AMENDED CLOSURE PLAN FOR GYPSUM POND

Plant Gorgas
Alabama Power Company
Parrish, Alabama

Revision 1 April 2020

Contents

1.0 INTRODUCTION

This Amended Closure Plan has been prepared to support the permit application previously submitted to the Alabama Department of Environmental Management (ADEM) for the CCR Surface Impoundment known as the Plant Gorgas Gypsum Pond, located near Parrish, Walker County, Alabama. The permit application was submitted in accordance with ADEM Admin. Code r. 335-13-15-.09(1)(c). This Amended Closure Plan, along with other documents, is intended to supplement the previous submittal in response to the ADEM letter dated May 24, 2019 which provided response comments to the original application.

2.0 GENERAL

The Plant Gorgas Gypsum Pond was designed to receive and store coal combustion residuals (gypsum only) produced from the flue gas desulfurization system during the electric generating process at Plant Gorgas. Gypsum products were sluiced from the plant to the Gypsum Pond. The pond currently stores about 600,000 cubic yards of CCR.

The gypsum pond was constructed in 2007. An area approximately 50 acres in size was used to create the gypsum storage area. The gypsum pond itself covers approximately 18 acres. There is an area to the southeast at a lower elevation that consists of a sedimentation pond, clear pool, and an emergency storage pond. All ponds are lined with an HDPE liner.

As a part of construction, the existing soils/mine spoil was graded, the subgrade proofrolled and a granular fill consisting primarily of bottom ash was placed beneath the liner. Embankments were constructed of compacted soil fill obtained from nearby borrow pits. After initial construction, the downstream slopes of the embankment were surfaced with limestone riprap.

The Plant Gorgas Gypsum Pond will be closed through removal of the CCR. The gypsum pond will be dewatered as required to facilitate excavation of the gypsum for removal. All gypsum will be excavated and transported primarily for beneficial reuse. Some of the gypsum, however, may need to be disposed of in the Plant Gorgas Private Industrial Solid Waste permitted landfill (ADEM Solid Waste Permit No. 64-10, dated June 24, 2016). Closure will include removing all gypsum, followed by removal of the existing HDPE geomembrane and the underlying granular bottom ash layer. Excavation below the HDPE liner will include removing all visible bottom ash and over excavating into the subgrade soils. Additional details about the construction methods to be used can be found within this Closure Plan.

3.0 NOTIFICATION – INTENT TO CLOSE

Notification of intent to close the Plant Gorgas Gypsum Pond was placed in the plant's Operating Record on April 15, 2019. The notice of intent was subsequently submitted directly to ADEM. The surface impoundment is closing under the requirements of § 257.101(a)(1) and r. 335-13-15-.07(2)(a)1. Closure of the surface impoundment will be conducted under § 257.102(c) and r. 335-13-15-.07(3)(c), closure by removal of CCR. Closure will include confirmation that groundwater monitoring concentrations do not exceed the groundwater protection standard established for constituents in Appendix IV of this Rule.

Major closure activities will commence following receipt of a CCR permit from ADEM pursuant to r. 335-13-15-.09. Removal of gypsum for beneficial reuse purposes is ongoing pending receipt of the closure permit from the Department.

4.0 WRITTEN CLOSURE PLAN

4.1 Overview

The Plant Gorgas Gypsum Pond is being closed by removal of CCR in accordance with § 257.102(c) and r. 335-13-15-.07(3)(c).

The Gypsum Pond contains approximately 600,000 cubic yards of CCR with a current pond footprint of about 18 acres. After closure, the embankments will be modified so that the pond no longer impounds water.

The closure consists of excavation of CCR from above the existing HDPE liner, followed by removal of the HDPE liner and the underlying 12-in layer of granular material that consists primarily of bottom ash. During closure, the gypsum pond will be progressively dewatered as required to facilitate closure by removal. Water from the gypsum pond will continue to be directed to the lower ponds. Water will be returned to the plant for treatment in the wastewater treatment facility. Once the gypsum pond is closed through the removal of the gypsum, liner and underlying granular layer, decommissioning of the lower sedimentation pond, clear pool and emergency storage pond will take place, removing any sediment and the HDPE liners. This area will then be regraded for management of stormwater runoff for the closed facility.

4.2 Closure Steps

Closure of the Plant Gorgas Gypsum Pond will occur in a series of phases / steps to achieve the planned closure, including:

- dewatering of CCR;
- excavation of CCR from the impoundment;
- removal of the HDPE liner and underlying granular layer;
- breaching and regrading of the southeast embankment so the facility will no longer impound water;
- decommissioning and regrading of the lower elevation pond system.

Initial stages of dewatering will include lowering of the pond levels through pumping and gravity flow to the lower pond system for pumping to the plant's wastewater treatment facility. Plant Gorgas has been retired and no longer generates electricity, and therefore no longer produces gypsum and gypsum transport water. Therefore, the only water that enters the pond is the rainwater that falls into it.

4.2.1.1 Contractor Mobilization and Removal of Gypsum for Beneficial Reuse

As much of the gypsum as possible will be reused for beneficial reuse purposes. The CCR marketer will be responsible for management of the CCR removal. All gypsum will be removed to fully expose the HDPE liner.

Site access will be restricted and monitored via security at access gates.

Current site infrastructure will remain and be relied upon to facilitate closure, including all roads, sedimentation and other ponds, as well as the pumps that return water from these ponds to the plant's treatment facilities. Additional temporary site infrastructure (such as additional access roads, security gates, temporary offices and shelters, etc.) will be developed as needed.

4.2.1.2 Vegetation Management

There is no significant vegetation in or around the pond that requires removal. What limited vegetation that does exist will be removed and properly disposed of. In the event any vegetation is present that is in contact or comes in contact with CCR, measures will be taken to wash such vegetative materials prior to further processing and handling onsite via approved means such as mulching, controlled burning, etc.

4.2.2 Removal of free water and in situ dewatering

Initial dewatering will include removal of free water and interstitial water from the impoundment through gravity drainage (utilizing existing decant systems) and pumping, as needed, to allow for excavation of the gypsum. Free and interstitial water in contact with CCR will be directed to the lower elevation sedimentation and process ponds and then pumped to the Plant's treatment facility for treatment to established regulatory limits prior to discharging off site through the existing NPDES discharge point.

4.2.3 Excavation of CCR

The gypsum will be excavated from the impoundment using mechanical means, with the majority of the gypsum taken off-site for beneficial reuse. There is a possibility that some material may be placed in the Plant Gorgas permitted Private Industrial Solid Waste Landfill that is also located on plant property. The gypsum will be removed down to the HDPE liner using means that will not damage the liner until all gypsum has been removed. The liner will be cleaned using washing or other appropriate means to ensure all gypsum has been removed.

4.2.4 Removal of HDPE Liner

Once all gypsum has been removed, the HDPE liner will be removed and properly disposed of in a permitted landfill. Methods of removal of the liner will be the responsibility of the Contractor selected to perform the work, but it is anticipated that the liner will be cut into portions suitable for handling and transport for disposal in a permitted landfill. As stated above, the liner will be cleaned of all visible gypsum using washing or other appropriate means prior to its removal.

4.2.5 Removal of granular layer below the HDPE liner

At the time of construction, a 12-in (nominal) thickness of granular material was placed on top of the graded subgrade and prior to the installation of the HDPE liner. This granular layer was designed to be constructed using bottom ash. Therefore, this granular layer will be removed down to the impoundment subgrade as a part of closure using mechanical excavation means.

Excavation will be undertaken using conventional excavators, loading directly into trucks. The granular layer materials will be treated as CCR and will be disposed of in a permitted landfill, either the on-site Plant Gorgas Industrial Landfill permitted to receive CCR, or in an approved off-site permitted landfill. All equipment departing the site that have been in contact with CCR will be decontaminated via washing to remove all CCR materials. The overspray and all contact water from decontamination operations will be stored on site and treated prior to discharge.

4.2.6 CCR removal verification protocol

The procedure for of CCR granular layer beneath the HDPE liner will involve the following steps:

1) Identification and demarcation of the area (or portion of the area) subject to removal verification. It is noted that the verification and documentation of removal procedures may be completed in phases.

2) Removal of CCR such that no CCR remains visible.

3) Visual inspection and documentation of the area by qualified person.

    a. For areas where the CCR and the underlying fill or mine spoil materials are difficult to distinguish, a hand lens or other visual aid may be used by the qualified person to aid the visual inspection.

    b. For areas where a clear color contrast between accumulated CCR and natural ground exists, colorimetric methods (such as the Munsell Color Chart) can be considered to supplement visual identifications.

4) If required, repeat steps 1 through 3 until CQA Engineer is satisfied that no CCR remains visible.

5) Complete “Pre 6-Inch Over-Dig Survey” and photographic documentation of applicable removal area(s).

    a. The Pre and Post 6-inch Over-Dig surveys will be performed either by:

        - A grid of discrete survey points with a maximum 100-ft spacing (each way). Horizontal control shall be within 0.1 ft, and vertical control shall be within 0.02 ft; or

        - For large areas, a photogrammetric or Lidar survey capable of generating a continuous surface of the surveyed area. For near continuous surveys Horizontal and Vertical controls for Pre and Post Over Dig surveys can be reduced to 0.2 and 0.04 ft, respectively.

6) Over-excavation of a minimum of 6 inches in the designated removal area(s).

7) Complete Post 6-Inch Over-Dig Survey and photographic documentation using the same survey points, procedures, and prescribed minimum tolerances as for the Pre 6-Inch Over-Dig Survey. Complete verification of the prescribed minimum 6” removal across the removal area by survey and visual comparison of the removal area(s). Photographs taken to verify CCR removal will be maintained at the site and will be available for review by project team members and ADEM personnel as necessary.

8) Hand augers borings or other means of limited excavation to 12” depth will then be performed at a minimum frequency of every acre and the collected samples visually assessed to check for the presence of CCR materials below the visible surface.

The details of the CCR Removal verification procedures are further outlined and incorporated into the project Quality Assurance Plan and technical specifications for closure.

4.2.7 Fugitive Dust Control Plan (ADEM 335-13-15-.02(11); 40 CFR 257.53)

The fugitive dust control plan identifies and describes the CCR fugitive dust control measures that will be implemented during closure to minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from the gypsum pond, roads, and material handling activities. 40 CFR 257.53 and ADEM Admin. Code r.ule 335-13-15.02(11) defines “fugitive dust” as “solid airborne particulate matter that contains or is derived from CCR, emitted from any source other that a stack or chimney”.

Fugitive dust originating from the gypsum pond or gypsum pond closure activities will be controlled using water suppression or polymer tackifiers.

The fugitive dust control measures identified and described in the plan will be adopted and implemented based upon an evaluation of site-specific conditions and are determined to be applicable and appropriate for the Plant Gorgas Gypsum Pond closure. Evaluation will include assessing the effectiveness of the fugitive dust control measures for the facility, taking into consideration various factors such as site conditions, weather conditions, and operative conditions.

Water suppression or polymer tackifiers will be used as needed to control fugitive dust on the 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 just under full capacity to reduce the potential for material spillage.

Southern Company and construction personnel will assess the effectiveness of the control measures by performing visual observations of the gypsum pond and surrounding areas and implementing appropriate corrective actions for fugitive dust, as necessary.

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

4.2.8 Stormwater Management During Closure

Stormwater management will mainly entail management of water that falls into the pond during rain events. The facility is designed to divert runoff from adjoining areas around the impoundment. The water that falls into the pond during rain events will have to be managed through the construction areas during closure.

Stormwater management during closure will be achieved by the management and operation of temporary berms, linings, and pumps to covey contact water as needed to facilitate excavation of the gypsum, removal of the HDPE liner and removal of the granular layer below the HDPE liner. All water will be routed through the lower sedimentation pond before being pumped to the plant’s water treatment facility.

4.2.9 Site Security

All access points to the site will be gated and gates will be locked with controlled access by approved personnel only. The facility is located on Plant Gorgas property, and access to the plant is controlled by the plant security team. There may be an additional security checkpoint at the facility itself. All site visitors including construction personnel will be required to check in at the security point before being allowed to enter the site. No unauthorized personnel will be allowed to enter the site.

4.2.10 Groundwater Monitoring

A groundwater monitoring plan was submitted with the original Plant Gorgas Gypsum Pond permit application. Please refer to Appendix 4 of the original permit application.

4.2.11 Operational inspections

Inspections will be conducted by a Qualified Person at intervals not exceeding 7 days to look for appearances of structural weakness and for proper operation of all outlet structures maintained for use during closure. Furthermore, an annual inspection will continue to be conducted by a qualified Professional Engineer throughout the closure process.

4.3 Final Grading and Decommissioning

Once all CCR and liner removal activities have been completed within the gypsum pond, the southeast embankment will be regraded and breached so that the facility can no longer impound water. Also, the series of ponds to the east that are present at a lower elevation will be decommissioned as well by the removal of any sediment and their HDPE liners. Areas of the pond will then be regraded as needed to facilitate stormwater management from the area. Some retention is expected prior to discharging any non-contact stormwater from the site.

5.0 MAXIMUM INVENTORY OF CCR – § 257.102(B)(1)(IV) AND R. 335-13-15-.07(3)(B)1.(IV)

The current estimate of the maximum inventory of CCR ever on-site at the Gorgas Gypsum Pond over the active life of the CCR unit is nominally 925,000 cubic yards. The current estimated inventory is approximately600,000 cubic yards.

Maximum unit inventory volume figures are derived from available information.

6.0 CERTIFICATION OF CLOSURE

In accordance with §257.102(h) and r. 335-13-15-.0.7(3)(h), within 30 days of completion of closure of the Plant Gorgas Gypsum Pond, a professional engineer registered in Alabama will prepare and APC will submit a Closure Construction Certification Report to ADEM documenting the completion of closure activities as indicated in § 257.102(f)(3) and r. 335-13-15-.07(3)(f)3. APC, as required by ADEM, will submit confirmation that a notation on the property deed has been recorded in accordance with § 257.102(i) and r. 335-13-15-.07(3)(i).

7.0 DIRECTIONAL INFORMATIONAL SIGNS

A designated construction entrance and access road will be established prior to initiating closure activities. Signs will be posted at the entrance notifying users of the closure activities and a telephone number for emergencies will be posted. Emergency evacuation routes will be maintained for the duration of closure activities.

8.0 VEGETATION PLAN

Disturbed areas will be vegetated in accordance with the Erosion and Sedimentation Control Plans submitted as a part of the permit application.

9.0 SITE EQUIPMENT NEEDED

The Contractor selected to perform closure construction will be responsible for all equipment needed during the construction period. For post-closure care, Alabama Power will provide all necessary company owned, leased or contracted equipment needed to perform maintenance and any necessary repairs.

10.0 SEDIMENT REMOVAL

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

11.0 EROSION AND SEDIMENT CONTROL

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

12.0 COST OF CLOSURE

Development of a construction cost estimate for this project is currently underway. The cost estimate can be provided once is it available.

13.0 CLOSURE SCHEDULE

A detailed construction schedule is attached to this Amended Closure Plan as Table 1.

14.0 RECORDKEEPING/NOTIFICATION/INTERNET REQUIREMENTS

As outlined in § 257.105 and r. 335-13-15-.08(1), each Owner or Operator of a CCR unit subject to the Department regulations must maintain files of certain information in an operating record at the facility. Each file is to be retained for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, record or study. Electronic storage of the records is acceptable. These records are to be made available to the Department upon request.

Certain notifications are to be made in accordance with the requirements of § 257.106 and r. 335-13-15-.08(2). In many instances, such notifications are to be placed in the facility's Operating Record. In certain instances, further notifications are to be made to the Department Directory within 30 days of placement of a notification into the Operating Records. Furthermore, a publicly accessible internet site must be established for posting of certain notifications and compliance information within 30 days of it being placed in the Operating Record.

Alabama Power and Plant Gorgas maintain an electronic Operating Record for the facility. In addition, a publicly accessible internet site has already been established for compliance with EPA's CCR Rule. Required notifications and compliance data, as outlined in § 257.105 through § 257.107 and r. 335-13-15-.08 and as applicable to the Plant Gorgas Gypsum Pond, will be maintained in the electronic Operating Record, and as required, made available on the publicly accessible internet site within 30 days of placement in the Operating Record. Furthermore, required notifications will be made to the Department Director within 30 days of placement in the Operating Record.

Certain plans and assessments are required to be updated at specified intervals and/or upon modification of certain components of the facility. If and when applicable, updates will be made to the respective plans and assessments, and notifications placed in the Operating Record, posted to the

publicly accessible internet site, and communicated in writing to the Department Director in accordance with the Department rules.