

CLOSURE PLAN

PLANT WANSLEY COAL COMBUSTION RESIDUALS (CCR) LANDFILL HEARD COUNTY, GEORGIA

FOR



Georgia Power

SEPTEMBER 2022

 **GEORGIA**
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

Approved
Solid Waste Management Program

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1. GENERAL

The three (3) existing disposal cells at the Plant Wansley CCR landfill will be closed by leaving coal-combustion residuals (CCR) in place and installing a final cover system meeting the requirements of Solid Waste Rule 391-3-4-.10(7). The Plant Wansley CCR landfill has a disposal capacity of approximately 6,720,600 cubic yards, and Cells 1, 2, and 3 cover a total combined area of approximately 78 acres that will require final cover. Georgia Power will close this CCR landfill in a manner that minimizes the need for further maintenance and minimizes the potential of post-closure release of contaminants to the ground or surface waters.

The closure of the Plant Wansley CCR landfill will commence when Georgia Power ceases placing CCR in the cells and begins implementation of this closure plan.

2. WRITTEN CLOSURE PLAN [391-3-4-.10(7)(b)]

Georgia Power prepared an initial site-specific written closure plan to comply with 40 CFR §257.102. The plan includes a written certification from a qualified professional engineer registered in Georgia that the written closure plan meets the requirements of 40 CFR §257.102 certification of closure. The initial certified closure plan for the existing cells at the Plant Wansley CCR landfill was prepared and uploaded to the Georgia Power website under Environmental Compliance prior to October 17, 2016.

This closure plan is being prepared as required by Georgia Solid Waste Rule 391-3-4-.10(7)(b) and will replace the initial written closure plan once it is approved by the Georgia Environmental Protection Division (EPD).

Once this closure plan is approved by EPD and placed in the facility's operating record, Georgia Power may amend the permitted closure plan if needed, as follows:

- at least 60 days prior to a planned change in the operation of the landfill that substantially affects the written closure plan in effect;
- no later than 60 days after unanticipated events necessitating a revision of the written closure plan, before or after closure activities have commenced; or
- if revised after closure activities have commenced, no later than 30 days.

A qualified professional engineer must certify that the amended written closure plan meets the requirements of 391-3-4-.10(7)(b). The amended closure plan will be placed in the facility's operating record once it has been approved by the Georgia Environmental Protection Division (EPD) in accordance with 391-3-4-.10(7)(b).

3. CERTIFICATION OF CLOSURE [391-3-4-.10(7)(e)]

Within 30 days of completion of all closure activities, Georgia Power will submit a notification of closure to EPD that includes certification from a qualified professional engineer registered in Georgia verifying that closure has been completed in accordance with this closure plan. The submittal to EPD will also include a closure report prepared by a qualified professional engineer

registered in Georgia. The closure report will include documentation that the materials used to close the landfill meet the requirements specified in the CQA Plan and an as-built plan of the grades at the time of closure.

Concurrent with the submission of the closure report to EPD, Georgia Power will submit confirmation that a notation on the property deed has been recorded. This recording will notify any potential purchaser of the property, in perpetuity, that the land has been used as a CCR landfill and that its use is restricted under the post-closure care requirements of Georgia Rules of Solid Waste Management Chapter 391-3-4.10.

4. DIRECTIONAL INFORMATIONAL SIGNS

Signs will be posted at the entrance gate notifying users of the CCR landfill of its closure and a telephone number will be included for contact in case of emergency.

5. REMOVAL OF CCR

If Georgia Power chooses to remove CCR, Georgia Power will request and receive written approval from EPD prior to conducting any such activity.

6. FINAL COVER SYSTEM

Upon closure, all CCR received at the disposal facility will be graded, compacted and capped with the final cover system as described on the plans.

Final cover soil will be secured from on-site stockpiles or off-site borrow source areas as necessary. Any off-site borrow areas used to provide soil for the final cover system will meet applicable requirements of EPD's Surface Mining Rules.

The Final Cover System will meet the following standards in accordance with Rule 391-3-4-.10(7)(b):

1. Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the CCR and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere;
2. Preclude the probability of future impoundment of water, sediment, or slurry;
3. Include measures that provide for veneer slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period;
4. Minimize the need for further maintenance of the CCR landfill; and
5. Complete the closure in in the shortest amount of time consistent with recognized and generally accepted good engineering practices.

Description of Final Cover System:

1. The CCR subgrade for the final cover system in each disposal cell will be graded and compacted to create a stable surface for the final cover system.
2. The final cover system will include an 18-inch thick low-permeability ($k < 1 \times 10^{-5}$ cm/sec) soil layer, overlying the prepared subgrade of CCR material.

3. The low permeability soil layer will be overlain with a minimum textured 40 mil LLDPE geomembrane and a geosynthetic drainage media (GDM or geocomposite).
4. The GDM overlying the LLDPE geomembrane, will be covered with a minimum 18-inch protective soil layer and a minimum 6- inch topsoil layer capable of sustaining vegetative growth.

Final Cover System Configuration:

1. Maximum slopes of 3H:1V;
2. Minimum slopes of 3%; and
3. 20-ft wide drainage benches every 20 vertical feet.

The final cover system described above meets the requirements of Rule 391-3-4-.10(7)(b).

7. CLOSURE SCHEDULE

Closure activities must commence within no later than 30 days after the date on which the landfill receives the known final receipt of waste or removes the known final volume of CCR from the CCR landfill for the purpose of beneficial use of CCR. Additionally, Georgia Power must commence closure of the CCR landfill if the landfill has not received CCR or if CCR is not being removed for beneficial use for a period not to exceed two years from the last receipt of CCR in the landfill. If needed, Georgia Power may provide written documentation notifying EPD that the landfill will continue to accept CCR or will start removing CCRs for the purpose of beneficial use and request a two-year extension to initiate closure of the landfill.

Once the decision has been made by Georgia Power to close the CCR landfill, the following schedule will be followed over a 6-month period:

1. Submit notice of intent to close the landfill (or cell) to EPD with the date of final CCR receipt.
2. Commence closure activities within 30 days of final receipt of CCR.
3. Prepare accurate legal description of final CCR management boundary.
4. Prepare final topographic as-built survey.
5. Obtain written permission from EPD to remove CCR, if required.
6. Construct all erosion and sediment control systems serving disturbed areas, but not previously built.
7. Install final cover system.
8. Initiate vegetative plan.
9. Remove all accumulated sediments from ponds, ditches and other drainage structures.
10. Within 30 days of closure completion of closure activities, prepare and submit the Closure Report to EPD. The report will be prepared by a professional engineer registered in Georgia.
11. On all deeds of real property that has been used for landfilling, include notice of landfill operations, the date the landfill operation commenced and terminated, an accurate

legal description of the actual location of the CCR landfill, and a description of the type of CCR that have been deposited in the landfill.

12. Concurrent with the Closure Report, submit to EPD confirmation that the information required above has been noticed on the property deed.
13. Place the required notifications and records on the Georgia Power website under Environmental Compliance.

Georgia Power will complete the listed closure activities of the CCR landfill in accordance with this Closure Plan within six (6) months. If additional time to complete closure is required, GPC will provide a written request to EPD detailing the need for additional time and the revised completion date.

8. VEGETATIVE PLAN

All disturbed areas will be grassed and maintained in accordance with the following schedules. Final surfaces will be seeded and mulched within 30-days of finished grading activity, with a temporary and permanent seed mixture. The fertilizer requirements are suggested. The operator may submit soil samples to the County Extension Agent or private laboratory for analysis and determination of proper soil conditioners including lime. This analysis will become part of the facility’s operating records. Planting dates, fertilizer rates, and seeding rates will meet the requirements in the Manual for Erosion and Sediment Control in Georgia.

VEGETATION SCHEDULE														
BROADCAST		PLANTING DATES												COMMENTS
SPECIES	RATES	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.

NOTES:

- (1) All seeding rates are pure live seed rates.
- (2) All seeding will be mulched with clean dry hay at the rate of 2.5 tons per acre. Mulch will be anchored by pressing the mulch into the soil immediately after the mulch is spread using a packer disk or disk harrow or equivalent piece of equipment.

- (3) Temporary seeding should also complement permanent seeding to produce a suitable cover while the permanent grasses germinate.
- (4) Disturbed slopes greater than 3%, including soil stockpiles, are to be mulched immediately.
- (5) D.O.T. or County Extension seed type, seed rates, fertilizer requirements, etc. may also be used in lieu of the table above.

Fertilizer Requirements				
Type of Species	Year	Analysis or Equivalent N-P-K	Rate	N Top Dressing Rate
Cool Season Grasses	First	6-12-12	1500 lbs./ac.	10-100 lbs.ac. ⁽¹⁾⁽²⁾
	Second	6-12-12	1000 lbs./ac.	-
	Maintenance	10-10-10	400 lbs./ac.	30
Cool Season Grasses and Legumes	First	6-12-12	1500 lbs./ac.	0-50 lbs./ac. ⁽¹⁾
	Second	0-10-10	1000 lbs./ac.	-
	Maintenance	0-10-10	400 lbs./ac.	-
Ground Covers	First	10-10-10	1300 lbs./ac.(3)	-
	Second	10-10-10	1300 lbs./ac.(3)	-
	Maintenance	10-10-10	1100 lbs./ac.	-
Pine Seedlings	First	20-10-5	One 21-gram pellet/seeding placed in closed hole	-
Shrub Lespedeza	First	0-10-10	700 lbs./ac.	-
	Maintenance	0-10-10	700 lbs./ac.(4)	-
Temporary Cover Crops Seeded Alone	First	10-10-10	500 lbs./ac.	30 lbs./ac. ⁽⁵⁾
Warm Season grasses	First	6-12-12	1500 lbs./ac.	50-100 lbs./ac. ⁽²⁾⁽⁶⁾
	Second	6-12-12	800 lbs./ac	50-100 lbs./ac. ⁽²⁾
	Maintenance	10-10-10	400 lbs./ac.	30 lbs./ac.
Warm Season Grasses and Legumes	First	6-12-12	1500 lbs./ac.	50 lbs./ac. ⁽⁶⁾
	Second	0-10-10	1000 lbs./ac	-
	Maintenance	0-10-10	400 lbs./ac.	-

NOTES:

- (1) Apply in spring following seeding.
- (2) Apply in split applications when high rates are used.
- (3) Apply in 3 split applications.
- (4) Apply when plants are pruned.
- (5) Apply to grass species only.
- (6) Apply when plants grow to height of 2"-4".

9. SITE EQUIPMENT NEEDED

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

10. EROSION AND SEDIMENTATION CONTROL

At closure, all ditches, diversion berms, channels, culverts, silt fences and other drainage structures not already built, will be constructed and placed. All run-off from the disposal facility area shall be directed to the sediment basin. All disposal areas are confined within perimeter berms which divert all potential run-on around and away from the disposal site.

During closure activities, all necessary erosion control measures will maintained, repaired and/or replaced as necessary. *Erosion control measures will be maintained at all times. If full implementation of the erosion control measures does not provide for effective erosion control, additional measures will be implemented to control or treat the sediment source.*

11. COST OF CLOSURE AND FINANCIAL ASSURANCE

The closure cost estimate is provided in Table 1 at the end of this document. In compliance with applicable securities laws and regulations, GPC will provide the unredacted cost estimate for closure to GA EPD under separate cover. The closure cost estimate includes all items necessary for a third-party to complete the project in accordance with the Closure Plan as set forth herein. The closure cost estimate is based on the largest area requiring final cover (i.e., 78 acres) and is generated in current dollars. The cost estimate will be adjusted annually for inflation. GPC will provide a demonstration of financial assurance upon approval of the closure and post-closure care cost estimates by GA EPD.

12. RECORDKEEPING/NOTIFICATION/INTERNET REQUIREMENTS

The requirements of this Closure Plan comply with the recordkeeping requirements, closure notification requirements and closure internet posting requirements in of Rule 391-3-4-.10(8). A summary of the specific recordkeeping, notification and internet posting requirements for closure are listed below:

Recordkeeping Requirements [391-3-4-.10(8)]

Georgia Power will maintain these documents in the facility's operating record as soon as the required document/information is available or applicable and approved by EPD:

- (a) The written closure plan, and any amendment of the plan, as required by 40 CFR §257.102(b). Georgia Power may elect to maintain only the most recent closure plan approved by EPD in the facility's operating record.
- (b) If Georgia Power chooses to secure two (2) year extension to initiate closure of an idle cell at the Plant Wansley CCR landfill, Georgia Power will place in the facility's operating record a written demonstration(s) meeting the requirements of 40 CFR §257.102(e)(2)(ii). The demonstration must include, at a minimum, the information specified below:
 - (i) Demonstration that there is a likelihood that the cell in question will resume receiving CCR or non-CCR materials in the foreseeable future. The documentation will include confirmation that the cell has airspace available and

provide an estimated timeframe as to when the cell will resume receiving CCR or non-CCR materials; or

(ii) Information demonstrating that CCR can be removed for the purpose of beneficial use.

(iii) A statement signed by an authorized representative of Georgia Power as follows:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this demonstration and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(iv) As required by 40 CFR §257.105(i)(5), if Georgia Power seeks more than one-time extension, the facility's operating record will be updated with a new demonstration prior to the end of the two-year extension.

(c) The notification of intent to close a cell(s), as required by 40 CFR §257.102(g).

(d) The notification of completion of closure of a cell as required by 40 CFR §257.102(h).

(e) The notification that closure of a cell(s) has been completed as required by 40 CFR §257.102(h).

(f) A notification that a deed restriction has been added to the property records as required by 40 CFR §257.102(i) will be added to the Plant Wansley CCR landfill facility's operating record after closure of the landfill cells.

Notification Requirements [391-3-4-.10(8)]

The requirements for notification consist of informing EPD when information has been placed in the facility's operating record and on the Georgia Power website under Environmental Compliance. EPD reviews and approves the Closure Plan and is also the regulatory agency responsible for providing a closure certificate to the Plant Wansley CCR Landfill, therefore, the requirements specified in 40 CFR 257.106(i) are met during the State's CCR landfill permitting process.

Publicly accessible Internet Site Requirements [391-3-4-.10(8)]

Georgia Power will post the information required by 40 CFR §257.105 for the Plant Wansley CCR landfill within 30 days of review and approval by EPD. The information required to be posted on the Georgia Power website under Environmental Compliance will remain available at least five (5) years following the date on which Georgia Power first posts the information.

13. SURVEY CONTROL

Filling and closure activities will be confined to within the limits indicated in the permit drawings. The location and accurate legal description of the disposal boundaries will be noted on and filed with the deed at the Heard County Courthouse. An “as-built” topographic survey will be prepared to indicate the extent and final topography of the disposal area. Other topographic surveys will be conducted as specified in the CQA Plan. Site horizontal and vertical survey control will be provided by a permanent concrete monument as shown on drawing H1C11124. Standard survey practices will be used to establish vertical and horizontal controls during closure.

14. LEGAL DESCRIPTION

The legal description below was taken from a drawing titled "Plant Wansley Coal Combustion By-Product Disposal Facility, Permitted Site Boundary Plat and Legal Description", Drawing Number H1C11121.

The permitted boundary is a portion of Land Lots 178, 179, 180, 183, 184 and 185, Fourth District, Heard County, Georgia and being more particularly described as follows:

Begin at the intersection of the northeasterly right of way of Hollingsworth Ferry Road (80' R/W) and the southerly right of way of the Gaston (SEGCO) – Yellow Dirt 230KV Transmission Line, said intersection is designated by a set 1/2" rebar with a GPC cap and has state plane coordinates (Georgia West - NAD 83 (1994)) of $x = 2023467.80$ feet and $y = 1238318.97$ feet; thence North $74^{\circ}10'19''$ East along a grid bearing and coincident with said southerly right of way for a distance of 5757.41 feet to the intersection of said southerly right of way of the Gaston (SEGCO) – Yellow Dirt 230KV Transmission Line and the westerly right of way of the GTC Dresden – Yellow Dirt 230KV Transmission Line, said intersection is designated by a set 1/2" rebar with a GPC cap and has state plane coordinates (Georgia West - NAD 83 (1994)) of $x = 2029006.91$ feet and $y = 1239889.31$ feet; thence South $32^{\circ}08'41''$ East along said westerly right of way for a distance of 595.03 feet; thence South $34^{\circ}10'52''$ East along said westerly right of way for a distance of 591.79 feet; thence South $33^{\circ}34'32''$ East along said westerly right of way for a distance of 708.39 feet; thence South $40^{\circ}16'59''$ East along said westerly right of way for a distance of 1070.77 feet; thence South $27^{\circ}42'24''$ West for a distance of 213.87 feet; thence South $86^{\circ}11'49''$ West for a distance of 209.33 feet; thence South $42^{\circ}43'05''$ West for a distance of 513.71 feet to a set 1/2" rebar with a GPC cap; thence South $64^{\circ}36'49''$ West for a distance of 195.26 feet to a set 1/2" rebar with a GPC cap; thence South $78^{\circ}41'39''$ West for a distance of 152.93 feet to a set 1/2" rebar with a GPC cap; thence North $79^{\circ}35'09''$ West for a distance of 157.16 feet to a set 1/2" rebar with a GPC cap; thence South $26^{\circ}59'16''$ West for a distance of 191.63 feet to a set 1/2" rebar with a GPC cap; thence South $43^{\circ}39'47''$ West for a distance of 556.40 feet to a set 1/2" rebar with a GPC cap; thence South $62^{\circ}00'23''$ West for a distance of 689.45 feet to a point on the northerly right of way of

Hollingsworth Ferry Road (80' R/W), said point is designated by a set 1/2" rebar with a GPC cap; thence northwesterly along a non-tangential curve and coincident with said northerly right of way, said non-tangential curve being concave northeasterly, having a radius of 776.97 feet, chord length of 514.59 feet, chord bears North 62°39'53" West and an arc length of 524.49 feet; thence North 42°13'41" West along a non-tangent line and being coincident with said right of way for a distance of 81.47 feet; thence North 38°48'40" West along said right of way for a distance of 348.05 feet; thence northwesterly along a non-tangential curve and coincident with said right of way, said non-tangential curve being concave southwesterly, having a radius of 945.26 feet, chord length of 654.90 feet, chord bears North 57°03'50" West and an arc length of 668.76 feet; thence North 78°14'05" West along a non-tangent line and being coincident with said right of way for a distance of 127.36 feet; thence North 81°27'43" West along said right of way for a distance of 711.92 feet; thence North 80°31'15" West along said right of way for a distance of 189.71 feet; thence northwesterly along a non-tangential curve and coincident with said right of way, said non-tangential curve being concave northeasterly, having a radius of 829.03 feet, chord length of 432.26 feet, chord bears North 66°23'16" West and an arc length of 437.31 feet; thence North 50°40'14" West along a non-tangent line and being coincident with said right of way for a distance of 383.32 feet; thence North 51°58'56" West along said right of way for a distance of 125.22 feet; thence northwesterly along a non-tangential curve and coincident with said right of way, said non-tangential curve being concave southwesterly, having a radius of 1188.49 feet, chord length of 524.93 feet, chord bears North 65°15'20" West and an arc length of 529.30 feet; thence North 78°34'51" West along a non-tangent line and being coincident with said right of way for a distance of 274.26 feet; thence northwesterly along a non-tangential curve and coincident with said right of way, said non-tangential curve being concave northeasterly, having a radius of 2527.16 feet, chord length of 394.11 feet, chord bears North 74°13'33" West and an arc length of 394.51 feet; thence North 67°03'05" West along a non-tangent line and being coincident with said right of way for a distance of 142.85 feet; thence North 64°33'49" West along said right of way for a distance of 245.81 feet; thence North 62°41'53" West along said right of way for a distance of 314.10 feet; thence northwesterly along a non-tangential curve and coincident with said right of way, said non-tangential curve being concave northeasterly, having a radius of 2395.17 feet, chord length of 245.46 feet, chord bears North 59°00'52" West and an arc length of 245.57 feet to the point of beginning and containing 324.577 acres, more or less.

Table 1 - Wansley Landfill Cells 1,2&3 Closure Cost Estimate

Item Description	Quantity	Unit	Unit Cost	Cost
Program Management				
Groundwater Sampling & Reporting, Compliance Evaluations ¹				
Landfill Closure Construction				
<u>Construction Management, Construction Support</u>				
Construction Management				
Support Facilities				
Engineering and CQA Construction Support				
<u>Landfill Cover System</u>				
Topsoil Layer (Supply and Install)				
Soil Cover (Supply and Install)				
GeoComposite Drainage Net				
Geomembrane				
Seeding				
Erosion/Sediment Control BMPs				
Maintenance ²				
<u>Contractor's Overhead & Profit</u>				
Quoted Overhead & Profit				
			Subtotal	
			Contingency	
			Total Closure Cost Estimate	

Notes:

1. Groundwater monitoring includes costs for conducting routine monitoring of App III & IV during the construction period.
2. Maintenance includes costs associated with final cover system, access roads, and sediment ponds.