

CCR COMPLIANCE

FUGITIVE DUST CONTROL PLAN

Prepared for:



Louisiana Generating LLC, a subsidiary of NRG
Big Cajun II
10431 Cajun II Road
New Roads, LA 70760

Prepared by:



CB&I Environmental & Infrastructure, Inc.
Baton Rouge, LA 70809

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1.0 Introduction

On December 19, 2014, the administrator of the United States Environmental Protection Agency signed the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities final rule (the Rule). The Rule was published in the Federal Register on April 17, 2015 and becomes effective on October 19, 2015. The Rule establishes a comprehensive set of requirements for the disposal of CCR in landfills and surface impoundments at coal-fired power plants under Subtitle D of the Resource Conservation and Recovery Act. These requirements include compliance with location restrictions, design criteria, operating criteria, groundwater monitoring and corrective action, and closure and post-closure care aspects. The operating criteria include air criteria specified in Title 40 of the Code of Federal Regulations (CFR), §257.80 to address the potential pollution caused by windblown dust from CCR units. According to the Rule, owners or operators of CCR units must adopt measures that will effectively minimize CCR from becoming airborne at the facility by developing and operating in accordance with a fugitive dust control plan (Plan) with adequate dust control measures.

Big Cajun II Power Plant (Big Cajun II), operated by Louisiana Generating, LLC (LaGen), a subsidiary of NRG Energy, Inc., is a coal-fired and natural gas fired power plant located in New Roads, Louisiana. The Rule applies to this facility due to the disposal of CCR that is generated from the combustion of coal at the site. Impoundment units associated with the facility operations include the Fly Ash Unit and Bottom Ash Unit.

This Plan has been prepared to comply with the requirements as specified in §257.80(b)(1-7) of the Rule, including certification by a professional engineer as documented in Section 7.0 of this Plan. Additionally, this Plan will be placed in the Big Cajun II's operating record per §257.105(g)(1), noticed to the State Director per §257.106(g)(1), and posted to the publicly accessible internet site per §257.107(g)(1).

2.0 Facility Description

2.1 Process Overview

Big Cajun II is an approximately 1,740 acre coal and natural gas fueled electric generating facility located at 10431 Cajun II Road in New Roads, Louisiana. Coal is brought to the facility via barge on the Mississippi River. Coal is loaded from barges at a dock located to the east of the facility onto a conveyor belt where it is transported to the coal storage area located just north of the facility. The coal is used as the primary source of fuel in the facility's Unit 1 and Unit 3. Unit 2 has been converted to natural gas.

Fly ash and the coarser sand-like bottom ash are removed from the two coal boiler units' combustion exhausts during power generation. Fly ash and bottom ash are transported to the impoundment units where solids are allowed to settle out before the surface water is treated through a series of wastewater treatment ponds. Once water has been treated, a pump station moves water from the Secondary Treatment Pond to the Mississippi River discharge point.

In some cases, coal ash may be sold and hauled offsite for beneficial reuse purposes. Big Cajun II does not accept waste generated from off-site locations for treatment, storage, or disposal.

2.2 Fugitive Dust Sources

The Rule applies to fugitive dust originating from CCR units, roads, and other CCR management and material handling activities. CCR generated at the Big Cajun II facility includes fly ash and bottom ash. The following sub-sections provide a description of fugitive dust sources from handling CCR. Each of these elements is depicted on **Figure 1** included with this Plan.

2.2.1 Fly Ash Handling

Fly ash is a residue produced by the burning of finely pulverized coal in a high efficiency boiler. Particles of fly ash are fine enough to remain entrained in the flue gas. Fly ash is composed primarily of oxides of silicon, aluminum, calcium, sulfur, and iron. Fly ash is a tan color when it is collected from stack gas. It is a fine powdery substance with the consistency of talcum powder. Fly ash undergoes a physical change when it comes into contact with water, which causes the material to become a hard, structurally stable compound with very low permeability.

When fly ash mixes with water, the silicon oxide and aluminum oxide components react with its calcium fraction to form a slow-hardening cement. The result of the reaction is a hard, structurally stable compound with very low permeability. It is this characteristic that makes fly

ash a marketable resource as a cement substitute or additive for a variety of purposes. Big Cajun II sells a portion of the fly ash generated at its facility for beneficial reuse as cement additive.

The ash is removed from the flue gas by electrostatic precipitators and is pneumatically transported to a storage silo. From there it can be sold as a pozzolan and shipped off site or transported to the Fly Ash Unit for disposal. The storage silo has a capacity of 3,870 tons and is equipped with a closed system for loading the ash into trucks to be transported. During peak power-generating periods, the production of fly ash may exceed the market demand. During such times, the excess fly ash is hauled by closed trucks to the Fly Ash Unit. At a later date, when the demand for ash exceeds production, the fly ash in the unit may be removed and sold. Marketing the fly ash is an attempt to meet the objectives of the Resource Conservation and Recovery Act (RCRA).

2.2.2 Bottom Ash Handling

Bottom ash is another residue of coal combustion which is generated in the boilers of the power plant. Bottom ash is generated concurrently with fly ash during the combustion of coal. It is formed in the boilers when particles of ash fuse together. The fused particles become too large to remain entrained in the rising flue gas and fall to the bottom of the boilers. Due to their similar origins, bottom ash and fly ash have approximately the same chemical makeup. Bottom ash is medium brown in color and has a sandy texture. Particles of bottom ash vary in diameter, but are approximately the size of coarse sand.

The ash is collected in hoppers at the base of the Unit 1 boiler then transported hydraulically through a pipe directly to the Bottom Ash Unit. Unit 3 utilizes a different bottom ash handling arrangement where in, bottom ash is collected in hoppers at the base of the boiler. From there the damp ash is hauled by dump truck to the Bottom Ash Unit.

2.2.3 Surface Impoundments

The Fly Ash and Bottom Ash Units are primarily used for the storage, and disposal of CCR at Big Cajun II. **Figure 1** depicts the impoundment areas.

Surface water from the Fly Ash Unit are directed by an interior drainage swale to a pipe connection into the Bottom Ash Unit. The Bottom Ash Unit process water and surface water combined with water from the Fly Ash Unit are directed by an interior swale to a weir located at the northeast corner of the Bottom Ash Unit. A 30-inch diameter pipe carries the combined water by gravity flow to the Rainfall Surge Pond. There is a flow control valve between the Bottom Ash Unit and the Rainfall Surge Pond. This pond is the collection point for all the rainfall runoff and wastewater from the facility, coal storage areas, and ash disposal areas. Water from the Rainfall Surge Pond is pumped into the Primary Treatment Pond. Water flows by gravity from

the Primary Treatment Pond to the Secondary Treatment Pond. Treated water is pumped from the Secondary Treatment Pond to LPDES Outfall 001 on the Mississippi River. Runoff will be removed on a routine basis; however, there will always be some rainfall and transport water in the units.

2.2.4 Transport Roadways

As described above, trucks transport fly ash and some bottom ash to their respective units. Within the limits of the Big Cajun II facility the trucks travel on paved and unpaved roads. The roadways and haul routes are shown on **Figure 1** of this Plan.

3.0 Fugitive Dust Control Regulatory Requirements

3.1 CCR Rule Air Criteria

Under the Rule, the owner or operator of a CCR unit must adopt measures that will effectively minimize CCR from becoming airborne at the facility, including fugitive dust originating from CCR units, roads, and other CCR management and material handling activities.

In order to document these measures, the owner or operator of the CCR unit must prepare and operate in accordance with a CCR fugitive dust control plan. According to the provisions of §257.80(b) applicable to Big Cajun II, the Plan must include the following elements:

- Identification and description of the CCR fugitive dust control measures that will be used to minimize CCR from becoming airborne at the facility, along with an explanation of how the measures selected are applicable and appropriate for site conditions.
- Description of procedures used to log citizen complaints received by the facility involving CCR fugitive dust events.
- Description of procedures to periodically assess the effectiveness of the Plan.

§257.80(b) also has a provision for providing a description of procedures used to emplace CCR as conditioned CCR at CCR landfills. However, since Big Cajun II's ash units do not meet the definition of landfills, the provision does not apply.

The Plan should be updated anytime there is a change in conditions that would substantially affect the written Plan.

In addition to the fugitive dust control plan, §257.80(c) requires the owner or operator of a CCR unit to file an annual fugitive dust control report.

3.2 Other Fugitive Dust Regulatory Requirements

Prior to the promulgation of the Rule, Big Cajun II has been required by other regulations and permits to minimize and monitor fugitive dust from the site.

3.2.1 Title V Operating Permit

The facility is operated according to Title V Operating Permit No. 2260-00012-V5 issued by the Louisiana Department of Environmental Quality. The permit incorporates fugitive dust emission requirements as codified in Louisiana Administrative Code (LAC) 33.III.Chaper 13. The following citations are relevant to fugitive emission restrictions:

- Emissions of particulate matter shall be controlled so that the shade or appearance of the emission is not denser than 20% average opacity, except the emissions may have an average opacity in excess of 20% for not more than one 6 minute period in any 60 consecutive minutes. (§1311.C) All reasonable precautions shall be taken to prevent particulate matter from becoming airborne. (§1305)

3.2.2 Solid Waste Permit

The site operates under Louisiana Department of Environmental Quality (LDEQ) Solid Waste Permit No. P-0108. There are no specific applicable requirements/conditions regarding fugitive dust emissions in the permit.

4.0 Fugitive Dust Control Practices and Procedures

Potential CCR fugitive dust sources have been identified and described in Section 2.0 of this Plan. This section will detail control measures employed at the facility to minimize airborne dust from these sources in accordance with §257.80(b)(1-2) of the Rule.

4.1 Fly Ash Handling

The storage silo is equipped with a baghouse to capture dust associated with the transfer of fly ash to the silos in Units 1 and 3. Most of the fly ash is transported using fully enclosed pneumatic tank trucks. A delivery chute is lowered from the base of the silos into the fill opening of the tanker truck. During loading of trucks, the fly ash unloading blower captures dust during the transfer. Emissions from open top trucks are reduced by keeping a light load in the bed of untarped trucks that is not equal to the full capacity of the truck. This allows for available freeboard on the truck bed walls, reducing the amount of dust that is likely to escape out of the bed prior to tarping. After loading is complete, the truck is covered and travels along site haul roads to the Fly Ash Unit.

4.2 Bottom Ash Handling

The bottom ash is collected in hoppers at the base of the boiler of Unit 1, and then transported hydraulically through a pipe directly to the Bottom Ash Unit, which will have virtually no fugitive dust emissions due to the high moisture content of the material. Bottom ash is collected in hoppers from Unit 3 at the base of the boiler. From there the damp ash is hauled by dump truck to the Bottom Ash Unit. Trucks transporting bottom ash are covered to prevent fugitive dust emissions from occurring during transport.

4.3 Transport Roadways

Paved and unpaved road surfaces internal to Big Cajun II (refer to **Figure 1**) are watered as necessary to reduce fugitive dust emissions. The amount of time dedicated to watering the roads is a function of the dryness of the surface and is determined through daily observations by facility personnel. The amount of water applied varies seasonally. Roads and parking lots are also periodically swept to reduce potential entrainment of dust. Fugitive dust emissions are further controlled by posting and maintaining a maximum vehicle speed limit of 15 miles per hour within the boundaries of the facility property.

4.4 Surface Impoundments

Fly ash and some bottom ash are transported by covered trucks from the facility to the Fly Ash Unit and Bottom Ash Unit, respectively. Fugitive dust is minimized at the ash disposal Units by

spreading the material as soon as practical after being delivered. Additionally, a water truck regularly circulates to spread water on the internal roadways.

5.0 Annual Reporting

In accordance with §257.80(c), the facility must prepare an annual fugitive dust control report that includes the following information:

- A description of actions taken to control CCR fugitive dust
- A record of all citizen complaints
- A summary of any corrective actions taken

The first annual report must be completed no later than 14 months after placing the initial CCR fugitive dust control plan in the Big Cajun II facility's operating record. Subsequent annual reports will be completed one year after the date of the initial annual report. Additionally, as required, each annual report will be placed in the Big Cajun II facility's operating record per §257.105(g)(2), noticed to the State Director per §257.106(g)(2), and posted to the newly established publicly accessible internet site per §257.107(g)(2).

5.1 Monitoring/Recordkeeping

Big Cajun II will be regularly monitored for fugitive dust conditions. Should fugitive dust conditions occur, the date, time, and location of the incident will be recorded on a log, as provided in **Attachment A**. The log will also include the corrective actions taken to reduce the fugitive dust. Copies of the log will be made available to all appropriate supervisors and will be included in the annual report as described in the proceeding section.

6.0 Procedures for Citizen Complaints

In accordance with §257.80(b)(3) of the Rule, this section outlines the procedure that NRG follows (as contained in NRG's Environmental Policies and Procedures Manual) to log citizen complaints involving fugitive dust events at the facility and the ash disposal site. A copy of the complaint form is included in **Attachment B**. Within 24 hours of receiving a citizen complaint, the facility's environmental coordinator will log the complaint in NRG's Environmental Management Information System (EMIS) database. The EMIS database will automatically forward notice of the complaint to the facility manager, NRG's regional environmental manager, and NRG's Corporate Environmental Department. NRG will then conduct a thorough investigation. The results of the investigation will be recorded, entered into the EMIS database, and communicated to the appropriate parties. If the investigation confirms a fugitive dust emission event, NRG will undertake a root cause analysis to address the source of the excess fugitive dust and will develop a plan to mitigate future occurrences and remediate impacts, as necessary.

7.0 Procedures for Plan Assessments and Amendments

Fugitive dust control practices for each source of CCR fugitive dust are described in Section 4.0 of this Plan. Based on current monitoring requirements and observations, these control measures have been determined to be effective. This Plan will be periodically reviewed by the facility's environmental coordinator to ensure full compliance with all fugitive dust control, monitoring, and recordkeeping procedures as outlined herein. During this review, the Plan's effectiveness will be assessed as required per §257.80(b)(4) of the Rule. This review will serve to either confirm the continuing effectiveness of the Plan or will identify sections which require revision/upgrade to reflect any relevant changes in facility operations, CCR unit aspects, or necessary improvements in fugitive dust control protocols.

Accordingly, when new processes or modifications of existing processes are planned, the facility's environmental coordinator will evaluate the project for potential changes to this Plan. In accordance with §257.80(b)(6) of the Rule, the Plan will be amended to add any new CCR units or to update any modifications in the operation of existing fugitive dust sources. The amended Plan will be reviewed and recertified by a registered professional engineer and will be placed in the Big Cajun II facility's operating record as required per §257.105(g)(1). The amended Plan will supersede and replace any prior versions. Availability of the amended Plan will be noticed to the State Director per §257.106(g)(1) and posted to the newly established publicly accessible internet site per §257.107(g)(1).

A record of Plan reviews/assessments is provided on the first page of this document, immediately following the Table of Contents.

8.0 Professional Engineer Certification

The undersigned registered professional engineer is familiar with the requirements of §257.80 and has visited and examined the Big Cajun II facility or has supervised examination of the Big Cajun II facility by appropriately qualified personnel. The undersigned registered professional engineer attests that this CCR Fugitive Dust Control Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and meets the requirements of §257.80, and that this Plan is adequate for the Big Cajun II facility. This certification was prepared as required by §257.80(b)(7).

Name of Professional Engineer:

Glen R. Landry, P.E.

Company:

CB&I Environmental & Infrastructure, Inc.

Signature:



Date:

10/13/15

PE Registration State:

Louisiana

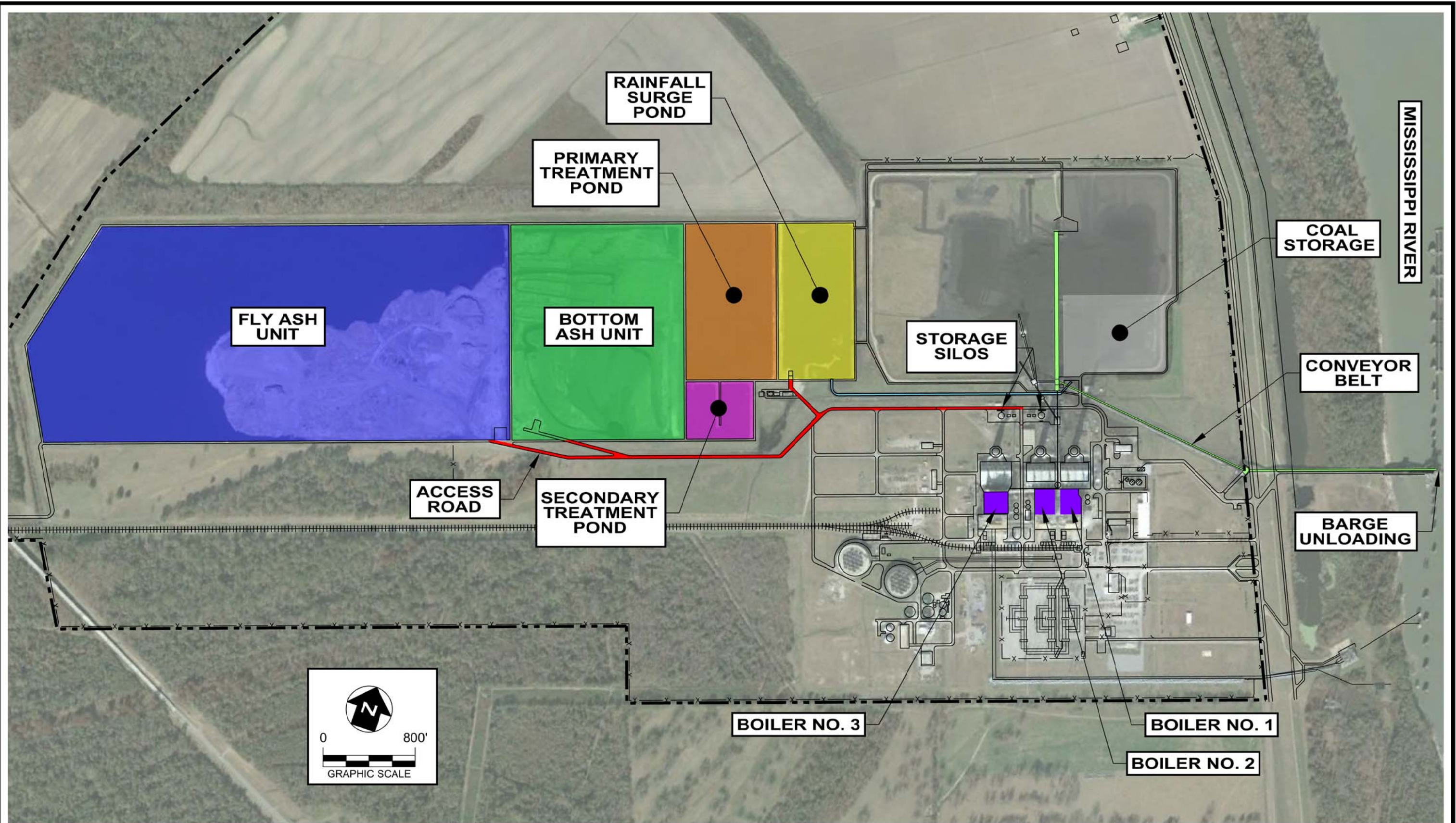
PE Registration Number:

18931

Professional Engineer Seal:



Figure



REV. NO.	DATE	DESCRIPTION



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**BIG CAJUN II
 NEW ROADS, LA**

**FIGURE 1
 SITE LAYOUT**

DRAWN BY: BWM APPROVED BY: DAM PROJ. NO.: 1005494026 DATE: SEPTEMBER 2015

T:\AutoCAD\Projects\BigCajun\Figures\BCII-Sitelayout.dwg, 11x17

Attachment A

Monitoring Log

**Big Cajun II
Fugitive Dust Log**

Date	Location of Fugitive Dust	Wind Direction	Wind Speed	Corrective Action(s) Taken	Personnel Performing Corrective Action

Attachment B

Citizen Complaint Form

**Big Cajun II
Dust Complaint Log**

Date of complaint: _____
Time of complaint: _____

Wind Speed/ Direction: _____ / _____
Weather Conditions: _____

Complainant's name: _____
Complainant's phone number: _____
Complainant's email address: _____
Person filling out complaint log: _____

Description of complaint:

Description of site activities during the time specified in the complaint:

Corrective Actions taken:

Follow-Up:
