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# **2022 CCR SURFACE IMPOUNDMENT ANNUAL INSPECTION REPORT**

## **Big Cajun II Power Plant Pointe Coupee Parish, Louisiana**

*Prepared for*

**Cleco Cajun, LLC**  
10431 Cajun II Road, Highway 981  
New Roads, Louisiana 70760

*Prepared by*

Geosyntec Consultants, Inc.  
5420 Corporate Boulevard, Suite 202  
Baton Rouge, Louisiana 70808

Project Number TXR9160

January 2023

# 2022 CCR Surface Impoundment Annual Inspection Report

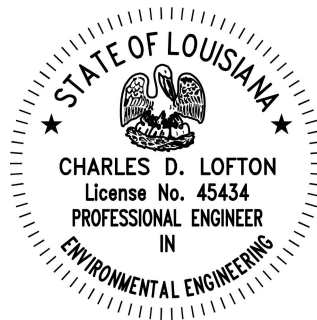
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January 2023

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# 1. INTRODUCTION

## 1.1 Purpose

This CCR Surface Impoundment Annual Inspection Report (Report) was prepared for the Big Cajun II Power Plant (Facility), owned by Cleco Cajun, LLC – a subsidiary of Cleco Corporate Holdings, LLC (Cleco), pursuant to the annual inspection requirements of §257.83 of the Federal Coal Combustion Residuals (CCR) Rule (CCR Rule) contained in Title 40 Code of Federal Regulations (CFR) Section (§) 257. The Report describes the annual inspection of the Fly Ash Basin and Bottom Ash Basin at the Facility, which are classified as existing CCR surface impoundments (i.e., the regulated CCR Units) by the CCR Rule.

## 1.2 Terms of Reference

Under 40 CFR §257.83(b), existing CCR surface impoundments must be inspected periodically by a qualified professional engineer (P.E.). An annual inspection of the CCR units and their hydraulic structures at the Facility was performed on 20 October 2022 by Dr. Davis Lofton (Louisiana P.E. No. No. 45434). Dr. Lofton is employed by Geosyntec Consultants, Inc. (Geosyntec).

During the annual inspection of the CCR units in 2022, Geosyntec met with the Facility's environmental coordinator, who is the qualified person responsible for the weekly surface impoundment inspections, in accordance with §257.83(a)(1), and discussed current operations within each CCR unit. In addition, Geosyntec reviewed and discussed contents of the weekly surface impoundment inspections with the Facility's environmental coordinator.

The Report was prepared by Dr. Lofton and was reviewed by the Facility's environmental coordinator to confirm the accuracy of the pertinent information presented herein.

## 1.3 Scope of Annual Inspection Report

In accordance with the CCR Rule, this Report includes:

- a summary of Geosyntec's review of available information that pertains to the status and condition of the CCR units, which includes files placed within the Facility's Operating Record (Operating Record), previous periodic structural stability assessments, prior weekly inspections by a qualified person, and previous annual inspections;
- information related to the current annual visual inspection of the CCR units;
- information related to the visual inspection of hydraulic structures that underlie or pass through the CCR unit dike structures;
- identification and discussion of any geometry changes since the prior annual inspection;
- the location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection;

- the approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection;
- the surface impoundments storage capacity at the time of the inspection;
- the approximate volume of the impounded water and CCR at the time of the inspection;
- information on any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are observed to disrupt or could potentially disrupt the operation and safety of the CCR unit and appurtenant structures; and
- information on any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.

Geosyntec understands that the prior annual inspection reports (CB&I, 2017; Geosyntec, 2018; Geosyntec 2019; Geosyntec, 2020; Geosyntec, 2021; Geosyntec, 2022) were placed in the Operating Record on 18 January 2017, 2018, 2019, 2020, 2021, and 2022 respectively. The deadline identified within the CCR Rule for subsequent reports is one year after the completion date for the preceding annual inspection report. A report is considered complete once placed in the Operating Record. Therefore, this Report was developed to address the period from 18 January 2022 to its issuance date of 18 January 2023 and is intended to be placed in the Operating Record upon issuance.

## 2. REVIEW OF AVAILABLE INFORMATION

### 2.1 Documents Reviewed

Prior to the annual inspection, Geosyntec reviewed available information with respect to the status and condition of the CCR units at the Facility. The purpose of the document review was to develop an understanding of the design, construction, assessed integrity, and CCR unit performance prior to the annual inspection. The document review included the relevant portions of the following documents:

- November 2010 Louisiana Department of Environmental Quality (LDEQ) Type I Solid Waste Permit Renewal and Modification Application (Shaw, 2010);
- March 2011 Final (Rev. 2) United States Environmental Protection Agency (USEPA) Dam Assessment Report (Dewberry & Davis, 2011);
- October 2016 Fly Ash Basin and Bottom Ash Basin Structural Integrity Assessment Report (CB&I, 2016b);
- January 2016 CCR Annual Inspection Report (CB&I, 2016a);
- January 2017 CCR Annual Inspection Report (CB&I, 2017);
- January 2018 CCR Annual Inspection Report (Geosyntec, 2018);
- January 2019 CCR Annual Inspection Report (Geosyntec, 2019);
- January 2020 CCR Annual Inspection Report (Geosyntec, 2020);
- January 2021 CCR Annual Inspection Report (Geosyntec, 2021);
- January 2022 CCR Annual Inspection Report (Geosyntec, 2022); and
- 2022 Weekly CCR Inspection Logs by a Qualified Person (Cleco, 2022).

Annual inspections are held during October of each year and each inspection report, published the following January, documents the preceding inspection event. The remainder of Section 2 provides the Facility description and a summary of information relevant to the design, construction, and operation of the CCR Units. Additionally, a summary of prior assessments and inspections is provided within the subsequent sections.

### 2.2 Facility Background

The Cleco Big Cajun II Power Plant is a coal- and natural gas-fired, steam turbine electric power generation facility located on 1,939 acres northeast of New Roads, Louisiana (LA). The Facility is currently owned and operated by Cleco Cajun, LLC., a subsidiary of Cleco, and has operated for over 30 years. A site map, presented on Figure 1, depicts relevant areas at the Facility associated with CCR management and identifies both the Fly Ash Basin and the Bottom Ash Basin, which are the existing CCR surface impoundments.

Coal is delivered via barge to a dock on the Mississippi River immediately east of the generating units. The delivered coal is subsequently unloaded onto a conveyor belt which transports the material to a storage area situated north of the Facility's three generating units. Unit 1 and Unit 3 use coal as the primary source of fuel, and thus generate CCR (fly ash and bottom ash). Unit 2 was previously converted to burn natural gas and no longer generates CCR.

Fly ash generated by Unit 1 and Unit 3 is pneumatically transported to storage silos and is subsequently relocated offsite (for beneficial reuse or disposal). As market demand dictates, the CCR within the Fly Ash Basin is excavated, removed, and sold to external vendors. Bottom ash from Unit 1 is collected within a hopper at the boiler unit and transported hydraulically (sluiced) into the Bottom Ash Basin for storage/disposal. Bottom ash from Unit 3 is removed at the base of the boiler unit is transported off-site for beneficial reuse or disposal. The Fly Ash Basin and Bottom Ash Basin are regulated by a LDEQ Solid Waste Permit as industrial surface impoundments.

The rainwater and wastewater that is collected within the Fly Ash Basin and Bottom Ash Basin flows by gravity to the Rainfall Surge Pond (see Figure 1). The rainwater and wastewater are subsequently routed to a lift station and conveyed to the Primary and Secondary Treatment Ponds for treatment prior to discharge to the Mississippi River. The Facility's discharge to the Mississippi River is regulated under a Louisiana Pollutant Discharge Elimination System (LPDES) permit.

### 2.3 CCR Unit Design and Construction Information

The Fly Ash Basin and Bottom Ash Basin were formed through the construction of above-grade perimeter dikes (i.e., embankments/berms) to manage CCR and sluice process water. The perimeter dikes are composed of recompacted clayey soils and the underlying soils within the CCR Units interiors consist of naturally occurring and/or recompacted clayey soil that is 3-ft thick (minimum) to over 10-ft thick (CB&I, 2016b). A summary of the design and as-constructed conditions is presented in Table 1.

### 2.4 Review of Structural Integrity Assessment Report

Geosyntec reviewed the *Structural Integrity Assessment Report* (CB&I, 2016b) to understand the design, construction, and previously assessed performance of the Fly Ash Basin and Bottom Ash Basin. A summary of the relevant findings presented in the *Structural Integrity Assessment Report* is provided below.

- The Fly Ash Basin and Bottom Ash Basin were both assigned a low hazard potential in accordance with the hazard classification assessment criteria set forth in the CCR Rule.
- CB&I (2016a) included documentation that the CCR Units were designed, constructed, operated, and maintained consistent with recognized and generally accepted good engineering practices to manage the maximum volume of CCR and water that can be impounded.
- Prior records or knowledge of structural instability were addressed or are routinely monitored. In summary, the initial assessment noted that pre-2015 information indicated that the perimeter dikes are generally stable, but noted some items for consideration or



continued observation, including erosion, vegetation growth, desiccation cracks, animal burrows, limited sloughing/slope instability areas, and toe seepage areas. Corrective measures (i.e., maintenance/repair of areas of potential instability), as applicable, were implemented in 2015.

- Calculated safety factors were reported to be greater than the minimum required safety factors identified within the CCR Rule.

## 2.5 Review of Previous Inspections

The first annual inspection for the Fly Ash Basin and Bottom Ash Basin was performed in October 2015 and was documented in the *2016 Annual Inspection Report* (CB&I, 2016a). Subsequent, inspections were performed in October 2016, 2017, 2018, 2019, and 2020 as documented by CB&I and Geosyntec (CB&I, 2017; Geosyntec 2018; 2019; 2020; 2021; 2022). Each annual inspection report described observed conditions during the inspection and provided an assessment of the impoundment dikes and hydraulic structures. The previous inspection report observations and recommendations were reviewed by Geosyntec prior to the Facility visit to inform inspection activities.

### 3. ANNUAL SITE INSPECTION

Geosyntec visited the Facility on 20 October 2022 to visually inspect the Fly Ash Basin and Bottom Ash Basin and to interview the Facility’s environmental coordinator. During this inspection, Geosyntec traversed the entire length of the Fly Ash Basin and Bottom Ash Basin perimeter dikes and the divider dike between the two CCR units. Geosyntec visually inspected and recorded observations with regards to the condition of the dike crest, upstream and downstream slopes, dike toe, and the discharge/stormwater conveyance structures to identify conditions or features that may potentially indicate distress or instability. A site map which depicts notable observations is presented on Figure 2.

Weather conditions during the inspection were observed to be clear, with temperatures of about 50 °F to 75 °F during the visit. During the previous 30 days prior to the site inspection (20 September 2022 to 20 October 2022), New Roads, LA received 2.10 inches of rainfall (data from nearby New Roads, LA US [USC00166686] station). The inspected ground surface was generally dry with isolated patches of desiccation cracks and with no areas of standing water outside basin interiors. The exterior perimeter dikes were mowed prior to the inspection and vegetation appeared to be maintained.

#### 3.1 Visual Inspection for Signs of Distress or Malfunction

##### 3.1.1 Observations at Bottom Ash Basin

Geosyntec’s inspection of the Bottom Ash Basin started in the southwest corner of the CCR unit and was performed in a clockwise direction around the perimeter dike structure. The following observations were made during the inspection of the Bottom Ash Basin:

- A historical location of localized slope instability (a localized slough) on the north-facing exterior dike slope of the Bottom Ash Basin, about 400 feet east from the northwestern corner was identified during past annual inspections (CB&I, 2017; Geosyntec, 2018; Geosyntec, 2019; Geosyntec, 2020). The dimensions of the historical instability were approximately 70-ft to 90-ft long and exhibited a roughly 12-inch escarpment at the crest, that was slightly eroded with some vegetation. In January 2020, the Facility notified Geosyntec that a repair of this area was completed in December 2019. The repaired area did not appear to be displaced at the time of the inspection. Weekly inspection records indicate that the historical slough is monitored routinely, with no further evidence of displacement. At the time of the inspection, CCR material or a significant volume of standing water was not observed to be impounded on the interior perimeter dike slope adjacent to this area. As such, the former historical instability area appears to be a localized observation, that appears to have been adequately repaired prior to the 2020 annual inspection; and therefore, the area is not considered an issue that impairs the operation or safety of the CCR unit at this time.
- Overall, vegetation was observed to be in good condition, with no observed areas of significant distress and no signs of erosion of the exterior dike slopes or seeps exiting the slope. Adjacent to and west of the historical slough, rutting was observed in the

downstream dike slope, which appeared to be associated with the tractor style mowing equipment used to maintain vegetation on the slope.

- The perimeter road on top of the dike was generally in good condition with no observed signs of problematic desiccation cracking or deformations.
- Standing water was observed and was located predominantly along drainage swales on the northern and eastern sides, where CCR placement within the Bottom Ash Basin is set-back from the perimeter dikes. During the inspection, process water was channelized towards the southeast corner of the impoundment. Temporary diesel driven pumps were present around the Bottom Ash Basin but were not operational during the inspection. Process water was pumped into the south end of the basin. The hydraulic structure conditions are discussed subsequently within this Report.
- Woody vegetation was observed on the interior of the berm on the northwest and northeast sides of the Bottom Ash Basin. Woody vegetation has the potential to lead to pathways of infiltration through the berm, reducing the berm's structural integrity. However, at the time of the 2022 annual inspection, evidence of pond water infiltration through the berm was not observed. Woody vegetation is recommended to be removed from the interior of the berm as practicable and the localized area recompacted after vegetation has been removed.

### 3.1.2 Observations at Fly Ash Basin

Geosyntec inspected the Fly Ash Basin starting from its southeastern corner and progressed clockwise around the basin perimeter. The notable observations are shown on Figure 2 and described as follows:

- Wet areas were indicated in the *2018 Annual Inspection Report* (inspected in October 2017) [Geosyntec, 2018]. These wet areas were previously identified on the Fly Ash Basin perimeter south dike toe about 1,300 feet and 2,000 feet west from the southeastern corner and were not observed to contain standing water during the 2022 inspection. The natural topography indicates that these are low-lying areas where water tends to naturally accumulate. Seepage of the perimeter dike structure or signs of distress or malfunction were not identified.
- Surficial material on the interior slopes in several areas of the southwestern, western and northwestern dikes appear to be uneven resulting in localized steeper slopes near the crest. In some cases, rills extend near to the interior dike crest edge and/or are partially concealed by grassy vegetation. Maintenance of grassy vegetation on the interior slopes, further observation to identify changes, and/or regrading activities to smooth the interior slope is recommended.
- An area of uneven ground surface or a tension crack along the exterior about 250 feet east of the southwestern corner was observed in prior annual inspections. The southwest corner of the Fly Ash Basin was also previously identified as having potential sloughs/slope instability and was subsequently repaired. During this inspection, evidence of movement or instability (e.g., seepage, wet areas, and additional slumping) was not observed. The

area merits continued annual inspection and observation weekly for geometric changes or other signs of movement/instability.

- Uneven ground surface and/or equipment rutting was observed on the downstream perimeter dike crest near the Fly Ash Basin's southwest corner during previous inspections. The area exhibited relatively significant equipment rutting which appears to be the predominant contributor to the uneven ground condition. During Geosyntec's inspection, evidence of movement or instability, as previously defined, was not observed. Further observation to identify changes or other signs of movement/instability and/or regrading activities to smooth the slope for future inspections is recommended.
- In the northwest corner, a few minor ruts within the dike crest were observed. The perimeter road along the perimeter dike crest was generally observed to be in good condition with no observed signs of problematic desiccation or tension cracking and/or other deformations. Continued routine maintenance is recommended to permit access and facilitate routine inspection of the CCR unit.
- Occasional animal burrows between four to eight inches in diameter were observed on the southern-facing exterior dike slopes. No bare areas were observed on the exterior dike slopes with desiccation cracks. Extensive desiccation cracks or signs of seepage were not observed in these areas.
- The surface water level within the Fly Ash Basin was below the dike crest and greater than 4-ft of freeboard was maintained during the inspection as indicated by the staff gauge located in the northeast corner of CCR unit. Further discussion of the staff gauge is provided subsequently within this Report.
- Woody vegetation was observed on the interior of the berm on the southern facing side of the Fly Ash Basin. Woody vegetation may lead to pathways of pond water infiltration through the berm, reducing the berm's structural integrity. However, at the time of the 2022 annual inspection, evidence of pond water infiltration through the berm was not observed. Woody vegetation is recommended to be removed from the interior of the berm as practicable and the localized area recompacted after vegetation has been removed.
- An opening near the bottom of the perimeter fence was observed along the western boundary of the Fly Ash Basin. Burrowing animals may utilize this opening to access areas around the Fly Ash Basin. The opening at the bottom of the fence is recommended to be repaired to limit access to the Fly Ash Basin.

### 3.1.3 Observations at Hydraulic Structures

Water from the Fly Ash Basin is transported into the Bottom Ash Basin via a 30-inch diameter drainage pipe (see Figure 1). The combined flow from both CCR units is then directed through another 30-inch diameter drainage pipe and flow control valve into the Rainfall Surge Pond. Additional storage capacity is provided in the Bottom Ash Basin which is connected to an overflow weir (i.e., pipe) with concrete headwalls which can direct overflow water into the Primary Treatment Pond. At the time of inspection, the following observations were made:

- The staff gauge located at the northeast corner of the Fly Ash Basin was functional, with a depth reading less than the lowest limit of the gauge. The staff gauge bent away from its supporting structure.
- Near the staff gauge location, the discharge pipe and headwalls were observed to be dry and appeared to function as designed between the Fly Ash Basin and Bottom Ash Basin. Erosion, scour, or seepage at or adjacent to the pipe penetration was not observed.
- The Primary Treatment Pond and Bottom Ash Basin surface water elevations were observed to be below the pipe invert between the pond and basin, and surface water was not observed to overflow between the units at the time of visit. The exposed portion of the pipe appeared to be rusted in spots but intact and functional. A small gap between the dike and headwall was observed on the Primary Treatment Pond but was likely due to isolated erosion in the area.
- The hydraulic structures associated with the CCR unit appeared to be functional. Repairs to the staff gauge are recommended to secure it to its supporting structure. No other issues that would impact the structural integrity or continued safe and reliable operation of the hydraulic structures were observed.

## 4. ANNUAL INSPECTION RESULTS

### 4.1 Observed Conditions

Observed conditions during the Fly Ash Basin and Bottom Ash Basin annual inspection at the Facility are presented in Section 3.

### 4.2 Geometry of Impounding Structures

Based on a review of the available information in the Operating Record, discussions with Facility personnel, and review of the inspection results with prior observations, no construction or other alterations were made to the impounding structures of the Fly Ash Basin and Bottom Ash Basin. As such, geometry changes of the impounding structures since the last annual inspection report (Geosyntec, 2022) are not reported. The Facility intermittently manages the stacked CCR within each basin, but significant alterations to the CCR units' storage capacity were not observed.

### 4.3 Instrumentation and Readings

The Facility maintains one staff gauge within the CCR Units, which is located in the northeastern corner of the Fly Ash Basin. During the annual inspection, the observed staff gauge level was less than the lowest limit of the gauge, which indicated a freeboard of approximately greater than 5-ft. The staff gauge is observed weekly during the inspections by a qualified person and routine measurements have indicated that greater than 2 ft of freeboard was maintained in the Fly Ash Basin since the prior annual inspection.

### 4.4 Depth and Elevation of Impounded Water and CCR

A summary of the observed conditions of the impounded water and CCR present in the Fly Ash Basin and Bottom Ash Basin during the annual inspection is presented in Table 2.

### 4.5 Impounded Volume and Storage Capacity of Impounding Structures

Information on the impounded volume and associated storage capacities, estimated at the time of inspection, of the Fly Ash Basin and Bottom Ash Basin is presented in Table 3. The design (as-permitted) conditions are also provided for reference in Table 3.

### 4.6 Appearance of Actual or Potential Structural Weakness of CCR Units

A description of the observed conditions of the Fly Ash Basin and Bottom Ash Basin was provided previously in Section 3. Based on these observed conditions and review of the other available information as described herein, the structural condition of the CCR Units is summarized as follows:

- For the Fly Ash Basin, Geosyntec previously described one area of potential structural weakness: a tension crack or uneven ground surface within the exterior slope in the southwest corner (Geosyntec, 2020). The Facility environmental coordinator indicated that the area was monitored and then repaired in January 2020. Based on Geosyntec's visual observations during the 2020 annual inspection, the repair appeared to be visually adequate

to stabilize the slope and continues to be monitored routinely by Facility personnel. The identified area was further described in Section 3.1.2.

- For the Bottom Ash Basin, Geosyntec previously described one area of potential structural weakness during the 2019 annual inspection: an area of historical slope instability located on the northern-facing exterior slope of the perimeter dike, near the northwest corner of the basin (Geosyntec, 2020). A repair was subsequently completed in December 2019. Based on Geosyntec's visual observations during the 2020 annual inspection, the repair appeared to be visually adequate to stabilize the slope and continues to be monitored routinely by Facility personnel. The identified area and Geosyntec's 2022 observations were further described in Section 3.1.1.
- For both the Fly Ash Basin and Bottom Ash Basin, existing conditions observed by Geosyntec at the time of the annual inspection that may disrupt the operation and safety of the CCR Units and appurtenant structures were not identified.

#### **4.7 Changes Which May Have Affected the Stability or Operating of the Impounding Structures**

Based on the observed conditions and review of the other available information as described herein, there were no changes to either the Fly Ash Basin or Bottom Ash Basin which affect the stability or operation of the impounding structures.

## 5. RECOMMENDATIONS

Based on the observed conditions during the annual CCR Unit inspection on 20 October 2022 and review of the other available and relevant information as described herein, the following recommendations are made:

1. **Corrective Measure Repairs.** No corrective measure repairs are recommended at this time.
2. **Heightened Awareness During Routine Inspections.** This Report identifies a few areas that warrant close observation on a routine basis (i.e., weekly inspections) for signs of changes or progressive worsening of conditions. These areas were locations where wet/soft or uneven ground was observed. While there was no evidence of slope instability or movement, such conditions may be precursors. The southwest corner of the Fly Ash Basin was repaired in January 2020 during routine maintenance activities. A continuation of weekly inspections in this area is recommended for monitoring signs of changes.
3. **Ongoing Maintenance and Repairs as Needed.** Maintenance/repairs to the dikes and other appurtenant impoundment features should be performed on a routine and ongoing programmatic basis as well as on an as needed basis if warranted by problems or concerns (i.e., as identified during periodic inspections by a qualified person, or as otherwise identified). Grassy vegetation on the slopes of the berm should be maintained to promote visual inspections. Ruts should be regraded and bare areas should be re-seeded to establish vegetation, and the existing vegetation maintained in a condition to facilitate inspections. Observed ruts and erosion rills should be repaired before the feature worsens. Animal burrows should be filled with hydrated bentonite or equivalent material and covered with natural soil. Woody vegetation from the interior of the berms should be removed as practicable and the area recompacted following vegetation removal. Continue with current practices of maintaining set-back distance between CCR material stockpiles and the dikes. Ensure that the staff gauge is fully secured to its supporting structure. Repair openings in perimeter fencing when identified.

For any berm repairs, include Construction Quality Assurance (CQA) monitoring by a 3<sup>rd</sup> party during implementation to document and verify that the repairs are made in accordance with project requirements and sound geotechnical practices.



## 6. LIMITATIONS

The inspections were performed and this Report was prepared in accordance with current practices and the standard of care exercised by scientists and engineers performing similar tasks in the field of civil engineering, and no other warranty is provided in connection therewith. The contents of this Report are based solely on the observations of the conditions observed by Geosyntec personnel during the inspection and information provided to Geosyntec by Cleco. Consistent with applicable professional standards of care, our opinions and recommendations were based in part on data furnished by others.

## **7. RECORDKEEPING, NOTIFICATION, INTERNET REQUIREMENTS**

### **7.1 Recordkeeping Requirements**

In accordance with 40 CFR §257.105(g), the Report and related information will be kept in the Operating Record. These items will be maintained in the Operating Record for at least five years.

Documentation which records the inspection and instrumentation monitoring results by a qualified person as well as documentation that details corrective measures will be kept in the Facility Operating Record and will be maintained for at least five years.

### **7.2 Notification Requirements**

In accordance with 40 CFR §257.106(g), the State Director of the LDEQ will be notified that this Report has been placed in the Operating Record and on the publicly accessible internet site.

### **7.3 Internet Requirements**

In accordance with 40 CFR §257.107(g), the most recent CCR Surface Impoundment Annual Inspection Report will be made available on the Facility's publicly accessible internet site within 30 days of it being placed in the Operating Record.

## 8. REFERENCES

- CB&I, 2016a. Big Cajun II Coal Combustion Residual (CCR) Annual Inspection Report. Louisiana Generating, LLC, Big Cajun II, January 2016.
- CB&I, 2016b. CCR Compliance Fly Ash Basin and Bottom Ash Basin Structural Integrity Assessment Report. Louisiana Generating, LLC, Big Cajun II, October 2016.
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- Dewberry & Davis, LLC, 2011, Coal Combustion Waste Impoundment, Round 5 – Dam Assessment Report, Big Cajun II Generating Station, Final Rev. 2, March 2011.
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- Geosyntec, 2022. 2021 Annual Inspection Report. Cleco Cajun, LLC., Big Cajun II, January 2022.
- Shaw, 2010. Type I Solid Waste Permit Renewal and Modification Application (LDEQ Permit No. P-0108R1), Big Cajun II Power Plant, November 2010.

# TABLES

**Table 1. Summary of CCR Units Design and Constructed Conditions  
CLECO Big Cajun II - Pointe Coupee Parish, LA**

| Parameter <sup>1</sup>                                    | Units  | Fly Ash Basin | Bottom Ash Basin |
|---|--------|---------------|------------------|
| Year of Construction / Start of Operation                 | NA     | 1980          | 1980             |
| Surface Area  | ac     | 175           | 66               |
| Impoundment Surface Area                                  | ac     | 175           | 66               |
| Total Permitted CCR Storage Capacity                      | CY     | 3,905,000     | 2,585,000        |
| Impoundment Storage Capacity (to Dike Crest) <sup>2</sup> | CY     | 2,823,000     | 1,916,650        |
| Impoundment Storage Capacity (to Dike Crest)              | ac-ft  | 1,750         | 1,188            |
| Dike Length <sup>3</sup>                                  | ft     | 9,560         | 6,798            |
| Crest Width <sup>4</sup>                                  | ft     | 12            | 12               |
| Dike Crest Elevation                                      | ft MSL | 40            | 48               |
| Approximate/Typical Bottom Elevation                      | ft MSL | 30            | 30               |
| Normal Operating Surface Water Elevation                  | ft MSL | 35            | 35               |
| Dike Height   | ft     | 10            | 18               |
| Design Slopes (H:V)                                       | NA     | 3:1           | 3:1              |

**Notes:**

1. Source of Information is October 2016 Structural Integrity Assessment Report unless otherwise noted (CB&I, 2016b).
2. Source of the information is from the January 2016 Annual Inspection Report (CB&I, 2016a).
3. Dike Length estimated from available mapping. Length of divider berm included in Bottom Ash Basin Dike Length.
4. Crest Width obtained from Figure 12 of 2010 LDEQ Solid Waste Permit Renewal Application (Shaw, 2010).
5. ac indicates acres.
6. ft indicates feet.
7. MSL indicates feet above mean sea level.
8. CY indicates cubic yards.
9. H:V indicates horizontal to vertical.
10. NA indicates not applicable.

**Table 2. Summary of Impounded Water and CCR Conditions at the Time of Inspection  
CLECO Big Cajun II - Pointe Coupee Parish, LA**

| Parameter  | Units  | Fly Ash Basin  | Bottom Ash Basin   |
|--|--------|--|--|
| <b><i>Design Information</i></b>                                     |        |  |  |
| Dike Crest Elevation   | ft MSL | 40   | 48   |
| Approximate/Typical Bottom Elevation                                 | ft MSL | 30   | 30   |
| Normal Operating Surface Water Elevation                             | ft MSL | 35.0   | 35.0   |
| <b><i>Present (at Time of Inspection) Conditions</i></b>             |        |  |  |
| Approximate Extent of Basin with Open/Standing Water                 | NA     | 55% (north/west two-thirds is water; remainder contains exposed CCR) | 3% (limited water on northern and eastern sides; remainder contains exposed CCR) |
| Staff Gauge Reading (Water Depth at Staff Gauge)                     | ft     | 0  | Not applicable   |
| Approximate Elevation of Impounded Water <sup>2</sup>                | ft MSL | 33   | 33   |
| Approximate Typical Elevation of CCR (where placed) <sup>3</sup>     | ft MSL | 33 - 40  | 40 - 48  |
| Approximate Typical Depth of Impounded Water                         | ft     | 1 - 5  | 1 - 5  |
| Approximate Typical Thickness of CCR                                 | ft     | 3 - 10   | 10 - 18  |
| Approximate Maximum Above-Dike Height of Stockpiled CCR <sup>4</sup> | ft     | 10   | 22   |
| Approximate Maximum Elevation of Stockpiled CCR <sup>4</sup>         | ft MSL | 50   | 70   |
| Approximate Maximum Typical Thickness of Stockpiled CCR <sup>4</sup> | ft     | 20   | 40   |

**Notes:**

1. Present conditions are those estimated from visual inspection on 20 October 2022.
2. Based on the staff gauge measurement during visual inspection on 20 October 2022. A zero measurement corresponds to 33.0 ft MSL, which was developed during prior site inspections.
3. Refers to typical estimated elevation and available topographic map.
4. Approximate temporary CCR stockpile heights within the interior of each CCR Unit.
5. ac indicates acres.
6. ft indicates feet.
7. ft MSL indicates feet above mean sea level.
8. NA indicates not applicable.
9. The water level during the visual inspection on 20 October 2022 was less than the lowest reading on the staff gauge. A conservative water depth value of zero was used for these calculations.

**Table 3. Summary of CCR Unit Volumes and Storage Capacities at the Time of Inspection  
CLECO Big Cajun II - Pointe Coupee Parish, LA**

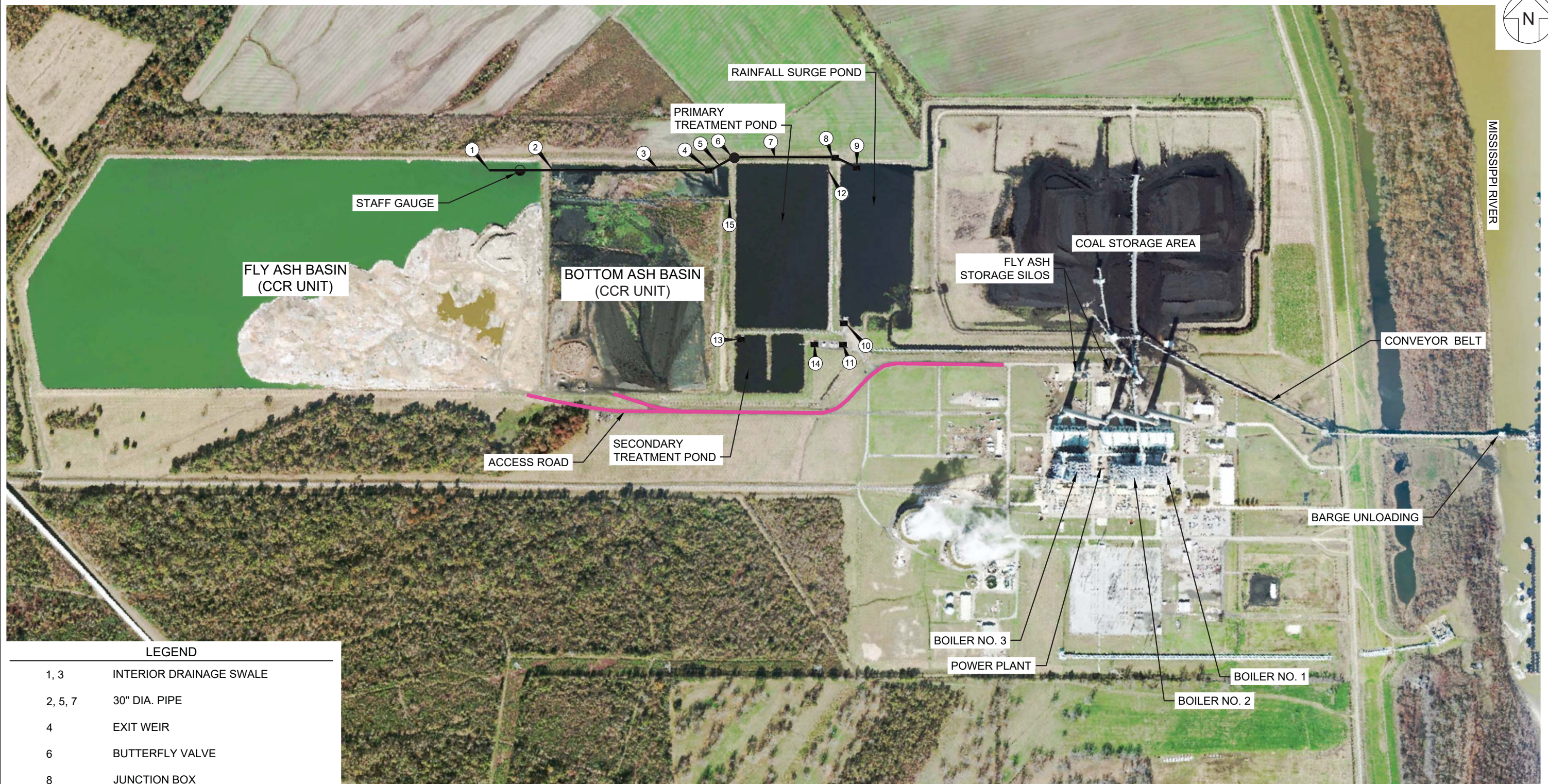
| Parameter  | Units | Fly Ash Basin | Bottom Ash Basin |
|--|-------|---------------|------------------|
| <b><i>Permitted (Design) Information</i><sup>1</sup></b>             |       |               |                  |
| Impoundment Surface Area   | ac    | 175           | 66               |
| Total Permitted CCR Storage Capacity                                 | CY    | 3,905,000     | 2,585,000        |
| Impoundment Storage Capacity (to Dike Crest)                         | CY    | 2,823,000     | 1,916,650        |
| Impoundment Storage Capacity (to Dike Crest)                         | ac-ft | 1,750         | 1,188            |
| <b><i>Present (at Time of Inspection) Conditions</i><sup>2</sup></b> |       |               |                  |
| Approximate Volume of Impounded Water <sup>3</sup>                   | CY    | 466,000       | 6,000            |
| Approximate Volume of Stored CCR                                     | CY    | 1,111,000     | 1,107,000        |
| Remaining Storage Capacity Available - Water <sup>4</sup>            | CY    | 2,357,000     | 809,650          |
| Remaining Storage Capacity Available - CCR                           | CY    | 2,794,000     | 1,478,000        |

**Notes:**

1. Source of Design Information is October 2016 Structural Integrity Assessment Report (CB&I, 2016a).
2. Present Conditions are those estimated from visual inspection on 20 October 2022. CCR Storage Volume is based on Geosyntec (2020) reported volumes, adjusted for Cleco's estimated CCR volumes added (or removed) from each basin prorated to the date of inspection as provided by the Facility's environmental manager.
3. Approximate Volume of Impounded Water calculated based on observed estimated open water area and estimated average depth.
4. Remaining Water Capacity is estimated for Fly Ash Basin assuming the area occupied by CCR does not contain capacity for water storage.
5. ac indicates acres.
6. ac-ft indicates acres-feet.
7. CY indicates cubic yards.

# FIGURES





**LEGEND**

|         |                                   |
|---------|-----------------------------------|
| 1, 3    | INTERIOR DRAINAGE SWALE           |
| 2, 5, 7 | 30" DIA. PIPE                     |
| 4       | EXIT WEIR                         |
| 6       | BUTTERFLY VALVE                   |
| 8       | JUNCTION BOX                      |
| 9       | DISCHARGE                         |
| 10      | LIFT STATION                      |
| 11      | CHEMICAL STORAGE                  |
| 12      | DISCHARGE TO PRIMARY TREATMENT    |
| 13      | AERATOR                           |
| 14      | LIFT STATION TO MISSISSIPPI RIVER |
| 15      | OVERFLOW WEIR                     |



**NOTE:**

1. AERIAL PHOTO SOURCE: BING MAPS, MICROSOFT CORPORATION, 2017 .
2. LEGEND AND LOCATION OF CCR OPERATIONAL FEATURES TAKEN FROM OCTOBER 2016 STRUCTURAL INTEGRITY ASSESSMENT REPORT BY CB&I ENVIRONMENT & INFRASTRUCTURE, INC.



SITE PLAN  
 BIG CAJUN II POWER PLANT  
 10431 CAJUN II ROAD  
 NEW ROADS, LA 70760



BATON ROUGE, LA | JANUARY 2023

FIGURE

1






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**LEGEND**

-  STAFF GAUGE
-  UNEVEN GROUND SURFACE
-  DISTRESSED GROUND
-  WOODY VEGETATION
-  ANIMAL BURROW

**NOTES:**

1. AERIAL PHOTO SOURCE: GOOGLE EARTH 2020
2. MAPPED FEATURES FROM GEOSYNTEC'S INSPECTION ON 20 OCTOBER 2022



|  |              |                        |
|--|--------------|------------------------|
| 10/20/22 INSPECTION MAP<br>BIG CAJUN II POWER PLANT<br>10431 CAJUN II ROAD<br>NEW ROADS, LA 70760    |              | <b>FIGURE</b><br><br>2 |
| <br>consultants |              |                        |
| Baton Rouge, LA  | January 2023 |                        |