

Closure Plan Big Cajun II Fly Ash Basin



Cleco Cajun LLC

**Big Cajun II
Project No. 131428**

**Revision 1
5/5/2021**

Closure Plan

Big Cajun II Fly Ash Basin

prepared for

Cleco Cajun LLC
Big Cajun II
New Roads, Louisiana

Project No. 131428

Revision 1
5/5/2021

prepared by

Burns & McDonnell Engineering Company, Inc.
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INDEX AND CERTIFICATION

**Cleco Cajun LLC
Closure Plan
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Certification

I hereby certify, as a Professional Engineer in the state of Louisiana, that the information in this document was assembled under my direct personal charge. This report is not intended or represented to be suitable for reuse by the Cleco Cajun LLC or others without specific verification or adaptation by the Engineer.



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Date: May 5, 2021

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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
BC2	Big Cajun II Power Plant
CCR	Coal Combustion Residual
CFR	Code of Federal Regulations
Cleco	Cleco Cajun LLC
cm/sec	Centimeters/Second
CY	Cubic Yards
EPA	Environmental Protection Agency
GWPS	Groundwater Protection Standard
LDEQ	Louisiana Department of Environmental Quality
LPDES	Louisiana Pollutant Discharge Elimination System
RCRA	Resource Conservation and Recovery Act
U.S.C.	United States Code

1.0 INTRODUCTION

On April 17, 2015, the Environmental Protection Agency (EPA) issued the final version of the federal Coal Combustion Residual Rule (CCR Rule) to regulate the disposal of coal combustion residual (CCR) materials generated at coal-fired units. The rule will be administered as part of the Resource Conservation and Recovery Act ([RCRA, 42 United States Code [(U.S.C.)] §6901 et seq.]), using the Subtitle D approach.

The existing CCR impoundments at Cleco Cajun LLC's (Cleco's) Big Cajun II Power Plant (BC2) are subject to the CCR Rule and as such Cleco is required to develop (and maintain) a Closure Plan per 40 Code of Federal Regulations (CFR) §257.102(b). This report serves as the Closure Plan for the Fly Ash Basin at BC2. The Closure Plan for the Bottom Ash Basin is under separate cover.

This closure plan is in addition to, not in place of, any other applicable site permits, environmental standards, or work safety practices.

2.0 PLAN OBJECTIVES

Per 40 CFR §257.102(b), the Closure Plan must contain the following:

- A description of how the CCR unit will be closed.
 - For closure by removal of CCR:
 - A description of the procedures to remove the CCR and decontaminate the CCR unit in accordance with 40 CFR §257.102(c).
 - For closure through leaving CCR in place:
 - A description of the final cover system and methods used to install the final cover, including methods for achieving performance standards specified in 40 CFR §257.102(d).
- An estimate of the maximum inventory of CCR material ever stored in the CCR unit over its active life.
- An estimate of the largest area of the CCR unit ever requiring a final cover.
- A schedule for completing closure activities, including the anticipated year of closure and major milestones for permitting and construction activities.

Additionally, Cleco is required to develop a Post-Closure Plan per 40 CFR §257.104, which has been provided in a separate document.

Per 40 CFR §257.102(b)(4), Cleco must obtain certification from a qualified professional engineer that the closure plan, and subsequent updates to the plan, meet the requirements of 40 CFR §257.102. This sealed document serves as that certification.

3.0 EXISTING CONDITIONS

BC2 is located near New Roads, Pointe Coupee Parish, Louisiana. The Fly Ash Basin includes a clay liner system compliant with the Louisiana Department of Environmental Quality (LDEQ), Louisiana Solid Waste Regulations (Louisiana Administrative Code Title 33: part VII) under Permit Number P-0108R1 for Facility Identification Number GD-077-0583; however, the unit is considered unlined per the CCR Rule. Consequently, the CCR unit was required to cease receipt of CCR and non-CCR wastestreams no later than April 11, 2021, per 40 CFR §257.101(a)(1).

3.1 CCR Inventory

The Fly Ash Basin is an approximately 175-acre impoundment with a permitted storage capacity of 3,905,000 cubic yards (CY). This unit has ceased receiving waste and currently contains approximately 2,100,000 CY of material, which represents the required estimate of the maximum inventory of material that could potentially be stored in the impoundment over its active life. This estimated area is the largest area of the impoundment that should ever require a final cover. A site plan is included in Appendix A. Cleco continues to periodically remove CCR material from the Fly Ash Basin for beneficial use.

4.0 CLOSURE METHOD

The Fly Ash Basin will be closed through a hybrid approach, removing CCR material from the western portion of the impoundment and capping CCR material in place in the eastern portion of the impoundment. Procedures planned for closing the surface impoundment are described in detail herein.

4.1 CCR Removal

Removal of CCR material from the western portion of the Fly Ash Basin will be performed by dewatering, excavating, loading, and hauling the material to either the eastern portion of the impoundment for compaction/disposal or offsite for beneficial use. Dewatering will be performed concurrently in the closure by removal and closure in place areas and will be performed as described in Section 4.2.1 of this Closure Plan. The water generated during dewatering will be discharged in accordance with the BC2 Louisiana Pollutant Discharge Elimination System (LPDES) permit through the remaining industrial surface impoundments onsite.

Visual observations will be conducted to verify that all CCR material has been removed from the western portion of the Fly Ash Basin. Following visual inspection, the groundwater monitoring network will be sampled and analyzed for the constituents listed in Appendix IV of 40 CFR § 257. CCR removal and decontamination will be considered complete when constituent concentrations are below the Groundwater Protection Standard (GWPS) pursuant to 40 CFR § 257.95(h), as outlined in 40 CFR § 257.102(c) of the CCR Rule. The BC2 impoundments are currently in Assessment Monitoring, with no constituents present at statistically significant levels exceeding the GWPS. Consequently, no additional decontamination is expected to be required. If Appendix IV constituent concentrations are found to be above the GWPS after CCR has been removed from the Fly Ash Basin, Cleco will either (1) conduct an alternative source demonstration in order to demonstrate the constituent concentrations are from a source other than the impoundment or (2) complete a corrective measures assessment and implement any necessary remediation to return the groundwater to levels beneath the GWPS.

Upon completion of CCR removal (and any decontamination required), the western portion of the impoundment will be graded to drain away from the CCR material and seeded to establish vegetation. The remaining eastern portion of the impoundment will be closed in place as described in the following sections.

4.2 Final Cover System Requirements

Per the CCR Rule, the final cover system must be designed and constructed to meet the following criteria pursuant to 40 CFR §257.102(d):

- Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} centimeters per second (cm/sec), whichever is less.
- The infiltration of liquids through the closed CCR unit must be minimized by the use of an infiltration layer that contains a minimum of 18 inches of earthen material.
- The erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.
- The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.
- The owner or operator may select an alternative final cover system design, provided the alternative final cover system meets the above requirements.

4.2.1 Drainage / Stabilization of CCR Material

Prior to installing the final cover system, Cleco must perform the following activities outlined in 40 CFR §257.102(d) of the CCR Rule:

- Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues
- Stabilize remaining wastes sufficiently in order to support the final cover system.

Free liquids will be removed initially, with excess water discharged via Outfall 001. Free liquid removal will be performed throughout construction, as necessary, to manage surface water and storm water runoff.

Additional dewatering may be required to remove entrained water. This can be accomplished through mechanical means such as double-handling and/or discing, or potentially through methods such as the use of a well point system, wick drains, or other means determined by the Contractor, Engineer, or Owner.

4.2.2 Geometry and Stormwater Management

Once stabilized, the CCR material in the impoundment will be consolidated, compacted, and graded to drain to perimeter storm drainage systems. The geometry and stormwater management controls of the

closed impoundment will allow the CCR unit to meet the following requirements as outlined in 40 CFR §257.102(d) of the CCR Rule:

- 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.
- Prevent future impoundment of water.
- Provide for slope stability to protect against sloughing or movement of the final cover system.

The closure system will be designed to provide adequate drainage during storm events. Material will be graded in order to promote stability of the cover system, to prevent the collection of standing water, to limit the velocity of storm water runoff, and to reduce the potential for soil erosion.

4.2.3 Permeability and Infiltration

Once the grade of the consolidated CCR material is established, the final cover system will be placed to minimize infiltration into the consolidated waste material and erosion of the cap. Per 40 CFR §257.102(d), the final cover system will consist of, at minimum, an 18-inch infiltration layer and 6-inch erosion layer. The permeability of the final cover system will be equal to that of the bottom liner system and natural subsoils present, or no greater than 1×10^{-5} cm/sec, whichever is less. Cleco may select an alternative final cover system design, provided the alternative cover system is designed and constructed to meet the criteria of the CCR Rule and is approved by LDEQ. If an alternative final cover is not approved by LDEQ, the consolidated Fly Ash Basin will be capped in accordance with Permit Number P-0108-R1 and the CCR Rule.

During installation of the cover soils, proper quality control methods will be used to ensure the following:

- The selected cover material is suitable;
- The material meets the minimum federal and state thickness and permeability requirements;
- The material is properly placed and compacted; and
- The material is properly protected before, during, and after construction.

The erosion layer will consist of topsoil and will be seeded. The period of time for greatest soil erosion concern will be immediately after placement of the topsoil material, before vegetation is established. Manufactured erosion control products, as well as a seed mix containing quick-growth seed varieties, will aid in erosion prevention during this critical timeframe.

4.2.4 Integrity of the Final Cover

Settling and subsidence of the final cover system will need to be evaluated during the final design phase and will vary depending on the total consolidated area containing CCR material at the time of closure.

The underlying natural subsoils are lean to fat clays and loose silts. Depending on the variability of these soils across the covered area, any settlement may or may not be uniform. Settlement would potentially be caused by consolidation of the CCR material, general fill material, or underlying natural subsoils under new loads from construction activities, and site conditions could be monitored during construction to confirm whether settlement is occurring and if it is slowing prior to installation of the cover soils. General fill, if necessary, will be installed in a controlled manner to minimize post-fill installation settlement.

5.0 CLOSURE SCHEDULE

Burns & McDonnell developed a preliminary schedule (see Table 5-1) outlining the critical scope and timeline necessary for the Fly Ash Basin closure at BC2. Per 40 CFR §257.102(f) of the CCR Rule, closure must be completed within five years of initiating closure activities. The Fly Ash Basin can no longer receive waste (either CCR or non-CCR streams) as of April 11, 2021, and closure must commence within 30 days of this date. Closure activities are expected to occur in the following sequence.

Table 5-1: Preliminary Closure Schedule

Closure Activity	Estimated Timeframe (Days)	Accumulated Duration (Days)
Preparation for Closure		
Final placement of CCR material	0	
Submit Notification of Intent to Close to LDEQ	30	Start of Closure
Survey and Geotechnical Evaluation	180	180
Preliminary Design	90	270
Permitting / Detailed Design	200	470
Design documents issued for bid	0	470
Bid period	20	490
Bid evaluation	30	520
Contract Award	40	560
Contractor mobilization	60	620
Closure Construction		
Dewatering / Stabilization	90	710
Consolidation / Grading of impoundment	720	1430
Install cover system	350	1780
LDEQ inspection	20	1800
Seeding	20	1820
Closure Completion		
Submit Notification of Completion of Closure	30	

No later than the date Cleco initiates closure of the existing CCR surface impoundment, a Notification of Intent to Close the CCR surface impoundment certified by a qualified professional engineer will be placed in the facility's CCR Operating Record. The notification will then be placed on Cleco's CCR public website within 30 days.

For the purposes of this Closure Plan, closure of the Fly Ash Basin is considered complete after the erosion layer has been seeded and stabilized. From there, the Post-Closure Care Period for the Fly Ash Basin will commence.

Within 30 days of completion of closure of the CCR surface impoundment, a Notification of Closure of the CCR surface impoundment will be prepared and placed in the facility's CCR Operating Record and on Cleco's CCR public website. This notification will include certification by a qualified professional engineer in the State of Louisiana verifying closure has been completed in accordance with this Closure Plan and the requirements of 40 CFR §257.102.

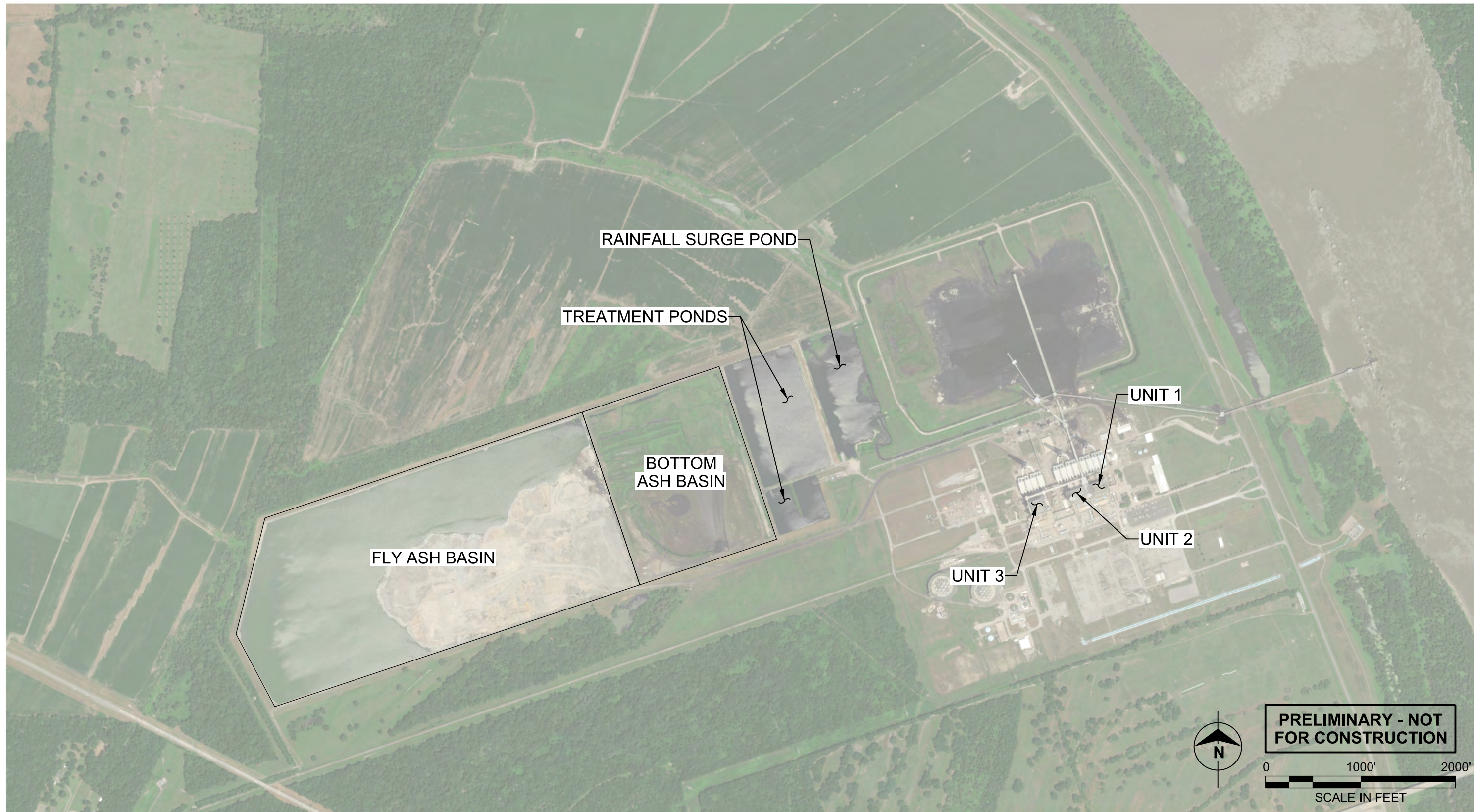
6.0 REVISIONS AND AMENDMENTS

The Closure Plan will be amended whenever there is a change in operation of the CCR unit that affects the current or planned closure operations. The Closure Plan will be amended 60 days prior to a planned change in operation, or within 60 days following an unplanned change in operation. If a written Closure Plan is revised after closure activities have commenced, the written Closure Plan will be amended no later than 30 days following the triggering event. All amendments and revisions will be placed on the CCR public website within 30 days following placement in the facility's CCR Operating Record. A record of revisions made to this document is included in Section 7.0 of this document.

7.0 RECORD OF AMENDMENTS

Revision Number	Date	Revisions Made	By Whom
0	10/4/2016	Initial Closure Plan	CB&I/NRG
1	5/5/2021	Revised Closure Plan and Updated Schedule	Burns & McDonnell/Cleco

APPENDIX A - SITE LAYOUT



date 04/30/2021
 designed A. MYERS

CLECO CAJUN LLC
BIG CAJUN II
FLY ASH BASIN CLOSURE PLAN
SITE LAYOUT

project	131428
contract	-
FIGURE 1	



CREATE AMAZING.

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