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CCR SURFACE IMPOUNDMENT ANNUAL INSPECTION REPORT

Big Cajun II Power Plant

New Roads, Pointe Coupee Parish, Louisiana

Prepared for

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1. INTRODUCTION

1.1 Purpose

This CCR Surface Impoundment Annual Inspection Report (annual inspection report) has been prepared for the Louisiana Generating, LLC (LaGen) Big Cajun II Power Plant (facility) pursuant to the annual inspection requirements of Section (§) 257.83 of the Federal Coal Combustion Residual (CCR) Rule (the Rule) contained in Title 40 Code of Federal Regulations (CFR) Part 257. This report addresses the following existing CCR surface impoundments (i.e., the regulated CCR Units) at the facility:

- Fly Ash Basin; and
- Bottom Ash Basin.

1.2 Terms of Reference

Under 40 CFR §257.83(b), existing CCR surface impoundments must be inspected on an annual basis by a qualified professional engineer (P.E.). Mr. Scott M. Graves, P.E. (Louisiana P.E. No. 31181), a qualified P.E. with Geosyntec Consultants, Inc. (Geosyntec) conducted a visual inspection of the CCR Units and their hydraulic structures on 25 October 2017. During this on-site inspection he also discussed the CCR surface impoundments with the facility's environmental coordinator, who is the qualified person responsible for conducting the weekly CCR surface impoundment inspections in accordance with §257.83(a)(1).

This annual inspection report was prepared by and under the direction of the qualified P.E., Mr. Graves. Prior to issuance of this report, this document was reviewed by the facility's environmental coordinator to confirm the accuracy of the information presented herein.

1.3 Scope of Annual Inspection Report

In accordance with the Rule, this annual inspection report includes:

- a summary of the review of available information regarding the status and condition of the CCR units, including, but not limited to, files in the operating record, such as previous periodic structural stability assessments, previous inspections by a qualified person and previous annual inspection;
- information on the visual inspection of the CCR unit, performed to identify signs of distress or malfunction of the CCR units and appurtenant structures;
- information on the visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit;

- a discussion of any changes in geometry of the impounding structure since the previous 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 storage capacity of the impounding structure 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 disrupting or have the potential to 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 Consultants (Geosyntec) understands that the prior annual inspection report (CB&I, 2017) was placed in the facility operating record on 18 January 2017. The deadline for completing a subsequent report is one year after the date of completing the previous report. A report is considered complete when it has been placed in the facility operating record. Therefore, this annual inspection report has been developed to address the period from 18 January 2017 to its issuance date of 18 January 2018, and is intended to be placed in the facility Operating Record upon issuance.

2. REVIEW OF AVAILABLE INFORMATION

2.1 Documents Reviewed

As part of the annual inspection process, Geosyntec reviewed available information on the status and condition of the CCR Units, to develop an understanding of their design, construction, assessed integrity, and performance. This included review of 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, 2016a);
- January 2016 CCR Annual Inspection Report (CB&I, 2016b);
- January 2017 CCR Annual Inspection Report (CB&I, 2017); and
- Select 2017 Weekly CCR Inspection Logs by a Qualified Person (LaGen, 2017).

The remainder of Section 2 below provides a facility description and summary of information relevant to the design, construction, and operation of the CCR Units. Additionally, a summary of the results of prior assessments and inspections is also provided below.

2.2 Facility Background

The LaGen 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. Big Cajun II is currently owned and operated by LaGen, a subsidiary of NRG Energy, Inc., and has been in operation for over 30 years. A site map showing relevant facility areas associated with CCR management is presented on Figure 1. This includes identification of the Fly Ash Basin and the Bottom Ash Basin – which are the existing CCR surface impoundments (i.e., the regulated CCR Units) at the facility.

With respect to CCR generation and management, coal is delivered to the facility via barge on the Mississippi River, to a dock located just east of the plant. The coal is then unloaded onto a conveyor belt which transports the coal to a storage area north of the boiler units. The facility has three boiler units. Unit 1 and Unit 3 use coal as the primary source of fuel, and thus generate CCR material (fly ash and bottom ash). Unit 2 has been converted to natural gas and no longer generates CCR material.

After power generation, the fly ash generated by Unit 1 and Unit 3 is pneumatically transported to storage silos, after which it is either shipped off-site (for beneficial reuse or disposal) or is moved via a closed system into a closed truck which transports the fly ash to the on-site Fly Ash Basin for storage/disposal. As demand dictates, the fly ash in the basin may be removed and sold. Bottom ash from Unit 1 is collected in a hopper at the base of the boiler unit, where it is then transported hydraulically (sluiced) via pipe into the on-site Bottom Ash Basin for storage/disposal. Bottom ash from Unit 3 is removed from its collection area at the base of the boiler unit by a drag chain, which transfers the ash to a conveyor belt that piles it up in a designated area near the base of the unit where it is then loaded onto trucks and transported to the Bottom Ash Basin for storage/disposal. The Fly Ash Basin and Bottom Ash Basin are operating under a Louisiana Department of Environmental Quality (LDEQ) Solid Waste Permit as an industrial surface impoundment.

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

2.3 CCR Unit Design and Construction Information

The Fly Ash Basin and Bottom Ash Basin are composed of perimeter dikes (i.e., embankments/berms, and also referred to as levees) made of recompacted clayey soil constructed above-grade to contain the water and CCR material placed within these impoundments. The soils underlying these basins consist of naturally occurring and/or recompacted clayey soil that is a minimum of 3-ft thick, to over 10-ft thick in some areas (CB&I, 2016a). A summary of the CCR Units design and as-constructed conditions is presented below in Table 1.

Table 1. Summary of CCR Units Design and Constructed Conditions

Parameter[1]	Fly Ash Basin	Bottom Ash Basin
Year of Construction / Start of Operation	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) (CY)	2,823,000	1,917,000

Parameter[1]	Fly Ash Basin	Bottom Ash Basin
Impoundment Storage Capacity (to Dike Crest) (ac-ft)	1,750	1,188
Dike Length[2] (ft)	9,560	6,798
Crest Width[3] (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)	35.0	35.0
Dike Height (ft)	10	18
Design Slopes (H:V)	3:1	3:1

Notes:
ac = Acres. ft = feet. ft, MSL = feet above mean sea level.
1. Source of Information is October 2016 Structural Integrity Assessment Report unless otherwise noted.
2. Dike Length estimated from available mapping. Length of divider berm included in Bottom Ash Basin Dike Length.
3. Crest Width obtained from Figure 12 of 2010 LDEQ Solid Waste Permit Renewal Application.

2.4 Review of Structural Integrity Assessment Report

Geosyntec reviewed the Structural Integrity Assessment Report (CB&I, 2016b) to gain a familiarity of design and construction of the basins and understanding of their previously-assessed performance. A summary of the relevant findings presented in CB&I's Report is given 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.
- The assessment included documentation that the basins have been designed, constructed, operated, and maintained consistent with recognized and generally accepted good engineering practices for the maximum volume of CCR and CCR wastewater that can be impounded herein.
- As part of Structural Stability Assessment, prior records or knowledge of structural instability were addressed. In summary, the assessment noted that pre-

2015 information indicated that the dikes are generally stable, but noted some items for consideration, including erosion, excessive vegetation growth, desiccation cracks, animal burrows, sloughing/slope instability areas, and toe seepage areas. According to the assessment report, corrective measures (maintenance/repair of areas of potential instability) were implemented in 2015.

- Calculated safety factors were reported to be greater than the required minimums.

2.5 Review of Previous Inspections

Inspections in October 2015 as part of the Initial Annual Inspection (CB&I, 2016a) noted minor erosion, some animal burrows, and a few desiccation cracks. This report noted that previously-identified areas of sloughing/slope instability had been repaired. No sloughing or slope instability areas were observed. Further, there were no signs of distress or malfunction that would indicate actual or potential structural weakness of either basin. The condition was found to be adequate with respect to design, construction and operation.

Inspections in October 2016 as part of the Annual Inspection (CB&I, 2017) noted for the Fly Ash Basin: numerous animal burrows along the exterior side slopes; an ash buildup surrounding the discharge pipe; minor surficial desiccation cracking; no wet toe/seepage or erosion areas; and two areas in the northwest portion of the basin with surface slope irregularities that could be equipment wheel ruts or may be the initial phase of sloughing. The previous unstable area referenced in the Initial Annual Inspection and subsequently repaired was reported to appear stable. The report further noted for the Bottom Ash Basin: a few animal burrows were present, no desiccation cracks; no wet toe/seepage or erosion areas; and one area of sloughing along the north levee near the northwest corner of the Bottom Ash Basin. The previous unstable area referenced in the Initial Annual Inspection and subsequently repaired was reported to appear stable. The report indicated that no areas necessitating repair were recommended, and concluded that there were no signs of distress or malfunction that would indicate actual or potential structural weakness of either basin.

Geosyntec also reviewed the available CCR impoundment inspection logs for 2017. These inspection checklists indicated that inspection of the basins and outlet/surface drainage structures is performed on a routine basis (weekly), and that no embankment conditions or stability concerns have been noted.

3. ANNUAL SITE INSPECTION

Scott M. Graves, P.E. and Michael Cheatham of Geosyntec visited the facility on 25 October 2017 to visually inspect the Fly Ash Basin and Bottom Ash Basin, as well as to interview the facility's environmental coordinator (the qualified person responsible for conducting the weekly CCR surface impoundment inspections) and review information in the operating record. During this inspection, Geosyntec traversed the entire length of the Fly Ash Basin and Bottom Ash Basin perimeter dikes, along with the divider dike that separates the two basins. Geosyntec visually inspected and recorded observations regarding condition of the dike crest, upstream and downstream slopes, dike toe, and the discharge/stormwater conveyance structures for conditions or features indicating distress or instability. A site map showing key observations and photograph locations is presented on Figure 2. Photographs taken during the inspection to document observed conditions are presented in Appendix A.

Weather conditions during the inspection were observed to be clear, with temperatures of about 55-60°F. A few days prior to the inspection, on 21-22 October 2017, the site received a significant heavy precipitation event of approximately 9.7 inches of rainfall (data from nearby New Roads False River, LA weather station). The ground surface was generally moist from the recent heavy rains, but minimal to no areas of standing water. It was evident that the vegetated perimeter dike slopes site had been mowed relatively recently, making it possible to observe and walk the slopes from crest to toe.

3.1 Visual Inspection for Signs of Distress or Malfunction

3.1.1 Observations at Fly Ash Basin

The Fly Ash Basin was inspected starting at the access road in the southeastern corner of the basin, and progressing clockwise around the perimeter. The following observations were made during the inspection of the Fly Ash Basin:

- On the south side of the Fly Ash Basin, two areas about 1,300 feet west and 2,000 feet west from the eastern edge were observed to have standing water adjacent to the toe of slope of the perimeter dike (see Figure 2 and Photos 3 through 5). From the natural topography, it appears that these are low-lying areas where water tends to naturally accumulate. Based on this, along with the recent heavy rainfall at the site, the standing water did not appear to be attributed to seepage, and no signs of distress or malfunction in the adjacent dike were observed.

- An area of uneven ground surface was observed along the exterior dike along the south side of the Fly Ash Basin, about 250 feet east of the southwestern corner (see Figure 2 and Photo 8). In last year's annual inspection report, CB&I marked this area on the annual inspection figure as having potential sloughing/slope

instability. This also is in the same area that experienced slope instability pre-2015 and was subsequently repaired. At the time of Geosyntec's inspection, there was no evidence of movement or instability (it was not accompanied by observable escarpment, tension cracks, bulging/rotation, or seeps). However, it is being noted as a relevant observation due to the uneven and soft ground, which could be attributed to equipment rutting and the recent heavy rains, but also merits ongoing observation for changes or other signs of movement/weakness.

- Another similar feature – area of uneven ground surface – was observed on the exterior dike along the north side of the Fly Ash Basin, approximately 1,400 ft east of the northwest corner (see Figure 2 and Photo 12). This area exhibited more significant equipment rutting which appears to be contributing to the uneven ground. At the time of Geosyntec's inspection, there was no evidence of movement or instability (it was not accompanied by observable escarpment, tension cracks, bulging/rotation, or seeps). However, it is being noted as a relevant observation due to the uneven and soft ground, which could be attributed to equipment rutting and the recent heavy rains, but also merits ongoing observation for changes or other signs of movement/weakness.

- The perimeter road near the western tip of the Fly Ash Basin showed deeper vehicle ruts (approximately 6-inches) that should be observed for changes and maintained as needed to keep the road accessible. Otherwise, the perimeter road on top of the dike was generally in good condition with no observed signs of problematic desiccation cracking or deformations.

- There were occasional animal burrows observed on the western-facing exterior dike slopes. Overall, vegetation was in good condition, with no noted areas of distress, nor signs of erosion of the exterior dike slopes or seeps exiting the slope.

- The water level in the Fly Ash Basin was well below the crest of the dike, providing approximately >4-ft of freeboard based on the staff gauge reading (discussed subsequently).

3.1.2 Observations at Bottom Ash Basin

The Bottom Ash Basin was inspected starting at the access road in the northwestern corner of the basin near where the discharge pipe passes from the Fly Ash Basin to the Bottom Ash Basin, and progressing counter-clockwise around the interior divider dike and the perimeter dikes. The following observations were made during the inspection of the Bottom Ash Basin:

- A location of localized slope instability (area of surficial sloughing) was observed on the east-facing exterior dike slope approximately 250-ft north of the southeast corner of the basin (see Figure 2 and Photo 19). This location forms the interior

sideslope of the Secondary Treatment Pond. The sloughing was occurring on the upper portion of the slope, with a scarp at the crest and signs of movement down to the waterline of the Secondary Treatment Pond. It is noted that the bottom ash placement adjacent to this area is set-back approximately 150-ft from the dike to make room for an interior drainage swale. Thus, there is no CCR material or standing water being impounded on the Bottom Ash Basin-side of the dike in this area. It was further observed that the top-width of the dike was wider along this area, and the slough may not be part of the Bottom Ash Basin dike per se. Based on these factors this appears to be a localized issue needing repair, and not an issue that would impair the operation or safety of the CCR unit, or otherwise present an indication of a global slope stability concern.

- A second location of localized slope instability (area of sloughing) was observed on the north-facing exterior dike slope of the Bottom Ash Basin, about 400 feet east from the northwestern corner (see Figure 2 and Photos 22 through 25). This area is approximately 70 to 90-ft long and exhibits an approximately 12-inch escarpment at the crest, along with signs of down-slope rotational movement. The area at the toe of movement is bulged and has softer soil that may indicate seepage exiting the slope. In last year's annual inspection report, CB&I marked this area on the annual inspection figure as having potential sloughing/slope instability. This also appears to match the same general area that experienced slope instability pre-2015 and was subsequently repaired. An interior drainage swale is located on the interior side of the dike, and it may be that the significant heavy rains caused water in this drainage swale to build up and seep through the dike and lead to the slope movement. At the time of the inspection, there was no CCR material or standing water being impounded on the Bottom Ash Basin-side of the dike in this area. Based on these factors this appears to be a localized issue needing repair, and not an issue that would impair the operation or safety of the CCR unit. However, given that this location coincides with previously-noted slope failures and repairs, it is evident that the magnitude of this condition and possible seepage-connection with water accumulating on the impoundment-side of the basin, this represents what is judged to be a potential structural weakness that should be carefully observed for changes and scheduled for repair.

- The perimeter road on top of the dike was generally in good condition with no observed signs of problematic desiccation cracking or deformations.

- Overall, vegetation was in good condition, with no noted areas of distress, nor signs of erosion of the exterior dike slopes or seeps exiting the slope (except for the east-facing slope movement area previously noted).

- There was minimal standing water in the Bottom Ash Basin – located along drainage swales on the northern and eastern sides, where CCR placement has been set-back from the dikes.

3.1.3 Observations at Hydraulic Structures

Water from the Fly Ash Basin is transported into the Bottom Ash Basin via a 30-in drainage pipe (see Figure 1 and Photo 17). The combined flow from both CCR units are then directed through another 30-in drainage pipe and flow control valve into the Rainfall Surge Pond. Additional drainage capacity is provided in the Bottom Ash Basin via an overflow weir (pipe) which directs 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 of 2.75-ft (see Figure 2 and Photo 14). Based on discussions with the facility environmental coordinator, this water level was slightly higher than normal due to the significant heavy rains, and was in the process of being gradually lowered by gravity discharge.
- Near the staff gauge location, the discharge pipe between the Fly Ash Basin and Bottom Ash Basin was functioning, and there was no observed erosion, scour, or seepage at or adjacent to the pipe penetration.
- The hydraulic structures associated with the CCR unit appeared to be functional; no issues that would impact the structural integrity or continued safe and reliable operation of the hydraulic structures were observed.

4. RESULTS OF ANNUAL INSPECTION

4.1 Observed Conditions

Results of the observed conditions of the Fly Ash Basin and Bottom Ash Basin during the annual inspection were presented previously in Section 3. The conditions are also documented on Figure 2 and on the photographs in Appendix A.

4.2 Geometry of Impounding Structures

Based on a review of the available information in the operating record, discussions with facility personnel, and comparison of the inspection observations versus last year, it is apparent that there was no construction performed or other alternations made to the impounding structures of the Fly Ash Basin and Bottom Ash Basin. As such, there were no changes in geometry of the impounding structures since the last annual inspection report.

4.3 Instrumentation and Readings

The site has one staff gauge installed located in the northeastern corner of the Fly Ash Basin (photo 14). On the date of the annual inspection (25 October 2017) the observed staff gauge level was 2.75-ft, indicating a freeboard of approximately >4-ft above the crest of the perimeter dike. The staff gauge is observed weekly during the inspections by a qualified person. Readings have indicated that >2-ft of freeboard has been maintained in the Fly Ash Basin since the last annual inspection report.

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 at the time of the annual inspection (25 October 2017) is presented below in Table 2.

Table 2. Summary of Impounded Water and CCR Conditions at the Time of Inspection

Parameter	Fly Ash Basin	Bottom Ash Basin
Approximate Extent of Basin with Open/Standing Water	60% (north/west two-thirds is water; remaining has exposed CCR)	5% (minor water on northern and eastern sides; remaining has exposed CCR)
Approximate Elevation of Impounded Water (ft, MSL)	35.75	35.75
Approximate Typical Elevation of CCR (where placed) (ft, MSL)	33 - 40 ft, MSL	40 - 48 ft, MSL

Parameter	Fly Ash Basin	Bottom Ash Basin
Approximate Typical Depth of Impounded Water (ft)	2 - 5 ft	1 - 3 ft
Approximate Typical Thickness of CCR (ft)	3 - 10 ft	10 - 18 ft
Approximate Maximum Above-Dike Height of Stockpiled CCR (ft)	15	22
Approximate Maximum Elevation of Stockpiled CCR (ft, MSL)	55	70
Approximate Maximum Typical Thickness of Stockpiled CCR (ft)	25	40

:

ac = Acres. ft = feet. ft, MSL = feet above mean sea level. "-" = not applicable.

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 below in Table 3. The design (as-permitted) conditions are also provided for reference.

Table 3. Summary of CCR Unit Volumes and Storage Capacities the Time of Inspection

Parameter	Fly Ash Basin	Bottom Ash Basin
Permitted (Design) Information[1]		
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	1,917,000
Impoundment Storage Capacity (to Dike Crest) (ac-ft)	1750	1188
Present (at Time of Inspection) Conditions[2]		
Approximate Volume of Impounded Water[3] (CY)	974,000	11,000
Approximate Volume of Stored CCR (CY)	1,259,000	1,194,000
Remaining Storage Capacity Available - Water[4] (CY)	1,849,000	723,000

Parameter	Fly Ash Basin	Bottom Ash Basin
Remaining Storage Capacity Available - CCR (CY)	2,646,000	1,391,000

Notes:
ac = Acres. CY = cubic yards. ac-ft = acre-feet.
1. Source of Design Information is October 2016 Structural Integrity Assessment Report.
2. Present Conditions are those estimated from visual inspection on 10/25/2017. CCR Storage Volume is based on CB&I (2017) reported volumes, adjusted for LaGen's estimated CCR volumes added (or removed) from each basin prorated to the date of inspection.
3. Approximate Volume of Impounded Water calculated based on observed estimated open water area and depth.
4. Remaining Water Capacity is estimated for Fly Ash Basin assuming the area occupied by CCR has no capacity for water storage.

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. Conditions are also documented on Figure 2 and the photographs in Appendix A. 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 noted no appearance of any actual or potential structural weakness at the time of inspection.
- For the Bottom Ash Basin, Geosyntec noted one (1) area of potential structural weakness: an area of slope instability located on the northern-facing exterior slope of the perimeter dike, near the northwest corner of the basin. This area was further described in Section 3.1.2. Recommendations for corrective measures (repair) are provided subsequently in Section 5.
- For both the Fly Ash Basin and Bottom Ash Basin, there were no existing conditions observed by Geosyntec at the time of the inspection that were disrupting or had the potential to disrupt the operation and safety of the CCR Units and appurtenant structures.

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

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

5. RECOMMENDATIONS

Based on the observed conditions during the annual site inspection on 25 October 2017 and review of the other available and relevant information as described herein, the following recommendations are made:

1. **Corrective Measure – Repair**. The area of localized slope instability (area of sloughing) on the northern-facing exterior slope of the perimeter dike (near the northwest corner of the Bottom Ash Basin – see Figure 2) should be repaired to rehabilitate a potential structural weakness to the impoundment.

2. **Maintenance – Repair**. The area of localized surficial sloughing on the eastern-facing exterior dike slope of the Bottom Ash Basin (facing the Secondary Treatment Pond – see Figure 2), while not representing a structural weakness, should be repaired to prevent progressive worsening of conditions (e.g., erosion and continued sloughing of material).

3. **Heightened Awareness During Routine Inspections**. This annual inspection report identifies a few areas that merit being more closely observed on a routine basis (e.g., weekly inspections) for signs of changes or progressive worsening of conditions. These areas were locations where wet/soft or uneven ground was observed (see Figure 2). While there was no evidence of slope instability or movement, such conditions may be precursors.

4. **Ongoing Maintenance and Repairs as Needed**. Perform maintenance/repairs to the dikes and other appurtenant impoundment features on a routine and ongoing programmatic basis as well as on an as needed basis if warranted by any problems or concerns (e.g., as identified during periodic inspections by a qualified person, or as otherwise identified).

5. For any berm repairs, including in particular the aforementioned recommended corrective measure to the perimeter dike, include Construction Quality Assurance (CQA) monitoring by a 3rd party during implementation of the work to document and verify that the repairs are made in accordance with project requirements and sound geotechnical practices.

6. Continue with current practices of maintaining set-back distance between CCR material stockpiles and the dikes.

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 and information provided to Geosyntec by LaGen. Consistent with applicable professional standards of care, our opinions and recommendations were based in part on data furnished by others.

6. RECORDKEEPING, NOTIFICATION, INTERNET REQUIREMENTS

6.1 Recordkeeping Requirements

In accordance with 40 CFR §257.105(g), the CCR Surface Impoundment Annual Inspection Report and related information will be kept in the facility operating record. These items will be maintained in the operating record for at least five years.

Documentation recording the results of each inspection and instrumentation monitoring by a qualified person as well as documentation detailing corrective measures will be kept in the facility operating record and will be maintained for at least five years.

6.2 Notification Requirements

In accordance with 40 CFR §257.106(g), the State Director of the Louisiana Department of Environmental Quality (LDEQ) will be notified that this CCR Surface Impoundment Annual Inspection Report has been placed in the operating record and on the publicly accessible internet site.

6.3 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.

7. REFERENCES

CB&I (CB&I Environmental & Infrastructure, Inc), (2016a). Big Cajun II Coal Combustion Residual (CCR) Annual Inspection Report. Louisiana Generating, LLC, Big Cajun II, January 2016.

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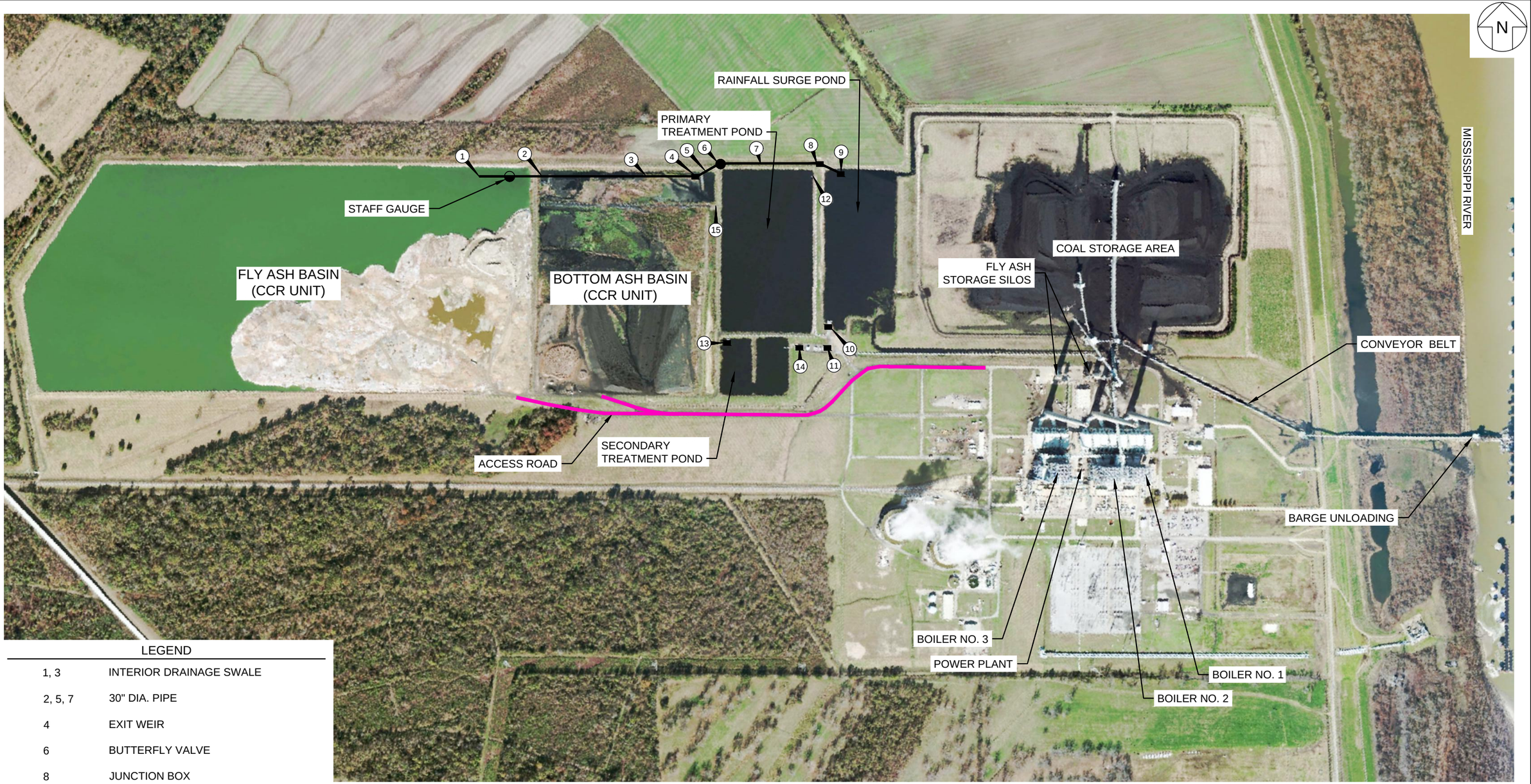
Dewberry & Davis, LLC, (2011), Coal Combustion Waste Impoundment, Round 5 – Dam Assessment Report, Big Cajun II Generating Station, Final Rev. 2, March 2011.

LaGen (Louisiana Generating, LLC), (2017). CCR Impoundment Inspection Log (Weekly Inspections), January to October 2017.

Shaw (Shaw Environmental & Infrastructure, Inc.) (2010). Type I Solid Waste Permit Renewal and Modification Application (LDEQ Permit No. P-0108R1), Big Cajun II Power Plant, November 2010.

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.

0 800'
SCALE IN FEET

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

Geosyntec consultants

BATON ROUGE, LA | JANUARY 2018

FIGURE
1

P:\CADDPROJECTS\BIG CAJUN\CCR SUPPORT (TXR0771.02)\FIGURES\TXR077102F02

LEGEND

- STAFF GAUGE
- 6 — PHOTOGRAPH NUMBER AND DIRECTION
- SLOUGHING OR SLOPE CRACKING
- UNEVEN GROUND SURFACE
- WET AREA

NOTE:

1. AERIAL PHOTO SOURCE: BING MAPS, MICROSOFT CORPORATION, 2017 .
2. MAPPED FEATURES AND PHOTOGRAPH LOCATIONS ARE FROM GEOSYNTEC INSPECTION ON 25 OCTOBER 2017.

0 500'
SCALE IN FEET

10/25/2017 INSPECTION MAP
BIG CAJUN II POWER PLANT
10431 CAJUN II ROAD
NEW ROADS, LA 70760

Geosyntec consultants

BATON ROUGE, LA | JANUARY 2018

FIGURE 2

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APPENDIX A
PHOTO LOG

Photograph ID: 1 **Date: 10/25/2017** **Direction: W** **Comments: Fly Ash Basin – southeast corner**	
Photograph ID: 2 **Date: 10/25/2017** **Direction: W** **Comments: Fly Ash Basin – south exterior slope and road**	

Photograph ID: 3 **Date: 10/25/2017** **Direction: W** **Comments: Fly Ash Basin – south exterior slope, low-lying wet area**	
Photograph ID: 4 **Date: 10/25/2017** **Direction: NE** **Comments: Fly Ash Basin – south exterior slope, low-lying wet area**	

Photograph ID: 5 **Date: 10/25/2017** **Direction: W** **Comments: Fly Ash Basin – south exterior slope, low-lying wet area**	
Photograph ID: 6 **Date: 10/25/2017** **Direction: W** **Comments: Fly Ash Basin – south exterior slope and road**	

Photograph ID: 7 **Date: 10/25/2017** **Direction: W** **Comments: Fly Ash Basin – south exterior slope**	
Photograph ID: 8 **Date: 10/25/2017** **Direction: W** **Comments: Fly Ash Basin – south exterior slope with minor signs of uneven slope with some wetness along ground surface**	

Photograph ID: 9 **Date: 10/25/2017** **Direction: N** **Comments: Fly Ash Basin – west interior/exterior slopes and road**	
Photograph ID: 10 **Date: 10/25/2017** **Direction: E** **Comments: Fly Ash Basin – north interior/exterior slopes and road**	

Photograph ID: 11 **Date: 10/25/2017** **Direction: W** **Comments: Fly Ash Basin – north interior slope and road**	
Photograph ID: 12 **Date: 10/25/2017** **Direction: W** **Comments: Fly Ash Basin – north exterior slope with moderate signs of uneven slopes and soft ground showing equipment ruts**	

Photograph ID: 13 **Date: 10/25/2017** **Direction: E** **Comments: Fly Ash Basin – northeast corner looking at increased dike height for Bottom Ash Basin**	
Photograph ID: 14 **Date: 10/25/2017** **Direction: S** **Comments: Fly Ash Basin – staff gauge**	

Photograph ID: 15 **Date: 10/25/2017** **Direction: W** **Comments: Fly Ash Basin – northeast corner**	
Photograph ID: 16 **Date: 10/25/2017** **Direction: W** **Comments: Stockpiled fly ash in Fly Ash Basin**	

Photograph ID: 17 **Date: 10/25/2017** **Direction: N** **Comments: Bottom Ash Basin – Clarifier underflow discharge at southeastern corner of bottom ash basin**	
Photograph ID: 18 **Date: 10/25/2017** **Direction: W** **Comments: Bottom Ash Basin – southeast corner**	

Photograph ID: 19 **Date: 10/25/2017** **Direction: N** **Comments: Bottom Ash Basin – looking north at interior slope of Secondary Treatment Pond**	
Photograph ID: 20 **Date: 10/25/2017** **Direction: N** **Comments: Bottom Ash Basin – showing outlet of overflow weir (pipe) to Primary Treatment Pond**	

Photograph ID: 21 **Date: 10/25/2017** **Direction: E** **Comments: Bottom Ash Basin (near), Primary Treatment Pond (far), and Power Plant (background)**	
Photograph ID: 22 **Date: 10/25/2017** **Direction: W** **Comments: Bottom Ash Basin – north slope**	

Photograph ID: 23 **Date: 10/25/2017** **Direction: W** **Comments: Bottom Ash Basin – sloughing and slope cracking/movement on north slope**	
Photograph ID: 24 **Date: 10/25/2017** **Direction: S** **Comments: Bottom Ash Basin – sloughing and slope cracking/movement on north slope**	

Photograph ID: 25	
Date: 10/25/2017	
Direction: W	
Comments: Bottom Ash Basin – sloughing and slope movement at toe of area on north slope	