LAKELAND ELECTRIC

Farzie Shelton, chE; REM

Manager of Environmental Affairs

January 18, 2006

Florida Department of Environmental Protection
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Fl 32399-2400

Attention: Ms. Trina Vielhauer, Chief

RE: C.D. McIntosh, Jr. Power Plant
Title V Permit # 1050004-016-AV; PSD-FL-008
Conditions of Certification PA 81-13
Notice Forced Oxidation – Exemption from Chapter 62-210 F.A.C.

Dear Trina:

Lakeland Electric is planning a Forced Oxidation Conversion of the Unit No. 3 Flue Gas Desulfurization (FGD) System to produce commercial grade gypsum. The planned FGD System process changes will support the conversion of the existing B&W FGD System to a forced oxidation system that will produce commercial grade gypsum suitable for use by the cement industry with no change in air emissions from this unit (please see attached a P.E. Certified letter from Mr. Ken Kosky of Golder Associates). The process changes will include the addition of an oxidation air system, changes to the density of slurries to be pumped, and modifications to the dewatering equipment. Lakeland is presently marketing, for beneficial use, its combustion by-product generated from the combustion of fossil fuels at the above referenced facility. In furtherance of that strategy, Lakeland will be able to market the gypsum produced from the forced oxidation of Unit No. 3 FGD.

In order to eliminate unnecessary down time of Unit No. 3, Lakeland is planning to make the necessary changes for the forced oxidation in Unit No. 3 planned outage beginning March 15, 2006. Therefore, we would much appreciate if we could get, in a timely manner, a letter from you acknowledging your concurrence with our exemption determination in reference to the Rule 62-210 F.A.C.

Sincerely,

Farzie Shelton

Enclosures

cc: H. Oven, FDEP

City of Lakeland • Department of Electric Utilities

501 East Lemon Street • Lakeland, Fl 33801-5050 • 863. 834.6603 • Fax 863. 834.8187 •Message System 834.6590

farzie.shelton@lakelandelectric.com

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603

January 15, 2006

0537632-0100

Lakeland Electric
501 E. Lemon Street
Lakeland, Florida 33801-5079

Attention: Ms. Farzie Shelton, Manager of Environmental Affairs

RE: C. D. McIntosh, Jr. Power Plant, Unit 3, Facility I.D. #1050004
Final Title V Permit 1050004-016-AV
Forced Oxidation Conversion Project

Dear Farzie:

This Professional Engineer's Certification provides a description, estimated effects on emissions, and regulatory evaluation for the forced oxidation conversion project for the McIntosh Unit 3 flue gas desulfurization (FGD) system.

Description of Forced Oxidation Conversion Project: McIntosh Unit 3 is a pulverized coal-fired unit with an FGD system to control emissions of sulfur dioxide (SO_2). The current FGD system results in the reaction of SO with calcium (Ca) in the FGD reagent to from primarily calcium sulfite ($CaSO_3$), as well as calcium sulfate ($CaSO_4$) or gypsum. The reaction in the FGD absorber to form gypsum is depended upon the amount of available oxygen in the flue gas. The forced oxidation conversion project involves the introduction of additional oxygen using ambient air in the FGD absorbers to force the conversion of $CaSO_3$ to $CaSO_4$, therefore completing the reaction to form commercial grade gypsum. The current FGD byproduct is not available for use since it consists primarily of $CaSO_3$ and is stabilized with fly ash and lime to form a pozzolanic material that is stored in the byproduct storage facility. The amount of air introduced into FGD absorbers is regulated to generally match the amount of oxygen required for the reaction. There is a possibility that not all the oxygen in the ambient air introduced in the FGD absorbers is reacted. This results in additional oxygen in the flue gas.

The forced oxidation conversion project involves the following enhancements to the FGD systems.

- FGD Absorbers – the existing FGD absorbers will be used and enhanced with the installation of a Forced Oxidation Air System that will introduce ambient air. This includes air sparging lances that work in conjunction with the absorber agitators. The introduction of air requires compressors/blowers and air spargers, and is the primary equipment required for the project.
- FGD Recycle Pumps – no change
- FGD Absorber Agitators – will be replaced to improve reaction
- FGD Absorber Bleed System – Centrifugal pumps will be added to provide pressure necessary for using the existing hydroclones for dewatering the gypsum.
- FGD Hydroclones and Thickener – The main dewatering method will using the existing hydroclones followed by the existing thickener.
- FGD Surge Tank – the existing surge tank will be reinforced to accommodate a higher percentage of solids.
- Rotary Vacuum Filters – the existing vacuum filters will be used.
- FGD Byproduct Handling Systems – no change.

The enhancements will allow the use of the FGD byproduct as commercial grade gypsum. Similar enhancements have been made in several FGD systems at other coal-fired generating facilities in Florida that are of similar technology as McIntosh Unit 3. This includes Tampa Electric Big Bend Station, St. Johns River Power Park and Seminole Generating Station.

Effects on Emissions: The forced oxidation conversion will not result in any changes in the emission rates for McIntosh Unit 3. The gypsum byproduct will be slightly drier than the existing byproducts, but still contain sufficient moisture (15 percent) that minimizes fugitive emissions from material handling. Experience at existing facilities demonstrated that fugitive emissions are minimal. The potential increase in oxygen concentrations may artificially increase the lb/MMBtu emissions rates as calculated in the continuous emission monitoring systems (CEMS) if the oxygen F-factor method in 40 CFR Part 60, Method 19 is used. However, this change will be small and the City of Lakeland will continue to utilize the CEMs for compliance. The result will be slightly lower actual emissions necessary to meet compliance. The use of forced oxidation on existing FGD systems have not resulted in non-compliance situations at existing facilities.

Regulatory Evaluation: Under the Rules of the Department of Environmental Protection (FDEP) as defined in Chapter 62-210 a modification is a physical or operation change that increases emissions. The increase in emission are based on increases in annual emissions with the comparison of past actual and future actual appropriate for electric utility steam generating units like McIntosh Unit 3. There will be no increases in actual emissions as a result of the forced oxidation project and would not be defined as a modification under the FDEP rules. The project will however result in the beneficial use of the gypsum and fly ash, that is current stored on-site.

Please contact me if there are any questions related to the information contained in this evaluation.

Sincerely,

GOLDER ASSOCIATES INC.

Kennard F. Kosky, P.E.
Principal
Florida Professional Engineer License No. 14996

SEAL

KFK/

cc: Golder Associates, Inc. Document File

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LAKELAND ELECTRIC

Farzie Shelton, chE; REM

Manager of Environmental Affairs

January 18, 2006

Mr. Hamilton Oven, Administrator
Siting Coordination Office
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 3 2399-2400

Re: City of Lakeland
McIntosh Power Plant Unit No. 3 PA74-06
Amendment of Certification
Polk County, Florida

Dear Mr. Oven:

On December 7, 1978, the Governor and Cabinet, sitting as the Siting Board, issued a final order approving certification for the City of Lakeland (Lakeland) McIntosh Power Plant Unit Number 3. The site certification order approved the construction and operation of a 334 MW (net) coal fired unit and associated facilities in Polk County, Florida.

As per our previous discussion and communication, and pursuant to Sections 62-17.191, and 62-17.205, F.A.C., Lakeland hereby requests that the McIntosh Power Plant Unit No. 3 application be amended so as to allow the Forced Oxidation Conversion of the Unit No. 3 Flue Gas Desulfurization (FGD) System to produce commercial grade gypsum. The planned FGD System process changes will support the conversion of the existing B&W FGD System to a forced oxidation system that will produce commercial grade gypsum suitable for use by the cement industry with no change in air emissions from this unit. The process changes will include the addition of an oxidation air system, changes to the density of slurries to be pumped, and modifications to the dewatering equipment. Accordingly, Lakeland has notified the Department's Air Division of this forced oxidation project which will not increase actual emissions and therefore not be defined as a modification under Chapter 62-210 FAC., (please see attached copy of letter to Ms. Trina Vielhauer).

Lakeland's requested application changes are necessary in accordance with the Florida Statutes 403.702 "Resource Recovery and management", Lakeland is presently marketing, for beneficial use, its combustion by-product generated from the combustion of fossil fuels at the above referenced facility. In furtherance of that strategy, Lakeland will be able to market the gypsum produced from the forced oxidation of Unit No. 3 FGD.

City of Lakeland · Department of Electric Utilities

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In order to eliminate unnecessary down time of Unit No. 3, Lakeland is planning to make the necessary changes for the forced oxidation in Unit No. 3 planned outage beginning March 15, 2006. Therefore, we would much appreciate if we could get this application amendment in a timely manner to meet our planned outage.

As always, we appreciate your cooperation in this matter. If you should have any questions, please feel free to contact me.

Sincerely,

Farzie Shelton

Enclosure.

Cc: William Kutash P.E. – DEP Southwest District

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