

# **AMENDED CLOSURE PLAN FOR ASH POND**

**Plant Barry**

**Alabama Power Company**

**Bucks, Alabama**

Revision 1 April 2020



## TABLE OF CONTENTS

1. INTRODUCTION .....	1
2. GENERAL.....	1
3. NOTIFICATION – INTENT TO CLOSE.....	2
4. WRITTEN CLOSURE PLAN – § 257.102(B)(1)(I),(III) AND R. 335-13-15-.07(3)(B)1.(I),(III).....	2
4.1 Overview.....	2
4.2 Closure Steps .....	4
4.2.1 General Overview.....	4
4.2.2 Closure Phases.....	4
4.3 Procedures During Closure.....	6
4.3.1 Dewatering and Stabilization .....	6
4.3.2 Liquids Management.....	7
4.3.3 Excavation of CCR.....	7
4.3.4 CCR Removal Verification Protocol .....	9
4.3.5 CCR Unloading, Placement and Compaction .....	11
4.3.6 Run-On/Run-Off Control .....	12
4.3.7 Fugitive Dust Control.....	12
4.3.8 Surface Water Management.....	13
4.3.9 Equipment Decontamination .....	14
4.3.10 Site Security.....	14
4.3.11 Groundwater Monitoring.....	14
4.3.12 Operational Inspections .....	15
4.4 Closure Design Features.....	15
4.4.1 Soil Containment Berm .....	15
4.4.2 Final Cover System .....	15
4.4.3 Stormwater Management System .....	16
4.5 Final Cover Systems.....	16
4.6 Achievement of Closure Performance Standards .....	17
5. MAXIMUM INVENTORY OF CCR – § 257.102(B)(1)(IV) AND R. 335-13-15-.07(3)(B)1.(IV) .....	19
6. LARGEST AREA REQUIRING FINAL COVER– § 257.102(B)(1)(V) AND R. 335-13-15-.07(3)(B)1.(V).....	20

7. SCHEDULE FOR COMPLETING CLOSURE ACTIVITIES– § 257.102(B)(1)(VI) AND R. 335-13-15-.07(3)(B)1.(VI).....	20
8. CERTIFICATION OF CLOSURE.....	20
9. DIRECTIONAL/INFORMATIONAL SIGNS .....	21
10. ORGANIC MATERIALS MANAGEMENT .....	21
11. VEGETATIVE PLAN.....	21
12. SITE EQUIPMENT NEEDED.....	22
13. SEDIMENT REMOVAL .....	22
14. EROSION AND SEDIMENT CONTROL .....	22
15. COST OF CLOSURE.....	22
16. CLOSURE SCHEDULE .....	23
17. RECORDKEEPING/NOTIFICATION/INTERNET REQUIREMENTS .....	23
18. WRITTEN POST-CLOSURE PLAN.....	24

**LIST OF TABLES**

Table 1	Closure Schedule for Ash Pond
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**LIST OF APPENDICIES**

Appendix A	Ash Pond Boundary Survey
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**LIST OF SUPPLIMENTAL DOCUMENTS**

- Stormwater and Contact Water Management Plan
- Construction Best Management Practices Plan (CBMPP)
- Design Drawings
- CQA Plan
- Organic Material Management Plan
- Technical Specifications

## LIST of ACRONYMS

ADEM	Alabama Department of Environmental Management
APC	Alabama Power Company
CBMPP	construction best management practices plan
CCR	coal combustion residuals
CFR	code of federal regulations
CQA	construction quality assurance
ft	foot/feet
gpm	gallons per minute
HDPE	high density polyethylene
LLDPE	linear-low density polyethylene
MSL	mean sea level
NPDES	national pollutant discharge elimination system
PRW	pressure relief well
P.E.	professional engineer
WWTS	wastewater treatment system

## **1. 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 Barry Ash Pond, located near Bucks, Mobile 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.

The closure of the ash pond will be accomplished by leaving the CCR in-place, by method of consolidating the existing footprint of approximately 597 acres to approximately 330 acres. CCR removed from outside of the consolidated footprint will be dewatered, excavated, and compacted within the consolidated footprint in order to achieve the design grades which will promote positive drainage of stormwater off the final cover system.

## **2. GENERAL**

The Plant Barry Ash Pond was originally constructed in 1965 and was designed to receive and store coal combustion residuals produced during the coal-fired electric generating process at Plant Barry. It also served as a low-volume waste treatment pond for the plant, receiving process water and stormwater from various plant sources, sluiced ash and decant water from the gypsum pond. It currently stores approximately 21,700,000 cubic yards of CCR.

The Ash Pond is approximately 597± acres in size. The pond was formed with the creation of dikes on the east, south, and west sides of the impoundment. The north side of the impoundment is natural ground that ties into the east and west dikes. There have been modifications to the embankment in 1972, 1992, 1998, and 2005. The embankments were originally constructed to EL 18 ft. In 1992, the east and west embankments were raised a total of 3 feet to EL 21 ft. In 1998, the east and west embankments were raised again to elevations between 23 feet and 24.5 feet. In 1999, a flow diversion dike was added near the southern end of the impoundment at an elevation of 18 feet to create an additional decant area prior to final release through the outlet structure. In 2005, the diversion dike was raised to EL 24.5 ft to increase storage in the main area of the impoundment. At that time, the south embankment was also raised to EL 21.5 ft.

The Plant Barry Ash Pond will be closed by leaving CCR in place, with consolidation of CCR to an area located on the north-central portion of the impoundment to reduce the closure footprint to an area covering approximately 330 acres. The Ash Pond will initially be dewatered sufficiently to remove the free liquids and to provide a stable base for the construction of an ash containment structure for the consolidated footprint, excavation of ash outside the consolidated footprint and, construction of the final cover system. CCR will be excavated from the area outside the consolidated footprint, transported, and placed in the consolidated footprint to create a subgrade for the final cover system. Excavation will include removing all

visible ash and over excavating into the subgrade soils. Additional details about the dewatering and construction methods to be used can be found within this Amended Closure Plan.

The final cover will be constructed to control, minimize or eliminate, to the maximum extent feasible, post closure infiltration of liquids into the waste and potential releases of CCR from the unit. This will be prevented by providing sufficient grades and slopes to: 1) preclude the probability of future impoundment of water, slurry, or sediment; 2) ensure slope and cover system stability; 3) minimize the need for further maintenance; and 4) be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.

### **3. NOTIFICATION – INTENT TO CLOSE**

Notification of intent to close the Plant Barry Ash 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(d) and r. 335-13-15-.07(3)(d), *closure performance standard when leaving CCR in place*. As described in more detail below, the surface impoundment will be closed in a manner that will control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated runoff to the ground or surface waters or to the atmosphere. Closure will also preclude the probability of future impoundment of water, sediment or slurry. Measures will be taken during design and construction of the closure system that provide for major slope stability to prevent the sloughing or movement of the final cover system. Closure will also minimize the need for further maintenance of the CCR unit.

Major closure activities will commence following receipt of a CCR permit from ADEM pursuant to r. 335-13-15-.09.

### **4. WRITTEN CLOSURE PLAN – § 257.102(B)(1)(I),(III) AND R. 335-13-15-.07(3)(B)1.(I),(III)**

#### **4.1 Overview**

A written closure plan to comply with § 257.102(b) was posted to the Plant Barry Operating Record on October 17, 2016. A revised written closure plan incorporating reference to applicable ADEM Administrative Codes was submitted as a part of the original CCR Permit application.

As required by § 257.102(b)(3)(ii) and r. 335-13-15-.07(3)(b)3.(ii), the written closure plan must be amended whenever (i) there is a change in the operation of the CCR unit that would substantially affect the written closure plan or (ii) before or after closure activities have commenced when unanticipated events necessitate a revision of the written closure plan. The

time frames for amendment to the written closure plan is in accordance with those specified in § 257.102(b)(3)(iii) and r. 335-13-15-.07(3)(b)3.(iii).

An overview of the closure approach is provided below. More detailed descriptions of phased sequencing of closure and associated procedures are provided subsequently.

- In areas outside of the consolidated footprint, the CCR will be excavated to the bottom of the ash pond, plus an additional 6 inches of underlying native materials.
- The final cover system over the majority of the consolidated footprint (approximately 90 percent or 300 acres) will consist of a ClosureTurf® (i.e. synthetic engineered turf) cover system. The final cover system over the remaining footprint (approximately 10 percent or 30 acres, which will serve as a laydown area to support future plant operations) will consist of an aggregate and geosynthetic composite cover system. Specific details (materials, configuration, thicknesses, etc.) of these cover systems are presented in Section 5.5.
- Two final cover system areas within the consolidated footprint are described below:
  - The ClosureTurf® final cover system in the majority of the consolidated footprint, will be graded with relatively gentle slopes at 3.5 percent up to a peak of approximately elevation 74 feet (ft) above mean sea level (MSL) in the center of the closure footprint. This final slope is less than the minimum 5 percent slope required by r. 335-13-15-.07(3)(d)3.(i)(III). Therefore, APC will be requesting a variance on the final minimum slope. Stormwater from cover system will be managed through a set of drainage channels, downchutes, culverts and stormwater ponds located along the majority of the consolidated footprint perimeter.
  - The stone and geosynthetic composite final cover system in the area to be reused by APC as a laydown yard will be graded with relatively gentle slopes at 2 percent up to a peak of approximately elevation 35 ft MSL in the center of the laydown yard footprint. Stormwater from cover system will be managed through a set of drainage channels, culverts, stormwater ponds and flumes.
  - Both final cover systems would virtually eliminate infiltration of surface water into the closed CCR unit while promoting stormwater runoff away from the consolidated footprint of the ash pond.
- When completed, the approximately 330 acre consolidated and covered final limit of CCR will be approximately 45 percent of the current ash pond area.

These closure activities and features are further described in the remainder of this Plan.

## 4.2 Closure Steps

### 4.2.1 General Overview

Implementation of the ash pond closure will be completed in steps, consisting of the following general sequence of activities:

- Site preparation activities will be performed, which will include, contractor mobilization, vegetation management, implementation of erosion and sediment control measures, installation of auxiliary equipment including a temporary wastewater treatment system (WWTS), pumps and corresponding pump pad, and piping.
- Free water contained within the ash pond will be removed as per the Dewatering Plan previously submitted to ADEM.
- In areas outside of the consolidated footprint, CCR material will be excavated to the native ground that underlies the impoundment, plus a minimum of 6 inches of native ground. In areas inside the consolidated footprint, limited excavation of CCR material will be necessary to achieve the final cover system grades.
- Interstitial (pore) water removed from CCR to support CCR excavation and placement activities will be treated as per the Dewatering Plan.
- Excavated and dewatered CCR will be placed and compacted within the consolidated footprint.
- A soil containment berm will be constructed to contain the CCR and provide separation between the consolidated footprint and areas where CCR will be excavated and relocated to the consolidated footprint.
- Stormwater ponds along the north, east, and west will be constructed by backfilling and contouring clean fill.
- The final cover system and stormwater management systems will be installed once an area of the consolidated footprint is complete and final grades are achieved.
- Post-closure care monitoring and maintenance will be conducted for a minimum of 30 years following the completion of construction and certification of closure.

Note that many of the activities described above will be conducted in a phased and overlapping manner. Phasing of activities would progress from north to south as discussed below.

### 4.2.2 Closure Phases

Closure of the ash pond will occur in a phased manner. A conceptual phasing approach with eight phases has been developed based on contractor input. Information on the phase limits, sequencing, and details is presented on the **Design Drawings**. The sequencing of the phases and phase activities are summarized below. During closure, the number of phases, and phase boundaries may be adjusted based on factors such as rate of construction, availability of

disposal capacity within the proposed footprint, and optimization of stormwater and contact water management features, provided that the required design criteria and operational requirements set forth in the permit application package are met.

*Phase I* – Initial CCR Dewatering and Excavation: The initial phase of closure construction (depicted on **Drawing 046** of the **Design Drawings**) involves the following activities:

- Free water within the pond will be pumped from the southern portion of the ash pond to the temporary WWTS located north of the ash pond prior to discharging the treated water through the existing National Pollutant Discharge Elimination System (NPDES) outfall, in accordance with the Dewatering Plan.
- Construction of a filter berm in the southern most portion of the pond to decrease the turbidity of contact water generated by storm events and in-situ dewatering of the CCR throughout the closure activities prior to being pumped to the temporary WWTS.
- Placement of stockpiled bottom ash or other materials on top of existing CCR to form a bridging layer, which will allow equipment access to areas to be excavated for in-situ dewatering techniques such as trench drains.
- Implementation of a preloading program, as needed, to promote consolidation of soft clayey soils underlying CCR for strength gain, which will result in: (i) improved geotechnical stability of excavation slopes within CCR removal areas; (ii) improved geotechnical stability of foundation soils under the new containment structures; and (iii) reduced long-term settlement of the foundation soils under the new containment structures (preloading program is further described in Section 4.3.3).
- Installation and operation of Pressure Relief Wells (PRWs), as needed, to improve geotechnical stability of excavations within the ash excavation areas adjacent to the existing dikes (further described in Section 4.3.3).
- Excavation and relocation of dewatered CCR in the northeastern and western reaches of the ash pond. Relocated CCR within the consolidated footprint will be moisture conditioned and compacted to final design grades.
- Implement closure-phase operating procedures, controls, and plans as set forth in Section 5.4 of this Closure Plan including but not limited to fugitive dust control and comprehensive stormwater and contact-water management programs.

*Phase II* – Construction of the soil containment berm and stormwater ponds, lining of final cover grades, and continued excavation and placement of CCR: In the second phase, portions of the ash pond that have been fully excavated will be backfilled to create free draining stormwater ponds and segments of the soil containment berm. Concurrently, CCR will continue to be excavated, dewatered and relocated to within the consolidated footprint. Phase II (as depicted on **Drawing 047** of the **Design Drawings**) will involve the following activities:

- Following the removal and verification of CCR plus a minimum of 6 inches of underlying native materials, segments of the soil containment berm, stormwater ponds, and the future reuse area located in the northeast will be constructed with soil backfill.
- Once portions of the soil containment berm and final grades of CCR have been achieved, the final cover system will be installed. The installation of the final cover system in phases will allow for the segregation of noncontact stormwater (not requiring treatment) and contact water (requiring treatment through the WWTS).
- Continue to utilize preloading and PRWs, as needed, to improve geotechnical stability throughout the closure construction process.
- Continue to form bridging layers which will allow equipment access for excavation and relocation of dewatered CCR in the eastern and western portions of the ash pond. This will continue concurrently to the activities previously described in Phase II.
- Closure-phase operating procedures, controls, and plans set forth in Section 5.4 of this Closure Plan, including but not limited to fugitive dust control and comprehensive stormwater and contact-water management programs will continue to be implemented.

*Phase III through Phase VIII*– Continued construction of the soil containment berm, stormwater ponds, lining of final cover grades, and excavation and placement of CCR (note: this sequence is repeated for Phases III through VIII – i.e. the final phase). The sequencing described in Phase II, involving the utilization of preloading and PRWs (as needed), construction of segments of the soil containment berm, stormwater ponds and a seepage berm located in the southern portion of the pond will continue following removal of CCR plus a minimum of 6 inches of underlying native soils which in turn are placed within the consolidated footprint will continue throughout the closure activities. The progression of activities would be from north to south, as shown on the phasing plans in the **Design Drawings**. Following the final phase, Phase VIII, the closure construction activities will be completed and would transition from the closure period to the post-closure care period (upon completion of reporting activities discussed subsequently in the Plan and approved by ADEM).

## **4.3 Procedures During Closure**

### **4.3.1 Dewatering and Stabilization**

Dewatering of the ash pond will be performed by removing free water (i.e. open pooled water) and reducing the amount of interstitial water in the CCR (i.e. reducing pore water in the CCR). Dewatering is expected to facilitate removal, relocation, and consolidation of the CCR in the consolidated footprint. Dewatering is also expected to increase geotechnical slope stability of the CCR unit, reduce CCR consolidation settlement, improve constructability, and provide safe access for construction equipment. Free water drawdown will initially be set at a rate not exceed one foot per week. This rate may be increased to as much as 2 feet per week with daily inspections and assessments as to the integrity of the interior slopes of the perimeter embankments.

Proposed CCR dewatering activities are described in detail in the Dewatering Plan. In general, dewatering and CCR excavation and placement will occur in a phased manner. Interstitial water will be pumped or conveyed via temporary control measures (i.e., diversion berms and conveyance channels) to the settling basin located south of the consolidated CCR footprint (i.e., the ponded areas north and south of the existing separator dike). Contact water and interstitial water will pass through a filter berm to reduce total solids concentrations and will then be pumped to the on-site temporary WWTS for treatment prior to discharge.

#### 4.3.2 Liquids Management

Closure construction will involve a dewatering program that includes removing free liquids from the ash pond and interstitial water from the CCR in the ash pond. Closure activities will also result in the generation of contact water. Throughout closure construction, liquids that have been in contact with or generated from CCR will be managed as follows:

- Free water and interstitial water within the ash pond will be routed through the on-site WWTS or otherwise properly managed in accordance with the NPDES permit requirements and then directed to the permitted NPDES discharge outfall (Permit No: AL0002879, Outfall: DSN002).
- Contact water management will be performed in accordance with the **Stormwater and Contact Water Management Plan**. Contact water will be routed through the on-site WWTS or otherwise properly managed in accordance with the NPDES permit requirements as described above.

Following final CCR placement, compaction, grading, and liner installation of discrete portions of the consolidated closure footprint, stormwater runoff from completed areas may be considered non-contact water and may be managed and discharged separately from contact water. Non-contact stormwater will be managed in accordance with applicable stormwater and erosion and sediment control requirements and will be discharged off-site without treatment at designated locations.

#### 4.3.3 Excavation of CCR

Dewatered CCR in the ash pond will be mechanically excavated and transported using haul trucks to fill areas within the consolidated footprint. The depth of CCR to be excavated and placed within the consolidated footprint varies depending upon location, but generally ranges from approximately 5 to 25 feet in depth. It is anticipated that excavation will be accomplished in stages whereby the CCR will be removed in 5- to 10-foot vertical increments until full-depth excavation is achieved. A bridging lift will be placed to prepare areas for excavation and to provide stability for excavators and hauling equipment.

Excavation will be performed in a phased approach, often with two distinct areas being actively excavated at a given time. The phased approach to CCR excavation is provided within the **Design Drawings** (Drawings 046-055).

As previously mentioned, implementation of a preloading program and use of pressure relief wells (PRWs) will be considered to improve geotechnical stability at various phases of the closure construction activities. The preloading and use of PRWs will be conducted in a sequential manner closely tied to CCR excavation efforts.

- Preloading will be implemented, as needed, prior to commencement of CCR excavation. The ash pond is underlain by an organic clay soil (henceforth termed Clay 1). Clay 1 is normally consolidated and soft to very soft in consistency. Preloading is an established ground improvement technique which, at Plant Barry, will involve placing temporary soil fill on top of existing CCR to induce consolidation in underlying Clay 1. The preloading-induced consolidation will increase the shear strength and reduce the compressibility of Clay 1. After Clay 1 has consolidated to the desired level, the preloading fill can be removed and final construction of CCR cut slopes and soil containment berms can begin. Improved performance of the Clay 1 layer is anticipated to add significant value to the overall closure project by: (i) significantly improving the stability of excavation slopes; (ii) allowing for continuous construction of new soil containment dikes through enhanced strength of the foundation soils; and (iii) limiting long term settlement of the new soil containment dike in the post-closure period.
- Pressure relief wells (PRWs) would be used, as needed, to support the deepest portions of CCR excavations. PRWs are commonly used to reduce pore water pressures in confined aquifers or in stratified ground conditions to improve geotechnical stability of excavations. PRWs are typically installed before the excavation has extended below the piezometric level in the aquifer and, as the excavation continues, PRWs are pumped to relieve the pore water pressures in the aquifer to ensure stability of the excavation or surrounding area. PRWs can also increase the constructability of the excavation to its final grade by providing a drier working area. Once excavation and backfilling has been completed in a targeted area (expected to take less than one year), PRWs may be abandoned. The primary purpose of the proposed PRWs at the Site is to provide protection to the integrity of the existing perimeter dikes during CCR excavation and reduce the potential for sand boils and/or heave. The varying threshold across the Site is dependent on the elevation of the excavation and thickness of the underlying clay unit. Current configuration of a PRW system would involve installing and operating one to two sets of approximately ten PRWs at a time while excavation is being conducted in the adjacent areas. As the excavation is completed, individual PRWs would be abandoned and new PRWs would be installed further down the line to allow new areas to be excavated.

#### 4.3.4 CCR Removal Verification Protocol

In the context of this Closure Plan, the CCR removal verification protocol refers to the process of verifying and documenting that, to the extent practicable, visible CCR has been removed from the areas outside of the consolidated footprint.

The CCR at the Site is underlain by soils that could be visually similar to the CCR (i.e., similar in color), which makes identifying the CCR-soil interface by simple observations based on a color difference challenging. Previously performed soil borings at the Site indicate that organic clay and elastic silt type of natural soil deposits underlie CCR.

A combination of the following procedures will be used to delineate the CCR-soil interface.

- Delineation of CCR-soil interface will be performed by a field geologist/engineer through visual examination (i.e., visual soil classification) of the subsurface samples collected by continuous soil boring methodologies such as direct push technology (DPT) or sonic drilling. The procedures below will be used to delineate the CCR-soil interface by visual examination:
  - The differentiating factors between the organic and inorganic clay and CCR is the presence of plasticity in clay (i.e., can be rolled into a ball and will retain its form) and its absence in CCR (i.e., CCR does not retain form when rolled with fingers). Additionally, there are some subtle differences in color (e.g., organic clay at the site exhibited dark gray to brown in color and inorganic clay at the site exhibited greenish to blueish gray in color, while fly ash exhibited gray to light gray in color).
  - Differentiating between the elastic silt and CCR will require a closer examination of these units using a handheld magnifying lens to compare grain color, shape and consistency. The visual method used to differentiate between the elastic silt and fly ash at this site includes examining the material for light (sometimes white) fine grains mixed into the matrix of gray and dark gray fine grains; this combination of color grains is found in the CCR but not the native elastic silt. The native elastic silt grains are a homogeneous fine-grained matrix of the color gray.
  - At 300-foot centers throughout the closure by removal areas of the site, continuous soil borings by DPT or other methods will be performed to obtain continuous core samples of the subsurface materials to a depth of minimum 20 ft below the bottom of CCR or to the sand layer underlying the organic clay and elastic silt deposits, whichever is earlier. These samples will be inspected by field geologist/engineer to delineate the CCR-soil interface based on visual soil classification procedures described above and documented in boring logs. The boring locations will be surveyed for both horizontal and vertical control. Based on field geologist/engineer's observations and the survey data, the elevation of the CCR- soil interface will be picked for each of the boring locations.

- Delineation of CCR-soil interface will be performed by the Construction Quality Assurance (CQA) engineer using cone penetration test (CPT) results. Soil behavior type can be predicted from CPT results using empirical soil behavior type (SBT) chart. When combined with actual observations from soils borings (i.e., visual classification by field geologist/engineer), the CPT results could be effectively used to differentiate subsurface soil types. The procedures below will be used to delineate the CCR-soil interface by using CPT results:
  - Based on co-located soil borings and CPTs performed at the Site previously, a CPT- based machine learning algorithm (MLA) was developed to identify the CCR-soil interface. The MLA uses computational methods to “learn” information directly from data without relying on a predetermined equation as a model. The MLA adaptively improves its performance as the number of samples available for learning increases. The MLA for the Site was developed based on approximately 5,000 CPT data points from 13 CPT locations that were co-located with 13 soil borings across the Site. The MLA may be refined, as necessary, based on the additional data collected during closure construction (i.e., additional soil borings and CPTs discussed herein to refine the estimated CCR-soil interface).
  - At 100-foot centers throughout the closure by removal areas of the site, CPTs with pore pressure measurements will be advanced to a depth of minimum 20 ft below the estimated bottom of CCR or to the sand layer underlying the organic clay and elastic silt deposits, whichever is earlier. For each of the soil boring (e.g., DPT) locations discussed earlier, a co-located CPT will be advanced within 10 ft of the soil boring location. The CPT locations will be surveyed for both horizontal and vertical control.
  - At any CPT location, the CQA engineer will use the MLA to estimate the CCR-soil interface. The co-located soil borings advanced at a lesser frequency will be used to confirm the MLA’s estimates as well as to supply additional data to MLA to increase its robustness.
- Based on the CPT-based MLA estimates, and direct observations from the soil borings (e.g., DPT cores) discussed earlier, CCR-soil interface elevations will be assigned throughout the closure by removal areas on a 100 ft by 100 ft grid. Geospatial kriging techniques will be used to transform the 100-ft grid data in to a CCR-soil interface surface for the entire footprint of closure by removal areas.
- The CCR-soil interface surface will be used to develop the final CCR excavation grades by subtracting an additional 6 inches from the CCR-soil interface.
- The closure contractor will use high-precision GPS and/or other surveying methods to demonstrate and document that the target excavation grades are achieved throughout the closure by removal areas. The horizontal and vertical survey data from excavation efforts

along with the field observations of excavation areas will be reviewed by the CQA engineer (or qualified representative).

- Hand augers borings or other suitable limited excavation methods to 12” depth will 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. Where site conditions lack safe accessibility for hand augering or other excavation methods, a Geo Probe or other means of safely obtaining depth samples at a minimum of one per acre will be performed.
- Once the removal is deemed complete with CQA engineer’s approval for a given area, photographs will be taken, where possible, to document condition of the subgrade. These photographs will be maintained at the site and will be available for review by project team members and ADEM personnel as necessary. After photo documentation and final CQA approval, the backfilling operations will commence.

#### 4.3.5 CCR Unloading, Placement and Compaction

The method of CCR disposal will be the area fill method which involves placing relocated CCR fill into efficient phasing areas, spreading the CCR in layers (lifts) and then compacting the CCR with heavy equipment. This process is repeated until the top of CCR elevations shown on the **Design Drawings** are reached. CCR placement and compaction efforts will be conducted in general accordance with the requirements below:

- Dewatered CCR will be transported from excavated or stockpiled areas.
- CCR will be placed in phasing areas in relatively horizontal lifts to facilitate efficient compaction of placed materials.
- The active CCR-placement working area will be limited to the extent practical to limit contact water generation and the potential for dust generation. Proper dust control measures will be implemented as described subsequently in this narrative.
- The placed CCR will be compacted (and moisture conditioned as necessary) such that the CCR working surface is firm and unyielding after several passes of the compaction equipment.
- Sediments deposited may be present at the toes of slopes and in temporary drainage ditches and temporary contact water storage areas. Prior to CCR placement following periods of inclement weather, these areas of potential sedimentation will be inspected. Soft or loose CCR 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 working surface or face will be graded in such a way to minimize the run-on/run-off of stormwater.
- At the end of each day's activities, the working surface will be sealed to the extent possible with a smooth drum roller or other effective methods. Prior to placement of subsequent lifts, sealed CCR surfaces will be lightly scarified using a dozer or other equipment to promote lift bonding.

The compacted CCR material will support the final cover system with only limited short- and long-term settlements. At the outset of CCR placement within the consolidated footprint, a field pilot study or test pad will be performed to evaluate the optimum material placement methods (lift thickness, optimum moisture window, type of compaction equipment, and number of passes). Additional test pads may be performed if CCR materials, compaction equipment, or other field conditions change. Modifications to the general placement procedures will be incorporated based on actual field conditions (e.g. variability in ash properties and placement operations, dust control, material workability, etc.).

#### 4.3.6 Run-On/Run-Off Control

Overall, closure activities will take place within the limits of the existing outer perimeter containment dikes of the ash pond. These dikes prevent run-on from and run-off to areas outside of the ash pond. The **Stormwater and Contact Water Management Plan** included with the detailed design package addresses the hydrologic and hydraulic capacity requirements for the ash pond surface impoundment and how stormwater volumes and peak stages from design storm events will be managed during each phase of construction.

During active closure operations (e.g., during CCR excavation and placement), the generation of contact water from active CCR working areas will be limited to the extent practical. Non-contact stormwater will be diverted away from and around active CCR working areas to minimize the generation of contact water through the use of diversion berms positioned on slopes situated up-gradient from the working areas, diversion channels positioned around working areas, pumps, and temporary or permanent liner systems. Refer to the **Stormwater and Contact Water Management Plan** and the **Design Drawings** for further information on the location and sizing of these features.

#### 4.3.7 Fugitive Dust Control

The purpose of this Fugitive Dust Control Plan is to minimize fugitive dust through the ash pond closure process at Plant Barry and demonstrate compliance with the regulations listed under §257.80(b) and r. 335-13-15-.05(1)(b). USEPA 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." [§ 257.53].

This plan identifies and describes the CCR fugitive dust control measures that will be used during closure construction to minimize airborne CCR due to construction and related activities

associated with closure of the ash pond. The CCR fugitive dust control measures that will be used are presented below.

- Fugitive dust originating from the closure of the ash pond will be controlled using water suppression or polymer tackifiers.
- 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 not be overfilled (i.e., only filled up to or to less than capacity) to reduce the potential for material spillage.

The fugitive dust control measures described above were selected based upon an evaluation of site-specific conditions at the ash pond, including the physical properties of CCR, the specific closure construction activities, weather conditions, and operating conditions.

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

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

#### 4.3.8 Surface Water Management

The stormwater features shown on the **Design Drawings** will be constructed to manage stormwater runoff during closure construction and throughout the post-closure care period. During closure construction, the contractor will follow the **Construction Best Management Practices Plan (CBMPP)** included in the detailed design package and associated NPDES Permit General Permit (ALR100000). Erosion and sediment control measures shown on the **Design Drawings** have been designed with consideration of the contractor's phased construction approach and following the practices outlined in the Alabama Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas. Appropriate erosion and sediment control devices include stabilized construction entrances/exits, sediment fencing, diversion channels and berms, silt curtains, settling basins, filter berms, outlet protection for concentrated flows, and other necessary provisions.

Closure construction will involve dewatering efforts which includes removing both free water (i.e., open pooled water) from the southern portion of the ash pond, interstitial water from

within the ash (i.e., reducing pore water in the CCR). Free water within the ash pond will be treated and then discharged through the primary discharge structure located on the south end of the pond to the permitted NPDES discharge point (Permit No.: AL0002879, Outfall: DSN002) throughout the construction and following the closure. Any water discharged from the ash pond during construction will be routed through a 4,000 gallons per minute (gpm) WWTS prior to discharge.

Further, the construction sequencing depicted on the **Design Drawings** includes a phased stormwater management approach whereby stormwater and contact water runoff will be routed and discharged separately to isolate the contact water component requiring necessary treatment prior to discharging off-site. Routing of contact water and stormwater along with their respective discharge strategies is described in the **Stormwater and Contact Water Management Plan**.

The final closure design incorporates stormwater management features designed with appropriate capacity to convey stormwater flows from the final cover system under post-closure conditions. Stormwater conveyances are shown on the **Design Drawings** and include cover system benches and down chutes, drainage channels and culverts, pipe outlet protection, lined stormwater ponds, and a settling basin. The design criteria, narrative descriptions, and calculations for the stormwater management system during closure construction and after final closure are provided in the **Stormwater and Contact Water Management Plan**.

#### 4.3.9 Equipment Decontamination

Before removing equipment that has been in contact with CCR from the active work area of the ash pond, the equipment will be washed. CCR residues generated during washing will be either comingled with other CCR within the consolidated footprint prior to completion of the final cover system or sent offsite to an MSW landfill. Water generated from this activity will be managed as contact water.

#### 4.3.10 Site Security

Only authorized personnel will be permitted to access the site during and following closure activities. Site security measures will include guarded gate access as well as deployment of an Observation Without Limits (OWL) surveillance system surrounding the perimeter of the ash pond. Site visitors will require badges and will be accompanied by authorized escorts.

#### 4.3.11 Groundwater Monitoring

A groundwater monitoring plan was submitted with the original Barry Ash Pond permit application. Please refer to Appendix 8 of the original permit application.

#### 4.3.12 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.

### 4.4 Closure Design Features

#### 4.4.1 Soil Containment Berm

The closure in place of Plant Barry's ash pond involves consolidating the existing CCR from the current footprint of 597 acres to a consolidated footprint of approximately 330 acres. To reduce the footprint and provide containment of the final footprint, a soil containment berm will be constructed in areas where the CCR is being excavated along the existing perimeter berm. This soil containment berm will provide physical barrier between the closure by removal area(s) and the consolidated footprint. Along the inside toe of the soil containment berm, an internal drainage system will be installed during pond closure. This drainage corridor will include an HDPE pipe collection corridor (8" HDPE pipe imbedded in a gravel/sand collection area), sumps and forcemains (24" HDPE riser pipes). The corridor will allow for collection of interstitial water during and after closure and mechanisms for pumping and collection. Currently, the internal drainage system includes a perimeter corridor. Studies are ongoing to evaluate the effectiveness of including a network of collection corridors transecting the pond.

#### 4.4.2 Final Cover System

The final cover systems have been designed and will be installed over the final CCR grades to minimize infiltration and erosion. The final cover system will consist of both a ClosureTurf® (i.e. synthetic engineered turf) cover system over the majority of the consolidated footprint (approximately 300 acres), and a stone and geosynthetic composite cover system over an area to be reused by APC as a laydown yard (approximately 30 acres in the northwest portion of the consolidated footprint).

The majority of the consolidated footprint would consist of, from bottom to top:

- 6-inch thick prepared subgrade layer;
- 50-mil thick linear-low density polyethylene (LLDPE) MicroDrain geomembrane; and
- Engineered synthetic turf (ClosureTurf®) which is ballasted by a sand layer 0.5 inches thick.

The northwest area, to be utilized as a laydown yard, would consist of, from bottom to top:

- 6-inch thick prepared subgrade layer;
- 100-mil thick LLDPE geomembrane;
- Geocomposite layer;

- 9 inches of #57 stone;
- 6 inches of high density polyethylene (HDPE) geocell filled with #57 stone; and
- 3 inches of #57 stone wear surface.

Details of both final cover systems are provided in the **Design Drawings**.

#### 4.4.3 Stormwater Management System

The stormwater management features shown on the **Design Drawings** will be constructed to manage stormwater runoff during both closure construction and the post-closure care period. The final closure grades incorporate stormwater management features to prevent erosion and direct stormwater runoff into the stormwater management system. The **Design Drawings** include the layout and details of the stormwater management system, including required erosion and sediment controls. Diversions and channels will be constructed on the final cover system and around the perimeter of the consolidated footprint and to divert run-on to and convey runoff from the site in a controlled manner. The design criteria, narrative descriptions, and calculations for the stormwater management system during closure construction and after final closure are provided in the **Stormwater and Contact Water Management Plan**.

### 4.5 Final Cover Systems

Upon closure, all CCR within the consolidated footprint will be spread, compacted and capped with the final cover systems shown on the **Design Drawings** (Drawings 070-073). The final cover systems are designed to meet the following design standards of §257.102(d)(1) and r. 335-13-15-.07(3)(d)1.

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

An alternate final cover system will be used for the Plant Barry Ash Pond closure that meets the requirements of § 257.102(d)(3)(ii) and r. 335-13-15-.07(3)(d)3.(ii). The cover system will include the following components:

- Specified final cover infill as outlined in the final closure plan design;

- 1/2" minimum sand infill
- 1/2" minimum sand infill with ArmorFill® application
- 3/4" minimum HydroBinder® infill
- Rock or articulated concrete block overlying a geosynthetic separation and protection layer
- Engineered Synthetic Turf (HydroTurf®)
- A minimum 40 mil polyethylene (LLDPE or HDPE) geomembrane liner
- 

A testing and documentation program will be conducted during placement of the final cover systems to provide verification that the final cover materials are constructed in accordance with the specifications. Both final cover systems material property requirements, and quality control and conformance testing methods and frequencies, are provided in the **CQA Plan**.

#### **4.6 Achievement of Closure Performance Standards**

Closure of the ash pond, as reflected in this Closure Plan and the accompanying permit application package, is designed and will be constructed to achieve applicable closure performance standards of §257.102(d) and r. 335-13-15-.07(3)(d) as described below.

- The final cover systems will control and minimize infiltration of liquids into the CCR, release of CCR into the environment, and flow of contaminated runoff from the ash pond to groundwater or surface waters, or to the atmosphere. This will be accomplished by using a virtually impermeable geomembrane as part of the final cover system. The geomembrane will isolate the CCR from the surrounding environment and essentially eliminate infiltration into the CCR relative to existing conditions. The final cover systems will be installed over the entire consolidated area, eliminating direct exposure of CCR to the surrounding environment.
- Both final cover system options are alternatives to the final cover system prescribed in §257.102(d)(3)(i) and r. 335-13-15-.07(3)(d)3.(i), and both systems have been designed and will be constructed to achieve an equivalent reduction (and in fact, a greater reduction) in infiltration into the CCR as achieved with the prescriptive final cover system. The proposed final cover systems will also have erosion layers that provide equivalent protection from wind and water erosion as the erosion layer of the prescribed final cover.
- The final cover systems are configured to preclude the probability of future impoundment of water, sediment, or CCR slurry into the ash pond. This will be

accomplished by the grading and layout of the final cover system, and by the stormwater management and control system that will be installed (resulting in positive drainage for stormwater runoff from the final cover system and limiting stormwater run-on). Surface-water conveyance structures are designed with appropriate channel lining materials to resist erosion during the design storm event and to minimize surface water infiltration.

- The consolidated area has been designed and will be constructed with measures that provide for adequate levels of slope stability, that prevent the sloughing or movement of the final cover system, and that minimize the potential for disruption of final cover system due to settling or subsidence. Slope stability factor of safety design criteria will be achieved for static, seismic, liquefaction, and end-of-construction conditions for both the closure and post-closure care periods. An evaluation of the veneer stability of the final cover system has also been performed to verify the interface shear strengths necessary to meet minimum design factors of safety for both static and seismic conditions.
- The final cover systems are designed to minimize the need for further maintenance of the ash pond. This will be accomplished by consolidating CCR within the ash pond from an approximately 597-acre area into an approximately 330 acre area, thereby reducing the total area requiring maintenance by about 45 percent. Additionally, the stormwater management system features on the final cover and in adjacent final closed areas are configured and spaced in a manner to minimize post-closure erosion and adequately handle flows from the design storm, also contributing to minimized need for post-closure maintenance of the ash pond.
- The final cover systems construction will be completed in the shortest amount of time consistent with recognized and generally-accepted and appropriate engineering practice. This will be accomplished by using a phased construction approach designed to allow closure construction to be efficiently implemented. As final CCR elevations are reached in phases during closure construction, the final cover system will be installed incrementally on those areas while other phases of the closure are either being filled and/or dewatered. This approach will allow multiple construction activities to be performed in parallel, shortening the total construction duration compared to conducting the construction operations in series.
- This Closure Plan includes provisions for eliminating free liquids and stabilizing the CCR through dewatering and through CCR placement and compaction methods prior to installing the final cover systems.

An Assessment of Corrective Measures (ACM) for the Plant Barry Ash Pond was placed in the Plant's Operating Record in June 2019 and submitted to the Department in July 2019. The development of the ACM considered the planned closure approach which will include dewatering, consolidating the footprint of the ash, and constructing a cover system over the consolidated footprint that meets the requirements of § 257.102(d)(3) and r. 335-13-15-.07(3)(d). This closure approach will effectively control the source of CCR constituents to groundwater by removing free water and some interstitial water from the ash, reducing the footprint area of the ash and preventing further infiltration of surface water resulting from rainfall through the ash.

Removal of the free liquid will reduce the volume of water available to flow from the Ash Pond during and after closure, while also minimizing the hydraulic head driving water through the subsurface. A reduction in head that could lead to outward or downward migration will also allow the natural, low permeability clay that is directly below the Ash Pond to more effectively confine vertical seepage flows.

Outside the consolidated footprint, ash will be excavated to remove all visible ash and a minimum of 6 inches of the underlying subgrade soils, thereby removing the source from these areas. The cover system that will be constructed over the consolidated footprint will have a permeability several magnitudes lower than the permeability of the natural clay subsoils beneath the impoundment, reducing the likelihood of future migration of water through the ash below the cover.

At the present time, a combination of the closure process and source control measures discussed above along with Monitored Natural Attenuation and adaptive site management are anticipated to provide the necessary remedy for this facility. However, in an adaptive site management process, system performance is monitored, and one or more of the technologies identified in the ACM will be used to supplement the remedy as needed if the selected approach is not performing as intended or corrective action goals are not met. If necessary, modifications to the closure plan may also be amended or supplemented to include other protective measures.

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

The ash disposal area boundary and CCR surface impoundment facility boundary was surveyed on 21 September 2018 by a Registered Surveyor. These surveyed boundaries and a legal description of the CCR management boundaries are provided in **Appendix A** of this plan. Areas where CCR has been deposited have been located to the best of APC's ability. The boundaries of the CCR deposits in the ash pond will be confirmed and documented during closure construction.

The ash pond currently contains approximately 21,700,000 cubic yards of in-place CCR, of which, approximately 9,000,000 cubic yards of CCR and underlying soils will be placed into the consolidated footprint containing the remaining volume of CCR to be closed in-place.

## **6. LARGEST AREA REQUIRING FINAL COVER– § 257.102(B)(1)(V) AND R. 335-13-15-.07(3)(B)1.(V)**

Based on the closure strategy presented herein, all of the CCR in the ash pond will be consolidated to approximately 330 acres. This entire area will receive final cover. Thus, the largest area ever requiring final cover under the proposed closure is approximately 330 acres.

## **7. SCHEDULE FOR COMPLETING CLOSURE ACTIVITIES– § 257.102(B)(1)(VI) AND R. 335-13-15-.07(3)(B)1.(VI)**

The closure activities are anticipated to start in 2019. It is estimated that the activities necessary to satisfy the applicable regulatory closure criteria will have an approximately 12-year duration. Based on the estimated start of closure activities, this would result in a completion of closure activities in approximately 2031. A list of closure activities is provided subsequently in Section 17 of this document, and a schedule with estimated timeframes is presented in **Table 1**. The closure schedule and milestones are based on estimates of the approximate timeframes to implement closure activities. Closure will be conducted in phases as discussed previously, but it should be recognized that not all activities on the closure schedule will occur on a continuous basis throughout their scheduled durations, consistent with the previously-described sequence of closure steps.

## **8. CERTIFICATION OF CLOSURE**

In accordance with §257.102(h) and r. 335-13-15-.07(3)(h), within 30 days of completion of closure, APC will prepare and submit a notification to ADEM that includes a written certification from a P.E. registered in Alabama verifying that closure has been completed in accordance with this Closure Plan. APC will place this documentation in the operating record for Plant Barry.

Concurrent with the submission of completion of closure, and in accordance with § 257.102(i) and r. 335-13-15-.07(3)(i), APC will record a notation on the deed to the property, or some other instrument that is normally examined during the title search. This recording will notify any potential purchaser of the property of the following:

- The land has been used as a CCR surface impoundment and that its use is restricted under the post-closure care requirements of the r. 335-13-15-.07(5)(d)1.(iii).
- The locations and dimensions of the CCR unit with respect to permanently surveyed benchmarks and section corners shall be on a plat and prepared and sealed by a land surveyor.

- Contain a note, prominently displayed, which states the name of the permittee or operating agency, the type of CCR unit and the beginning and closure dates of the disposal activity.
- Certification by a qualified P.E. registered in Alabama that all closure requirements have been completed as determined necessary by ADEM.

Within 30 days of recording a notation on the deed to the property, APC will prepare and submit a notification to ADEM stating that the notation has been recorded. APC will place this documentation in the operating record for Plant Barry.

## 9. DIRECTIONAL/INFORMATIONAL SIGNS

A designated construction entrance and access road has been designed and will be completed prior to initiating closure activities. Signs will be posted at the entrance gate notifying users of the ash pond 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.

## 10. ORGANIC MATERIALS MANAGEMENT

Throughout the operational and inactive periods of the CCR ponds, vegetation (e.g., grass, roots, shrubs, cattails, trees, etc.) have naturally established themselves within the pond footprints. These organic materials typically consist of two components: (1) organic materials above the ash surface (e.g., stalks, leaves, grasses, tree, etc.); and (2) organic materials at or below the ash surface (e.g., stumps, roots, decaying vegetation, and organic matter at or near the pre-CCR grades). Proposed organic material management activities are described in detail in the **Organic Material Management Plan** included with the detailed design package.

## 11. VEGETATIVE PLAN

For the engineered synthetic turf cover system (ClosureTurf®), the system is composed of a geomembrane overlain by an engineered synthetic turf and sand infill material. The alternative cover system is composed of a geomembrane overlain by #57 stone for drainage. Therefore, vegetation will not be required on either final cover system.

During temporary lapses in construction activity, short term stabilization measures will be installed on exposed areas within 14 days of disturbance and in accordance with the Disturbed Area Stabilization (With Mulching Only) or Disturbed Area Stabilization (With Temporary Seeding) details in the **Design Drawings** (Drawings 077-079).

Stabilization of the existing perimeter berms or other areas disturbed during construction which are not covered by the engineered synthetic turf cover system, may be achieved with a vegetative cover. In areas to receive seed, the ground will be scarified, and a layer of topsoil will be placed. Seed and fertilizer will be placed on the seed bed using the methods and rates specified in the **Design Drawings** and **Technical Specifications**.

## **12. 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, APC will provide all necessary company owned, leased or contracted equipment needed to perform maintenance and any necessary repairs.

## **13. 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.

## **14. 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**.

## **15. COST OF CLOSURE**

Through coordination with the engineering design team and the subcontractor selected to execute the closure activities, the estimated cost of closing Plant Barry's ash pond is approximately \$860 million. The estimate is considered to be at control level with a high level of project definition. However, due to the complexity, quantities, and duration of the overall project, some variability in costs is expected. Additional expenses of post closure care, maintenance, and corrective action are currently estimated at \$36 million. Fully detailed long-term maintenance and corrective action strategies have not yet been determined which have the potential to influence current estimates.

Some of the most significant cost items include:

- Water management including contact and noncontact water;
- ClosureTurf® cover system;
- Construction management and construction quality control (CQC);
- Offsite fill materials such as soil and clay fill, gravel and riprap;
- Excavation, placement, compaction, and grading of CCR into the consolidated footprint;
- Pressure relief wells;

- Construction quality assurance (CQA);
- Dust control management;
- Engineering support; and
- General contingency and inflation on construction items.

## **16. CLOSURE SCHEDULE**

The closure of Plant Barry’s ash pond is expected to exceed the closure activity timeline of five years (§ 257.102(f)(1)(ii) and r. 335-13-15-.07(3)(f)1.(ii)) and is expected to require the allowable two-year extensions to complete the closure due to the excavation moisture conditioning, placement, compaction, and grading of approximately 9,000,000 cubic yards of CCR and underlying soil. This excavated CCR is currently highly saturated and loosely deposited within the ash pond. The schedule of major milestones and approximate timeframes shown below and in **Table 1** will be followed over the approximately 12-year closure period:

- Remove free liquids, stormwater management, and conduct CCR dewatering – approximately 11 years.
- Excavate, place, compact, and grade relocated CCR into the consolidated footprint – approximately 11 years.
- Construct stormwater ponds, soil containment berm, and other soil fill structures – approximately 11 years.
- Install final cover system and stormwater management features – approximately 7.5 years.

Closure will be conducted in sequential steps consistent with the phases discussed previously, but it should be recognized that not all activities on the closure schedule will occur on a continuous basis throughout their scheduled durations, and that the timeframes are only estimates.

## **17. 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.

APC and Plant Barry 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 Barry Ash 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.

## **18. WRITTEN POST-CLOSURE PLAN**

40 CFR § 257.104 and ADEM Administrative Code r. 335-13-15-.07(5) require the owner or operator of an existing CCR surface impoundment that is closed in place to provide for post-closure care of the unit for a period of at least 30 years. Post-closure care includes maintenance of the facility, as well as groundwater monitoring in accordance with § 257.90 through § 257.98 and r. 335-13-15-.06(1) through r. 335-13-15-.06(9).

The Plant Barry Ash Pond is currently expected to be closed in place under the performance standards outlined in § 257.102(d) and r. 335-13-15-.07(3)(d). Following closure, maintenance will be provided on the final cover system for the required post-closure care period so that the integrity and effectiveness of the final cover system will be maintained. Maintenance activities will include, as needed, repairs to the final cover to correct any effects related to settlement, subsidence, erosion or other events, and will be performed to prevent run-on or run-off from eroding or otherwise damaging the final cover. Maintenance tasks could include, but not be limited to, repair of subsidence or erosion features, replacement of sand in-fill within the synthetic turf and re-establishment of vegetation, where applicable. Maintenance will be performed on a semi-annual schedule, or more frequently if needed.

The groundwater monitoring system will be maintained throughout the required post-closure care period. Groundwater monitoring will be performed on a semiannual basis during the required post-closure care period as well.

The following office(s) can be contacted about the facility during the post-closure care period.

Barry Steam Plant  
Environmental Manager  
15300 Highway 43 North, Bucks, AL 36512-0070  
1-251-829-2600  
G2CCRPostBAR@southernco.com

At the present time, there is no planned use of the facility after closure. If current plans change, they will be noted in an amendment to this post-closure care plan. Any future use of the property after closure will not disturb the integrity of the final cover, liner or any other component of the containment system. Furthermore, the functionality of the groundwater monitoring system will be maintained.

No later than 60 days following completion of the post-closure care period of 30 years, APC will prepare a notification verifying completion of the post-closure care.

# **TABLES**

# **APPENDIX A**

## Boundary Survey