MAY 2017

CLECO POWER LLC

BOTTOM ASH AND FLY ASH SURFACE IMPOUNDMENTS
LENA, RAPIDES PARISH, LOUISIANA

EMERGENCY ACTION PLAN

Prepared By:

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Project Number: 002-208

PROVIDENCE

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1.0 INTRODUCTION

1.1 Purpose of This Plan

Cleco Power LLC (Cleco) owns and operates a Bottom Ash surface impoundment and a Fly Ash surface impoundment at its Brame Energy Center electric generating facility. The purpose of this document is to provide instructions for monitoring of the Bottom Ash and Fly Ash surface impoundments under various conditions so a safety emergency can be prevented and expeditiously reported to agencies and individuals that may be affected. This plan defines the notification procedures to be followed in the event of a safety emergency. The procedures are intended to protect lives and prevent property damage from an uncontrolled release of water from the surface impoundment(s). The safe use of these impoundments is regulated under the Louisiana Department of Environmental Quality (LDEQ). These ponds are permitted and classified by the LDEQ as Type I Surface Impoundments.

This document describes the sequence of actions to be taken under certain weather or site conditions. This document also identifies responsibility for the performance of certain actions and the reporting procedures during and following an event.

1.2 Description of the Facility

The Brame Energy Center's Bottom Ash and Fly Ash surface impoundments are designed to accept the coal combustion residual (CCR) byproducts derived from the burning of coal for the generation of electricity. The bottom ash is sluiced to the bottom ash surface impoundment via a piping network. The fly ash is hauled to the fly ash surface impoundment. The primary function of these surface impoundments are for the disposal of the bottom ash and fly ash waste in an environmentally safe manner.

The Bottom Ash and Fly Ash surface impoundments are located approximately two miles north of Boyce in Rapides Parish, LA as shown in the Site Location Map included as **Figure 1**. The Bottom Ash Pond is located at latitude 31° 23.83' N and longitude 92° 42.27' W. The Fly Ash Pond is located at latitude 31° 23.67' N and longitude 92° 42.00' W.

Water from the Fly Ash surface impoundment is pumped into the Bottom Ash impoundment which discharges by means of three pumps that discharge the wastewater through the outlet pipe on the northwestern end of the Bottom Ash Pond. This water discharges through an LPDES permitted outfall into Lake Rodemacher, thence to Bayou Jean de Jean, then to the Red River. These impoundments do not have an emergency spillway, but the water elevation is controlled via the pumping system.

The minimum levee elevation as determined by survey for the Bottom Ash impoundment is 106 feet NAVD 88. To determine the maximum storage capacity, Providence assumed a freeboard of three feet to the top of the impoundment. The bottom elevation of the pond was determined to be 85 feet NAVD 88 based on the elevation data contained in the solid waste permit for the Bottom Ash Pond. The maximum capacity of this impoundment, with a freeboard of three feet, is approximately 760.5 acre-feet.

The minimum levee elevation as determined by survey for the Fly Ash impoundment is 105 feet NAVD 88. The bottom elevation of the pond was determined as noted in the solid waste permit application as 85 feet MSL. The permitted capacity of this impoundment is 460.0 acre-feet.

2.0 POTENTIAL INUNDATED AREAS

The Bottom Ash Pond and the Fly Ash Pond were analyzed to determine effects of a breach in the current levee system. Two scenarios were used in each model: Maximum and Most Probable Loss. In both scenarios, a shear break to the bottom of the levee was assumed. The Maximum scenario flow rate was calculated using a height of water measured from the bottom of the pond to the top of the levee. The Maximum scenario assumes that the impoundment is at maximum levels which is not the normal operation of the pond. The Most Probable Loss scenario flow rate was calculated using a height of water measured from the bottom of the pond to the normal operating elevation.

Figure 2 shows the Levee Breach Study Area for the Bottom Ash and Fly Ash Surface Impoundments. **Figure 3** and **Figure 4** depict the Most Probable Loss and the Maximum Loss scenarios for a levee breach failure of the Bottom Ash Surface Impoundment. **Figure 5** and **Figure 6** depict the Most Probable Loss and the Maximum Loss scenarios for a levee breach failure of the Fly Ash Surface Impoundment. It should be noted that these models were generated based on a continuous outflow from the pond as this was determined to be the most conservative way to model a levee breach. Real-world scenarios should be less impactful as the flow rate will steadily decrease as the pond empties.

The flood elevations are highly influenced by the existing water surface elevations of Bayou Jean de Jean and the Red River. The water surface elevation data used in this analysis for adjacent property is from Light Detection and Ranging (LIDAR) data and shows the drainage feature between the Bottom Ash and Fly Ash Ponds and Interstate 49 at elevation 79’ NAVD 88, Bayou Jean de Jean at elevation 74’ NAVD 88, and the Red River at elevation 74’ NAVD 88.

The results of the floodplain analysis for both the Bottom Ash Pond and the Fly Ash Pond show that the rise in water is mostly contained in the drainage feature between the ponds and Interstate 49. The downstream flood area allows the floodwaters to spread into existing bodies of water over a large area, therefore adjacent property is not affected. Also, not affected are the properties along Bayou

Jean de Jean which are protected by levees. This is true for both the Maximum and the Most Probable Loss scenarios.

3.0 MONITORING CONDITIONS

3.1 Normal Conditions

During dry weather and occasional rain, or other precipitation, the embankment is inspected weekly. The inspection includes the following areas, at a minimum:

- Embankment – crest, upstream face, and downstream face slopes will be checked for cracks, slumps, bulges, or other signs of movement or stress;
- Diversion and Outlets – diversion channels, drains, and spillways will be checked for restriction or blockage due to trash, debris, vandalism, settlement, or other similar conditions;
- Seepage Zones – downstream face and areas will be checked for wet areas or seepage zones that are not planned for in the embankment design. Any seepage shall be observed for signs of piping, turbulence, discoloration, suspended solids, or other signs of unplanned seepage conditions;
- Access Roads – access roads will be inspected and maintained in a condition that would allow appropriate machinery or equipment onto the site for maintenance or repair work on a routine basis.

3.2 Adverse Conditions

During heavy or extended rainfall, flash flooding warnings, or otherwise excessively wet conditions, the embankment will be inspected daily if the impoundment is at or above high water level conditions. The Bottom Ash Pond high water operating level is 96 feet NAVD 88. The Fly Ash Pond high water operating level is 92 feet NAVD 88.

3.3 Standby or Alert Conditions and Response Actions

A standby alert will be initiated if any one of the following conditions have the potential to occur and constant surveillance of the impoundment will be implemented. Cleco will perform the necessary repair/response actions to reduce the possibility of a safety emergency.

3.3.1 Overtopping by Flood Waters

- Maintain water levels at low to normal water elevations to prevent this problem
- Run all pumps to maximum capacity and rent additional pumps if necessary to reduce water levels

- Provide erosion-resistant protection to the downstream slope by placing erosion resistant material over eroding areas

3.3.2 Loss of Freeboard or Impoundment Cross-Section Due to Storm Wave Erosion

- Place additional riprap or sandbags in damaged areas to prevent further embankment erosion
- Lower the water level to an elevation below the damaged area
- Restore freeboard with sandbags or earth and aggregate fill
- Continue close inspection of the damaged area until the storm event has passed

3.3.3 Slides on the Upstream or Downstream Slope of the Embankment

- Lower the water level at a rate and to an elevation considered safe given the slide condition. If the outlet is damaged or blocked, then additional pumping or a controlled breach may be required.
- Restore the lost freeboard by placing sandbags or earthen and aggregate fill
- Stabilize slides on the downstream slope by weighting the toe area with additional soil or aggregate fill

3.3.4 Erosional Flows Through the Embankment, Foundation, or Abutments

- Plug the flow with available material (hay bales, bentonite, *etc*.) if the entrance to the leak is in the reservoir
- Lower the water level until the flow decreases to a non-erosive velocity or until it stops
- Place a protective sand and aggregate filter over the exit area to hold materials in place
- Continue lowering the water level until a safe elevation is reached
- Continue operating at a reduced level until repairs can be made

3.3.5 Failure of Appurtenant Structures Such as Outlets

- Implement temporary measures to protect the damaged structure such as sealing off an outlet
- Employ experienced professional divers, if necessary to assess the problem and possibly implement repairs
- Lower the water level to a safe elevation. If the outlet is inoperable, additional pumping or a controlled breach may be required.

3.3.6 Mass Movement of the Impoundment on its Foundation

- Immediately lower the water level until excessive movement stops
- Continue lowering the water until a safe level is reached
- Continue operating at a reduced level until repairs can be made

3.3.7 Excessive Seepage and High Level Saturation of the Embankment

- Lower the water level to a safe level
- Continue frequent monitoring for signs of slides, cracking, or concentrated seepage
- Continue operation at a reduced water level until repairs can be made

3.3.8 Excessive Settlement of the Embankment

- Lower the water level by releasing it through the outlet by pumping or a controlled breach
- If necessary, restore freeboard, preferably by placing sandbags
- Lower water level to a safe level
- Continue operating at a reduced water level until repairs can be made

3.4 Evacuation Conditions

Evacuation action will be indicated by the development of extreme conditions that are beyond the control of any person. Evacuation shall be initiated upon the first indication that overtopping or structural failure of the impoundment is imminent.

4.0 NOTIFICATION PROCEDURES

4.1 Notifications

This notification procedure provides the guidelines for Cleco to notify Emergency Response Officials of a safety emergency, as needed, as identified in **Section 3.3**. See the **External Notification List – Appendix A** for Emergency Response Officials. These emergency response officials must then warn the public and evacuate them from the inundation zone, if necessary.

The Plant Manager is responsible for enforcing this procedure. The plant Emergency Response Coordinators (ERCs) are responsible for implementing the procedures. See the **Internal Notification List – Appendix A** for Cleco personnel.

Use of the Cleco internal communications systems will be controlled so that emergency calls may be handled promptly. Personnel assigned to the operation of the control room will have decision-making authority on any action to be taken during an emergency. Progress reports, should they be necessary, will be made to the control room. Provisions will also be made for communication with internal evacuation assembly areas.

When reporting a safety emergency related to these impoundments, all directions are from the point of view of an observer facing downstream. When an "indicator" or dangerous condition appears, Cleco must take immediate action. If failure is possible, the responsible person or his designee will report the situation to the appropriate authorities/agencies immediately. The report will include the following:

- Name of the person making the report and how he or she can be contacted
- The name of impoundment
- The location of the impoundment by the nearest highways, roads, or towns and by latitude and longitude, if known
- A description of the problem (*i.e*. excessive leakage, cracks, sand boils, *etc*.)
- The location of the problem area on the impoundment relative to embankment height (*i.e*. "about 1/3 up from the toe") and relative to the impoundment's crest and in terms of what part of the impoundment is affected (*i.e*. upstream slope, crest, or downstream slope)
- A description of the extent of the problem area
- An estimate of the quantity of unusual flow as well as a description of flow quality (clear, cloudy, muddy)
- A reading of the water level in the impoundment relative to the impoundment's crest
- An indication of whether the water level is rising or falling
- An indication of whether the situation appears to be worsening
- An indication of whether the problem appears to be containable or is an emergency
- The current weather conditions at the site
- Other pertinent information

A typical standby alert message to the local emergency responders may include the following:

Standby Alert Message

"This is (responsible person or representative) advising you that we are starting constant surveillance of the Brame Energy Center (Bottom Ash or Fly Ash or both) impoundments, according to our Emergency Action Plan. We are notifying you of this condition and will inform you

if a decision to prepare for an impending failure or to cancel surveillance has been made."

The list below can be used as a guide for appropriate responses:

- **Failure Pending** – structure can likely be saved with immediate remedial action
- **Failure Imminent** – structure may possibly be saved with immediate remedial action
- **Failure in progress** – no chance to save the structure
- **Flooding Expected or In Progress** – upstream from the impoundment site

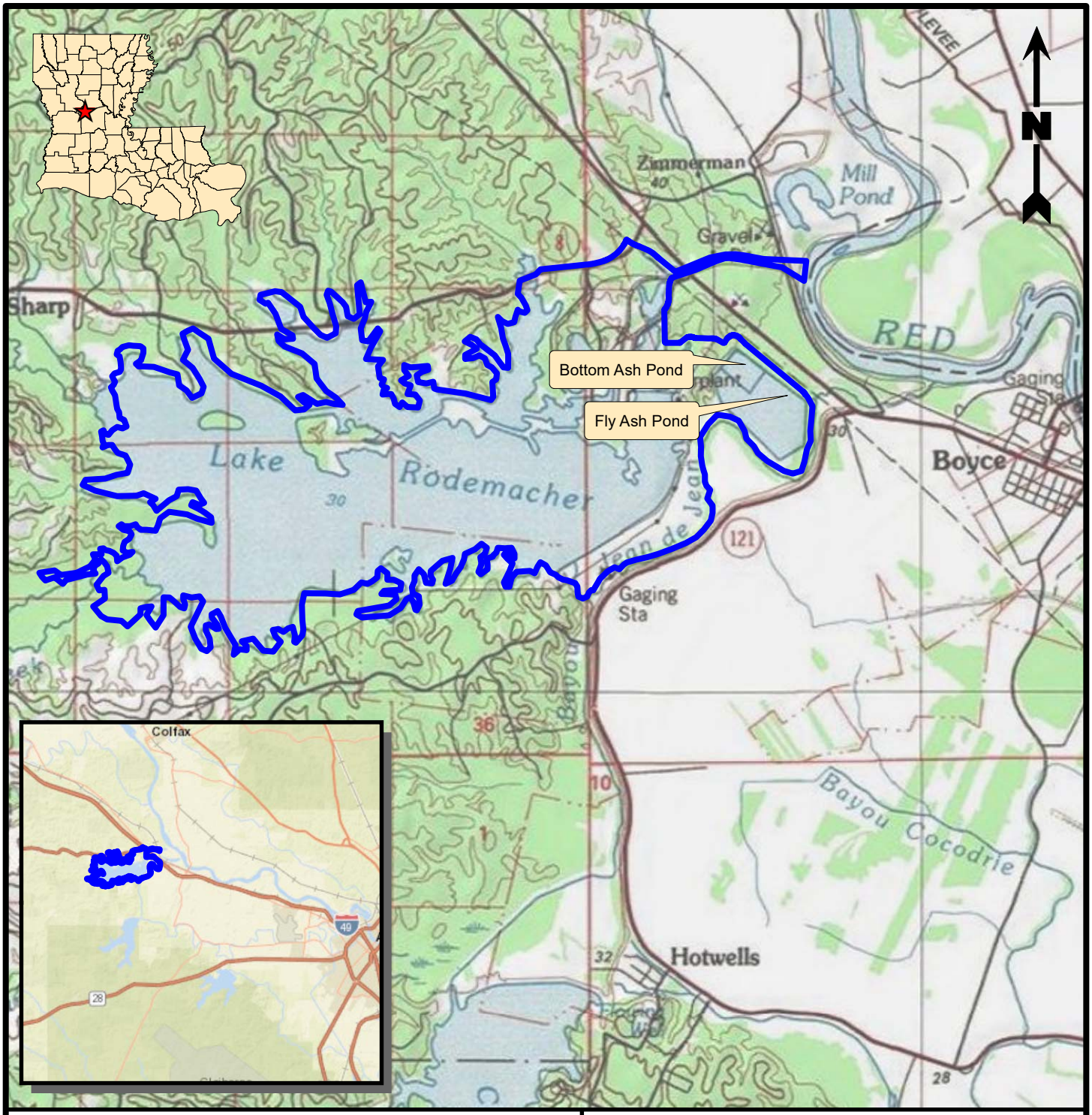
4.2 Coordination Meeting

Cleco will coordinate a meeting with local emergency responders on an annual basis. The coordination meeting will include a review of the Emergency Action Plan and more specifically the standby and alert conditions that could occur and standby and alert notifications. Cleco and emergency responders can provide information necessary to respond to an impoundment safety emergency and potential evacuation scenarios.

Cooperative planning will benefit all parties and result in a more defined, integrated plan. Based on input from the coordination meetings, the Emergency Action Plan can be amended and noted in **Appendix B**.

FIGURE 1

SITE LOCATION MAP



Legend

Property Boundary

Reference

Base map comprised of U.S.G.S. 7.5 minute topographic maps, "Lena, LA", "Boyce, LA", "Jericho, LA", and "Gardner, LA".

Site Location Map

Emergency Action Plan
Lena, Rapides Parish, Louisiana

Cleco Power LLC
Brame Energy Center

Drawn By	CMM	02/24/17
Checked By	LMH	02/24/17
Approved By	CVH	02/24/17

Project Number	002-208
Drawing Number	002-208-A001
1	Figure

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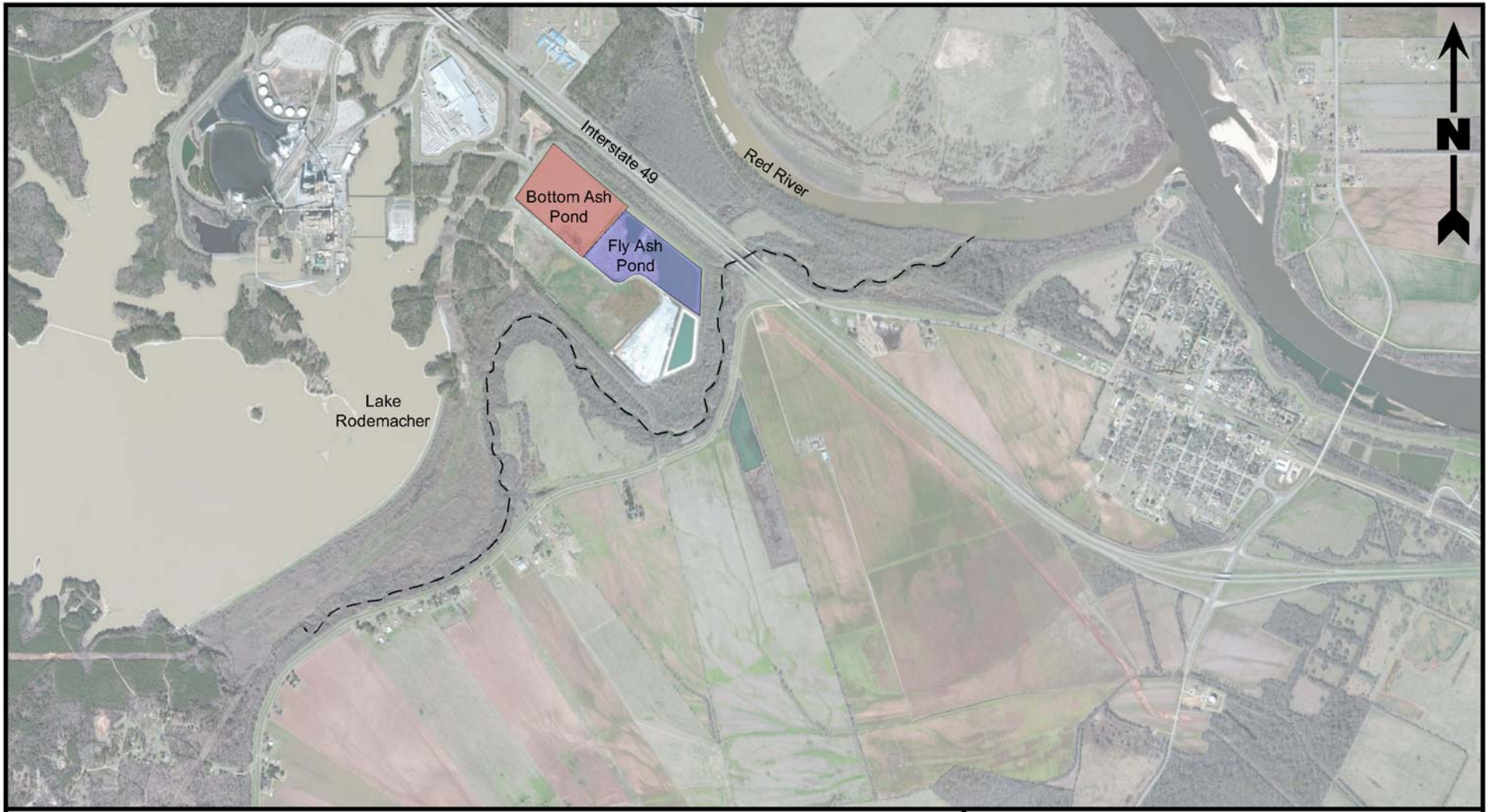
FIGURE 2

LEVEE BREACH STUDY AREA



Legend

— — — — Bayou Jean de Jean

Reference

Base map comprised of Bing Maps aerial imagery from (c) 20 7 Microsoft Corporation and its data suppliers.

2500 0 2500

Scale: 1" = 2500'

Levee Breach Study Area

Emergency Action Plan
Lena, Rapides Parish, Louisiana

Cleco Power, LLC
Cleco Brame Energy Center

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Checked By	LMM	02/24/17
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002-208

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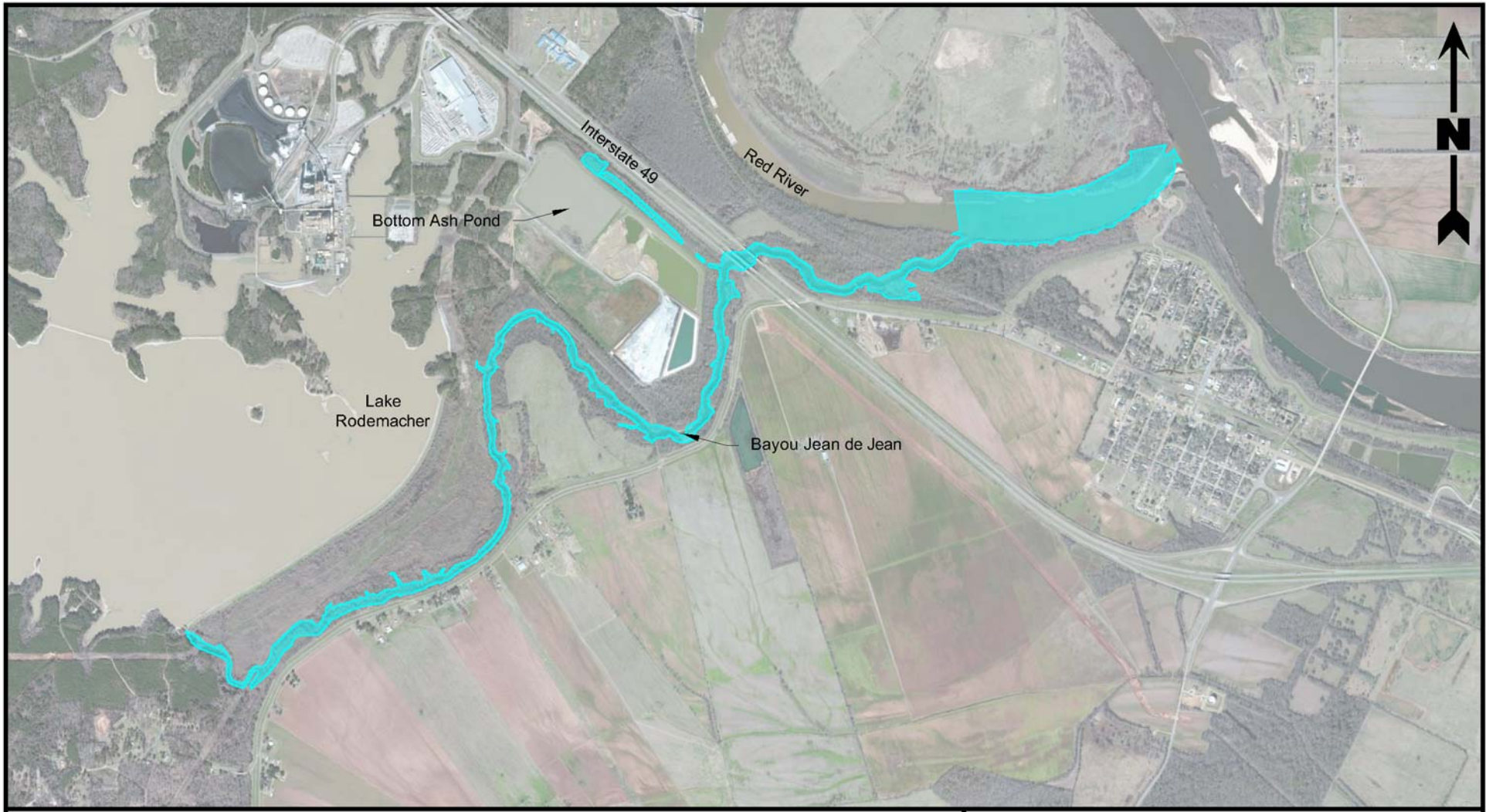
002-208-A006

2
Figure

FIGURE 3

BOTTOM ASH POND MOST PROBABLE LOSS



Legend

Most Probable Loss (Avg. ELEV. = 75.96')

Note

It should be noted that these models were generated based on a continuous outflow from the pond as this was determined to be the most conservative way to model a levee breach. Real-world scenaros should be less impactful as the flow rate will steadily decrease as the pond empties.

Reference

Base map comprised of Bing Maps aerial imagery from (c) 20 7 Microsoft Corporation and its data suppliers.

2500 0 2500

Scale: 1" = 2500'

Bottom Ash Pond
Most Probable Loss

Emergency Action Plan
Lena, Rapides Parish, Louisiana

Cleco Power, LLC
Cleco Brame Energy Center

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Drawn By	CMM	03/23/17
Checked By	LMM	03/23/17
Approved By	CVH	03/23/17

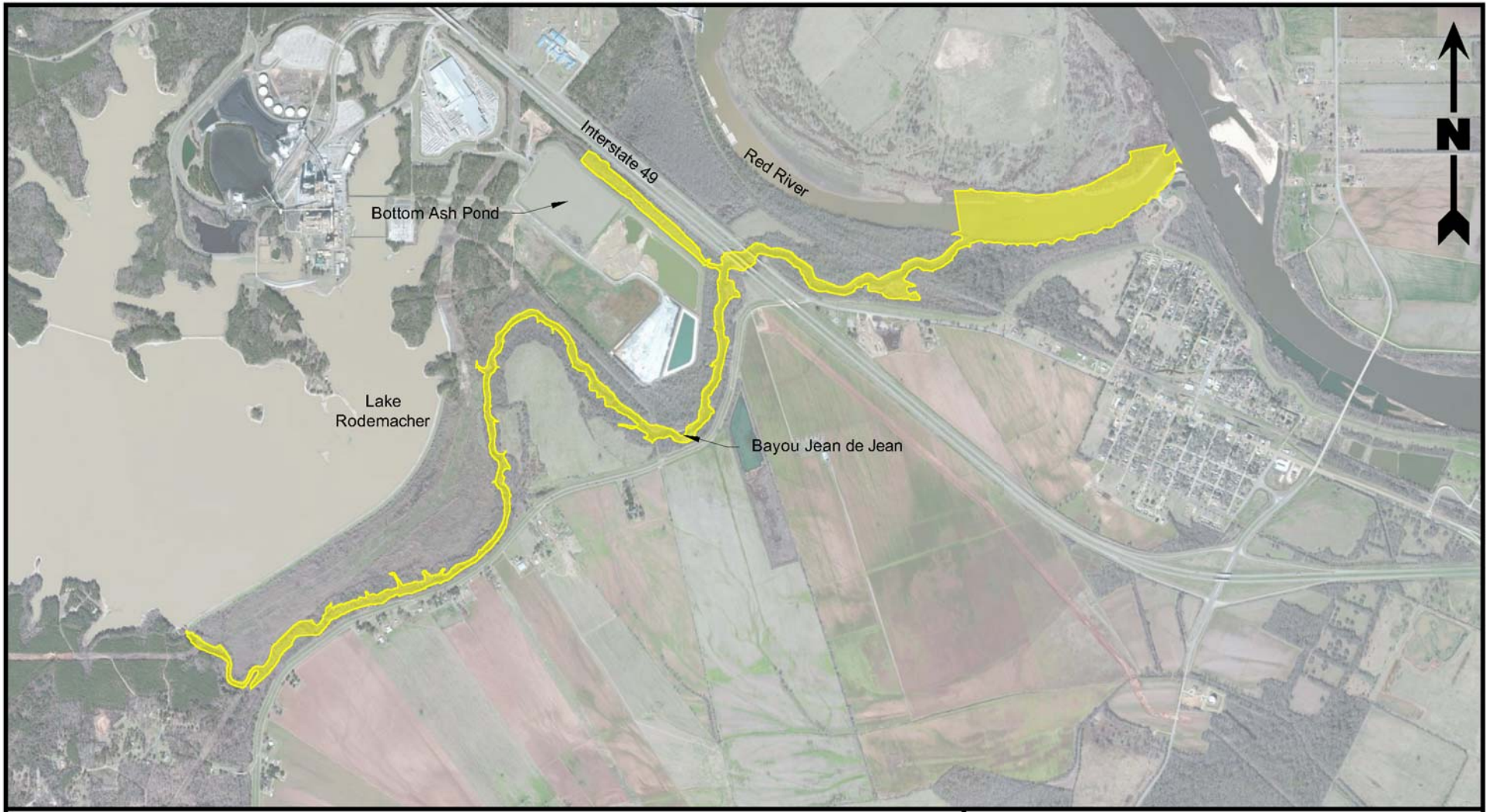
Project Number
002-208

Drawing Number
002-208-A002

3
Figure

FIGURE 4

BOTTOM ASH POND MAXIMUM LOSS



Legend

Maximum Loss (Avg. ELEV = 76.38')

Notes

1. This map assumes that the impoundment is at maximum levels which is not normal operation.

2. It should be noted that these models were generated based on a continuous outflow from the pond as this was determined to be the most conservative way to model a levee breach. Real-world scenarios should be less impactful as the flow rate will steadily decrease as the pond empties.

Reference

Base map comprised of Bing Maps aerial imagery from (c) 2017 Microsoft Corporation and its data suppliers.

2500 0 2500

Scale: 1" = 2500'

Bottom Ash Pond Maximum Loss

Emergency Action Plan
Lena, Rapides Parish, Louisiana

Cleco Power, LLC
Cleco Brame Energy Center

PROVIDENCE

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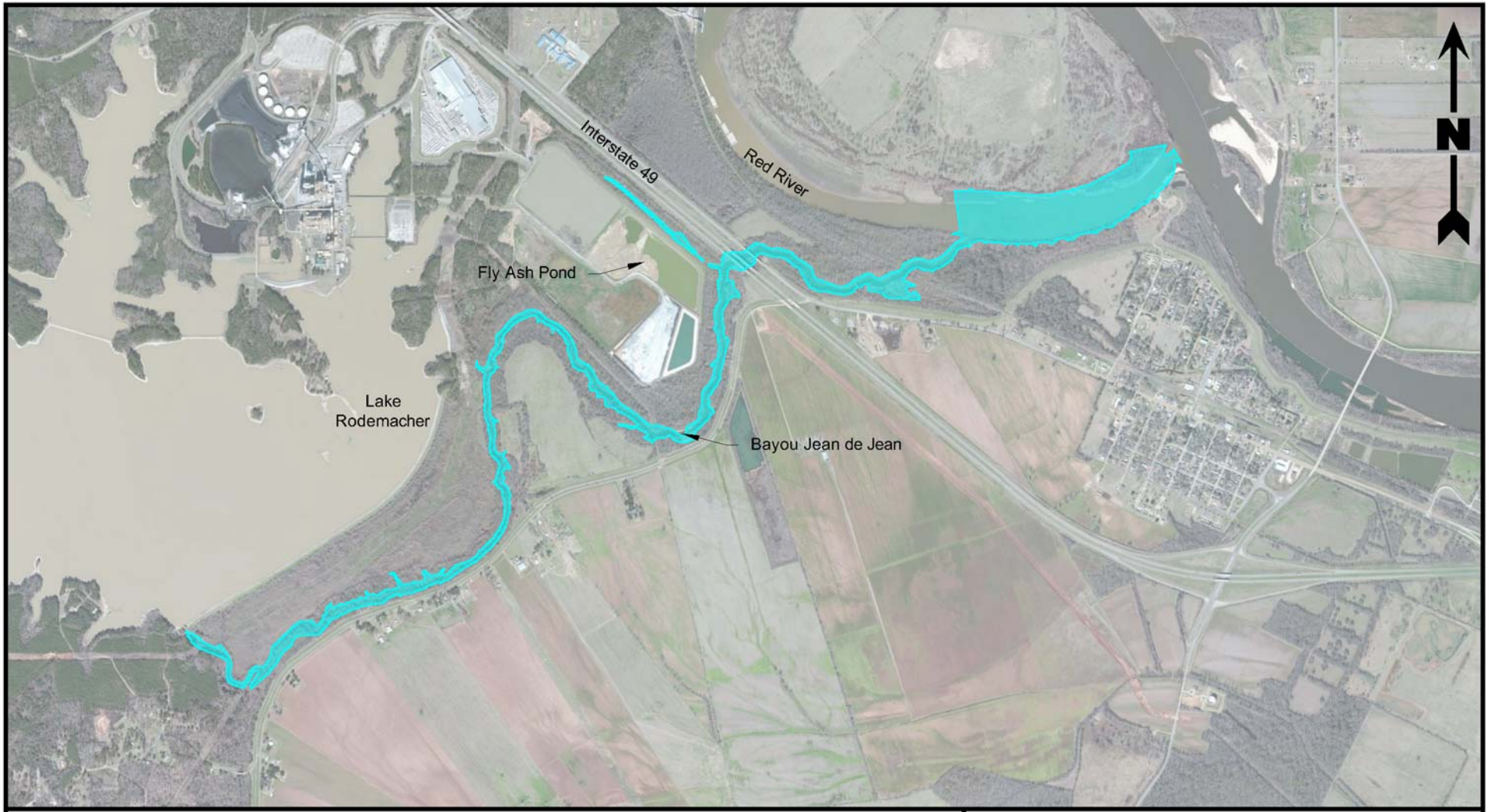
002-208

Drawing Number
002-208-A003

4
Figure

FIGURE 5

FLY ASH POND MOST PROBABLE LOSS



Legend

Most Probable Loss (Avg. ELEV. = 75.61')

Note

It should be noted that these models were generated based on a continuous outflow from the pond as this was determined to be the most conservative way to model a levee breach. Real-world scenaros should be less impactful as the flow rate will steadily decrease as the pond empties.

Reference

Base map comprised of Bing Maps aerial imagery from (c) 20 7 Microsoft Corporation and its data suppliers.

2500 0 2500

Scale: 1" = 2500'

Fly Ash Pond
Most Probable Loss

Emergency Action Plan
Lena, Rapides Parish, Louisiana

Cleco Power, LLC
Cleco Brame Energy Center

PROVIDENCE

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Checked By	LMM	03/23/17
Approved By	CVH	03/23/17

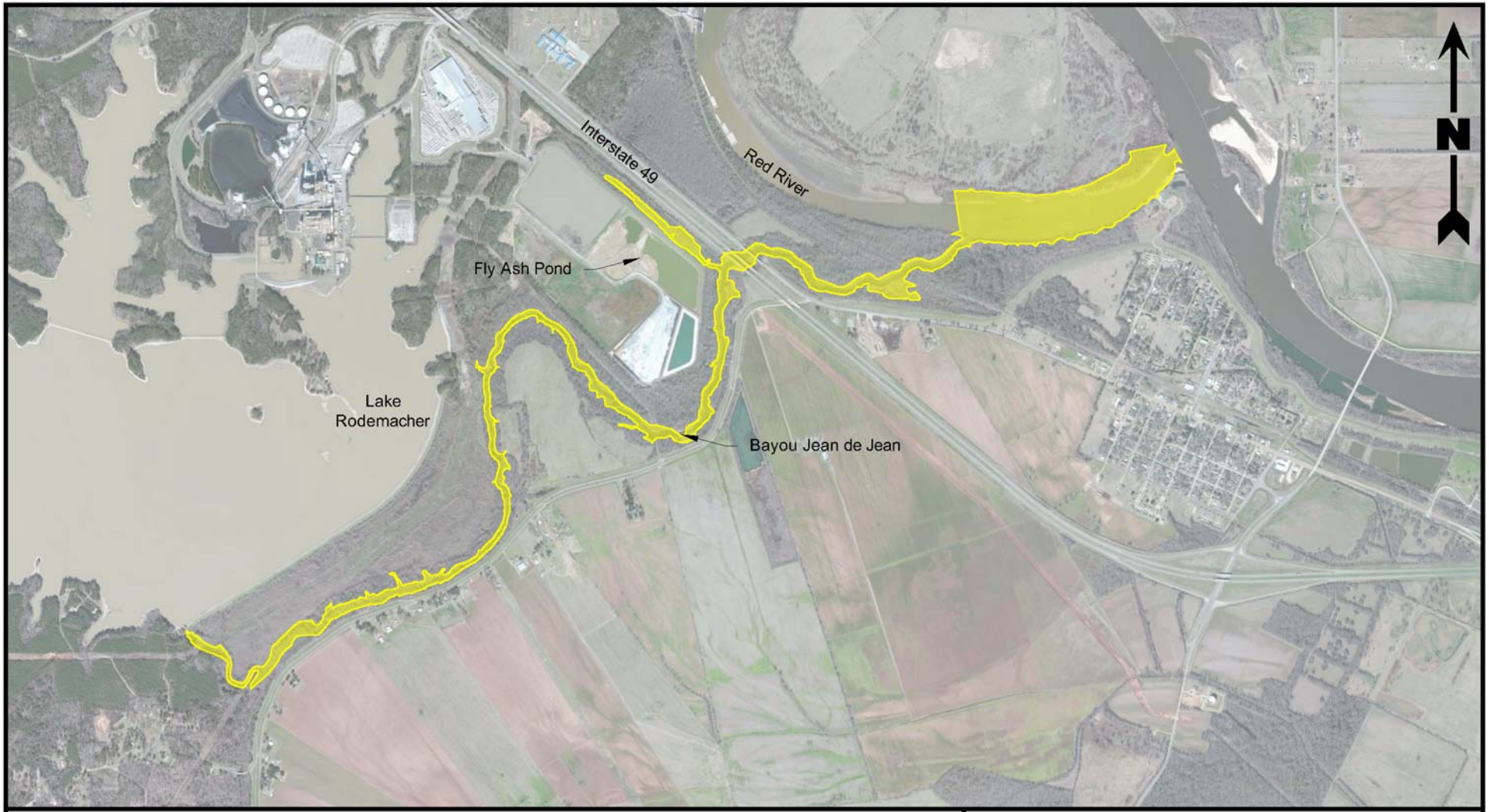
Project Number
002-208

Drawing Number
002-208-A004

5
Figure

FIGURE 6

FLY ASH POND MAXIMUM LOSS



Legend

Maximum Loss (Avg. ELEV. = 76.41')

Notes

1. This map assumes that the impoundment is at maximum levels which is not normal operation.

2. It should be noted that these models were generated based on a continuous outflow from the pond as this was determined to be the most conservative way to model a levee breach. Real-world scenarios should be less impactful as the flow rate will steadily decrease as the pond empties.

Reference

Base map comprised of Bing Maps aerial imagery from (c) 20 7 Microsoft Corporation and its data suppliers.

2500 0 2500

Scale: 1" = 2500'

Fly Ash Pond Maximum Loss

Emergency Action Plan
Lena, Rapides Parish, Louisiana

Cleco Power, LLC
Cleco Brame Energy Center

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002-208

Drawing Number
002-208-A005

6
Figure

APPENDIX A

NOTIFICATION LISTS

EXTERNAL NOTIFICATION LIST		
1	**LDEQ SINGLE POINT OF CONTACT (SPOC)**	**225.342.1234**
2	**USEPA Region 6** **1445 Ross Avenue (6SF-RO)** **Dallas, TX 75202-2733**	**214.665.6450**
3	**LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)**	**318.445.0391**
4	**LA STATE POLICE (Emergency Hotline)** **Troop E**	**225.925.6595 or 877.925.6595** **318.487.5911**
5	**Boyce Fire Department**	**318.793.2121**
6	**England Airpark Fire Department**	**318.448.5321 or 911**
7	**Rapides Parish Sheriff's Office** **(Boyce Substation)**	**318.793.8157 or 911**
8	**Boyce Police Department**	**318.793.2477 or 911**
9	**Off-Site Contractors** **Oil Mop, Inc** **Petron Environmental & Safety**	**800.645.6671** **318.445.1456**

INTERNAL NOTIFICATION LIST					
	CONTACT	**TITLE**	**PHONE NUMBERS**		
	ORDER		**Office**	**Home**	**Mobile**
	Facility Personnel				
1	Steve Lachney	Coordinator **(ERC)**	318.793.1152		318.613.8162
2	Jacob Hudson	Env. Oper. Specialist	318.793.1194	318.446.4223	318.308.1681
3	George Broussard	Plant Manager **(Alt. ERC)**	318.793.1265		337.466.6558
4	Steve Holmes	Asst Plt Mgr/Oper. Mgr RPS2	318.793.1204		318.308.2126
5	David J DeBona	Mgr-Pwr Plt Oper. RPS3	318.793.1223		318.308.0850
6	Nicole Casida	Mgr-Plant Maint. **(Alt. ERC)**	318.793.1157		318.880.5745
7	Josh Guillory	Spvr. Field Maintenance	318.793.1128		318.229.5010
8	Jake Ivey	Spvr. Field Maintenance	318.793.1196		318.308.9597
9	Greg Russell	Shift Team Leader	318.793.1146		318.447.1012
10	Myron Dubios	Shift Team Leader	318.793.1183		318.613.1701
11	Barry Hilton	Shift Team Leader	318.793.1146	318.473.9657	
12	James Swartz	Spvr. Fuel Handling	318.793.1136		318.308.7965
13	Timmy Tatom	Spvr. Fuel Handling	318.793.1115		318.452.5706
14	Jason Dauzart	Power Plant Chemist	318.793.1112		318.729.9071
15	Randy Goodwin	Spvr-Field Maintenance	318.793.1212		318.308.3642
16	Jerad Broussard	Spvr-Shift Operations	318.793.1183		318.290.9390
17	Lynn Morgan	Power Plant Chemist	318.793.1185		318.290.9442
Corporate Environmental – Pineville General Office					
1	Maile Sharff	Gen. Mgr- Env &Safety	318.484.7757		318.321.7521
2	Brent Croom	Mgr. Waste & Water Quality	318.484.7742		318.308.9228
3	Michael Martin	Sr. Env. Specialist	318.484.7461	318.641.0251	318.308.1201
4	Michael Millicks	Env. Specialist (Air)	318.484.7616		318.308.1200
5	Robert Knott	Mgr Air Quality	318.484.7664		318.308.5107
6	Sam Wise	Env. Oper. Specialist	318.484.7739		318.229.5928
Corporate Communications – Pineville General Office					
1	Jennifer Cahill	Communications Representative	318.484.7411		318.308.5175

APPENDIX B

PLAN REVIEW

BRAME ENERGY CENTER
EMERGENCY ACTION PLAN

PLAN REVIEW AND AMENDMENT LOG

This document must be reviewed every 5 years, at a minimum.

Review Date	Date of Amendment	Description of Amendment

APPENDIX C

P.E. CERTIFICATION

CLECO BRAME ENERGY CENTER
BOTTOM ASH POND AND FLY ASH POND
EMERGENCY ACTION PLAN

PROFESSIONAL ENGINEER CERTIFICATION

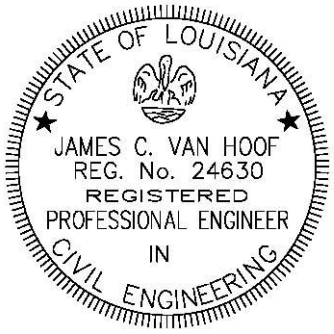
I hereby certify that this Emergency Action Plan for Cleco's Brame Energy Center Bottom Ash Pond and Fly Ash Pond meets the CCR requirements of 40 CFR 257.73(a)(3).

James C. Van Hoof
Name

24630 **LA**
Registration No. State

James C. Van Hoof, P.E.
Signature

(As amended) 5/3/2017
Date



(Seal)