

Friday, Barbara

9/5/07

To: timothy.bachand@lakelandelectric.com; farzie.shelton@lakelandelectric.com; Nasca, Mara; 'KKosky@Golder.com'; little.james@epa.gov; Halpin, Mike

Cc: Cascio, Tom; Harvey, Mary; Adams, Patty

Subject: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant

Attachments: FinalPermitSignaturePage.pdf; Appendix GC Phase 2 2007.pdf; Final AC Section 1 Phase 2 2007.pdf; Final AC Section 2 Phase 2 2007.pdf; Final AC Section 3 Phase 2 2007 Revised.pdf; Final Appendix BACT Phase 2 2007.pdf; Final Determination 2007 Revised.pdf; FinalNotice2007.pdf

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: <http://www.adobe.com/products/acrobat/readstep.html>.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

DEP, Bureau of Air Regulation

9/5/2007

Friday, Barbara

From: System Administrator
To: Nasca, Mara
Sent: Wednesday, September 05, 2007 2:21 PM
Subject: Delivered:FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant

Your message

To: 'timothy.bachand@lakelandelectric.com'; 'farzie.shelton@lakelandelectric.com'; Nasca, Mara; 'KKosky@Golder.com'; 'little.james@epa.gov'; Halpin, Mike
Cc: Cascio, Tom; Harvey, Mary; Adams, Patty
Subject: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant
Sent: 9/5/2007 2:20 PM

was delivered to the following recipient(s):

Nasca, Mara on 9/5/2007 2:21 PM

Friday, Barbara

From: System Administrator
To: Halpin, Mike
Sent: Wednesday, September 05, 2007 2:21 PM
Subject: Delivered:FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant

Your message

To: 'timothy.bachand@lakelandelectric.com'; 'farzie.shelton@lakelandelectric.com'; Nasca, Mara; 'KKosky@Golder.com'; 'little.james@epa.gov'; Halpin, Mike
Cc: Cascio, Tom; Harvey, Mary; Adams, Patty
Subject: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant
Sent: 9/5/2007 2:20 PM

was delivered to the following recipient(s):

Halpin, Mike on 9/5/2007 2:21 PM

Friday, Barbara

From: System Administrator
To: Cascio, Tom; Harvey, Mary; Adams, Patty
Sent: Wednesday, September 05, 2007 2:21 PM
Subject: Delivered:FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant

Your message

To: 'timothy.bachand@lakelandelectric.com'; 'farzie.shelton@lakelandelectric.com'; Nasca, Mara; 'KKosky@Golder.com'; 'little.james@epa.gov'; Halpin, Mike
Cc: Cascio, Tom; Harvey, Mary; Adams, Patty
Subject: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant
Sent: 9/5/2007 2:20 PM

was delivered to the following recipient(s):

Cascio, Tom on 9/5/2007 2:21 PM
Harvey, Mary on 9/5/2007 2:21 PM
Adams, Patty on 9/5/2007 2:21 PM

Friday, Barbara

From: Mail Delivery System [MAILER-DAEMON@sophos.golder.com]
Sent: Wednesday, September 05, 2007 2:19 PM
To: Friday, Barbara
Subject: Successful Mail Delivery Report

Attachments: Delivery report; Message Headers



Delivery report.txt
(455 B)



Message
Headers.txt (2 KB)

This is the mail system at host sophos.golder.com.

Your message was successfully delivered to the destination(s) listed below. If the message was delivered to mailbox you will receive no further notifications. Otherwise you may still receive notifications of mail delivery errors from other systems.

The mail system

<KKosky@Golder.com>: delivery via 127.0.0.1[127.0.0.1]:10025: 250 OK, sent
46DEF32C_4778_39_1

Friday, Barbara

From: Mail Delivery System [MAILER-DAEMON@mseive01.rtp.epa.gov]
Sent: Wednesday, September 05, 2007 2:20 PM
To: Friday, Barbara
Subject: Successful Mail Delivery Report

Attachments: Delivery report; Message Headers



Delivery report.txt
(468 B)

Message
Headers.txt (2 KB)

This is the mail system at host mseive01.rtp.epa.gov.

Your message was successfully delivered to the destination(s) listed below. If the message was delivered to mailbox you will receive no further notifications. Otherwise you may still receive notifications of mail delivery errors from other systems.

The mail system

<little.james@epa.gov>: delivery via 127.0.0.1[127.0.0.1]:10025: 250 OK, sent
46DEF33F_3537_29453_34

Friday, Barbara

From: Shelton, Farzie [Farzie.Shelton@lakelandelectric.com]
Sent: Wednesday, September 05, 2007 2:20 PM
To: Friday, Barbara
Subject: Out of Office AutoReply: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant

I will be on vacation from 8/30/07 untill 9/27/07. If this is urgent, please contact Mace Hunter at 863-834-6516

mace.hunter@lakelandelectric.com

Thanks

Farzie Shelton

Friday, Barbara

From: System Administrator
To: Bachand, Timothy; Shelton, Farzie
Sent: Wednesday, September 05, 2007 2:23 PM
Subject: Delivered:FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant

Your message

To: timothy.bachand@lakelandelectric.com; farzie.shelton@lakelandelectric.com; Nasca, Mara; KKosky@Golder.com; little.james@epa.gov; Halpin, Mike
Cc: Cascio, Tom; Harvey, Mary; Adams, Patty
Subject: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant
Sent: 9/5/2007 2:20 PM

was delivered to the following recipient(s):

Bachand, Timothy on 9/5/2007 2:20 PM
Shelton, Farzie on 9/5/2007 2:20 PM

Friday, Barbara

From: Bachand, Timothy [Timothy.Bachand@lakelandelectric.com]
To: Friday, Barbara
Sent: Wednesday, September 05, 2007 2:21 PM
Subject: Read: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant

Your message

To: Timothy.Bachand@lakelandelectric.com
Subject:

was read on 9/5/2007 2:21 PM.

Friday, Barbara

From: Bachand, Timothy [Timothy.Bachand@lakelandelectric.com]
Sent: Wednesday, September 05, 2007 2:23 PM
To: Friday, Barbara
Subject: RE: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant

Documents received.

Timothy L. Bachand, P.E.
Manger of Engineering - Production

From: Friday, Barbara [mailto:Barbara.Friday@dep.state.fl.us]
Sent: Wednesday, September 05, 2007 2:20 PM
To: Bachand, Timothy; Shelton, Farzie; Nasca, Mara; KKosky@Golder.com; little.james@epa.gov; Halpin, Mike
Cc: Cascio, Tom; Harvey, Mary; Adams, Patty
Subject: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant

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Thank you,

DEP, Bureau of Air Regulation

9/5/2007

Friday, Barbara

From: Halpin, Mike
To: Friday, Barbara
Sent: Wednesday, September 05, 2007 2:26 PM
Subject: Read: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant

Your message

To: 'timothy.bachand@lakelandelectric.com'; 'farzie.shelton@lakelandelectric.com'; Nasca, Mara; 'KKosky@Golder.com'; 'little.james@epa.gov'; Halpin, Mike
Cc: Cascio, Tom; Harvey, Mary; Adams, Patty
Subject: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant
Sent: 9/5/2007 2:20 PM

was read on 9/5/2007 2:23 PM.



Florida Department of Environmental Protection

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Nasca, Mara
Friday, Barbara

Wednesday, September 05, 2007 4:05 PM

Read: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power
Plant
Tallahassee, Florida 32399-2400

Secretary

Your message

To: 'timothy.bachand@lakelandelectric.com'; 'farzie.shelton@lakelandelectric.com'; Nasca, Mara; 'KKosky@Golder.com';
'little.james@epa.gov'; Halpin, Mike
Cc: Cascio, Tom; Harvey, Mary; Adams, Patty
Subject: FINAL AC Permit No.: 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant
Sent: 9/5/2007 2:20 PM

was read on 9/5/2007 4:05 PM.



Florida Department of Environmental Protection

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Forney, Kathleen@dep.state.fl.us
Wednesday, September 05, 2007 4:10 PM
Friday, Barbara
Bob Martinez Center
Fw: FINAL AC Permit No. 1050004-019-AC - Lakeland Electric - C. D. McIntosh, Jr. Power Plant
Tallahassee, Florida 32399-2400

Jim Fackler
Secretary

Attachments:

FinalPermitSignaturePage.pdf; Appendix GC Phase 2 2007.pdf; Final AC Section 1 Phase 2 2007.pdf; Final AC Section 2 Phase 2 2007.pdf; Final AC Section 3 Phase 2 2007 Revised.pdf; Final Appendix BACT Phase 2 2007.pdf; Final Determination 2007 Revised.pdf; FinalNotice2007.pdf



FinalPermitSignaturePage.pdf (105 KB) Appendix GC Phase 2 2007.pdf (105 KB) Final AC Section 1 Phase 2 2007.pdf (105 KB) Final AC Section 2 Phase 2 2007.pdf (105 KB) Final AC Section 3 Phase 2 2007 Revised.pdf (105 KB) Final Appendix BACT Phase 2 2007.pdf (105 KB) Final Determination 2007 Revised.pdf (105 KB)



FinalNotice2007.pdf
(843 KB)

Thanks
We got it...
Katy

Katy R. Forney
Air Permits Section
EPA - Region 4
61 Forsyth St., SW
Atlanta, GA 30024

Phone: 404-562-9130
Fax: 404-562-9019

----- Forwarded by Kathleen Forney/R4/USEPA/US on 09/05/2007 04:09 PM -----

James
Little/R4/USEPA/
US

09/05/2007 03:40
PM

To
Kathleen Forney/R4/USEPA/US@EPA
cc

Subject

Fw: FINAL AC Permit No.:
1050004-019-AC - Lakeland
Electric - C. D. McIntosh, Jr.
Power Plant

This looks like another one where you are not on the notification list.

Jim

----- Forwarded by James Little/R4/USEPA/US on 09/05/2007 03:40 PM -----

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF FINAL PERMIT

Electronically sent – Received Receipt requested.

In the Matter of an
Application for Permit by:

Lakeland Electric
501 East Lemon Street
Lakeland, Florida 33805

Authorized Representative:

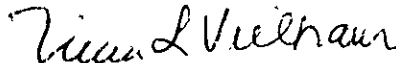
Mr. Timothy Bachand, Director, Energy Supply

DEP File No. 1050004-019-AC
C.D. McIntosh, Jr. Power Plant
Fossil Fuel Steam Generator Unit 3
Selective Catalytic Reduction System
Polk County, Florida
Expires: December 31, 2009

Enclosed is Final Air Construction Permit No. 1050004-019-AC that authorizes the installation of an ammonia injection system using the principle of selective catalytic reduction on the Unit 3 fossil fuel fired steam generator (EU 006) at Lakeland Electric's C.D. McIntosh, Jr. Power Plant. The facility is located at 3030 East Lake Parker Drive, Lakeland, Polk County, Florida. As noted in the attached Final Determination, minor changes were made to the Draft Permit. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty (30) days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.



Trina L. Vielhauer, Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Construction Permit, Final Determination, and all copies were sent electronically (with Received Receipt) before the close of business on 9/5/01 to the person(s) listed below.

Timothy Bachand, Lakeland Electric: timothy.bachand@lakelandelectric.com

Farzie Shelton, Lakeland Electric: farzie.shelton@lakelandelectric.com

Mara Nasca, Southwest District Office: mara.nasca@dep.state.fl.us

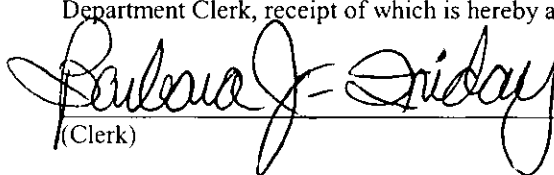
Kennard F. Kosky, P.E., Golder Associates, Inc.: kkosky@golder.com

Jim Little, EPA Region 4: little.james@epa.gov

Mike Halpin, Siting Coordination Office: mike.halpin@dep.state.fl.us

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

 Friday 9/5/01
(Clerk) (Date)

FINAL DETERMINATION

PERMITTEE

Lakeland Electric
501 East Lemon Street
Lakeland, Florida 33805

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation, Permitting South Section
2600 Blair Stone Road, MS 5505
Tallahassee, Florida 32399-2400

PROJECT

Air Permit No. 1050004-019-AC

C.D. McIntosh, Jr. Power Plant – Unit 3

This permit authorizes the installation of an ammonia injection system using the principle of selective catalytic reduction on Unit 3 fossil fuel fired steam generator (EU 006) at Lakeland Electric's C.D. McIntosh, Jr. Power Plant. The facility is located at 3030 East Lake Parker Drive, Lakeland, Polk County, Florida.

NOTICE AND PUBLICATION

The Department distributed an "Intent to Issue Permit" package on July 10, 2007. The applicant published the "Public Notice of Intent to Issue" in the Lakeland Ledger on July 20, 2007. A request for extension of time to petition for an administrative hearing was filed by the applicant. The request was withdrawn on August 20, 2007. The following minor changes/clarifications were made to specific conditions of the draft air construction permit at the request of the applicant in letters dated July 16, 2007, and August 15, 2007.

Double-underline denotes additions and ~~strikethrough~~ indicates deletions compared with the draft permit.

11. Annual Particulate Matter (PM/PM₁₀) and SAM Emissions Projections. For this project, the permittee projected that actual annual emissions increases due to the project will be less than 25/10 tons per year (TPY) of PM/PM₁₀ and will be less than 7 TPY of SAM. The baseline actual emissions for determining the increases are ~~443~~ 438 TPY of PM/PM₁₀ and ~~139~~ 136 TPY of SAM. The permittee shall demonstrate this by compiling and submitting the reports required by this permit. For the purposes of this reporting, all PM emissions are considered to be PM₁₀ emissions. [Application; Rules 62-212.300 and 62-210.370, F.A.C.]
13. Emission Limit Subject to Revision. Emissions of carbon monoxide (CO) from Unit 3 shall not exceed 0.20 pounds per million Btu heat input (lb/mmBtu) on a 30-day rolling average as described in air construction permit 1050004-018-AC. Based on results of compliance tests and analysis of 6 ~~12~~ months worth of continuous monitoring data, the Department will reassess the previously issued best available control technology (BACT) determination. The emission limit may be adjusted downward to make this limit more stringent provided that overall control attained for all air pollutants including CO, SO₂, NO_x, PM/PM₁₀, sulfuric acid mist, and VOC is optimized. Such revision shall be based on data that represents a full range of operating conditions and a representative period of time. Such revision, if required by the Department, shall be in the form of an ~~federally enforceable permit and shall be publicly noticed by the permittee~~ air construction permit following the Department's procedures in Rules 62-210.300 and 62-4.055, F.A.C. [Rules 62-4.070(3), and 62-212.400(7)(a), F.A.C.]

FINAL DETERMINATION

14. Future Actual Emissions Reporting. The permittee shall maintain and submit to the Department on an annual basis for a period of 5 years from the date the SCR systems are initially operated, information demonstrating in accordance with Rule 62-212.300(1)(e), F.A.C., using the emissions computation and reporting procedures in Rule 62-210.370, F.A.C., that the installation of LNB, OFA and SCR did not result in an emissions increase of PM or SAM would equal or exceed the respective significant emission rates as defined in Rule 62-210.300, F.A.C. ~~significant emission increases of PM and SAM.~~ ~~The permittee shall use the same calculation methodology of emissions as outlined in the application (see Tables 2 and 3).~~ The future emissions shall be compared with the baseline actual emissions for the period 2002-2001 for SAM and 2003-2002 for PM as reported in the annual operating reports (AOR) using EPA Method 5B for PM and Method 8A (controlled condensate) for SAM. [Rule 62-212.300(1)(e), F.A.C.]

15. Initial Performance Tests – Sorbent Injection for SAM Emissions Control. Within 90 days of completing construction of the SCR system, the permittee shall conduct a series of initial performance tests to determine the SAM emissions rate under a variety of operating scenarios that documents the impact of sorbent injection on reducing SAM emissions and results in the development of correlation/curves between injection rates, operating conditions and emissions.

At permitted capacity and with no SCR bypass, the permittee shall conduct stack tests to determine the uncontrolled sulfuric acid mist emission rate, the controlled sulfuric acid mist emission rate, and actual control efficiency of the installed sorbent injection system. Tests shall consist of three, 1-hour test runs and be conducted while firing the fuel blend with the highest sulfur content. During each test run, the permittee shall continuously monitor and record the sorbent injection rate and total secondary power input to the electrostatic precipitator. The purpose of these tests is to determine actual control efficiency of the installed systems and to establish a minimum sorbent injection rate, which will be used to calculate the actual annual emissions.

- a. For each set of operating conditions being evaluated, the permittee shall conduct at least a 1-hour test run to determine SAM emissions. At least nine such test runs shall be conducted to evaluate the effect on SAM emissions ~~on~~ from such parameters as the SO₂ emission rate prior to the SCR catalyst (and FGD system), the unit load, the flue gas flow rate, the sorbent injection rate and the current catalyst oxidation rate.
- b. Tests shall be conducted under a variety of fuel blends and load rates that are representative of the actual operating conditions. Sufficient tests shall be conducted to establish the SAM emissions rates for the following scenarios: bypass of the SCR reactor, SCR reactor in service without sorbent injection, and SCR reactor in service under varying operating conditions and levels of sorbent injection.
- c. At least 15 days prior to initiating the performance tests, the permittee shall submit a test notification, preliminary test schedule and test protocol to the Bureau of Air Regulation and the Compliance Authority.
- d. Within 45 days following the last test run conducted, the permittee shall provide a report summarizing the emissions tests and results. All SAM emissions test data shall be provided with this report.
- e. Within 45 days following the submittal of the emissions test report and no later than 90 days following the last test run conducted, the permittee shall submit a project report summarizing the following:
 - Identify each set of operating conditions evaluated, identify each operating parameter evaluated;

FINAL DETERMINATION

- Identify the relative influence of each operating parameter, describe how the automated control system will adjust the sorbent injection rate based on the selected parameters;
- Identify the frequency with which operational parameters will be reevaluated and adjusted within the automated control system;
- Provide the algorithm used for the automated control system or a series of related performance curves; and
- Provide details for calculating and estimating the SAM emissions rate based on the level of sorbent injection and operating conditions. The test results shall be used to adjust the sorbent injection control system and estimate SAM emissions.

[Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]

17. Initial Compliance Demonstration. Within 60 days of commencing operation, following installation of the SCR system, tests shall be conducted to determine emissions of CO and NO_x. ~~Tests shall be conducted between 90% and 100% of permitted capacity while firing a coal and petcoke blend or a blend of coal, petcoke and refuse derived fuel. Tests shall consist of three, 1-hour test runs after the initial performance tests required by Specific Condition 18., the permittee shall submit information to the Department demonstrating compliance with the 30-day rolling average emission limits for CO and NO_x.~~ [Rule 62-297.310(7)(a)1, F.A.C.]
18. Performance Tests. Within 60 days of commencing operation of the SCR/sorbent injection system and after completing the performance tests required by Specific Condition 15., the permittee shall have the following tests conducted for the unit.

At permitted capacity, the permittee shall conduct tests to determine the uncontrolled NO_x emissions rate, the controlled NO_x emission rate, and the actual control efficiency of the installed SCR system. Tests shall consist of three, 1-hour test runs. Alternatively, the permittee may provide representative CEMS data for this demonstration. During each test run, the permittee shall continuously monitor and record the ammonia injection rate.



~~At permitted capacity and with no SCR bypass, the permittee shall conduct stack tests to determine the uncontrolled sulfuric acid mist emission rate, the controlled sulfuric acid mist emission rate, and actual control efficiency of the installed ammonia injection system. Tests shall consist of three, 1-hour test runs and be conducted while firing the fuel blend with the highest sulfur content. During each test run, the permittee shall continuously monitor and record the ammonia injection rate and total secondary power input to the electrostatic precipitator. The purpose of these tests is to determine actual control efficiency of the installed systems and to establish a minimum sorbent injection rate, which will be used to calculate the actual annual emissions.~~

[Rule 62-297.310(7)(a)1, F.A.C.]

CONCLUSION

The final action of the Department is to issue the permit with the minor changes indicated above.

MEMORANDUM

To: Joseph Kahn
Through: Trina Vielhauer 
From: Tom Cascio and A. Linero 
Subject: C.D. McIntosh, Jr. Power Plant – Unit 3
Air Construction Permit No. 1050004-019-AC
Date: August 31, 2007

Attached is the final air construction permit for the subject facility. This permit authorizes the installation of an ammonia injection system using the principle of selective catalytic reduction on Unit 3 fossil fuel fired steam generator (EU 006) at Lakeland Electric's C.D. McIntosh, Jr. Power Plant.

The Department distributed an "Intent to Issue Permit" package on July 10, 2007. The applicant published the "Public Notice of Intent to Issue" in the Lakeland Ledger on July 20, 2007. A petition for extension of time to petition for an administrative hearing was filed by the applicant. The petition was withdrawn on August 20, 2007. Minor changes/clarifications were made to specific conditions of the draft air construction permit at the request of the applicant in letters dated July 16, 2007, and August 15, 2007.

We recommend your approval of the final permit.



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

PERMITTEE

Lakeland Electric
501 East Lemon Street
Lakeland, Florida 33805

Authorized Representative:

Mr. Timothy Bachand, Director, Energy Supply

Air Construction Permit No. 1050004-019-AC
C.D. McIntosh, Jr. Power Plant
Fossil Fuel Steam Generator Unit 3
Facility ID No. 1050004
SIC No. 4911
Selective Catalytic Reduction System
Permit Expires: December 31, 2009

PROJECT AND LOCATION

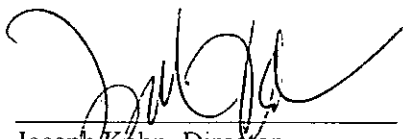
This permit authorizes the installation of an ammonia injection system using the principle of selective catalytic reduction on the Unit 3 fossil fuel fired steam generator (EU 006) at Lakeland Electric's C.D. McIntosh, Jr. Power Plant. The facility is located at 3030 East Lake Parker Drive, Lakeland, Polk County, Florida.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Parts 60 and 63 of the Code of Federal Regulations (CFR). The permittee is authorized to install the proposed equipment in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

CONTENTS

- Section 1. General Information
- Section 2. Administrative Requirements
- Section 3. Emissions Units Specific Conditions
- Section 4. Appendices


Joseph Kahn, Director
Division of Air Resource
Management

8/31/07
(Date)

JK/tlv/aal/tbc

SECTION 1. GENERAL INFORMATION

FACILITY AND PROJECT DESCRIPTION

Lakeland Electric operates the C.D. McIntosh, Jr. Power Plant, which is an electric services facility (SIC No. 4911). The plant currently consists of three fossil fuel fired steam generators, two diesel powered generators, and two gas turbines. There are storage and handling facilities for solid and liquid fuels, ash and limestone. A wastewater treatment facility is also located on site.

This permit authorizes the installation of an ammonia injection system using the principle of selective catalytic reduction (SCR) on Unit 3 as the second phase of a project to provide full flexibility in implementing the federal cap and trade program for nitrogen oxides (NO_x) under the Clean Air Interstate Rule (CAIR). Because CAIR affords a regulated facility the flexibility to evaluate market conditions to determine whether it will install controls, operate existing controls, or purchase allowances generated by other plants, the Department does not require the installation of this equipment nor its operation.

ID	Emission Unit Description
006	McIntosh Unit 3 - Fossil Fuel Fired Steam Generator

REGULATORY CLASSIFICATION

The facility is a potential major source of hazardous air pollutants (HAP).

The facility operates existing units subject to the Acid Rain provisions of Title IV of the Clean Air Act (CAA).

The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.

The facility is a major stationary source (Prevention of Significant Deterioration (PSD)-major source) in accordance with Rule 62-212.400, F.A.C.

The facility operates units subject to the Standards of Performance for New Stationary Sources pursuant to 40 CFR Part 60.

The facility does not operate electrical generating units subject to National Emissions Standards for Hazardous Air Pollutants pursuant to 40 CFR Part 63.

The facility is subject to the Federal Clean Air Interstate Rule (CAIR) in accordance with the Final Department Rules issued pursuant to CAIR as implemented by FDEP in Rule 62-296.470, F.A.C.

The facility is subject to the Federal Clean Air Mercury Rule (CAMR) implemented by the Department in Rule 62-296.480, F.A.C.

The facility operates units that were certified under the Florida Power Plant Siting Act, 403.501-518, F.S.

RELEVANT DOCUMENTS

The following relevant documents are not a part of this permit, but helped form the basis for this permitting action: the permit application and additional information received to make it complete; the draft permit package including the Department's Technical Evaluation and Preliminary Determination; publication and comments; and the Department's Final Determination.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: The Permitting Authority for this project is the Bureau of Air Regulation in the Division of Air Resource Management of the Department. The mailing address for the Bureau of Air Regulation is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Southwest District Office. The mailing address of the Southwest District Office is: 13051 N. Telecom Parkway, Temple Terrace, Florida 33637-0926. The phone number is (813) 632-7600.
3. Appendices: The following Appendices are attached as part of this permit: Appendix BD (Final BACT Determinations and Emissions Standards); Appendix GC (General Conditions).
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.
5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
6. Modifications: No emissions unit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
7. Title V Permit: This permit authorizes specific modifications and/or new construction on the affected emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the required work and commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Bureau of Air Regulation with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

SECTION 3. EMISSIONS UNITS SPECIFIC CONDITIONS

This section of the permit addresses the following emissions unit.

ID No.	Emissions Unit Description
006	McIntosh Unit 3 is a nominal 364 megawatt (electric) dry bottom wall-fired fossil fuel fired steam generator. The unit is fired on coal, residual oil, natural gas and co-fires refuse derived fuel (RDF) and petroleum coke. The maximum heat input rate is 3,640 million Btu per hour. Unit 3 is equipped with an electrostatic precipitator (ESP), a flue gas desulfurization (FGD) system, low nitrogen oxides (NO _x) burners (LNB) and an overfire air (OFA) system to control emissions.

APPLICABLE STANDARDS AND REGULATIONS

1. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]
2. The facility is subject to all of the requirements specified in Title V Air Operation Permit Renewal No. 1050004-016-AV.
3. The requirements of Air Construction Permit No. 1050004-018-AC, Low NO_x Burners and Overfire Air and the associated determination of best available control technology (BACT) for carbon monoxide (CO) continue to apply to this unit.

GENERAL OPERATION REQUIREMENTS

4. Unconfined Particulate Emissions. During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4), F.A.C.]
5. Plant Operation – Problems. If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the owner or operator shall notify the Department as soon as possible, but at least within (1) working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; the steps being taken to correct the problem and prevent future recurrence; and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit and the regulations. [Rule 62-4.130, F.A.C.]
6. Operating Procedures. Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.]
7. Circumvention. No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. Operation of the SCR is not required by this permit. [Rule 62-210.650, F.A.C.]

EQUIPMENT AND CONTROL TECHNOLOGY

8. Selective Catalytic Reduction (SCR) System. The permittee is authorized to construct, tune, operate and maintain a new SCR system for the facility's Unit No. 3 boiler to reduce emissions of nitrogen oxides as described in the application. In general, the SCR systems will include the following equipment: ammonia storage; ammonia flow control unit; ammonia injection grid; vanadium pentoxide catalyst; an SCR reactor chamber; an SCR bypass system; and other ancillary equipment. [Applicant Request; and Rule 62-296.470(CAIR), F.A.C.]

SECTION 3. EMISSIONS UNITS SPECIFIC CONDITIONS

9. Sorbent Injection System. Sorbent injection shall begin as soon as the SCR achieves the operating parameters specified by the manufacturer. The permittee shall construct, tune, operate and maintain a new sorbent injection system to mitigate the formation of sulfuric acid mist (SAM) due to the increased oxidation of sulfur dioxide (SO₂) to sulfur trioxide (SO₃) across the new SCR reactor. Sorbents will be injected downstream of the SCR reactor and upstream of the existing ESP. The control system regulating the amount of sorbent injected to control SAM will be integrated into the plant digital control system. The sorbent will react with SO₃ to form particles, which will be collected in the ESP. With the sorbent injection systems, there will be no PSD-significant emissions increases due to the installation of SCR system. The proposed equipment includes storage tanks, piping, injectors, a control system and other ancillary equipment. The sorbent injection system shall be operable when the SCR system is initially available for service. [Application and Rule 62-212.400(12), F.A.C.]
10. NO_x Continuous Emissions Monitoring System (CEMS). As necessary, the permittee is authorized to modify, calibrate, re-certify, and operate the existing NO_x CEMS to accurately measure the lower NO_x emission levels realized if the SCR system is in service. [Rule 62-4.070(3), F.A.C.]

PERFORMANCE REQUIREMENTS

11. Annual Particulate Matter (PM/PM₁₀) and SAM Emissions Projections. For this project, the permittee projected that actual annual emissions increases due to the project will be less than 25/10 tons per year (TPY) of PM/PM₁₀ and will be less than 7 TPY of SAM. The baseline actual emissions for determining the increases are 438 TPY of PM/PM₁₀ and 136 TPY of SAM. The permittee shall demonstrate this by compiling and submitting the reports required by this permit. For the purposes of this reporting, all PM emissions are considered to be PM₁₀ emissions. [Application; Rules 62-212.300 and 62-210.370, F.A.C.]

EMISSION LIMITS AND STANDARDS

12. Ammonia Emissions (slip). Ammonia slip measured at the stack downstream of all emissions control systems, shall not exceed 5 parts per million by volume (ppmv). Annual testing of ammonia slip shall be conducted and corrective measures taken if measured values exceed 2 ppmv. [Rule 62-4.070(3), F.A.C.]
13. Emission Limit Subject to Revision: Emissions of carbon monoxide (CO) from Unit 3 shall not exceed 0.20 pounds per million Btu heat input (lb/mmBtu) on a 30-day rolling average as described in air construction permit 1050004-018-AC. Based on results of compliance tests and analysis of 12 months worth of continuous monitoring data, the Department will reassess the previously issued best available control technology (BACT) determination. The emission limit may be adjusted downward to make this limit more stringent provided that overall control attained for all air pollutants including CO, SO₂, NO_x, PM/PM₁₀, sulfuric acid mist, and VOC is optimized. Such revision shall be based on data that represents a full range of operating conditions and a representative period of time. Such revision, if required by the Department, shall be in the form of an air construction permit following the Department's procedures in Rules 62-210.300 and 62-4.055, F.A.C. [Rules 62-4.070(3), and 62-212.400(7)(a), F.A.C.]
14. Future Actual Emissions Reporting. The permittee shall maintain and submit to the Department on an annual basis for a period of 5 years from the date the SCR systems are initially operated, information demonstrating in accordance with Rule 62-212.300(1)(e), F.A.C., using the emissions computation and reporting procedures in Rule 62-210.370, F.A.C., that the installation of LNB, OFA and SCR did not result in an emissions increase of PM or SAM would equal or exceed the respective significant emission rates as defined in Rule 62-210.300, F.A.C. The future emissions shall be compared with the baseline actual emissions for the period 2002-2001 for SAM and 2003-2002 for

SECTION 3. EMISSIONS UNITS SPECIFIC CONDITIONS

PM as reported in the annual operating reports (AOR) using EPA Method 5B for PM and Method 8A (controlled condensate) for SAM. [Rule 62-212.300(1)(e), F.A.C.]

EMISSIONS PERFORMANCE TESTING

15. Initial Performance Tests – Sorbent Injection for SAM Emissions Control. Within 90 days of completing construction of the SCR system, the permittee shall conduct a series of initial performance tests to determine the SAM emissions rate under a variety of operating scenarios that documents the impact of sorbent injection on reducing SAM emissions and results in the development of correlation/curves between injection rates, operating conditions and emissions.

At permitted capacity and with no SCR bypass, the permittee shall conduct stack tests to determine the uncontrolled sulfuric acid mist emission rate, the controlled sulfuric acid mist emission rate, and actual control efficiency of the installed sorbent injection system. Tests shall consist of three, 1-hour test runs and be conducted while firing the fuel blend with the highest sulfur content. During each test run, the permittee shall continuously monitor and record the sorbent injection rate and total secondary power input to the electrostatic precipitator. The purpose of these tests is to determine actual control efficiency of the installed systems and to establish a minimum sorbent injection rate, which will be used to calculate the actual annual emissions.

- a. For each set of operating conditions being evaluated, the permittee shall conduct at least a 1-hour test run to determine SAM emissions. At least nine such test runs shall be conducted to evaluate the effect on SAM emissions from such parameters as the SO₂ emission rate prior to the SCR catalyst (and FGD system), the unit load, the flue gas flow rate, the sorbent injection rate and the current catalyst oxidation rate.
- b. Tests shall be conducted under a variety of fuel blends and load rates that are representative of the actual operating conditions. Sufficient tests shall be conducted to establish the SAM emissions rates for the following scenarios: bypass of the SCR reactor, SCR reactor in service without sorbent injection, and SCR reactor in service under varying operating conditions and levels of sorbent injection.
- c. At least 15 days prior to initiating the performance tests, the permittee shall submit a test notification, preliminary test schedule and test protocol to the Bureau of Air Regulation and the Compliance Authority.
- d. Within 45 days following the last test run conducted, the permittee shall provide a report summarizing the emissions tests and results. All SAM emissions test data shall be provided with this report.
- e. Within 45 days following the submittal of the emissions test report and no later than 90 days following the last test run conducted, the permittee shall submit a project report summarizing the following:
 - Identify each set of operating conditions evaluated, identify each operating parameter evaluated;
 - Identify the relative influence of each operating parameter, describe how the automated control system will adjust the sorbent injection rate based on the selected parameters;
 - Identify the frequency with which operational parameters will be reevaluated and adjusted within the automated control system;
 - Provide the algorithm used for the automated control system or a series of related performance curves; and

SECTION 3. EMISSIONS UNITS SPECIFIC CONDITIONS

- Provide details for calculating and estimating the SAM emissions rate based on the level of sorbent injection and operating conditions. The test results shall be used to adjust the sorbent injection control system and estimate SAM emissions.

[Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]

16. Sorbent Injection for SAM Emissions Control. On an annual basis, the permittee must demonstrate that SAM emissions increases as a result of this project are less than 7 TPY. The permittee shall install and operate the sorbent injection system at a frequency and injection rate for SAM control to satisfy this requirement. An automated control system will be used to adjust the sorbent flow rate for the given set of operating conditions based on the most recent performance test results.

[Rules 62-4.070(3) and 62-212.300(1)e, F.A.C.]

COMPLIANCE DETERMINATION

17. Initial Compliance Demonstration. Within 60 days after the initial performance tests required by Specific Condition 18., the permittee shall submit information to the Department demonstrating compliance with the 30-day rolling average emission limits for CO and NO_x.

[Rule 62-297.310(7)(a)1, F.A.C.]

18. Performance Tests. Within 60 days of commencing operation of the SCR/sorbent injection system, and after completing the performance tests required by Specific Condition 15., the permittee shall have the following tests conducted for the unit.

At permitted capacity, the permittee shall conduct tests to determine the uncontrolled NO_x emissions rate, the controlled NO_x emission rate, and the actual control efficiency of the installed SCR system. Tests shall consist of three, 1-hour test runs. Alternatively, the permittee may provide representative CEMS data for this demonstration. During each test run, the permittee shall continuously monitor and record the ammonia injection rate.

[Rule 62-297.310(7)(a)1, F.A.C.]

19. Compliance with the ammonia (NH₃) slip limit shall be determined using EPA conditional test method (CTM-027), EPA method 320, or other methods approved by the Department.

[Rule 62-4.070(3), F.A.C.]

20. Compliance with the emission limiting standards specified in this air construction permit shall be determined annually using the appropriate specific conditions of the facility's existing Title V air operations permit No. 1050004-016-AV, by using the appropriate EPA reference test methods, or Department test methods. [1050004-016-AV; Rules 62-204.220 and 62-4.070(3), F.A.C.]

21. Test Results. Compliance test results shall be submitted to the Department's Southwest District Office no later than 45 days after completion of the last test run. [Rule 62-297.310(8), F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

22. Ammonia Monitoring Requirements. In accordance with the manufacturer's specifications, the permittee shall install, calibrate, operate, and maintain an ammonia flow meter to measure and record the ammonia injection rate to the SCR system. [Rule 62-4.070(3), F.A.C.]

NOTIFICATION, REPORTING, AND RECORDKEEPING

23. Emission Compliance Stack Test Reports. A test report indicating the results of the required compliance tests shall be filed as per Specific Condition 21. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the compliance authority to determine if the test was properly conducted and if the test results were properly computed.

[Rule 62-297.310(8), F.A.C.]

SECTION 4. APPENDIX BD -- BACT

The Department establishes the following standards as the Best Available Control Technology for the Unit 3 fossil fuel fired steam generator:

Emissions of CO shall not exceed 0.20 lb/mmBtu heat input on a 30-operating day rolling average as demonstrated by the required CEMS.

Based on results of compliance tests and continuous monitoring data, the Department will reassess the BACT determination in conjunction with the evaluative phase of the project which includes operation of the selective catalytic reduction system. The emission limit may be adjusted downward to make this limit more stringent provided that overall control attained for all air pollutants including CO, SO₂, NO_x, PM/PM₁₀, sulfuric acid mist, and VOC is optimized. Such revision shall be based on data that represents a full range of operating conditions and a representative period of time. Such revision, if required by the Department, shall be in the form of an air construction permit and shall be publicly noticed by the permittee.

SECTION 4. APPENDIX GC – GENERAL CONDITIONS

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
 - a. Have access to and copy and records that must be kept under the conditions of the permit;
 - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
 - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

- a. A description of and cause of non-compliance; and
- b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.