# OPERATIONS PLAN

## PLANT BRANCH CCR LANDFILL

## PUTNAM COUNTY, GEORGIA

## FOR

Georgia Power

**OCTOBER 2022**

REV. 0

GEORGIA REGISTERED No. 034184 PROFESSIONAL ENGINEER MEHMET ISCIMEN

10/14/2022

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

**Approved**

**Solid Waste Management Program**

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## LIST OF ACRONYMS

| | |
|---|---|
| BMPs | Best Management Practices |
| CFR | Code of Federal Regulations |
| CCR | Coal Combustion Residuals |
| CQA | Construction Quality Assurance |
| CY | Cubic Yards |
| D&O Plan | Design and Operational Plan |
| E&SC Manual | Manual for Erosion and Sediment Control in Georgia |
| GA EPD | Georgia Environmental Protection Division |
| GPC | Georgia Power Company |
| GSWCC | Georgia Soil and Water Conservation Commission |
| LB/AC | Pounds/Acre |
| NPDES | National Pollutant Discharge Elimination System |
| N-P-K | Nitrogen – Phosphorus - Potassium |
| SIP | State Implementation Plan |
| SWPPP | Stormwater Pollution Prevention Plan |
| USACE | United States Army Corps of Engineers |
| USEPA | United States Environmental Protection Agency |
| WWTS | Wastewater Treatment System |

# 1. GENERAL SITE INFORMATION

This Operations Plan was developed to meet the requirements set forth in Section (5)(a) of Rule 391-3-4-.10 of the Georgia Solid Waste Rules & Regulations [Georgia Environmental Protection Division (GA EPD) CCR Rule] and 40 CFR § 257 [United States Environmental Protection Agency (US EPA) CCR Rule] which address the operating criteria of Coal Combustion Residual (CCR) landfills and to present the procedures for CCR waste disposal operations, maintenance, and monitoring of the engineered systems for the CCR landfill to be constructed at the Georgia Power Company (GPC) Plant Branch Site.

The Operations Plan will be reviewed on an annual basis and be amended whenever there is a change in conditions that will substantially impact the plan, per GA EPD CCR Rule, Section (9)(c)1.(vi)(VI) and the amendment requirements listed in 40 CFR § 257.

## 1.1 CCR CAPACITY AND ESTIMATED LIFE

The total site area of the Plant Branch CCR landfill is approximately 289.7 acres (i.e., the area within the permit boundary), with approximately 115.2 acres being permitted for CCR disposal (i.e., the area within the waste limit). The waste disposal area is divided into ten (10) cells. The estimated CCR capacity and operating life is as follows:

**Table 1.1. CCR Capacity and Operating Life**

| | **Approximate CCR Capacity[1] (cubic yards, cy)** | **Approximate Operating Life[2] (years)** |
|---|---|---|
| Cells 1-4 | 5,502,000 | 4.1 |
| Cells 5-6 | 4,917,000 | 3.7 |
| Cells 7-10 | 6,902,000 | 5.2 |
| **Total** | **17,321,000** | **13.0** |

Note:

(1) Operating life covers the approximate period of CCR disposal and does not include estimated time frames for initial cell construction (1 year) and the final closure activities (1 year). The capacities shown represent volumes with a ClosureTurf® cover system. The final volume of CCR within the cells may be less than the volume of full capacity, depending on the amount of CCR disposed and the amount removed from the site for beneficial use. Should the CCR landfill close prior to reaching final permitted elevations or waste limit (i.e., a smaller footprint in which not all the cells, or reduced footprints of cells are constructed), GPC will revise the closure design to develop new closure grades and will request written approval from GA EPD.

(2) The operating life of the CCR landfill is based on a project average annual disposal rate of approximately 1,300,000 cy/year and does not include the initial construction, initial certification, final closure, final

certification, and post-closure periods. The actual operating life may differ depending on the amount of CCR disposed and the amount removed from the site for beneficial use.

## 1.2 DESCRIPTION OF WASTE

The facility will receive solid waste produced from the generation of electricity from coal (i.e., CCR) as defined in Rule 391-3-4-.01, and materials in contact with or used to contain or absorb CCR (truck liners, truck wash sediments containing ash, etc.) generated by GPC. Allowable wastes include:

(i) CCR (fly ash, bottom ash, flue gas desulfurization materials, and boiler slag);

(ii) Materials impacted by CCR, or used to collect or absorb CCR, that were generated by Georgia Power Company (e.g., over-excavated foundation soils from the bottom of each CCR pond after the CCR is removed);

(iii) Other waste generated from milling coal in preparation for the combustion process;

(iv) CCR-impacted debris and structures (e.g., gravel, rubble, discharge lines, pipes, collector sumps, etc.); and

(v) CCR water treatment filter cake materials (after evaluation described below).

Prior to the receipt of CCR water treatment filter cake material, an evaluation will be performed on the filter cake material to confirm the handling and placement of this material will not result in unstable conditions or increased pore water pressures of the waste mass and that the in-place strength requirements for long-term stability will be achieved. The filter cake material will be tested once prior to initial disposal and anytime if changes are observed in its properties. The minimum friction angle required for the CCR is 25.5 degrees as described in the *Slope Stability Analysis* calculation package provided in the Engineering Report prepared to support the permitting of the landfill [Geosyntec, 2022a]. A report will be prepared by a Professional Engineer registered to practice in the State of Georgia that will include the results of the testing of the filter cake materials; the report and testing results will be submitted to GA EPD for approval prior to receipt of the CCR water treatment filter cake material. Additionally, this Operations Plan will be revised as necessary to specify any material specific required handling, processing, and placement procedures for the filter cake material. The revised Operations Plan will be submitted to GA EPD for approval prior to receipt of the CCR water treatment filter cake material.

## 1.3 ZONING

A zoning letter in support of this permit application dated September 18, 2018 was included in the Site Acceptability Report for the CCR Landfill [Geosyntec, 2019]. An updated zoning letter will be submitted to GA EPD prior to the issuance of the CCR permit.

## 1.4 BUFFERS

The CCR landfill will be located entirely on GPC Plant Branch property. A minimum 200-foot undisturbed buffer zone is provided along property lines as shown in the Permit Drawings in this permit application package [Geosyntec, 2022b]. A minimum 500-foot buffer exists between the proposed CCR landfill waste disposal boundary and any adjacent residences and/or water supply wells.

Disturbance of the wetland areas is prohibited except as permitted by the United States Army Corps of Engineers (USACE). In addition, a minimum 50-foot undisturbed buffer will be maintained between the waste disposal boundary and the jurisdictional wetland area depicted on the Permit Drawings in this permit application package [Geosyntec, 2022b]. The Site Acceptability Report and Addendum to the Site Acceptability Report for the CCR Landfill [Geosyntec, 2019 and 2022c] provide the wetlands survey and USACE wetlands determination documentation.

Disturbance of Waters of the State is prohibited except as permitted by the GA EPD. Otherwise, a minimum 25-foot undisturbed buffer will be maintained between the waste disposal boundary (limit of waste) and the Waters of the State depicted on the Permit Drawings in this permit application package [Geosyntec, 2022b]. The Site Acceptability Report and Addendum to the Site Acceptability Report for the CCR Landfill [Geosyntec, 2019 and 2022c] provides the Waters of the State survey.

## 1.5 SITE SURVEY CONTROL

The site boundary is shown on Sheet 3 of the Permit Drawings, included in this permit application package [Geosyntec, 2022b]. Corner markers consisting of ½-inch diameter rebars with plastic cap stamped “Jordan Engineering RLS2902” will be installed to delineate this boundary. Two survey control monuments are maintained at the locations indicated on Sheet 3 for vertical and horizontal control.

## 1.6 LIMITED ACCESS

The CCR landfill will be for exclusive use by GPC for CCR disposal and will be located entirely within the Plant Branch property boundary. Only authorized personnel will be

allowed on the facility property. Access to the CCR landfill will be restricted with a security fence and locking gates.

## 1.7 POSTED INFORMATION

The CCR landfill will not be open to or be accessible by the public. Signage will be erected at the CCR landfill entrance that contains the following information: Site Name and Landfill Permit Number, Facility Emergency Contact Telephone Number, and Emergency Response Telephone Number. Signage will also be erected at the locations of groundwater and surface water monitoring points.

## 1.8 COMMUNICATION

Communications will be maintained by cell phone, telephone, or two-way radio with the Site Management Office to be located within the Plant Branch property.

## 1.9 FIRST AID

First aid kits will be located at the construction trailers and all other buildings located near the CCR landfill. The first-aid kits will be stored in weatherproof containers and will be inspected on a regular basis to ensure that the kits are properly supplied.

## 1.10 EMPLOYEE FACILITIES

Employee restroom facilities will be available at Site Management Office, as well as portable toilets in select locations around the CCR landfill.

# 2. OPERATIONAL PROCEDURES

## 2.1 CONSTRUCTION CERTIFICATION

Prior to receipt of waste in the CCR landfill, a written certification statement by a professional engineer registered to practice in Georgia will be provided to GA EPD that certifies that the facility has been constructed in accordance with the approved permit.

## 2.2 SUPERVISION

The CCR landfill will be under the supervision of an operator (i.e., Site Manager) or a designee who will be present at all times during operation and is properly trained in the operations of the CCR landfill, the implementation of the CCR landfill's permit, and all applicable state and federal regulations.

The CCR landfill may operate twenty-four (24) hours a day. Personnel trained in CCR landfill operations will be present at all times during operation.

Training in the operation of the CCR landfill and the implementation of the approved permit will either be provided by GPC or other appropriate party with documentation of training maintained in the facility's operating records. CCR landfill personnel will be proficient in the following, but not limited to, tasks associated with CCR landfill operations: safety and security procedures; waste acceptance/prohibited wastes; construction and CCR placement methods and techniques; emergency procedures; dust control; equipment operation and maintenance; stormwater, contact water, and leachate management; and erosion and sediment control.

## 2.3 EXCLUSION OF PROHIBITED WASTES

No hazardous, putrescible, or other non-approved wastes will be deposited at this site. To ensure the exclusion of prohibited wastes, the Site Manager will routinely perform random inspections of the CCR material placement operation (generally referred to as "stacking operations," and consisting of inspecting both incoming loads and of the working face of the CCR landfill). The results of each inspection are recorded and maintained as part of the facility's operating record. Facility personnel will receive training to recognize prohibited wastes.

If prohibited wastes are detected at any time, GPC will remove such waste and ensure it is transported to a properly permitted solid waste handling facility. Any incident of prohibited waste will be described in a report and placed in the facility's operating record.

## 2.4 PROHIBITED ACTS

The CCR landfill will be operated and maintained in a manner described herein, to prevent open burning, scavenging, and the open dumping of waste.

## 2.5 EROSION AND SEDIMENT CONTROL

All necessary erosion and sediment control and stormwater management measures (e.g., diversion berms and ditches) will be constructed or installed in accordance with Best Management Practices (BMPs) that meet the requirements of the latest version of the Manual for Erosion and Sediment Control in Georgia (E&SC Manual) [GSWCC, 2016], the site Stormwater Pollution Prevention Plan (SWPPP) and the appropriate and approved National Pollutant Discharge Elimination System (NPDES) Permit. These features will be regularly inspected for erosion and sediment accumulation. As necessary, these features will be cleaned and/or repaired to restore them to their design function. Details for typical erosion control measures are provided in the Permit Drawings of this permit application package [Geosyntec, 2022b].

## 2.6 ACCESS ROADS

For disposal of CCR within the lined disposal cells, temporary access roads composed of graded aggregate, bottom ash, or other all-weather surface will be maintained within the cells. Access to the stacking operation will be provided by ramps and perimeter berms. Final access roads are designed to provide continued access for maintenance and inspection. The layout of the permanent access roads is depicted on the Permit Drawings, included in this permit application package [Geosyntec, 2022b].

## 2.7 FIRE PROTECTION

Since CCR are predominantly inorganic by-products of the combustion of coal at temperatures in excess of 2,500 degrees or the by-product of the flue gas desulfurization process, and since litter and other putrescible waste are not permitted at this facility, the occurrence of fire related to waste disposal are not expected to occur. Therefore, fire protection measures specific to the CCR landfill are not required. However, potential borrow areas are located near the landfill that could be used as fill soil for fire suppression if needed.

## 2.8 SITE EQUIPMENT

Construction and operation of the CCR landfill will require a variety of equipment over the operating life of the CCR landfill and will depend on CCR landfill construction requirements, seasons, and CCR waste acceptance rates. Provisions shall be made for prompt equipment repair or replacement when needed.

## 2.9 RECOVERED MATERIALS PROCESSING OPERATIONS

CCR may be recovered (removed) from the CCR landfill for beneficial use in construction, manufacturing, agriculture, and other industries. During recovery operations, personnel will initially leave two (2) feet minimum of in-place CCR material between top of the uppermost layer of the liner system on the bottom of the cell and the material removed to protect the liner system.

GPC will maintain a record of the volume of CCR material that is recovered for beneficial re-use and will report it to GA EPD in accordance with Rule 391-3-4-.17(5). Section 4.3 of this Operations Plan describes measuring and reporting requirements.

GPC will recover land clearing debris generated from the construction of the CCR landfill for use in a composting/mulching operation within the permit boundaries of Ash Ponds B, C, D, and E. Section 2.28 of this Operations Plan further describes mulching and composting procedures.

## 2.10 CONTROLLED UNLOADING OF WASTE

The CCR will be unloaded from dump trucks at the working face within the disposal site. The CCR will be moisture-conditioned, as necessary, to prevent dust emissions and to permit optimum compaction at the working face. Section 2.13 of this Operations Plan further describes spreading and compaction procedures and Section 2.18 of this Operations Plan provides the fugitive dust control plan.

## 2.11 SOLID WASTE PROCESSING OPERATIONS

No on-site waste processing will be performed at this facility.

## 2.12 WASTE REQUIRING SPECIAL HANDLING

No solid wastes disposed at this CCR landfill require special handling.

## 2.13 SPREADING, COMPACTION, AND STABILITY

The method of CCR waste disposal will be the area fill method, which involves placing relocated CCR into the constructed landfill cell, spreading it in layers (lifts), and compacting it with heavy equipment. CCR placement and compaction efforts will be conducted in general accordance with the requirements below:

- CCR will be placed in relatively horizontal lifts to facilitate efficient compaction of placed materials.

- CCR will be compacted in accordance with the material properties and CCR stacking criteria listed in the Construction Quality Assurance (CQA) Plan [Geosyntec, 2022d] such that the ash surface is firm and unyielding after several passes of the compaction equipment.

- The working surface or face will be graded in such a way to minimize the run-on/runoff of stormwater.

- At the end of each day's activities, the surface will be sealed to the extent possible with a smooth drum roller or other methods approved by the Design Engineer. 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 fugitive dust control measures will be implemented as discussed in Section 2.18 of this Operations Plan.

- Sediment deposited as a result of erosion may be present at the toes of slopes and temporary drainage ditches. 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.

The compacted CCR will support the final cover system and minimize short- and long-term settlements. Care will be taken for the initial lift of CCR in order to protect the leachate collection and bottom liner system. For the initial lift, the hauler will dump the CCR from the top of the first lift next to the active area. A low-pressure bearing bulldozer or end loader will then push the waste out over the drainage layer under the supervision of a spotter or inspector.

## 2.14 DAILY AND INTERMEDIATE COVER

CCR are predominantly inorganic by-products of the combustion of coal at temperatures in excess of 2,500 degrees. Additionally, litter and other putrescible wastes are not allowed to be disposed at this CCR landfill. Therefore, daily and intermediate covers are not necessary for the control of disease vectors, odor, fires, scavenging, and litter.

Additionally, the CCR will be deposited in a moistened condition, thus reducing the possibility of dust emissions. The possibility of fugitive dust from this CCR landfill will be further controlled by water spray from water trucks, irrigation type systems, or tarping; Section 2.18 of this Operations Plan provides the fugitive dust control plan. Any CCR fill areas that have reached final grade and will not receive additional CCR fill will be covered with temporary cover or with final cover in accordance with the Construction Quality Assurance Plan [Geosyntec, 2022d] included in this Permit Application.

## 2.15 SEQUENCE OF FILLING

CCR landfill cell construction, placement of CCR, and final cover placement on the filled CCR landfill cells will generally occur in a phased manner. A conceptual phasing approach with four phases has been developed; the sequence of the conceptual phases and phase activities are summarized below. The phasing approach may be adjusted during the detailed design, upon approval by the Engineer of Record, and will be submitted to GA EPD for review, if applicable, with the requirement that design criteria related to stormwater and contact water management, described in the Stormwater and Contact Water Management Plan prepared to support the permitting of the CCR landfill [Geosyntec, 2022e], are met. Note that activities in any phase may be implemented in several sub-phases and not all at once.

- Phase 1 activities consist of the construction of Cells 1, 2, 3, and 4 followed by CCR placement in Cells 1, 2, 3, and 4. In this phase, the North and Southwest Stormwater/Contact Water/Leachate Ponds and the portions of the perimeter dike, perimeter channels, and associated utility corridors that are required for operation of Cells 1 through 4 will be constructed. CCR placed during Phase 1 will include the CCR stored within Ash Pond D, to facilitate the future construction of Cells 7, 8, 9, and 10, which will encroach on the Ash Pond D footprint. Placed CCR will also include portions of the CCR stored within Ash Ponds B, C, and/or E based on the CCR removal schedules being developed for the ash ponds.

- Phase 2 activities consist of construction of Cells 5 and 6, placement of CCR in Cells 3, 4, 5, and 6, and placement of final cover on Cells 1 and 2, and portions of Cells 3 and 4. CCR placed during Phase 2 will include portions of the CCR stored within Ash Ponds B, C, and/or E based on the CCR removal schedules for the ash ponds. The underdrain pipe will also be installed within the former Ash Pond D footprint during Phase 2, upon acknowledgement of removal of CCR from Ash Pond D by GA EPD; the groundwater conveyed by the underdrain pipe will be managed under the appropriate NPDES permit. Following construction of cells within the former Ash Pond D footprint, and prior to placing waste in these cells, a demonstration will be provided to the GA EPD to show a minimum five feet separation between the water table and the bottom of the liner system.

- Phase 3 activities consist of construction of Cells 7, 8, 9, and 10, placement of CCR in Cells 5, 6, 7, 8, 9, and 10, and placement of final cover on the remainder of Cells 3 and 4, and portions of Cells 5 and 6. During construction of Cells 7, 8, 9, and 10, the Southeast Stormwater/Contact Water Pond and the remainder

of the perimeter dike, perimeter channels, and associated utility corridors will be constructed.

- Phase 4 activities consist of placement of final cover on the remainder of Cells 5 and 6, and Cells 7, 8, 9, and 10 and stabilizing the remainder of the Site.

## 2.16 DISEASE VECTOR CONTROL

The CCR landfill will be used only for the disposal of CCR materials described in Section 1.2 of this Operation Plan. Disease vector controls are not required at this CCR landfill since no litter or putrescible wastes are allowed.

## 2.17 LITTER CONTROL

The CCR Landfill will be used exclusively for disposal of CCR materials. These materials do not contain litter or contribute to blowing refuse. Routine inspection of the CCR landfill site will be conducted regularly, and any litter and/or wind-blown waste will be removed.

## 2.18 FUGITIVE DUST CONTROL PLAN

The purpose of this fugitive dust control plan is to demonstrate compliance with the fugitive dust requirements in GA EPD CCR Rules 391-3-4-.10(5)(a) and 391-3-4-.10(9)(c)1.(vi)(I) (incorporating 40 CFR § 257.80 by reference). This fugitive dust control plan, and any subsequent amendments, will be certified by a qualified professional engineer in accordance with 40 CFR § 257.80(b)(7) that the plan complies with the requirements of 40 CFR § 257.80.

This fugitive dust control plan identifies and describes CCR fugitive dust control measures that GPC 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.

GA EPD CCR Rule 391-3-4-.10(2)(a) which references 40 CFR § 257.53, 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 activities at the CCR Landfill will be controlled using water suppression, tarping, and compaction.

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 determined to be applicable and appropriate for Plant Branch CCR Landfill. 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 will be conditioned to appropriate moisture content to reduce the potential for fugitive dust.

Water suppression or polymer tackifiers 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 utilized to reduce the potential for fugitive dust.

Trucks used to transport CCR will be filled to or under capacity to reduce the potential for material spillage.

Site personnel will assess the effectiveness of the control measures by performing visual observations of the CCR Landfill and surrounding areas and implementing appropriate corrective actions for fugitive dust, as necessary. Logs will be used to record the utilization of water-spray equipment.

When a complaint is received from a citizen regarding a CCR fugitive dust event at the facility, the complaint will be documented in accordance with 40 CFR § 257.80(b)(3). Appropriate steps will be taken, including any corrective action, if needed.

When there is a change in conditions that would substantially affect the plan in effect, the fugitive dust control plan will be amended in accordance with 40 CFR § 257.80(b)(6). The revised plan will be placed in the facility's operating record.

Annual CCR fugitive dust control reports, describing actions taken to control fugitive dust, a record of all citizen complaints, and summary of corrective actions taken, will be prepared and placed in the facility's operating record in accordance with 40 CFR § 257.80(c).

## 2.19 EXPLOSIVE GAS CONTROL (METHANE GAS)

Methane gas would not be generated in the disposal area because the coal combustion processes do not produce waste that generate methane gas. Also, waste that may generate methane gas, such as putrescible wastes and litter, will not be allowed at this facility; thus, methane gas will not be generated, and a methane monitoring system will not be required.

## 2.20 RUN-ON/RUNOFF CONTROL

CCR are contained within a lined earthen berm to prevent stormwater from the surrounding area from entering the disposal cells (run-on). CCR placement is confined to within this berm. Runoff from active cells, as well as any disturbed areas, is routed into the lined contact water ponds, which are designed to collect and control the flow resulting from a 100-year, 24-hour storm event. The details for stormwater management and erosion and sediment control features are depicted on the Permit Drawings, included in this permit application package [Geosyntec, 2022b].

The Stormwater and Contact Water Management Plan provided in this permit package describes the infrastructure, design criteria, and strategy for the management of stormwater and contact water during the construction of, waste placement in, and installation of final cover on the Plant Branch CCR Landfill to meet the requirements of the US EPA CCR Rule and GA EPD CCR Rule [Geosyntec, 2022e].

In accordance with 40 CFR § 257.81(c)(2), the Stormwater and Contact Water Management Plan and Permit Drawings, acting as the run-on and runoff control system plan, will be amended whenever there is a change in conditions that would substantially affect the plan in effect. The revised documents will be placed in the facility's operating record.

Periodic run-on and runoff control system plan updates will be prepared every five years and placed in the facility's operating record in accordance with 40 CFR § 257.81(c)(4).

## 2.21 SURFACE WATER REQUIREMENTS

Stormwater/contact water ponds are provided to capture stormwater and contact water runoff from the CCR disposal stacks. Ditches, pumps, and/or pipes contained within the landfill footprint convey runoff to these ponds. A discharge system is provided to convey water from the contact water ponds to either the on-site wastewater treatment system where it will be treated in accordance with the facility's NPDES wastewater permit prior to discharge, or to a permitted off-site disposal facility. The ponds are designed to detain stormwater runoff for a 100-year, 24-hour storm event.

## 2.22 FINAL GRADING

The final slopes were designed to remain stable in the long-term, control erosion, allow placement, compaction, and stabilization of the CCR material, minimize percolation of precipitation into the final cover, and provide diversion of surface runoff from the disposal area. Final grading plans and final cover system details are provided on the Permit Drawings, included in this permit application package [Geosyntec, 2022b]. The final grading will meet the closure requirements as indicated in the Closure Plan included within this permit application package [Geosyntec, 2022f].

The final volume of CCR within the cells may not reach full capacity, depending on the amount of CCR disposed and the amount removed from the site for beneficial use. Should the CCR landfill close prior to reaching final permitted elevations or waste limits (i.e., a smaller footprint in which not all the cells or reduced footprints of cells are constructed), GPC will revise the closure design to develop new closure grades and will request written approval from GA EPD.

## 2.23 VEGETATION

All vegetated areas of the landfill and ponds will be maintained throughout the life of the CCR landfill. The following schedule indicates the recommended species, planting dates, and fertilization requirements. The latest edition of the Manual for Erosion and Sediment Control in Georgia will be consulted for additional information [GSWCC, 2016].

**Table 2.1. Vegetation Schedule**

| VEGETATION SCHEDULE | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BROADCAST | | | | | | | | | | | | | | |
| SPECIES | RATES | PLANTING DATES | | | | | | | | | | | | COMMENTS |
| | | J | F | M | A | M | J | J | A | S | O | N | D | |
| Wilmington Bahia alone | 60 lbs. / ac | .... | .... | .. | ——— | ——— | .... | .... | .... | .... | .... | .... | .... | Low growing. |
| Wilmington Bahia w/ other perennials | 30 lbs. / ac | | | ——— | — | | | | .. | ——— | ——— | .. | | Mix with sericea lespedeza. Low growing. |
| Tall Fescue alone | 50 lbs. / ac | | | ——— | — | | | | .. | ——— | ——— | .. | | |
| Tall Fescue w/ other perennials | 30 lbs. / ac | | | | | | | | .. | ——— | ——— | .. | | Mix with sericea lespedeza. |
| Reed Canary alone | 50 lbs. / ac | | | | | | | | .. | ——— | ——— | .. | | |
| Reed Canary w/ other perennials | 30 lbs. / ac | .... | .... | .. | ——— | ——— | .... | .... | .... | .... | .... | .... | .... | |
| Ambro Virgata or Appalow Lespedeza scarified | 60 lbs. / ac | | | .. | ——— | ——— | .. | | | | | | | Mix with bahai or tall fescue. Do not mix with sericea lespedeza. |
| Ambro Virgata or Appalow Lespedeza unscarified | 60 lbs. / ac | ——— | ——— | .... | .... | .... | .... | .... | .... | ——— | ——— | ——— | ——— | Mix with bahai or tall fescue. Do not mix with sericea lespedeza. |

Note: Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.

**Table 2.2. Fertilization Schedule**

| FERTILIZATION (Warm Season Grasses) | | | |
|---|---|---|---|
| YEAR | N-P-K | RATE | N TOP DRESSING RATE |
| First | 6-12-12 | 1500 lbs./ac | 50 - 100 lbs./ac |
| Second | 6-12-12 | 800 lbs./ac | 50 - 100 lbs./ac |
| Maintenance | 10-10-10 | 400 lbs./ac | 30 lbs./ac |

## 2.24 CONTINUITY OF OPERATION

Access roads and ramps will be provided to the active disposal cells, and a permanent access road that is an all-weather road will be provided to the facility. This will allow access to the CCR landfill and parcels, if required, during inclement weather for disposal, inspection, and maintenance or replacement of equipment.

## 2.25 TIRE WASH

The CCR landfill and the Ash Ponds B, C, D, and E are all located within the facility property, and vehicles will be moving between the Site entrance/exit, Site management office/laydown/stockpile areas, and these locations. Tire washes will be installed at the exit from each of the locations where CCR is managed (i.e., CCR landfill and Ash Ponds B, C, D, and E) to clean the tires and undercarriage of vehicles exiting these areas prior to entering onto interior and exterior roads. The tire wash will use County or lake water to supply water and will include a system to reclaim the used water runoff from the vehicle washing for disposal either for treatment at the on-site wastewater treatment system (WWTS), a permitted off-site facility, or returned to the ash ponds. Ultimately, CCR residues generated during cleaning will be placed in the CCR landfill prior to completion of the final cover system.

## 2.26 LEACHATE MANAGEMENT

Leachate management is applicable to Cells 1 through 10. The leachate management system is depicted on the Permit Drawings, included in this permit application package [Geosyntec, 2022b]. Leachate percolates through the CCR material until it infiltrates into the leachate collection system granular drainage layer. Leachate flows by gravity through the higher permeable drainage layer to the leachate sumps within each cell located around the perimeter of the CCR landfill. Leachate will be removed from the leachate sumps via two self-priming electric motor-driven pumps per sump to dual-contained leachate transmission system (LTS) pipes. The pumps are designed specifically for horizontal service, and will operate in an alternating lead-lag mode when flows are low, but can operate together in parallel during high flows. The LTS pipes will convey leachate to one of two lined leachate storage areas within the North and Southwest Ponds. Leachate will be removed from the leachate storage ponds via centrifugal, self-priming pumps located on pump pads to dual-contained leachate force-mains (LFMs), which will then discharge the leachate to either an on-site WWTS or a loading station for off-site disposal. Both the LTS pipes and LFMs are high density polyethylene (HDPE) pipes, with manholes placed at periodic locations along the alignment for cleanout, air release, inspection, maintenance/access, or locating other valving or equipment. Leachate treated on-site through the WWTS will be discharged through the Site's permitted NPDES Outfall No. 03 in accordance with the approved

Georgia Power Plant Branch, NPDES Permit No. GA0026051, Ash Pond Dewatering Plan [GPC, 2021]. The leachate management system will be controlled by a dedicated instrumentation and control system of sensors, flowmeters, logic controls, and associated telecommunications components that regulate and control leachate flow in an automated manner from the sump pumps to the ponds to the WWTS, with programming dependent upon leachate levels in the collection sumps at the base of each cell or within the lined leachate storage ponds.

Leachate will be tested on a regular basis during operations and closure for chemical analysis. Leachate levels and flow rates will be monitored in order to assess functionality of the leachate collection system and compliance with either on-site and off-site disposal.

## 2.27 AIR CRITERIA

The CCR landfill will be operated so that it does not violate applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the US EPA pursuant to Section 110 of the Clean Air Act, as amended.

## 2.28 MULCHING AND COMPOSTING

Composting and mulching may be conducted as part of the initial support activities associated with construction of the CCR landfill; however, the proposed operations (including stockpile locations) will be located outside of the CCR landfill permit boundary but within the permit boundaries of Ash Ponds B, C, D or E. Composting and mulching areas and a description of the operations will be included in the permit documents of Ash Ponds B, C, and D, and Ash Pond E.

Composting operations will include land-clearing debris (i.e., organic material) classified as Feedstock Category A material, which includes yard trimmings, land-clearing debris, agricultural residuals generated and processed on site, and untreated and unpainted wood, to be mixed with on-site soils to create topsoil. Composting activities will be appropriately managed (e.g., through the use of erosion and sediment controls, periodic turning of material, limits on volume and height, etc.) and comply with Rule 391-3-4-.16.

Mulching will consist of processing Category A Feedstock material to produce a stabilized organic mulch for use in erosion and sediment control. Mulching will be conducted to comply with the conditions for exemption under Rule 391-3-4-.04(7)(g) as described in the *Mulching Facility Operation Exemption Guidance* issued by GA EPD in October 2021, specifically:

- *A stockpile must have no greater than the following maximum dimensions: (i) area of 25,000 square feet; (ii) height of 25 feet;*

- *Unprocessed yard trimmings, land-clearing debris, untreated and unpainted wood, or any combination thereof, must be processed no later than 90 days after receipt, unless otherwise stated in the Solid Waste Handling Permit;*

- *Mulch is not accumulated speculatively if the person/facility accumulating it can show that there is a known use, reuse, or recycling potential for the material; that the material can be feasibly sold, used, reused, or recycled; and that during a rolling 12-month period seventy-five percent (75%) by weight or volume of the products stored at a facility are recycled, sold, used, or reused. Any material that is accumulated speculatively and not in accordance with these requirements must be handled as solid waste*;

- *The facility shall have on site a fire plan detailing steps to prevent, contain and extinguish a fire. The fire plan shall include documentation that the local fire authority or a Georgia State Certified Fire Inspector conducted a fire safety survey;*

- *Activities involving open flames and other flammable materials (oil, gas, fuel) shall not be allowed within 25 feet of a stockpile, with the exception of maintenance activities involving torches and welding equipment, as long as a fireproof barrier is used;*

- *The facility must provide a buffer between unprocessed yard trimmings, land-clearing debris, untreated and unpainted wood, mulch, and any combination thereof and the property line. The buffer shall be set by the local fire authority or a Georgia State Certified Fire Inspector and documented in the fire plan. If the local fire authority or a Georgia State Certified Fire Inspector does not establish a buffer, the minimum buffer shall be 50 feet. The buffer may include the fire lane;*

- *The facility shall utilize best management practices from the most recent edition of the Georgia Stormwater Management Manual to minimize the exposure of material storage areas to rain, snow, snowmelt, and runoff; and*

- *The facility shall have erosion and sediment control measures adequate to prevent the escape of sediment from the facility property into Waters of the State. Construction and operating areas must utilize best management practices from the most recent edition of the Manual for Erosion and Sedimentation Control in Georgia.*

Documentation regarding composting and mulching activities and management (including a Fire Plan) will be maintained as part of the facility's operating record.

Composting and mulching operations or stockpiling will not take place in any designated buffer areas at the Site.

# 3. ENVIRONMENTAL PROTECTION

## 3.1 INSPECTIONS

The following inspections will be performed in accordance with GA EPD CCR Rule 391-3-4-.10(5)(a), incorporating 40 CFR § 257.84 by reference. Inspections will generally include observations related to the condition and functionality of the leachate collection and removal system, intermediate and final cover systems, stormwater and contact water management systems, erosion and sediment controls, structural stability, site access features, fugitive dust, and CCR waste placement.

A. 7-Day Inspections

GPC, or a designated Qualified Person delegated to act on behalf of GPC, will inspect the CCR landfill and discharge of hydraulic structure outlets at intervals not exceeding seven (7) days. The 7-day inspections will be 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 operation or safety of the facility. The 7-day inspections will commence upon initial receipt of CCR in the CCR landfill, in accordance with 40 CFR § 257.84(a)(2)(ii).

Georgia Power will record the results of these inspections on a self-generated form that will be filed in the facility's operating record. If a potential deficiency or release is identified during an inspection, GPC will remedy the deficiency or release as soon as feasible. GPC will prepare documentation detailing corrective measures taken and place it in the facility's operating record.

B. Annual Inspections

A Professional Engineer registered in Georgia will inspect the CCR landfill on an annual basis. The first annual inspection will be completed no later than 14 months following the date of initial receipt of CCR in the CCR landfill, in accordance with 40 CFR § 257.84(b)(3)(ii). The deadline for completing subsequent annual inspection reports is based on the date of completion of the previous inspection report; an inspection is considered completed when the inspection report has been placed in the facilities operating record, in accordance with 40 CFR § 257.84(b)(4). The inspection includes, at a minimum:

i. A visual inspection of the CCR landfill to identify signs of distress or malfunction of the CCR landfill.

ii. A review of available information regarding the status and condition of the CCR landfill including, but not limited to, files available in the facility's operating record such as:

a. The results of weekly inspections and the results of previous annual inspections; and

b. Files available in the operating record and other conditions which have disrupted or have the potential to disrupt the operation or safety of the CCR landfill.

iii. Inspections for all structures that are used to restrict access; these structures will be kept in operable condition. As necessary, temporary structures will be utilized during repair events to prevent unauthorized access to the CCR landfill.

## 3.2 ANNUAL REPORTING

At the completion of each annual inspection, the Professional Engineer who completed the inspection will prepare an annual report that will include the following:

A. Any changes in geometry of the CCR landfill components since the previous annual inspection;

B. The approximate volume of CCR contained in the CCR landfill at the time of the inspection;

C. Any appearances of an actual or potential structural weakness of the CCR within the CCR landfill, or any existing conditions that are disrupting or have the potential to disrupt the operation and stability of the CCR landfill; and

D. Any other change(s) which may have affected the stability or operation of the CCR landfill since the previous annual inspection.

If a deficiency or release is identified during an annual inspection, the deficiency or release will be remedied as soon as feasible and documentation will be prepared detailing the corrective measures taken, accompanying the annual report, in accordance with 40 CFR § 257.84(b)(5). An inspection is considered completed when the inspection report has been placed in the facility's operating record, in accordance with 40 CFR § 257.84(b)(4).

## 3.3 LINERS AND LEACHATE COLLECTION AND REMOVAL SYSTEMS

A. Cells 1 through 10

A composite liner system and leachate collection and removal system has been designed for Cells 1 through 10 meeting the requirements of GA EPD Rule 391-3-4.10(4)(a), incorporating by reference 40 CFR § 257.70. GPC will maintain permanent pumps in the leachate collection and removal system and will operate them as needed to maintain liquids below 30 cm (1 foot) during normal operating conditions.

B. Contact Water/Leachate Ponds

Contact Water/Leachate Ponds will be underlain by a composite liner system. There will be a leachate discharge system installed within the ponds.

## 3.4 GROUNDWATER MONITORING PLAN

Groundwater monitoring will be performed in accordance with the schedule and requirements indicated in the Plant Branch CCR Landfill Groundwater Monitoring Plan included in this permit application package [Geosyntec, 2022g]. The Groundwater Monitoring Plan meets the requirements of the GA EPD CCR Rule 391-3-4-.10(6).

# 4. RECORDKEEPING, NOTIFICATION, AND PUBLICLY ACCESSIBLE INTERNET SITE REQUIREMENTS

The Plant Branch CCR landfill will comply with the recordkeeping, notification, and publicly accessible internet site requirements set forth in GA EPD CCR Rule 391-3-4.10(8) (incorporating 40 CFR § 257.105, 106, and 107 by reference). The publicly accessible internet site for Environmental Compliance information related to CCR management and ash pond closures by GPC is at the following address: https://www.georgiapower.com/company/environmental-compliance/plant-list/plant-branch.html.

## 4.1 RECORDKEEPING

GPC will maintain the facility's operational records at all times during the life of the CCR landfill, including throughout the closure and post closure period. These records will be maintained by the Site Management Office located at Plant Branch. The following records will be maintained as part of the facility's operating record:

A. A copy of the CCR unit solid waste handling permit and any operating conditions, including location restrictions;

B. Inspection records, training procedures, and notification procedures required by this Plan and by GA EPD CCR Rules 391-3-4-.10(5) and (8);

C. Any demonstration, certification, finding, monitoring, testing, or analytical data pertaining to groundwater monitoring as required by GA EPD CCR Rule 391-3-4-.10(6);

D. Closure and Post Closure Plans and any monitoring, testing, or analytical data required by those plans and GA EPD CCR Rule 391-3-4-.10(7);

E. A copy of the permit application documents for the CCR landfill;

F. A copy of the groundwater monitoring plan for the CCR landfill; and

G. A copy of the Construction Quality Assurance Plan, construction certifications, closure certifications, and post-closure certifications.

Information contained in the facility's operating record will be furnished to GA EPD or be made available at all reasonable times for inspection by GA EPD staff.

## 4.2 NOTIFICATION AND INTERNET POSTING REQUIREMENTS

Unless otherwise specified by the GA EPD CCR Rules, GPC will provide notifications to GA EPD within 30 days of placing documents in the facility's operating record. The notifications will be sent before the close of business on or before the day the notification is required to be completed. Notifications to GA EPD will be postmarked or sent by electronic mail. If a notification deadline falls on a weekend or federal holiday, the notification deadline will be extended to the next business day. GPC will state in the notification to GA EPD if the relevant information was also placed on the GPC website under Environmental Compliance.

## 4.3 MEASURING AND REPORTING REQUIREMENTS

In accordance with Rule 391-3-4-.17.(5), on July 1 of each year after the first full year that the CCR landfill permit is issued, GPC will report to GA EPD the total volume of the CCR waste disposed in the CCR landfill, and the CCR removed, recovered, or diverted for beneficial use. The required data will be submitted to GA EPD on forms issued by GA EPD.

## 5. SITE LIMITATIONS

The following site limitations were provided by GA EPD for the Plant Branch CCR Landfill site in a Site Suitability Notice letter from Richard E. Dunn, Director of GA EPD, dated June 19, 2020.

1. The area considered for acceptability includes only the area delineated by the line labelled "CCR Permit Boundary" on Geosyntec Consultants (Geosyntec) Figure 1 - 2, *Site Boring Location and Topographic map of Site,* revision 2, dated June 2019 and edited 6.07.19.

2. Waste shall not be placed outside of the area delineated by the line labelled "Limit of Waste" on Geosyntec's Figure 1 - 2, *Site Boring Location and Topographic map of Site,* revision 2, dated June 2019 and edited 6.07.19.

3. A liner and leachate collection system shall be constructed under all areas proposed for coal combustion residual (CCR) disposal. The bottom of the liner system shall be constructed a minimum of ten feet above the groundwater elevation contours shown on Geosyntec's, Figure 2-7, *Potentiometric Surface Map – 31 January 2019,* dated November 2019 and edited 11.15.19. Landfill cells constructed within the area of Ash Pond D, after removal of CCR material, shall be designed with: (a) the bottom of the liner system a minimum of ten feet above the original ground surface along a zone a minimum of 100 feet on each side of the axis of the northeast-southwest oriented topographic depression/groundwater discharge feature and (b) no lower than 5-feet above the original ground surface in all other areas beneath Ash Pond D. The approximate original ground surface is shown by the elevation contours in the area defined by the overlap of the Ash Pond D boundary and the proposed limit of waste in Geosyntec's, Figure 3-1, *Estimated Seasonal High Potentiometric Surface After Removal of CCR,* dated November 2019 and edited 11.15.19. EPD will consider proposed revisions to the waste – water table separation limitation, if additional groundwater elevation data is submitted.

   A perforated conveyance pipe and stone backfill or equivalent conveyance system shall be placed in the topographic depression and potential groundwater discharge feature depicted by the original ground surface elevation contours beneath Ash Pond D. The underdrain system shall be installed above this feature to prevent groundwater from rising to within five feet of the bottom of the waste. Following construction, and prior to the placing of waste in this area, a demonstration shall be provided that shows a minimum five feet of separation between the water table and the bottom of the liner system.

4. A minimum 200-foot undisturbed buffer shall be maintained between the waste disposal boundary and the permitted property boundaries. The 200-foot buffer may be disturbed if approved by the EPD.

5. A minimum 500-foot buffer shall be maintained between the waste disposal boundary and any adjacent residences and/or water supply wells.

6. If non-rippable rock (bedrock) is encountered at an elevation above the approved base of the liner system, or if non-rippable rock is removed during excavation, at least five (5) feet of clean, compacted, rubble-free fill shall be placed above the non-rippable rock. Alternatively, an engineered layer (soil or a combination of soils and geosynthetics) shall be placed and compacted between the non-rippable rock and the liner system. The engineered layer shall include:

    i. One (1) foot of soil with a hydraulic conductivity equal or lower than 1 x 10-5 cm/sec constructed over one (1) foot of structural fill, or

    ii. If a geosynthetic is used, the geosynthetic will have a hydraulic conductivity equivalent to or less than one (1) foot of soil of 1 x 10-5 cm/sec and will be placed on a minimum of two (2) feet of structural fill.

    Installation of an alternative engineered layer over rock shall be documented and certified by a Professional Engineer registered in the State of Georgia and shall be included in the CQA report for the cell being constructed.

7. A minimum 50-foot undisturbed buffer shall be maintained between the waste disposal boundaries and all wetlands, except as permitted by the United States Army Corps of Engineers (USACE) and allowed by EPD. A statement certifying that wetlands will not be impacted as a result of construction activities at the site shall be submitted. This statement shall be signed and stamped by the professional engineer responsible for the Design and Operational (D&O) Plan for the subject site. Wetland areas shall be delineated on the D&O Plan.

8. A minimum 25-foot undisturbed buffer shall be maintained between the waste disposal area and any waters of the state, except as allowed by EPD.

9. This site is in a seismic impact zone as defined in the Rules for Solid Waste Management [Chapter 391-3-4-.10(3)(a)]. The design engineer must certify that all containment structures are designed to resist the maximum horizontal ground acceleration for the site. Therefore, the registered professional engineer

preparing the design and operational plan must stamp and sign each engineering drawing with the accompanying notation:

*I have reviewed the information presented in this drawing, and in my professional opinion, all containment structures are designed to resist a maximum horizontal ground acceleration of 0.1235g.*

10. All erosion control measures and/or diversion ditches shall conform to the latest edition of the *Manual for Erosion and Sediment Control in Georgia* and be protective of Lake Sinclair and its perennial and intermittent tributaries.

11. The facility shall not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in a washout of solid waste or material to pose a hazard to human health and the environment.

12. All soil borings, monitoring wells and piezometers that have been completed/installed at this site, shall be plugged and abandoned in accordance with the Water Well Standards Act. Additionally, all soil borings, monitoring wells and piezometers located within the proposed waste footprint shall be abandoned by overdrilling and filling with a non-shrinking cement/bentonite grout mixture via tremie pipe from the bottom to within 10 feet of the base of the landfill. The remaining borehole shall be filled with hydrated bentonite. The specific procedure for plugging and abandoning the active water supply well located within the proposed landfill footprint shall be consistent with the Water Well Standards Act and described in the Environmental Monitoring Plan section of D&O Plan for EPD review and approval. As part of the abandonment procedure, EPD shall require that steel well casing be removed to at least a depth 10 feet below the base of the landfill. The abandonment of all borings/piezometers/monitoring/drinking water wells shall be supervised by a professional geologist (PG) or professional engineer (PE) registered to practice in the State of Georgia. A report documenting the abandonment shall be submitted to EPD prior to cell construction. This documentation shall be signed and stamped by the responsible professional geologist or engineer registered to practice in the State of Georgia.

13. Groundwater and surface water monitoring systems shall be installed at the site. Sampling parameters, sampling schedules, monitoring well construction and spacing shall adhere to the guidelines established in the EPD's *Rules of Solid Waste Management, Chapter 391-3-4-.10*. The system design and monitoring requirements shall be detailed in a groundwater and surface water monitoring plan that are prepared in accordance with applicable parts of the Georgia Manual for Groundwater Monitoring and current USEPA Region IV guidance and

are approvable by EPD. The outfall of all underdrain systems and conveyance pipes shall be incorporated into the facility's groundwater monitoring system.

## 6. REFERENCES

Georgia Environmental Protection Division (GA EPD). (2020). *Site Suitability Notice for Georgia Power – Plant Branch Proposed CCR Landfill, Milledgeville – Putnam County, Georgia. APL 1579.* Letter and Site Limitations, June 19, 2020.

Georgia Power Company (GPC). (2021). *Georgia Power Plant Branch, NPDES Permit No. GA0026051, Ash Pond Dewatering Plan*.

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

Geosyntec Consultants. (2019). *Site Acceptability Report for Proposed CCR Landfill, Plant Branch, Georgia Power Company*. July 2019.

Geosyntec Consultants. (2022a). *Engineering Report, Plant Branch CCR Landfill*. Prepared for Georgia Power Company, May 2022.

Geosyntec Consultants. (2022b). *Plant Branch CCR Landfill Permit Drawings Package*. Prepared for Georgia Power Company, October 2022.

Geosyntec Consultants. (2022c). *Addendum to the Site Acceptability Report for Proposed CCR Landfill, Plant Branch, Georgia Power Company*. January 2022.

Geosyntec Consultants. (2022d). *Construction Quality Assurance Plan, Plant Branch CCR Landfill*. Prepared for Georgia Power Company, October 2022.

Geosyntec Consultants. (2022e). *Stormwater and Contact Water Management Plan, Plant Branch CCR Landfill*. Prepared for Georgia Power Company, October 2022.

*Geosyntec* Consultants. (2022f). *Closure Plan, Plant Branch CCR Landfill.* Prepared for Georgia Power Company, October 2022.

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