary after removal activities have been completed.

10. COST OF CLOSURE AND FINANCIAL ASSURANCE

In compliance with applicable securities laws and regulations, cost estimates for Post CCR removal groundwater monitoring will be provided to EPD under separate cover. The costs include all items necessary for a third party to complete the project in accordance with the Closure Plan included herein. The cost estimates provided to EPD will be based on an area of 22 acres, in 2021 dollars, and adjusted annually for inflation.

McManus Ash Pond 1 Post Removal Cost Estimate

Item Description	Quantity	Unit	Unit Cost	Cost
<i>Post Removal Cost</i>				
Maintenance - Grass ¹				
Dike & Road Maintenance				
Rock Slope + Rock & Culvert Maintenance				
<i>Environmental Monitoring</i>				
Groundwater Monitoring & Reporting				
Sampling				
Reporting				
Laboratory Analysis				
Groundwater Well Maintenance and				
Well Maintenance				
Well Abandonment				
Subtotal				
Contingency				
5 Year Post Removal Cost Estimate				

Notes:

1. Maintenance - Grass includes cost for mowing the site five times per year.

11. REPORTS - CERTIFICATION OF CCR REMOVAL/CLOSURE REPORT

Upon completion of CCR removal, a professional engineer registered in Georgia will prepare and Georgia Power will submit a certification report documenting the removal to GA EPD. The certification report will be submitted to GA EPD within 60 days of closure by removal activities.

Pursuant to State CCR Rule 391-3-4-.10(7)(e), once all CCR removal is complete and groundwater monitoring concentrations at the site have been demonstrated not to exceed the applicable Federal and State groundwater protection standards, a professional engineer registered in Georgia will prepare, and Georgia Power will submit a closure report to the EPD Director. The closure report will be completed on forms provided by GA EPD.

12. DEED NOTIFICATION

According to 40 CFR 257.102(i), deed notification is not required for CCR units that close by removal of CCR.

13. CLOSURE SCHEDULE

The following presents the anticipated schedule for the ash pond closure:

- Notice of Intent to Initiate Closure - December 7, 2015
- Mobilization/Vegetation Removal - 2016
- Submit Permit Application to EPD - 2018
- CCR Removal Activities - 2016 to 2021 (<5 years)
- Notification of Closure within 30 days of completion of closure activities
- Certification of Completion of CCR Removal - within 60 days of closure by removal activities
- Stabilize Site & Establish Vegetative Cover - by 2021
- Groundwater Monitoring - 5 Years following Certification of CCR Removal
- Closure Report - 5 years from Certification of CCR Removal

14. RECORDKEEPING/NOTIFICATION/INTERNET REQUIREMENTS

Georgia Power will comply with the requirements of State CCR Rule 391-3-4-.10(8) which reference the closure recordkeeping, notification, and internet posting requirements listed in 40 CFR 257.105(i), 40 CFR 257.106(i) and 40 CFR 257.107(i) of the Federal Rules. Internet postings may be found in the Georgia Power Company website under Environmental Compliance:

<https://www.georgiapower.com/CCRRuleCompliance>