Comments on Rodemacher

EPA:

Page 2-7: should read “HDPE” not “HPDE” assuming this is High Density Polyethylene liner

State: None

Company: See letter dated November 15, 2010

Cleco Corporation
2030 Donahue Ferry Rd
P. O. Box 5000
Pineville, LA 71361-5000

November 15, 2010

Mr. Stephen Hoffman
US Environmental Protection Agency (5304P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Comments to the August 4, 2010 CDM Draft Assessment Report Titled: "Assessment of Dam Safety of Coal Combustion Surface Impoundments" Rodemacher Power Station

Dear Mr. Hoffman:

Our comments to this draft report are attached. We are not asserting a business confidentiality claim for the final report. For your records, during the review by CDM in June 2010 the facility was named Rodemacher Power Station. However, this facility name was recently changed to the Brame Energy Center.

If you have any questions or need additional information, please contact me at (318) 484-7742.

Sincerely,

Brent Croom
Manager Waste & Water

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November 15, 2010

Mr. Brent Croom
Cleco Corporation
PO Box 5000
Pineville, LA 71361-5000

Re: Subject

Dear Mr. Croom:

Freese and Nichols, Inc. (FNI) was retained by Cleco Power, LLC (Cleco) in October 2010 to perform a third party assessment of the CCW impoundments at the W. Donner Rodemacher Power Station in Lena, Louisiana and to provide technical responses to the final draft of the Dam Safety Assessment report prepared by CDM for the U.S. Environmental Protection Agency (EPA). A site visit was conducted on October 18 and 19, 2010, by Travis N. Attanasio, P.E., CFM, and Russell G. Springer, P.E. to the W. Donner Rodemacher Power Station. The format of this letter includes FNI's responses and comments to the findings and recommendations provided in the EPA report. Italicized parts are direct quotes from CDM's report.

Section 1.2 State Regulation

The Public Works & Water Resources Division of the Louisiana Department of Transportation and Development (LADOTD) is responsible for the State's dam safety program. It is our understanding that, to date, LADOTD has not been actively involved in the regulation of CCW Impoundments.

The CCW Impoundments at the W. Donner Rodemacher Power Station are permitted and regulated by the Louisiana Department of Environmental Quality (LDEQ). It is correct that the LADOTD has not been involved in the regulation of the ponds. The ponds are classified by the LDEQ as Type I Surface Impoundments. LDEQ regulations pertaining to the CCW Impoundments are included in Louisiana Administrative Code Title 33, Part VII, Subpart 1 Solid Waste Regulations. Louisiana Revised Statue 38:25 states "Where the impoundment of liquid substances or hazardous wastes and materials by dikes, dams, or barriers is permitted or regulated under the Department of Natural Resources, that office shall adopt rules and regulations for the construction, operation and maintenance of said facilities in accordance with the requirements, rules and regulations promulgated under this Chapter and such impoundments are exempted from the provisions of this Chapter. " This statute was effective in July 1981, prior to the creation of LDEQ.

Section 1.2.1 Permits

The Power Station was issued a permit authorizing discharge under the National Pollutant Discharge Elimination System (NPDES) into Rodemacher Lake in accordance with effluent limitations, monitoring requirements, and other conditions set forth in the permit.

Water discharges at the Power Station are permitted under the Louisiana Pollutant Discharge Elimination System (LPDES) permit issued by LDEQ.

Section 1.4.1 CCW Impoundment Construction and Historical Information

Based on information provided by Cleco, the Bottom Ash and Fly Ash impoundments are used for separating bottom ash and fly ash from the water used to extract the materials from the Power Station.

The Bottom Ash Pond is the only impoundment that receives influent from a wet sluice process. The Fly Ash material is delivered dry to the Fly Ash Pond and is delivered partially wetted to the Ash Landfill.

The Fly Ash Pond, also commissioned in 1982, was originally constructed as a larger pond than currently exists with a total area of approximately 109 acres, as shown on Figure 5. Additional embankments have been constructed to create the current Fly Ash Pond and Leachate Pond, but no information regarding the construction of these embankments was provided.

The referenced figure shows the initial planned configuration for the Fly Ash Pond; however, the Fly Ash Pond was never constructed as a larger pond as stated in the report. The Fly Ash Pond embankments were constructed to their existing configuration, and the proposed Fly Ash Pond embankments shown in the figure were constructed as an outer levee system for protection of the power plant and surrounding areas from floodwaters in the nearby Jean de Jean Bayou. In October 1981, Cleco applied to the Louisiana Department of Natural Resources, LDEQ's predecessor, for operating the waste disposal impoundments. As part of the permit application, design information was provided for those sections of the Fly Ash Pond and Leachate Pond consisting of the outer levee. Furthermore, the aforementioned permit application includes documentation that outer levee embankments were designed by a registered Professional Engineer in the state of Louisiana.

Section 1.4.2 Current CCW Impoundment Configuration

The impoundments at the W. Donner Rodemacher Power Station currently are used as settling ponds for CCW waste. CCW sluiced into the impoundments include:

- *Bottom ash;*
- *Fly ash;*
- *Leachate from coal ash landfill.*

The Bottom Ash Pond is the only impoundment that receives influent from a wet sluice process. The Fly Ash material is delivered dry to the Fly Ash Pond and is delivered partially wetted to the Ash Landfill.

A pump and associated piping are located on the south embankment of the Bottom Ash Pond to allow pumping of water into water trucks to be used for dust control.

It should be noted that the water pumped from the Bottom Ash Pond into water trucks is used for dust control in the Fly Ash Landfill only and is not used in other areas of the Power Station.

Water from the Leachate Pond is sent back to the plant for use in the hydration processes, used on-site for dust control, or discharged into Rodemacher Lake in accordance with the NPDES permit.

Water discharges at the Power Station are permitted under the Louisiana Pollutant Discharge Elimination System (LPDES) permit issued by LDEQ.

Section 2.2.1 Exterior Slope

The east embankment exterior slope was covered with ash product and could not be observed (Photographs 3, 9, 10 and 73).

It should be noted that the east embankment exterior slope is shared with the Fly Ash Pond, thus the reason the exterior slope is covered in ash. Additionally, the ash product contributes to increasing the effective width of the embankment crest and provides some buttressing effect to the exterior slope.

Section 2.2.3 Interior Slope

Areas of the concrete armoring were observed to be undercut and cracked longitudinally, apparently due to wave action (Photographs 6, 7, and 52). A section, approximately 50 feet long, of the west embankment interior slope was observed where armoring had been undermined and was displaced into the pond (Photograph 52).

See response in **Section 4.4 Erosion Protection and Repair**.

Section 2.3.1 Interior Slope

An area of possible seepage was observed near the toe of the north embankment exterior slope. The area was poorly vegetated, and the soil surface was spongy and wet (Photograph 89).

See response in **Section 4.6 Seepage**.

Section 2.5 Monitoring Instrumentation

Based on the documents reviewed by CDM, there are a total of four monitoring wells in the vicinity of the CCW impoundments.

It should be noted that there are 11 monitoring wells around the outer levee, and of the 11 monitoring wells, there are 4 within the vicinity of the CCW Impoundments.

Section 3.2 Hydrologic and Hydraulic Design

CDM refers to three separate Guidelines in their description, stating that the ponds meet LDEQ requirements, that LADOTD does not have hydrologic and hydraulic criteria, and that the ponds would meet Federal guidelines if the Bottom Ash pond were designated as a significant hazard structure, while the other two would meet high hazard criteria. Until EPA develops new guidelines or requirements, federal guidelines for dam safety do not apply. Dam safety requirements would be determined on a state level. LDEQ's criteria are mentioned. LADOTD does have hydrologic criteria and they are the 100-year flood for significant hazard dams and 1/2 the Probable Maximum Flood (PMF) for high hazard dams. According to CDM, all three ponds meet these criteria, so regardless of which state agency's criteria are used, the dams appear to be adequate.

In addition, CDM's distinction between the Probable Maximum Precipitation (PMP) and the PMF is not pertinent. Since the PMF is simply the runoff from a PMP rainfall event, they would represent the same event. Only the LADOTD criterion for high hazard dams refers to the PMF. In addition, the reference to Technical Paper #40 is outdated. The 6-hr PMP should be determined using the U.S. Army Corps of Engineers *Hydrometeorological Report No. 51, Probable Maximum Precipiatation Estimates, United States East of the 105th Meridian* (HMR51) and is about 31.7 inches at the project site. The PMP value of 31.5 inches from Technical Paper No. 40 and provided by CDM in their assessment is similar to the HMR51 value.

Section 3.3 Structural Adequacy and Stability

The safety factors listed in Table 3 are the current LADOTD requirements and are consistent with dam safety industry standards. LDEQ does not have an equivalent standard.

Section 3.3.1 Ash Pond Impoundments

As part of the October 1981 permit application for operating the waste disposal impoundments, the Bottom Ash Pond, the Fly Ash Pond, and the outer levee of landfill Leachate Collection Pond were certified, by a registered Professional Engineer in the state of Louisiana, as meeting the applicable requirements of the Louisiana Solid Waste Rules and Regulations.

Section 3.5 Operations and Maintenance

Groundwater levels are recorded in the monitoring wells and analytical samples are obtained semi-annually to evaluate the quality of the seepage water to determine if the groundwater quality is within limits of the NPDES permit.

Groundwater samples are obtained semi-annually and analyzed to evaluate the quality of the groundwater. CDM's use of the term "seepage water" indicates that the analytical sample constituents are primarily seepage fluids from the impoundments. This terminology is incorrect. "Seepage water" is not inclusive of the "groundwater" that exists independent of the impoundments. Therefore, we request that the reference to "seepage water" be replaced with "groundwater".

Section 4.1 Hazard Classification

Environmental impact is only a factor in hazard classification based on EPA guidelines, but not for any state guidelines. A determination of hazard classification relates to EPA's technical benchmark criteria; however, hazard classification is not used for any design criteria by LDEQ. Lake Rodemacher is owned by Cleco and is part of the Power Station property.

Section 4.2 Acknowledgement of CCW Impoundment Unit Condition

CDM stated that the dams are in fair condition visually, but then provided an assessment of the impoundments and subsequent conclusion that the impoundments are in "POOR" condition primarily based on the criteria set forth by LADOTD guidelines, including stability, hydrologic, hydraulic, and seismic design criteria. The dams have been demonstrated to meet hydrologic and hydraulic criteria for both LDEQ and LADOTD, and no significant seismic risk exists in this part of Louisiana. Louisiana Administrative Code Title 33, Part VII, Section 713.B.2 states that perimeter levees shall be engineered to minimize wind and water erosion and shall have a grass cover or other protective cover to preserve structural integrity and shall provide adequate protection against a 100-year flood. As part of the October 1981 permit application for operating the waste disposal impoundments, the Bottom Ash Pond, the Fly Ash Pond, and the outer levee of the landfill Leachate Collection Pond were certified, by a registered Professional Engineer in the state of Louisiana, as meeting the applicable requirements of the Louisiana Solid Waste Rules and Regulations.

Section 4.4 Erosion Protection and Repair

The erosion rills on the slopes of the Bottom Ash and Fly Ash ponds are maintenance issues which will require remediation and periodic monitoring.

The concrete armoring observed around the Bottom Ash Pond was cracked in some areas. The armor does not extend completely around the pond, stopping at the southeast corner to accommodate dredging operations for removal of the bottom ash. In several areas around the pond, the concrete armor does not extend above the water line and typically does not extend more than a foot above.

Some small areas of possible wave erosion were observed at the toe of the west and south embankments. No significant erosion due to wave action was observed on the interior slope of the Bottom Ash Pond. Repair or replacement of the existing armor and additional slope protection may need to be performed as one option of wave erosion protection for the Bottom Ash Pond; however, due to the minimal erosion observed, the global integrity of the slope is not currently being impacted by wave erosion.

No visible signs of slope erosion due to wave action were observed on the interior slope of the Fly Ash Pond. The relatively small surface area and low water level of the Fly Ash Pond would indicate that current vegetation is sufficient protection against wave action.

The surface cracks observed on the Bottom Ash and Fly Ash embankments appear to be tension cracks typical to southern climates prone to extreme periods of precipitation and drought. The typical observed depth of the cracking ranged from about 6 to 15 inches. Surface cracking is typical for moderate to high plastic silt and clay soils and can abet the process of soil desiccation by exposing the subsurface soils to cyclic wetting and drying reducing the shear strength of desiccated soils and ultimately resulting in a shallow surface slide.

There were no visible signs of past surface slides or slope movement, and the surface cracking does not indicate potential slope movement will occur. Repair of the surface cracks is a maintenance issue which will require periodic monitoring and occasional remediation. Excavation and recompaction of the cracking is not necessary. However, if a shallow surface slide were to occur, prompt remediation of the slide would be necessary and would involve replacing and compacting the displaced soils.

Section 4.6 Seepage

The CDM report indicated seepage observed at the northeast corner of the Fly Ash Pond and along the north edge of the Bottom Ash Pond. At the time of this investigation, FNI personnel did not observe any seepage at the Fly Ash Pond location. FNI used the GPS coordinates provided by CDM to attempt to locate the seepage area. FNI personnel searched the area within the vicinity of CDM's coordinates and located a possible depression associated with the seepage as described by CDM. No seepage or wet, spongy soils were observed within the vicinity of the depression.

The possible seepage located on the north side of the Bottom Ash Pond consisted of an approximately 300-foot long area of ponded water located near the exterior toe as described by CDM. Removal of the water and vegetation from the toe area will be required to accommodate sufficient future monitoring of the toe area. Removal of the water may potentially impact existing designated wetlands and may require environmental approval.

Groundwater monitoring wells are located in the vicinity of the impoundments. The plant measures and records water levels observed in the wells. These semi-annual water level readings in the monitoring wells could provide some indication of the phreatic surface at the well locations.

Section 4.8 Instrumentation

Groundwater monitoring wells are located in the vicinity of the impoundments. The plant measures and records water levels observed in the wells. These semi-annual water level readings in the monitoring wells could provide some indication of the phreatic surface at the well locations.

The water levels in the impoundments are maintained at relatively static levels through automated pumping in the Fly Ash and Leachate Ponds and the overflow outlet of the Bottom Ash Pond. Additionally, water levels in the impoundments are monitored by the plant after significant rain events.

Section 4.9 Impoundment Hydraulic and Stability Analysis

The dams have been demonstrated to meet hydrologic and hydraulic criteria for LDEQ. Louisiana Administrative Code Title 33, Part VII, Section 713.B.2 states that perimeter levees shall be engineered to minimize wind and water erosion and shall have a grass cover or other protective cover to preserve structural integrity and shall provide adequate protection against a 100-year flood. As part of the October 1981 permit application for operating the waste disposal impoundments, the Bottom Ash Pond, Fly Ash Pond, and outer levee of the landfill Leachate Collection Pond were certified, by a registered Professional Engineer in the state of Louisiana, as meeting the applicable requirements of the Louisiana Solid Waste Rules and Regulations.

Section 4.11 Emergency Preparedness Plan

The LDEQ, Title 33, Part VII rules for surface impoundments do not require an Emergency Preparedness Plan. The Power Station currently implements a facility response plan that provides procedures to be followed in the event of the loss of impoundment waters.

Sincerely,

Freese and Nichols, Inc.

John L. Rutledge, P.E.
Principal