

Friday, Barbara

7/10/07

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**From:** Harvey, Mary  
**Sent:** Friday, July 13, 2007 8:37 AM  
**To:** Adams, Patty  
**Subject:** FW: Draft Air Construction Permit No. 1050004-019-AC-DRAFT

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**From:** Bachand, Timothy [<mailto:Timothy.Bachand@lakelandelectric.com>]  
**Sent:** Wednesday, July 11, 2007 6:10 PM  
**To:** Harvey, Mary  
**Subject:** Read: Draft Air Construction Permit No. 1050004-019-AC-DRAFT

Your message

To: [Timothy.Bachand@lakelandelectric.com](mailto:Timothy.Bachand@lakelandelectric.com)  
Subject:

was read on 7/11/2007 6:10 PM.

## Friday, Barbara

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**From:** Harvey, Mary  
**Sent:** Wednesday, July 11, 2007 9:21 AM  
**To:** Adams, Patty  
**Subject:** FW: Draft Air Construction Permit No. 1050004-019-AC-DRAFT

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**From:** Nasca, Mara  
**Sent:** Tuesday, July 10, 2007 5:50 PM  
**To:** Harvey, Mary  
**Subject:** Read: Draft Air Construction Permit No. 1050004-019-AC-DRAFT

Your message

**To:** 'Timothy Bachand, Authorized Representative:'; 'Farzie Shelton, Lakeland Electric:'; Nasca, Mara; 'Kennard F. Kosky, P.E., Golder Associates, Inc.:'; 'Jim Little, EPA Region 4:'; 'Katy Forney, EPA Region 4:'  
**Cc:** Cascio, Tom; Linero, Alvaro; Adams, Patty; Gibson, Victoria  
**Subject:** Draft Air Construction Permit No. 1050004-019-AC-DRAFT  
**Sent:** 7/10/2007 4:30 PM

was read on 7/10/2007 5:50 PM.

**Friday, Barbara**

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**From:** Harvey, Mary  
**Sent:** Tuesday, July 10, 2007 4:30 PM  
**To:** 'Timothy Bachand, Authorized Representative:'; 'Farzie Shelton, Lakeland Electric:'; Nasca, Mara; 'Kennard F. Kosky, P.E., Golder Associates, Inc.':; 'Jim Little, EPA Region 4:'; 'Katy Forney, EPA Region 4:'  
**Cc:** Cascio, Tom; Linero, Alvaro; Adams, Patty; Gibson, Victoria  
**Subject:** Draft Air Construction Permit No. 1050004-019-AC-DRAFT  
**Attachments:** 1050004.019.AC.D\_pdf.zip

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

7/20/2007

**Friday, Barbara**

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**From:** Harvey, Mary  
**Sent:** Tuesday, July 10, 2007 4:34 PM  
**To:** 'Katy Forney, EPA Region 4:'; 'Jim Little, EPA Region 4:'  
**Cc:** Cascio, Tom; Linero, Alvaro; Adams, Patty  
**Subject:** FW: Draft Air Construction Permit No. 1050004-019-AC-DRAFT  
**Attachments:** Cover Letter Phase 2 2007-1050004-019-AC-DRAFT.PDF; Draft AC Cover Page Phase 2 2007-1050004-019-AC-FINAL.PDF; Draft AC Section 1 Phase 2 2007-1050004-019-AC-DRAFT.PDF; Draft AC Section 2 Phase 2 2007-1050004-019-AC-DRAFT.PDF; Draft AC Section 3 Phase 2 2007-1050004-019-AC-DRAFT.PDF; Draft Appendix GC Phase 2 2007-1050004-019-AC-DRAFT.PDF; Draft Technical Evaluation Phase 2 2007-1050004-019-AC-DRAFT.PDF; Intent to Issue Phase 2 2007-1050004-019-AC-DRAFT.PDF; Signed Documents - Permit #1050004-019-AC-DRAFT.pdf

**From:** Harvey, Mary  
**Sent:** Tuesday, July 10, 2007 4:30 PM  
**To:** 'Timothy Bachand, Authorized Representative:'; 'Farzie Shelton, Lakeland Electric:'; Nasca, Mara; 'Kennard F. Kosky, P.E., Golder Associates, Inc.':; 'Jim Little, EPA Region 4:'; 'Katy Forney, EPA Region 4:'  
**Cc:** Cascio, Tom; Linero, Alvaro; Adams, Patty; Gibson, Victoria  
**Subject:** Draft Air Construction Permit No. 1050004-019-AC-DRAFT

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<http://www.adobe.com/products/acrobat/readstep.html>.

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Thank you,

DEP, Bureau of Air Regulation

7/20/2007



# 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

July 10, 2007

*Electronically Sent – Received Receipt Requested*

Mr. Timothy Bachand, Director, Energy Supply  
Lakeland Electric  
501 East Lemon Street  
Lakeland, Florida 33805

Re: DEP File No. 1050004-019-AC  
C.D. McIntosh, Jr. Power Plant – Unit 3

Dear Mr. Bachand:

Enclosed is one copy of the Draft Air Construction Permit authorizing the installation of a selective catalytic reduction system on Unit 3 at the existing C.D. McIntosh, Jr. Power Plant, Lakeland, Polk County. The Department's Intent to Issue Air Construction Permit, the Technical Evaluation and Preliminary Determination, and the Public Notice of Intent to Issue Air Construction Permit are also included.

The Public Notice must be published one time only as soon as possible in a newspaper of general circulation in the area affected, pursuant to the requirements of Chapter 50, Florida Statutes. Proof of publication, such as a newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in denial of the permit modification.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. A.A. Linero, Program Administrator, at the letterhead address. If you have any questions regarding this matter, please contact Mr. Tom Cascio at (850) 921-9526 or Mr. Linero at (850) 921-9523.

Sincerely,

Trina L. Vielhauer, Chief  
Bureau of Air Regulation

TLV/aal/sms/tbc

Enclosures

**MEMORANDUM**

To: Trina Vielhauer  
Through: Scott Sheplak and A. A. Linero *adg*  
From: Tom Cascio *TCM*  
Date: July 8, 2007  
Subject: Draft Air Construction Permit No. 1050004-019-AC  
Lakeland Electric C.D. McIntosh, Jr. Power Plant

Attached is the public notice package for the SCR project on Lakeland Electric McIntosh Unit 3. It is the second part of the company's program in response to CAIR. We previously issued a PSD permit and CO BACT determination (initially 0.20 lb/mmBtu) for the first part consisting of installation of low NO<sub>x</sub> burners and an overfire air system on the same unit.

The SCR installation includes measures (injection of hydrated lime, soda ash or trona) to avoid significant increases of sulfuric acid mist and particulate matter (PM/PM<sub>10</sub>) that can result from partial oxidation of SO<sub>2</sub> over the catalyst. The SCR project is not expected to further affect CO emissions. The CO optimization program and future CO BACT reassessment required under the previous permit will be conducted as planned after installation of a CO CEMS on Unit 3.

We recommend your approval of the public notice package.

In the Matter of an  
Application for Permit by:

Lakeland Electric  
501 East Lemon Street  
Lakeland, Florida 33805

DEP File No. 1050004-019-AC  
C.D. McIntosh Jr. Power Plant Unit 3  
Selective Catalytic Reduction System  
Polk County, Florida

*Authorized Representative:*

Mr. Timothy Bachand, Director Energy Supply

### **INTENT TO ISSUE AIR CONSTRUCTION PERMIT**

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit (copy of draft permit enclosed) for the proposed project as detailed in the application specified above and the enclosed Technical Evaluation and Preliminary Determination for the reasons stated below.

Lakeland Electric (the Company) operates the C.D. McIntosh, Jr. Power Plant located at 3030 East Lake Parker Drive, Lakeland, Polk County, Florida. The Company applied for a permit on December 29, 2006 (complete on April 3, 2007) to install a selective catalytic reduction system for the existing Unit 3 at the plant.

The Department has permitting jurisdiction under the provisions of Chapter 403.087, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, 62-212 and 62-213. This action is not exempt from permitting procedures. The Department has determined that an air construction permit is required.

The Department intends to issue this permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Construction Permit. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final construction permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 days from the date of publication of Public Notice. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the construction permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within 14 days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within 14 days of publication of the public notice or within 14 days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

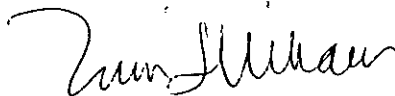
A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specified rules or statutes; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.



Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

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 Draft PSD Permit, Technical Evaluation and Preliminary Determination, Intent to Issue Air Construction Permit, and Public Notice of Intent to Issue Air Construction Permit, and all copies were sent electronically (with Received Receipt) before the close of business on 7/10/07 to the person(s) listed below.

Timothy Bachand, Authorized Representative: [timothy.bachand@lakelandelectric.com](mailto:timothy.bachand@lakelandelectric.com)

Farzie Shelton, Lakeland Electric: [farzie.shelton@lakelandelectric.com](mailto:farzie.shelton@lakelandelectric.com)

Mara Nasca, Southwest District Office: [mara.nasca@dep.state.fl.us](mailto:mara.nasca@dep.state.fl.us)

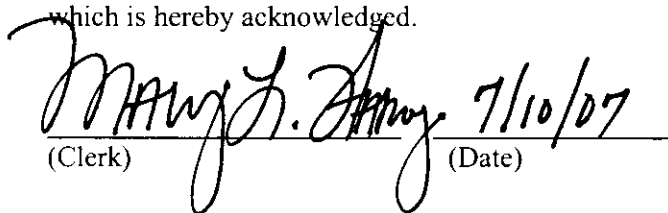
Kennard F. Kosky, P.E., Golder Associates, Inc.: [kkosky@golder.com](mailto:kkosky@golder.com)

Jim Little, EPA Region 4: [little.james@epa.gov](mailto:little.james@epa.gov)

Katy Forney, EPA Region 4: [forney.kathleen@epa.gov](mailto:forney.kathleen@epa.gov)

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.

  
(Clerk) \_\_\_\_\_ (Date) 7/10/07

**PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 1050004-019-AC

Lakeland Electric  
C.D. McIntosh, Jr. Power Plant

Polk County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Lakeland Electric (the Company) for the C.D. McIntosh, Jr. Power Plant (the facility) located at 3030 East Lake Parker Drive, Lakeland, Polk County, Florida. The permit authorizes installation of a selective catalytic reduction (SCR) system for the control of nitrogen oxides (NO<sub>x</sub>) emissions on the Unit 3 fossil fuel-fired steam generator. A best available control technology (BACT) determination was not required. The company's name and address are: Lakeland Electric, 501 East Lemon Street, Lakeland, Florida 33805.

The facility includes three fossil fuel fired steam generators, two diesel powered generators, and two gas turbines. Fossil fuel fired steam generator Unit 3 is primarily fired with coal and a lesser amount of petroleum coke and refuse derived fuel. NO<sub>x</sub> emissions are by low NO<sub>x</sub> burners (LNB) and an overfire air (OFA) system. Particulate matter (PM/PM<sub>10</sub>) is controlled by an electrostatic precipitator (ESP). Sulfur dioxide (SO<sub>2</sub>) emissions are controlled by a wet limestone scrubber.

The SCR equipment will include: two reactors with several layers of catalyst located between the economizer and the air preheater; two nominal 75 ton ammonia storage tanks; vaporization equipment; ammonia injection grids; and a sorbent injection system.

The SCR system on is the second part of a two stage project to control NO<sub>x</sub> emissions. The first stage consisted of the installation of LNB and the OFA system. It was authorized by an air construction permit issued under the rules for the Prevention of Significant Deterioration (PSD). A determination of best available control technology (BACT) for carbon monoxide (CO) was conducted under that phase.

The SCR system will be available for NO<sub>x</sub> emissions reductions beyond the first stage based on the future cost of NO<sub>x</sub> allowances under the Clean Air Interstate Rule (CAIR). Without additional measures, the SCR system can cause conversion of SO<sub>2</sub> to sulfur trioxide that can form sulfuric acid mist (SAM) or particulate matter (PM/PM<sub>10</sub>). Injection of a suitable sorbent such as hydrated lime, soda ash or trona will be practiced to minimize formation of SAM and PM/PM<sub>10</sub> such that there will not be significant emissions of the latter pollutants and no additional BACT determinations are required.

The Department will issue the final air construction permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition

**Public Notice to be Published in the Newspaper**

must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within 14 days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within 14 days of publication of the public notice or within 14 days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

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A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection  
Bureau of Air Regulation  
Suite 4, 111 S. Magnolia Drive  
Tallahassee, Florida 32301  
Telephone: 850/488-0114  
Fax: 850/922-6979

Department of Environmental Protection  
Southwest District Office  
13051 North Telecom Parkway  
Temple Terrace, Florida 33673-0926  
Phone: (813) 632-7600  
Fax: (813) 632-7665

The complete project file includes the permit application, draft air construction permit, technical evaluation, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Department's reviewing engineer for this project, Tom Cascio at MS 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, or by electronic mail at [Tom.Cascio@dep.state.fl.us](mailto:Tom.Cascio@dep.state.fl.us), or may call 850/921-9526 for additional information. Key documents may also be viewed at: [www.dep.state.fl.us/Air/permitting/construction.htm](http://www.dep.state.fl.us/Air/permitting/construction.htm) and clicking on Lakeland Electric C.D. McIntosh, Jr. Unit 3 in the power plant category.

**Public Notice to be Published in the Newspaper**

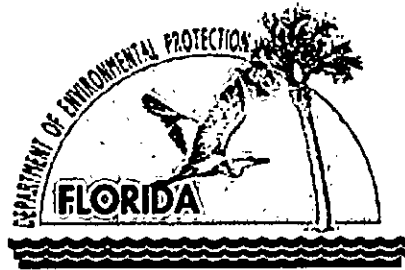
**TECHNICAL EVALUATION  
AND  
PRELIMINARY DETERMINATION**

Lakeland Electric  
C.D. McIntosh, Jr. Power Plant  
Fossil Fuel Steam Generator Unit 3

Installation of Selective Catalytic Reduction System

Polk County

DEP File No. 1050004-019-AC



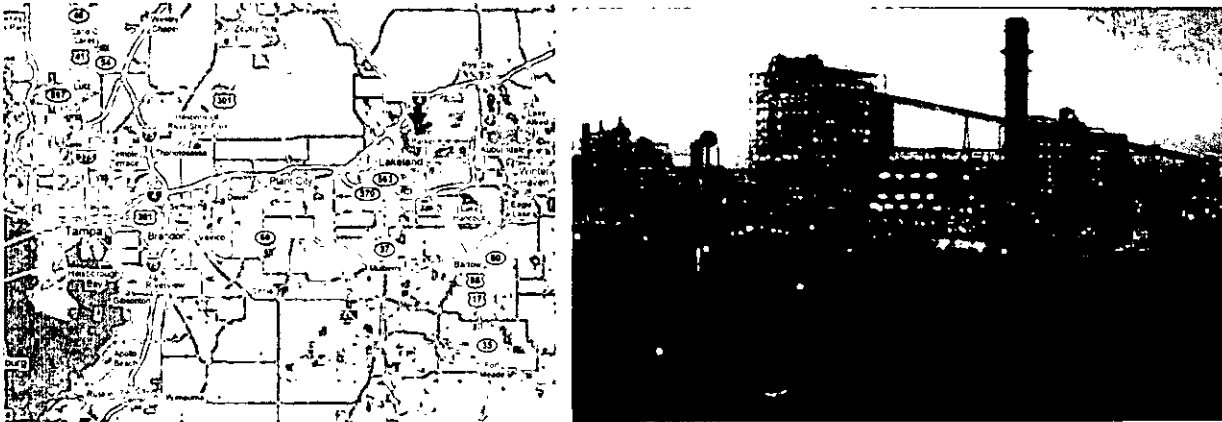
Florida Department of Environmental Protection  
Division of Air Resource Management  
Bureau of Air Regulation  
Permitting South

July 10, 2007

## 1. GENERAL PROJECT INFORMATION

### Facility Description and Location

This facility consists of three fossil fuel fired steam generators, two diesel powered generators, and two gas turbines. This existing facility is located at 3030 East Lake Parker Drive, Lakeland, Polk County; UTM Coordinates: Zone 17, 409.0 km East and 3106.2 km North; Latitude: 28° 04' 50" North and Longitude: 81° 55' 32" West. The location of the plant is shown in the map in the following figure. The photograph in the figure is Unit 3, which is the subject of this review.



**Figure 1. Location of Lakeland Electric and Photograph of C.D. McIntosh Jr. Unit 3.**

This site is in an area that is in attainment with (or designated as unclassifiable for) all air pollutants subject to a National Ambient Air Quality Standard (NAAQS).

### Major Regulatory Categories

The key regulatory provisions applicable to Unit 3 are:

*Title I, Part C, Clean Air Act (CAA):* The facility is located in an area that is designated as “attainment”, “maintenance”, or “unclassifiable” for each pollutant subject to a National Ambient Air Quality Standard. It is classified as a “fossil fuel-fired steam electric plant of more than 250 million BTU per hour of heat input”, which is one of the 28 Prevention of Significant Deterioration (PSD) Major Facility Categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year, therefore the facility is classified as a “major stationary source” of air pollution with respect to Rule 62-212.400 F.A.C., Prevention of Significant Deterioration of Air Quality.

*Title I, Section 111, CAA:* Units 3 is subject to Subpart D (Standards of Performance for Fossil Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971) of the New Source Performance Standards in 40 CFR 60.

*Title I, Section 112, CAA:* The facility is a “Major Source” of hazardous air pollutants (HAPs).

*Title IV, CAA:* The facility operates units subject to the Acid Rain provisions of the Clean Air Act.

*Title V, CAA:* The facility is a Title V or “Major Source of Air Pollution” in accordance with Chapter 62-213, F.A.C. because the potential emissions of at least one regulated pollutant exceed 100 tons per year (TPY). Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), particulate matter (PM/PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOC).

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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*CAIR*: 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, Florida Administrative Code (FAC).

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

### **Application Processing Schedule**

- 12/29/06: Received application to construct/install low NO<sub>x</sub> burners (LNBS), overfire air (OFA) and a selective catalytic reduction (SCR) system.
- 01/23/07: Application determined incomplete. Requested additional information.
- 01/29/07: Received additional information sufficient to process separate PSD permit for LNB and OFA.
- 02/17/07: Distributed public notice package including the draft PSD permit for LNB and OFA and a determination of best available control technology (BACT) for CO.
- 02/19/07: Requested additional information for SCR project.
- 03/22/07: Issued final PSD permit for LNB and OFA project.
- 04/03/07: Received additional information sufficient to process non-PSD air construction permit for the SCR project.
- 07/02/07: Applicant waived 90-day processing clock.
- 07/10/07: Distributed the public notice package including the draft air construction permit and technical evaluation for the SCR project.

### **Description of Unit 3**

Unit 3 is a nominal 360 megawatt fossil fuel-fired steam generator that burns primarily coal or blends of coal and petroleum coke (petcoke) and small amounts of refuse derived fuel (RDF). The steam generator is supplied by Babcock and Wilcox. It is a "late 70's design" with a balanced draft design with 16 burners located on the front wall, and 16 located on the back wall. The burners are fed by two pulverizers located on the front wall and two on the back wall.

The air pollution control system presently on Unit 3 consists of: new LNBS and OFA to control nitrogen oxides; an electrostatic precipitator (ESP) to remove PM/PM<sub>10</sub> including fly ash; and a wet limestone scrubber to reduce SO<sub>2</sub> emissions.

The most stringent of the key emission limitations applicable when combustion solid fuels are: 0.50 lb NO<sub>x</sub>/mmBtu (early Acid Rain compliance); 0.718 lb SO<sub>2</sub>/mmBtu (when burning petcoke); 0.044 lb PM/mmBtu (when burning petcoke) and 0.20 lb CO/mmBtu (pursuant to PSD permit for LNBS/OFA).

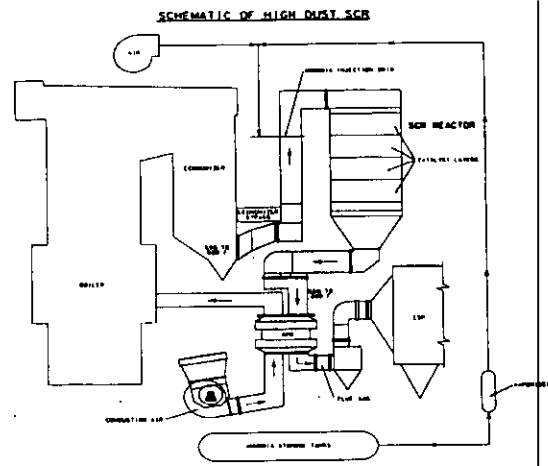
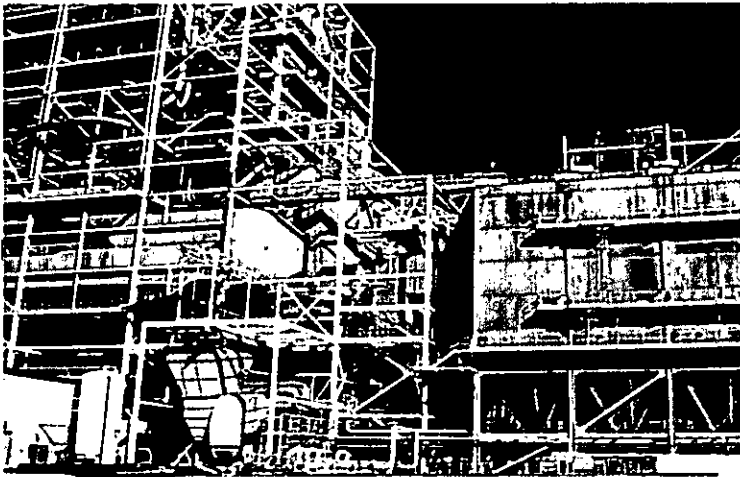
### **Proposed Project**

To provide full flexibility in implementing the federal cap and trade program for nitrogen oxides (NO<sub>x</sub>) under the Clean Air Interstate Rule (CAIR), the applicant installed a newer generation set of LNBS and an OFA system on Unit 3 during their Spring 2007 outage.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

The next step in their program is to install an SCR system on Unit 3. The SCR project is a substantial construction project that will cost between \$50 and \$80 million. The SCR can be made smaller due to the NO<sub>x</sub> reduction gained by the LNB and OFA projects.

The photograph on the left side of Figure 2 shows the furnace and economizer sections towards the left and the ESP towards the right. The diagram on the right shows the placement of the two planned SCR reactors (one behind the other) that will be erected to the right of the economizer and suspended above the air preheater and ESP.

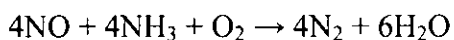


**Figure 2. Photograph of C.D. McIntosh Unit 3. Key Components of the Planned SCR System**

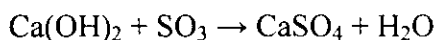
Additional equipment will include:

- Several layers of vanadium pentoxide catalyst within each reactor;
- Two anhydrous ammonia (NH<sub>3</sub>) storage tanks, each with a nominal capacity of 75 tons;
- Vaporization and mixing equipment;
- Ammonia injection grids and nozzles;
- Sonic horns to clean/clear air passages through the catalyst section; and
- A sorbent injection system following the SCR reactors.

The SCR system operates by reacting NH<sub>3</sub> reagent with NO<sub>x</sub> in the exhaust gas leaving the furnace over a vanadium/titanium based catalyst to convert these species to molecular nitrogen (N<sub>2</sub>) and water (H<sub>2</sub>O). The primary NO<sub>x</sub> destruction reaction proceeds in accordance with the following global reaction:



Some conversion of SO<sub>2</sub> in the exhaust gas to sulfur trioxide (SO<sub>3</sub>) occurs with the subsequent formation and possibly increased emissions of sulfuric acid mist (SAM). The sorbent injection system converts the SO<sub>3</sub> to particulate matter that can be captured in the ESP. The sorbent can be hydrated lime, soda ash or trona. Hydrated lime for example reacts with SO<sub>3</sub> as follows to produce collectible gypsum particles in the ESP as follows:



## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

The SCR project is currently scheduled by the applicant for operation in December 2008. Initial foundation construction is scheduled for the third quarter of 2007. Some small existing equipment at grade was relocated during the Spring 2007 outage to allow future construction space for constructing the SCR foundation.

Following are the specifications of the proposed SCR system:

- Baseline NO<sub>x</sub> Loading: 0.30 to 0.36 lb/mmBtu (after installation of LNBS)
- Target NO<sub>x</sub> Emissions: 0.10 lb/mmBtu (annual average)
- NH<sub>3</sub> Slip: 2 parts per million by volume dry (ppmvd) at 4 percent O<sub>2</sub>.
- SO<sub>2</sub> to SO<sub>3</sub> conversion: 0.8 percent
- Catalyst Type: High Dust
- Catalyst Configuration: Vertical
- Number of Reactors: 2
- Number of Initial Catalyst Layers (Per Reactor): 3
- Number of Spare Layers (Per Reactor): 1
- Modules Per Layer (Per Reactor): 9 x 5
- Reactor Dimensions (Inside x Inside): 34'- 3" x 30'- 3"
- Full Load Gas Flow: 1,730,060 actual cubic feet per meter (acfm) at SCR inlet
- Normal Operating Temperature: 640° F
- Superficial Velocity Through Catalyst: 15 to 16 feet per second (ft/sec)
- Pressure Drop Through Box and Ductwork: 10.0 inches water
- NH<sub>3</sub> Consumption at Design Conditions: 415 pounds per hour (lb/hr)
- NH<sub>3</sub> Storage Required: 2 x 30,000 gallons = ~ 2 x 75 tons at 60°F

### 3. HISTORICAL OPERATIONAL AND EMISSIONS INFORMATION

Table 1 is a summary of the heat input to Unit 3 reported in the Annual Operating Report (AOR) for the period 2001 through 2005. Year-to-year heat input and the fuel mix vary. In 2005 petcoke constituted about 9 percent (%) of the fuel mix while coal accounted for almost all of the remainder. No municipal solid waste (MSW) was reported in 2005.

Heat Input (mmBtu/yr)					
Year	Coal	Oil/Gas	Petcoke	MSW	Total
2005	24,739,432	88,531	2,202,682	0	27,030,645
2004	18,727,073	149,795	398,533	0	19,275,401
2003	23,556,583	170,380	541,898	62,413	24,331,274
2002	19,914,927	284,194	3,012,015	135,529	23,346,665
2001	22,521,423	480	3,868,418	261,180	26,651,501



## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Table 2 is a summary of the annual emissions from the AORs for the years 2001 through 2005 for PM and SAM. CO emissions were addressed in the PSD permit for the LNBs and OFA projects. NO<sub>x</sub> is not listed because emissions are not expected to increase because of the project and will most likely decrease based on the extent to which the LNB/OFA/SCR strategy is actually implemented. SO<sub>2</sub> and VOC are not likely to be affected by the project.

Year	Pollutant	Tons	2-year Average Tons	Time Period
2005	PM	265	283	2004-2005
	SAM	147	126	
2004	PM	302	394	2003-2004
	SAM	104	118	
2003	PM	486	438*	2002-2003
	SAM	131	128	
2002	PM	390	328	2001-2002
	SAM	126	136*	
2001	PM	267		
	SAM	146		

\*Indicates maximum 2-year average values.

#### 4. REGULATIONS THAT APPLY TO THE PROJECT

##### State Regulations

This project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). This project is subject to the applicable rules and regulations defined in the following Chapters of the Florida Administrative Code. These include: 62-4 (Permitting Requirements); 62-204 (Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference); 62-210 (Permits Required, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms); 62-212 (Preconstruction Review, PSD Review and BACT); 62-213 (Title V Air Operation Permits for Major Sources of Air Pollution); 62-296 (Emission Limiting Standards); and 62-297 (Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures).

##### PSD Non-Applicability Determination

The Department regulates major air pollution sources in accordance with Florida's Prevention of Significant Deterioration (PSD) program in accordance with Rule 62-212.400, F.A.C. A PSD review is required in areas currently in attainment with the state and federal Ambient Air Quality Standards (AAQS) or areas designated as "unclassifiable" for a given pollutant.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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A new facility is considered "major" with respect to PSD if it emits or has the potential to emit: 250 tons per year or more of any regulated air pollutant; or 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the 28 PSD Major Facility Categories defined in Rule 62-210.200, F.A.C.; or 5 tons per year of lead.

For new projects at existing PSD-major sources, each regulated pollutant is reviewed for PSD applicability based on emissions thresholds known as the "Significant Emission Rates" defined in Rule 62-210.200, F.A.C. Pollutant emissions from the project exceeding these rates are considered "significant" and applicants must employ the Best Available Control Technology (BACT) to minimize emissions of each such pollutant, and evaluate the air quality impacts.

PSD review would be required for the project if there were a significant net increase in emissions. The comparison is made based on the projected future actual emissions and the baseline actual emissions. The baseline actual emissions for a fossil fuel fired steam electric generating unit are the emissions over a consecutive 24-month period, for the 5 years immediately preceding the date that a complete application is submitted. The use of different consecutive 24-month periods for each pollutant is allowed. For an existing facility for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions due to the modification is greater than the PSD significant emission rates. The net emissions increase is determined using the baseline-to-projected actual test. In this comparison, if the projected actual emissions minus the baseline actual emissions equal or exceed the PSD significant emission rates, then PSD review would apply.

The applicant estimated that emissions will increase by 5 TPY of PM and 3 TPY of SAM compared with the baseline actual emissions given in Table 2. These values are less than the corresponding significant emission rates (SERs) of 25 TPY of PM and 7 TPY of SAM that would (if exceeded) trigger PSD review and BACT determinations. Given the estimate of PM emission increases to less than 5 TPY, it is reasonable to conclude that emissions of PM<sub>10</sub> will increase by less than 5 TPY.

The applicant submitted calculations and references to support the conclusions that VOC, SAM and PM/PM<sub>10</sub> emissions will not significantly increase as a result of the SCR project. The Department has reasonable assurance that future emission increases will be minimized as described by the applicant. The Department also has reasonable assurance that the SCR project will not trigger a PSD review and a BACT analysis.

To provide further assurances that SAM emissions will not increase significantly, the permittee will be required to conduct a series of initial performance tests to determine the SAM emissions rate under a variety of operating scenarios. These tests will document the impact of sorbent injection on reducing SAM emissions and yield correlations/curves between injection rates, operating conditions and emissions. Further details regarding optimization of the sorbent injection system are given in the attached draft permit.

The applicant 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., that the installation of the SCR (in conjunction with the LNB/OFA projects) did not result in emission increases of PM and SAM. 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 AORs using EPA Method 5B for PM and Method 8A (controlled condensate) for SAM.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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The Department had previously intended to adjust the CO BACT determination from the LNB/OFA projects when conducting the review for the SCR project. Sufficient information will not be available until the required CO continuous emissions monitoring system (CEMS) is installed and the applicant concludes the optimization of the new system. The Department will include a condition in the SCR permit that allows the Department to revise the previous CO BACT based on acquisition of data from the CEMS.

### 5. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the Applicant, and the conditions specified in the draft permit. Tom Cascio is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

**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

\_\_\_\_\_  
(Date)

## 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<sub>x</sub>) 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 (HAPs),

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 (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; and the Department's Technical Evaluation and Preliminary Determination.

## SECTION 2. ADMINISTRATIVE REQUIREMENTS

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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 and phone number of the Southwest District Office is: 13051 N. Telecom Parkway, Temple Terrace, FL 33637-0926; 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 <sub>x</sub> ) 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<sub>x</sub> 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 SO<sub>2</sub> to SO<sub>3</sub> 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 SO<sub>3</sub> 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<sub>x</sub> CEMS. As necessary, the permittee is authorized to modify, calibrate, re-certify, and operate the existing NO<sub>x</sub> CEMS to accurately measure the lower NO<sub>x</sub> 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/PM<sub>10</sub>) 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/PM<sub>10</sub> and will be less than 7 TPY of SAM. The baseline actual emissions for determining the increases are 443 TPY of PM/PM<sub>10</sub> and 139 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 PM<sub>10</sub> 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 6 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, SO<sub>2</sub>, NO<sub>x</sub>, PM/PM<sub>10</sub>, 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 a federally enforceable permit and shall be publicly noticed by the permittee. [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., that the installation of LNB, OFA and SCR did not result in 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 (AORs) using EPA Method 5B for PM and Method 8A (controlled condensate) for SAM. [Rule 62-212.300(1)(e), F.A.C.]



## SECTION 3. EMISSIONS UNITS SPECIFIC CONDITIONS

### 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.
- 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 of SAM emissions on such parameters as the SO<sub>2</sub> 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.
  - 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.
  - 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.
  - 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.
  - 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
    - 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.]

## SECTION 3. EMISSIONS UNITS SPECIFIC CONDITIONS

### COMPLIANCE DETERMINATION

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<sub>x</sub>. 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. [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, the permittee shall have the following tests conducted for the unit.

At permitted capacity, the permittee shall conduct tests to determine the uncontrolled NO<sub>x</sub> emissions rate, the controlled NO<sub>x</sub> 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.]

19. Compliance with the ammonia (NH<sub>3</sub>) 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.]