



Farzie Shelton, chE; REM

Manager of Environmental Affairs

January 26, 2006

Ms. Trina Vielhauer, Chief
Florida Department of Environmental Protection
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RECEIVED

JAN 30 2006

BUREAU OF AIR REGULATION

Attention: MR. Jeff Koerner, BAR - Air Permitting

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

Dear Jeff:

Thanks you for your e-mail of January 23, 2006 requesting further information in reference to the Forced Oxidation Project at McIntosh Unit No. 3. Accordingly, we requested Mr. Ken Kosky of Golder Associates to complete a P.E. Sealed minor Source Construction Permit Application for this activity addressing the Department's questions including a narrative about the process of forced oxidation changes to material handling, fugitive emission etc. together with a certification from Mr. Timothy Bachand our Responsible Official (please see attached).

The Department is also inquiring whether Lakeland is anticipating any related (non-air) permitting actions as a result of FGD system changes. As you will note from the title of this letter, Lakeland is requesting permit application modification under the condition of certification to accommodate this change of operation. Furthermore, the marketing of the combustion by-products is authorized by the Florida Statutes and is highly preferred method of recycling of these by-products by the Department as opposed to landfill storage facility.

Therefore, we appreciate your help and cooperation in this matter and look forward to hearing from you.

Sincerely,

Farzie Shelton

Enclosures

cc: H. Oven, FDEP

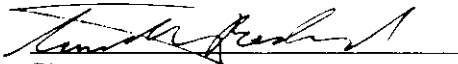
City of Lakeland • Department of Electric Utilities

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

farzie.shelton@lakelandelectric.com

Page 1 of 1

Responsible Official Certification

1. Responsible Official Name :	Timothy Bachand, Director Energy Supply (Interim) - Production
2. Responsible Official Mailing Address... Organization/Firm: Lakeland Electric Street Address: 501 E. Lemon St. City: Lakeland State: Florida Zip Code: 33801-5079	
3. Owner/Authorized Representative Telephone Numbers... Telephone: (863) 834-6633 ext. Fax: (863) 834-5670	
4. Responsible Official Email Address:	
5. Responsible Official Statement: <i>I, the undersigned, am a responsible official of the Title V source addressed in this submittal. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this submission are true, accurate and complete. The air pollutant emissions units and air pollution control equipment described in this submittal will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this submittal to which the Title V source is subject. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in any compliance plan(s) previously submitted.</i>	
 Signature	<u>1/25/06</u> Date

Subject: U3 Forced Oxidation

RECEIVED

JAN 30 2006

BUREAU OF AIR REGULATION

**APPLICATION FOR
AIR CONSTRUCTION PERMIT
C.D. MCINTOSH, JR POWER PLANT
*LAKELAND, FLORIDA***

**Prepared For:
Lakeland Electric
501 East Lemon Street
Lakeland, Florida 33801-5050**

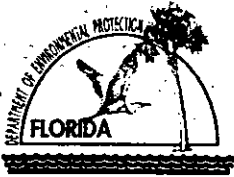
**Prepared By:
Golder Associates Inc.
6241 NW 23rd Street, Suite 500
Gainesville, Florida 32653-1500**

January 2006

0537632

**DISTRIBUTION:
4 Copies – FDEP
2 Copies – Lakeland Electric
1 Copy – Golder Associates Inc.**

APPLICATION FOR AIR PERMIT – LONG FORM



Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit for a proposed project:

- subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- at an existing federally enforceable state air operation permit (FESOP) or Title V permitted facility.

Air Operation Permit – Use this form to apply for:

- an initial federally enforceable state air operation permit (FESOP); or
- an initial/revised/renewal Title V air operation permit.

Air Construction Permit & Revised/Renewal Title V Air Operation Permit (Concurrent Processing Option)

– Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: Lakeland Electric	
2. Site Name: C.D. McIntosh, Jr. Power Plant	
3. Facility Identification Number: 105004	
4. Facility Location...: Street Address or Other Locator: 3030 East Lake Parker Drive City: Lakeland County: Polk Zip Code: 33805	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Application Contact Name: Ms. Farzie Shelton, Manager of Environmental Affairs	
2. Application Contact Mailing Address... Organization/Firm: Lakeland Electric Street Address: 501 East Lemon Street City: Lakeland State: FL Zip Code: 33801-5050	
3. Application Contact Telephone Numbers... Telephone: (863) 834-6603 ext. Fax: (863) 834-8187	
4. Application Contact Email Address: farzie.shelton@lakelandelectric.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	
2. Project Number(s):	
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

APPLICATION INFORMATION

Purpose of Application

This application for air permit is submitted to obtain: (Check one)

Air Construction Permit

Air construction permit.

Air Operation Permit

Initial Title V air operation permit.

Title V air operation permit revision.

Title V air operation permit renewal.

Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.

Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

Air construction permit and Title V permit revision, incorporating the proposed project.

Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

Minor source air construction permit application for the installation of forced oxidization in the existing FGD system for Unit 3. See Part II.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
006	McIntosh Unit 3	AC1F	NA

Application Processing Fee

Check one: Attached - Amount: \$ _____ Not Applicable

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name :
Timothy Bachand, Director Energy Supply (Interim) - Production
2. Owner/Authorized Representative Mailing Address... Organization/Firm: Lakeland Electric Street Address: 501 East Lemon Street City: Lakeland State: Florida Zip Code: 33801-5079
3. Owner/Authorized Representative Telephone Numbers... Telephone: (863) 834-6633 ext. Fax: (863) 834-5670
4. Owner/Authorized Representative Email Address:
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.</i> _____ Signature _____ Date

APPLICATION INFORMATION

Application Responsible Official Certification

Complete if applying for an initial/revised/renewal Title V permit or concurrent processing of an air construction permit and a revised/renewal Title V permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name:			
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):			
<input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.			
<input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively.			
<input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.			
<input type="checkbox"/> The designated representative at an Acid Rain source.			
3. Application Responsible Official Mailing Address...			
Organization/Firm:			
Street Address:			
City:	State:	Zip Code:	
4. Application Responsible Official Telephone Numbers...			
Telephone: ()	-	ext.	Fax: () -
5. Application Responsible Official Email Address:			
6. Application Responsible Official Certification:			
I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.			
_____ Signature		_____ Date	

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Kennard F. Kosky Registration Number: 14996
2. Professional Engineer Mailing Address... Organization/Firm: Golder Associates Inc.** Street Address: 6241 NW 23rd Street, Suite 500 City: Gainesville State: FL Zip Code: 32653
3. Professional Engineer Telephone Numbers... Telephone: (352) 336-5600 ext. 545 Fax: (352) 336-6603
4. Professional Engineer Email Address: kkosky@golder.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i> <i>Kennard F. Kosky</i> Signature _____ Date <u>1/26/06</u> (seal) <i>JK</i>

* Attach any exception to certification statement.
** Board of Professional Engineers Certificate of Authorization #00001670

FACILITY INFORMATION

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone 17 East (km) 409.0 North (km) 3,106.2		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) 28°04'50" Longitude (DD/MM/SS) 81°55'32"	
3. Governmental Facility Code: 4	4. Facility Status Code: A	5. Facility Major Group SIC Code: 49	6. Facility SIC(s): 4911
7. Facility Comment : The facility consists of three fossil fuel fired steam generators, two diesel engine powered generators, one simple cycle gas turbine and a natural gas fired combined cycle unit.			

Facility Contact

1. Facility Contact Name: Ms. Farzie Shelton, Manager of Environmental Affairs
2. Facility Contact Mailing Address... Organization/Firm: Lakeland Electric Street Address: 501 East Lemon Street City: Lakeland State: FL Zip Code: 33801-5050
3. Facility Contact Telephone Numbers: Telephone: (863) 834-6603 ext. Fax: (863) 834-8187
4. Facility Contact Email Address: farzie.shelton@lakelandelectric.com

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I. that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: () - ext. Fax: () -
4. Facility Primary Responsible Official Email Address:

FACILITY INFORMATION

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1. <input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input checked="" type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
PM/PM10	A	N
SO2	A	N
NOx	A	N
CO	A	N
VOC	A	N

FACILITY INFORMATION

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID No.s Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: April 2003
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: April 2003
3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: April 2003

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (existing permitted facility)
2. Description of Proposed Construction or Modification: <input checked="" type="checkbox"/> Attached, Document ID: Part II
3. Rule Applicability Analysis: <input checked="" type="checkbox"/> Attached, Document ID: Part II
4. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification (Rule 62-212.400(2), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6. Preconstruction Air Quality Monitoring and Analysis (Rule 62-212.400(5)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7. Ambient Impact Analysis (Rule 62-212.400(5)(d), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. Air Quality Impact since 1977 (Rule 62-212.400(5)(h)5., F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(5)(e)1. and 62-212.500(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

FACILITY INFORMATION

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.):
 Attached, Document ID: _____ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities (Required for initial/renewal applications only):
 Attached, Document ID: _____ Not Applicable (revision application)
2. Identification of Applicable Requirements (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought):
 Attached, Document ID: _____
 Not Applicable (revision application with no change in applicable requirements)
3. Compliance Report and Plan (Required for all initial/revision/renewal applications):
 Attached, Document ID: _____
Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.
4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only):
 Attached, Document ID: _____
 Equipment/Activities On site but Not Required to be Individually Listed
 Not Applicable
5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) :
 Attached, Document ID: _____ Not Applicable
6. Requested Changes to Current Title V Air Operation Permit:
 Attached, Document ID: _____ Not Applicable

Additional Requirements Comment

See Part II.

EMISSIONS UNIT INFORMATION

Section [1] of [1]

McIntosh Unit 3

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application - Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION

Section [1] of [1]
McIntosh Unit 3

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)
- The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
 - The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)
- This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
 - This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
 - This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section: **364 MW fossil fuel steam electric generator**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: A	5. Commence Construction Date: 1978	6. Initial Startup Date: 01 Sept 82	7. Emissions Unit Major Group SIC Code: 49	8. Acid Rain Unit? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---	---	--	--

9. Package Unit:
Manufacturer: _____ Model Number: _____

10. Generator Nameplate Rating: **364 MW**

11. Emissions Unit Comment: **This emission unit is a coal-fired steam-generating unit which co-fires petroleum coke. There will be no changes to the applicable requirements as a result of the installation of forced oxidization on the existing FGD system. Sections E through H are not to be included with this application.**

EMISSIONS UNIT INFORMATION

Section [1] of [1]
McIntosh Unit 3

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:
PM - Electrostatic Precipitator (ESP)
SO2 - Flue Gas Desulfurization (FGD) system
NOx - Low NOx Burners (LNB)

2. Control Device or Method Code(s): 10, 67, 24

EMISSIONS UNIT INFORMATION

Section [1] of [1]
McIntosh Unit 3

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate:	3,640 million Btu/hr
4. Maximum Incineration Rate:	pounds/hr tons/day
5. Requested Maximum Operating Schedule:	24 hours/day 52 weeks/year
	7 days/week 8,760 hours/year
6. Operating Capacity/Schedule Comment:	

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 McIntosh Unit 3

C. EMISSION POINT (STACK/VENT) INFORMATION
 (Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:		2. Emission Point Type Code:	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code:	6. Stack Height: feet	7. Exit Diameter: feet	
8. Exit Temperature: °F	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: There will be no changes in stack parameters as a result of the force-oxidization system.			

EMISSIONS UNIT INFORMATION

Section [1] of [1]
McIntosh Unit 3

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): FGD Byproduct (Gypsum)		
2. Source Classification Code (SCC): 30501503		3. SCC Units: tons
4. Maximum Hourly Rate: 22.33	5. Maximum Annual Rate: 195,629	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: See Part II		

Segment Description and Rate: Segment ____ of ____

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

EMISSIONS UNIT INFORMATION

Section [] of []

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment ____ of ____

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

Segment Description and Rate: Segment ____ of ____

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

EMISSIONS UNIT INFORMATION

Section [1] of [1]
McIntosh Unit 3

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date April 2003
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date April 2003
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date April 2003
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date April 2003 <input type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute <input checked="" type="checkbox"/> Attached, Document ID: Part II <input type="checkbox"/> Not Applicable

EMISSIONS UNIT INFORMATION

Section [1] of [1]
McIntosh Unit 3

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
2. Compliance Assurance Monitoring <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
5. Acid Rain Part Application <input type="checkbox"/> Certificate of Representation (EPA Form No. 7610-1) <input type="checkbox"/> Copy Attached, Document ID: _____ <input type="checkbox"/> Acid Rain Part (Form No. 62-210.900(1)(a)) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable

EMISSIONS UNIT INFORMATION

Section [1] of [1]
McIntosh Unit 3

Additional Requirements Comment

See Part II

PART II

PART II

Forced Oxidation System for McIntosh Unit 3

Description of Forced Oxidation Conversion Project: McIntosh Unit 3 is a pulverized coal-fired unit with an FGD system to control emissions of sulfur dioxide (SO₂). The current FGD system results in the reaction of SO with calcium (Ca) in the FGD reagent to form primarily calcium sulfite (CaSO₃), as well as calcium sulfate (CaSO₄) or gypsum. The reaction in the FGD absorber to form gypsum is depended upon the amount of available oxygen in the flue gas. The forced oxidation conversion project involves the introduction of additional oxygen using ambient air in the FGD absorbers to force the conversion of CaSO₃ to CaSO₄, therefore completing the reaction to form commercial grade gypsum. The current FGD byproduct is not available for use since it consists primarily of CaSO₃ and is stabilized with fly ash and lime to form a pozzolanic material that is stored in the byproduct storage facility. The amount of air introduced into FGD absorbers is regulated to generally match the amount of oxygen required for the reaction. There is a possibility that not all the oxygen in the ambient air introduced in the FGD absorbers is reacted. This results in additional oxygen in the flue gas.

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

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

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

Effects on Emissions: The forced oxidation conversion will not result in any changes in the emission rates for McIntosh Unit 3. The gypsum byproduct will be slightly drier than the existing byproducts, but still contain sufficient moisture (15 percent) that minimizes fugitive emissions from material handling. Table 1 presents potential fugitive emissions for handling gypsum byproduct. These calculations are based on unloading the gypsum byproduct in a pile and loading into a truck for recycling. The potential fugitive emissions are well less than 1 ton/year. These calculations do not account for the current fugitive emissions from handling the existing byproduct and should be considered worst-case. Experience at existing facilities demonstrated that fugitive emissions are minimal.

The potential increase in oxygen concentrations may artificially increase the lb/MMBtu emissions rates as calculated in the continuous emission monitoring systems (CEMS) if the oxygen F-factor method in 40 CFR Part 60, Method 19 is used. However, this change will be small and the City of Lakeland will continue to utilize the CEMs for compliance. The result may be slightly lower actual emissions necessary to meet compliance. The use of forced oxidation on existing FGD systems have not resulted in non-compliance situations at existing facilities.

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

Additional Information: Below is additional information requested by the FDEP

- 1) Please provide a minor source construction permit application, complete with the authorized representative signature and P.E. Seal;
 - This application is the minor source air construction application.
- 2) Please discuss any planned changes to existing or new material handling operations;
 - The material handling operation will remain the same with the exception that fly ash and lime will not be added to the FGD byproduct and the FGD byproduct (gypsum) will be transported offsite for recycling. When recycled, the FGD byproduct will not be handled or stored in the onsite monofill.
- 3) Please discuss the impacts to reagent as well as byproduct storage and handling areas;
 - There will be no changes to the FGD reagent as a result of this project.
- 4) Please itemize and calculate fugitive emissions;
 - Potential (worst-case) fugitive emissions are attached for the FGD byproduct handling.
- 5) Please provide manufacturer information regarding the expected performance impacts of the FGD system as a result of the proposed changes; and
 - This information was provided in the Design Report prepared by Stone & Webster, Inc. previously submitted to the Department. As noted in the design report, there will be no performance changes to the FGD system. Air is introduced in the absorber recirculating tank (see attached drawing) and does not influence the absorption of the SO₂ and FGD reagent.
- 6) Please indicate whether Lakeland anticipates any related (non-air) permitting actions as a result of the FGD system changes.
 - A change in the site certification has been requested pursuant to Rules 62-17.191 and 17.205 F.A.C. Other than the air related aspects covered by this application, the information addresses Section 403.702 F.S. for Resource Recovery and Management.

**TABLE 1
CALCULATIONS OF GYPSUM BYPRODUCT AND FUGITIVE EMISSIONS**

Estimates of Calcium Sulfate and Gypsum Byproduct Produced:			
	Data	Units	Basis
Coal	11,500	Btu/lb	Title V Application, April 2003
Sulfur	3.30%		Title V Application, April 2003
Uncontrolled SO2 Emissions	5.739	lb/MMBtu	Calculated
Controlled SO2 Emissions	0.718	lb/MMBtu	Title V Permit Condition E.9
Difference	5.021	lb/MMBtu	Calculated
Heat Input	3,640	MMBtu/hr	Title V Permit Condition E.1
SO2 Removed	18,276.9	lb/hr	Calculated
	80,052.9	tons/year	100% Capacity Factor
Calcium Sulfate	170,112.4	tons/year	MW of CaSO ₄ : 136
Moisture	15%		Design Parameter
Gypsum Produced	195,629.2	tons/year	Calculated
 Fugitive Emissions:			
Fugitive emissions based on material drop equations in AP-42, 4th Edition 11.2.3:			
$EF = k \times (0.0032) \times (U/5)^{1.3} / (M/2)^{1.4}$			
where: EF is the emission factor in lb/ton			
k is particle size factor; 0.74 for PM and 0.35 for PM10			
U is average wind speed for Tampa International Airport: 8.4 miles/hour			
M is percent moisture: 15 percent			
$EF_{PM} = 0.74 \times (0.0032) \times (8.4/5)^{1.3} / (15/2)^{1.4}$			
EF PM =		0.00027682	lb/ton
$EF_{PM10} = 0.35 \times (0.0032) \times (7.8/5)^{1.3} / (6/2)^{1.4}$			
EF PM10 =		0.00013093	lb/ton
Number of Drops		2	Conveyor drop and truck loading
PM Emissions		108.31	lb/year
		0.05	tons/year
PM10 Emissions		51.23	lb/yr
		0.03	tons/year

**CUTAWAY VIEW OF
MCINTOSH UNIT 3
FGD SYSTEM**

SULFUR DIOXIDE ABSORBER TRAY TOWER MODULE

