

# POST-CLOSURE PLAN

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PLANT BRANCH CCR LANDFILL

PUTNAM COUNTY, GEORGIA

FOR



# Georgia Power

OCTOBER 2022

REV. 0



10/14/2022

**Geosyntec**  
consultants



**GEORGIA**  
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

**Approved**  
**Solid Waste Management Program**

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## TABLE OF CONTENTS

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1.	INTRODUCTION.....	1
2.	GENERAL .....	1
3.	POST-CLOSURE USE OF THE PROPERTY .....	2
4.	MONITORING AND MAINTENANCE ACTIVITIES.....	2
4.1	INSPECTION PLAN .....	2
4.2	INSPECTION FREQUENCY .....	3
4.3	SITE ACCESS AND SECURITY CONTROL .....	3
4.4	SITE BENCHMARKS.....	3
4.5	FINAL COVER SYSTEM .....	3
4.6	VEGETATION .....	4
4.7	LEACHATE MANAGEMENT SYSTEM .....	4
4.8	STORMWATER MANAGEMENT SYSTEM.....	4
4.9	GROUNDWATER MONITORING SYSTEM .....	5
5.	RESPONSIBLE PERSON .....	6
6.	SITE EQUIPMENT.....	6
7.	POST-CLOSURE CARE COST ESTIMATE AND FINANCIAL ASSURANCE .....	6
8.	NOTIFICATION OF MONITORING STANDARDS EXCEEDED .....	6
9.	NOTIFICATION OF COMPLETION OF POST-CLOSURE CARE PERIOD.....	6
10.	RECORDKEEPING / NOTIFICATION / INTERNET REQUIREMENTS .....	7
11.	REFERENCES .....	7

## LIST OF ACRONYMS

BMP	Best Management Practice
CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
CQA	Construction Quality Assurance
GA EPD	Georgia Environmental Protection Division
GPC	Georgia Power Company
GSWCC	Georgia Soil and Water Conservation Commission
LCRS	Leachate Collection and Removal System
NPDES	National Pollutant Discharge Elimination System
PCCP	Post-Closure Care Period
P.E.	Professional Engineer
SCS	Southern Company Services
USEPA	United States Environmental Protection Agency

## 1. INTRODUCTION

This Post-Closure Plan was prepared in support of the design of a coal combustion residuals (CCR) landfill at Georgia Power Company's (GPC) Plant Branch (Site), located in Putnam County, Georgia. The site formerly operated as a coal-fired power plant that commenced power generation in 1965, ceased generating electricity prior to April 2015, and was decommissioned in 2019. Over the course of power generation at the site, five ponds, identified as Ash Ponds A, B, C, D, and E, were utilized. Ash Pond A, the first pond constructed at the site, was taken out of service in the late 1960s and was closed in April 2016 by removal and relocation of its stored CCR to Ash Pond E. Ash Ponds B, C, D, and E are currently inactive and will also be closed by removal, specifically, by relocation of the CCR stored in these ponds to the proposed lined CCR landfill to be located on the Plant property.

This Post-Closure Plan has been prepared for GPC pursuant to the United States Environmental Protection Agency (USEPA) CCR Rule in Title 40 of the Code of Federal Regulations (CFR) § 257 (40 CFR § 257), including 40 CFR § 257.104, and the Georgia Environmental Protection Division (GA EPD) CCR Rule in Chapter 391-3-4-.10 of the Georgia Rules for Solid Waste Management, Coal Combustion Residuals.

This Post-Closure Plan may be amended by GPC at any time. Moreover, as required by GA EPD CCR Rule 391-3-4-.10(7)(g), which references 40 CFR § 257.104(d)(3)(ii), this plan must be amended whenever: (i) there is a change in the operation of the CCR unit that would substantially affect the plan; or (ii) after post-closure activities have commenced, unanticipated events necessitate a revision of the plan. The timeframes for amendment to the plan will be in accordance with those specified in 40 CFR § 257.104(d)(3)(iii).

## 2. GENERAL

Once closure is completed (e.g., deemed complete by GA EPD), the site will begin the post-closure care period (PCCP) and, as such, GPC will implement the requirements of this Post-Closure Plan.

In accordance with 40 CFR § 257.104(c)(1) (incorporated by reference in GA EPD CCR Rule 391-3-4-.10(7)(g)), the PCCP will be 30 years. As required by 40 CFR § 257.104(c)(2), if at the end of the PCCP GPC is operating under assessment monitoring in accordance with 40 CFR § 257.95, GPC must continue to conduct post-closure care until it returns to detection monitoring in accordance with 40 CFR § 257.95. GPC [or Southern Company Services (SCS) at the request of GPC] will conduct the following activities during the PCCP:

- maintaining the integrity and effectiveness of the CCR landfill final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, animal intrusion, or other natural or man-made events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;
- maintaining the integrity and effectiveness of the leachate collection and removal system (LCRS) installed in the CCR landfill, and operating the LCRS and leachate management system as specified herein, consistent with 40 CFR § 257.70(d); and

- maintaining the groundwater monitoring system and monitoring groundwater at the CCR landfill in accordance with the requirements of 40 CFR § 257.90 through 257.98 (incorporated by reference in GA EPD CCR Rule 391-3-4-.10(6)) and the approved Groundwater Monitoring Plan.

### **3. POST-CLOSURE USE OF THE PROPERTY**

The primary land use for the site after closure will be open undeveloped green space. No post-closure use of the CCR landfill site will be allowed unless approved by the GA EPD Director. GA EPD may approve disturbance, including for the removal of CCR or CCR residue, if GPC demonstrates that disturbance of the final cover system, composite liner, LCRS, or other components of the closure system will not create a potential threat to human health or the environment. The demonstration will be certified by a qualified Professional Engineer (P.E.) registered in Georgia, and notification will be provided to GA EPD that the demonstration has been placed in the operating record and on GPC's publicly-accessible internet site. Prior to implementing any modifications to the post-closure use of the site, this Post-Closure Plan will be amended consistent with the requirements of 40 CFR § 257.104(d), and GA EPD approval will be obtained.

Decommissioning and maintenance activities may occur within the permit boundary but outside the limits of the CCR landfill (e.g., outside the CCR landfill waste limit, final cover system, and perimeter dikes). Activities not directly affecting the final cover system, such as those needed to remove systems previously used for electric power generation or its delivery (e.g., subsurface piping, electrical appurtenances, transmission structures, etc.), may be conducted at the discretion of GPC/SCS. However, should activities be required such that the final cover system is disturbed, GPC/SCS will obtain GA EPD's approval to initiate construction activities and prepare a report documenting its repair. The repair documentation will include as-builts, construction quality assurance (CQA) information, and certification from a P.E. registered in Georgia. This documentation will be submitted to GA EPD.

### **4. MONITORING AND MAINTENANCE ACTIVITIES**

#### **4.1 INSPECTION PLAN**

The purpose of the post-closure inspection program is to ensure the adequate functioning of the engineered features of the CCR landfill during the PCCP. A visual inspection of the entire CCR landfill will be performed at the frequency specified subsequently in this Post-Closure Plan, and a written record will be completed and maintained as part of the facility's operating record. At a minimum, each inspection will document the following information: date and time of inspection, name of inspector, notations of observations made, and nature of any corrective actions taken. Items that may be included in the inspection are as follows:

- site access and security control;
- site benchmarks;
- final cover system;
- perimeter dikes;

- vegetation;
- leachate management system;
- stormwater management system; and
- groundwater monitoring system.

#### **4.2 INSPECTION FREQUENCY**

Inspections will be conducted quarterly (i.e., 4 times a year) for the first five years and annually thereafter. If any deficiencies are identified during the inspections, an assessment and corrective action plan will be implemented as soon as practical.

#### **4.3 SITE ACCESS AND SECURITY CONTROL**

The CCR landfill is located completely within the Plant Branch property boundary, and access to the property is restricted to only authorized personnel. Access will be controlled by a chain link security fence and gates that are kept locked. During the PCCP, fences, gates and locks, and barriers around the site will be checked during the periodic inspections and maintained/repaired as necessary.

Access roads will be maintained to provide appropriate access within the facility. Maintenance will include repairing potholes and washouts as well as periodic regrading as necessary.

#### **4.4 SITE BENCHMARKS**

Periodic inspections will include verifying the integrity and accessibility of site benchmarks. If site benchmarks are damaged, obstructed due to vegetation, or otherwise inaccessible, proper actions will be taken to restore integrity and access to the benchmarks.

#### **4.5 FINAL COVER SYSTEM**

Periodic inspections will include checking the final cover system for conditions that could impact cover system integrity and effectiveness. These may include excessive erosion, soil sloughing, subsidence, inadequate vegetation, animal burrowing, vehicular disturbance, and exposure of or damage to the geomembrane component of the cover system. If the periodic inspection program reveals any areas with an unacceptable magnitude of cover system settlement, subsidence, erosion, soil sloughing, animal or vehicular disturbance, or other damage to the final cover system, or damage or deterioration to ClosureTurf®, if used, the areas will be repaired to restore the integrity and effectiveness of the system to meet or exceed the original construction requirements. Any identified areas of water ponding on the final cover system will likewise be repaired. If the final cover system alternative ClosureTurf® is utilized, maintenance (e.g., replenishment of sand infill) and repairs will be performed in accordance with the manufacturer's design and installation manuals [WatershedGeo, 2018a, 2018b].

#### **4.6 VEGETATION**

Periodic inspections will include checking the condition of vegetation on the final cover system and the adjacent features of the CCR landfill (e.g., perimeter containment dike slopes, adjacent stormwater management features). Locations found to lack proper vegetation will be evaluated to assess the problem, and then appropriate actions will be taken to restore the vegetation and maintain the area. Revegetation and fertilization will be performed as described in the Closure Plan.

During periods when vegetation is not fully established (e.g., just after performing PCCP construction or maintenance activities), temporary erosion and sediment control best management practices (BMPs) will be installed in accordance with recommendations provided in the Georgia Soil and Water Conservation Commission's (GSWCC) *Manual for Erosion and Sediment Control in Georgia* [GSWCC, 2016]. These temporary BMPs will be maintained until the disturbed areas are stabilized.

Vegetation will be mowed at least twice a year to maintain its health, avoid die-out due to shading, eliminate woody-stemmed vegetation, and provide for adequate visibility of the site during inspections.

#### **4.7 LEACHATE MANAGEMENT SYSTEM**

The leachate management system is composed of the LCRS, along with the riser pipes, leachate riser pads, and leachate transmission system (pipes, pumps, valves, flowmeters, manholes, and other appurtenances). The leachate management system will be operated and maintained to collect and remove leachate from the CCR landfill during the PCCP, consistent with 40 CFR § 257.70(d). The removed leachate will be properly treated in a wastewater treatment plant.

During the PCCP, the leachate management system will be operated and maintained as set forth in the Operations Plan [Geosyntec, 2022a] prepared to support the permitting of the Plant Branch CCR landfill. Periodic maintenance and inspections of the leachate management system will include: (i) checking the condition of leachate system pumps and control systems; and (ii) checking and cleaning (if needed) the LCRS and leachate transmission system piping to ensure that the system features are operational and functioning as intended. Abnormal flow rates, unusual noises or odors, or other anomalies will be noted and addressed, and damaged or inoperable features will be repaired or replaced, as necessary, to restore function.

#### **4.8 STORMWATER MANAGEMENT SYSTEM**

The stormwater management system is composed of the drainage conveyances located on the final cover system (top deck diversion berms, drainage benches, and downchutes), as well as the adjacent drainage conveyances and features that route stormwater away from the CCR landfill to discharge points [perimeter channels, stormwater channels (e.g.,

channels not constructed as part of the perimeter dike), stormwater pipes, and stormwater ponds with associated inlet and outlet structures and appurtenances].

Inspection and maintenance of the stormwater management system will be performed in accordance with the recommendations contained in the Best Management Practices *Operations & Maintenance Guidance Document*, Appendix E of Volume 2 of the Georgia Stormwater Management Manual, 2016 Edition [AECOM, 2015]. Inspection and maintenance practices will include: (i) removing built up sediment, debris, and trash; (ii) removing debris from the inflow and outflow structures; (iii) implementing erosion and sediment control practices where stabilization features are missing or in poor condition; and (iv) inspecting the structural integrity and functionality of the system components.

Stormwater management system inspections and stormwater discharge monitoring will also be conducted throughout the PCCP in accordance with the facility's National Pollutant Discharge Elimination System (NPDES) permits for industrial stormwater and wastewater discharges, and associated Stormwater Pollution Prevention Plan, until NPDES permit(s) coverage is terminated.

#### **4.9 GROUNDWATER MONITORING SYSTEM**

As required by GA EPD CCR Rule 391-3-4-.10(6) and 40 CFR § 257.90(c), groundwater monitoring, sampling, and corrective action (if applicable) will be conducted throughout the PCCP in accordance with the facility Groundwater Monitoring Plan [Geosyntec, 2022b]. GPC will 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 at least thirty (30) years following closure of the landfill to confirm that groundwater constituent concentrations are not detected at statistically significant levels above the groundwater protection standards established in GA EPD CCR Rule 391-3-4-.10(6)(b), which references 40 CFR § 257.104. If at the end of the 30-year post-closure care period GPC is operating under assessment monitoring in accordance with GA EPD CCR Rule 391-3-4-.10(6) and 40 CFR § 257.95, GPC must continue to conduct post-closure care until it returns to detection monitoring. Following the post-closure care period, a qualified groundwater scientist will certify that the site is in Detection Monitoring prior to release from post-closure care. The certification statement will be submitted to GA EPD for review and concurrence and will include the following language: "I am a qualified groundwater scientist and I hereby certify that the groundwater monitoring program at the CCR landfill is operating under detection monitoring in accordance with 40 CFR § 257.94 and Georgia Rules for Solid Waste Rule 391-3-4-.10 and monitoring requirements for post-closure care have been met."

In addition to groundwater monitoring and sampling, groundwater monitoring system components, including wells, well risers, well pads and seals, casings, caps, locks, and bollards, will be periodically inspected, maintained, and repaired or replaced, as necessary.

## 5. RESPONSIBLE PERSON

The GPC person or office to contact about the facility during the PCCP is provided below:

Contact: Manager  
Address: Georgia Power Environmental Affairs  
241 Ralph McGill Boulevard,  
Atlanta, GA 30308  
Phone Number: 404-506-6505  
Email Address: [gpcenv@southernco.com](mailto:gpcenv@southernco.com)

## 6. SITE EQUIPMENT

GPC/SCS or its designated contractor will make adequate equipment available (either its own equipment, or rental equipment) to execute the post-closure care requirements correctly and efficiently.

## 7. POST-CLOSURE CARE COST ESTIMATE AND FINANCIAL ASSURANCE

The post-closure care cost estimate is provided in Table 1 at the end of this document. In compliance with applicable securities laws and regulations, GPC will provide unredacted cost estimates for post-closure care to GA EPD under separate cover. The post-closure maintenance and monitoring costs include all items necessary for a third party to complete the project in accordance with the Post Closure Plan included herein. The cost estimates provided to GA EPD are based on an area of 115.2 acres and in current year dollars. The cost estimate will be adjusted annually for inflation.

## 8. NOTIFICATION OF MONITORING STANDARDS EXCEEDED

GPC/SCS will be responsible for conducting monitoring activities. If at any time, the monitoring results indicate the exceedance of established standards or a threat to human health or the environment, GPC will promptly notify GA EPD in accordance with the requirements of GA EPD CCR Rule 391-3-4-.10(6).

## 9. NOTIFICATION OF COMPLETION OF POST-CLOSURE CARE PERIOD

No later than 60 days following the completion of the PCCP, GPC will prepare a notification verifying that post-closure care has been completed. The notification will include a certification by a qualified P.E. registered in Georgia verifying that post-closure care has been completed in accordance with this Post-Closure Plan. GPC will complete the post-closure process by: (i) placing the notification in the facility's operating record, as required by 40 CFR § 257.105(i)(13); and (ii) providing the notification to the Director of GA EPD. Release of the CCR landfill from continuing post-closure care requirements must be approved by the GA EPD.

## 10. RECORDKEEPING / NOTIFICATION / INTERNET REQUIREMENTS

During post-closure care, recordkeeping, notifications, and internet postings will be performed as required by the following sections of 40 CFR § 257 (incorporated by reference in GA EPD CCR Rule 391-3-4-.10(8)):

- recordkeeping in accordance with 40 CFR § 257.105(i);
- notifications in accordance with 40 CFR § 257.106(i); and
- internet posting requirements in accordance with 40 CFR § 257.107(i).

## 11. REFERENCES

AECOM (2015). "Operations & Maintenance Guidance Document," Georgia Stormwater Management Manual, Volume 2, Appendix E. September 2015.

Georgia Soil and Water Conservation Commission (GSWCC) (2016). "Manual for Erosion and Sediment Control in Georgia." 2016.

Geosyntec Consultants. (2022a). "Operations Plan, Plant Branch CCR Landfill." Prepared for Georgia Power Company, October 2022.

Geosyntec Consultants. (2022b). "Groundwater Monitoring Plan, Plant Branch CCR Landfill." Prepared for Georgia Power Company, October 2022.

WatershedGeo (2018a). "ClosureTurf Design Guidelines Manual," January 2018.

WatershedGeo (2018b). "ClosureTurf Installation Guidelines Manual," December 2018.

**Table 1. Branch Landfill Post-Closure Cost Estimate**

Item Description	Quantity	Unit	Unit Cost	Cost
<b>Post Closure Cost</b>				
Maintenance - Grass/Turf <sup>1</sup>				
Dike, Road, and Maintenance				
Water Treatment				
<b>Environmental Monitoring</b>				
Groundwater Monitoring & Reporting <sup>2</sup>				
Sampling				
Reporting				
Laboratory Analysis				
Groundwater Well Maintenance and Abandonment				
Well Maintenance & Replacement <sup>3</sup>				
Well Abandonment <sup>4</sup>				
			Subtotal	
			Contingency	
			<b>30 Year Post Closure Cost Estimate</b>	
			<b>Total Financial Assurance Required (Closure Cost + 30 Year Post Closure Care Cost)</b>	

Notes:

1. Maintenance - Grass includes cost for mowing the site five times per year.
2. Assumes 34 wells + 9 QA/QC samples = 43 samples collected 2 times/year for 30 years. Includes cost for additional analyses for Alternate Source
3. Assumes 5% of miscellaneous costs in post-closure care are associated with well maintenance and replacement. Assumes, no additional wells will be installed
4. Well abandonment includes 43 wells and 11 piezometers completed above grade.