



Farzie Shelton, ChE; REM

Associate GM Technical Support

April 9, 2014

Mr. Jeff Koerner, Environmental Administrator  
Office of Permitting and Compliance  
Division of Air Resource Management  
Florida Department of Environmental Protection  
2600 Blair Stone Road, MS#5500  
Tallahassee, FL 32399

**RE: Lakeland Electric – C.D. McIntosh, Jr. Power Plant (ID No. 1050004)  
Application for Minor Source Air Construction Permit for Deletion of Sulfuric  
Acid Mist Testing Requirement for Unit 3**

Dear Jeff:

We are submitting this minor source air construction permit application for deletion of the sulfuric acid mist (SAM) testing requirement related to increasing the percent sulfur in coal for Unit 3 (Emissions Unit 006) at the C.D. McIntosh, Jr. Power Plant. This testing requirement was established by Air Construction Permit No. 1050004-026-AC (Condition No. 15). In addition, we are requesting that the Title V Air Operation Permit No. 1050004-033-AV be concurrently revised to remove Specific Condition No. D.35, which is established by Condition No. 15 of permit No. 1050004-026-AC.

Based on the previous evaluation of numerous SAM test results, it can be reasonably assured that SAM emissions will still be comfortably below the baseline actual emissions of 136 TPY even with the potential scenario of 3.4% coal sulfur content. As a result, further SAM testing should not be necessary and therefore we request the deletion of this requirement (please see Appendix A in support of this application).

Enclosed please find the application signed by Mr. Ken Kosky of Golder Associates and certified by Mr. Tony Candales, Lakeland Electric's Responsible Official.

As always, we appreciate all the help you can give us in this matter. If you have any questions regarding the enclosed, please do not hesitate to contact me or Nedin Bahtic at (863) 834-8180.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Farzie Shelton', is written over a horizontal line.

Farzie Shelton

Enclosure

City of Lakeland • Department of Electric Utilities

501 East Lemon Street • Lakeland, FL 33801-5050 • 863. 834.6603 • Fax 863. 834.8187 • Cell 863.430.8297

[farzie.shelton@lakelandelectric.com](mailto:farzie.shelton@lakelandelectric.com)

Page 1 of 1



April 7, 2014

14-02857

Mr. Jeff Koerner, Environmental Administrator  
Office of Permitting and Compliance  
Division of Air Resource Management  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, FL 32399

**RE: MCINTOSH POWER PLANT  
AIR CONSTRUCTION PERMIT APPLICATION  
REMOVAL OF SAM TESTING REQUIREMENTS FOR UNIT 3 (EU006)**

Dear Jeff:

On behalf of Lakeland Electric (LE), Golder is pleased to submit this Air Construction (AC) permit application for the removal of sulfuric acid mist (SAM) testing requirement from AC permit No. 1050004-026-AC (Specific Condition No. 15), which is the basis for Condition D.35 of Permit No. 1050004-033-AV. This permit condition requires LE to re-test for SAM within 45 days if a fuel blend with a sulfur content that is 0.20% sulfur by weight higher than the maximum sulfur content previously tested is fired. Previous testing was conducted using a maximum of 1.72% sulfur coal and therefore, re-testing will be required for firing higher than 1.92% sulfur coal.

LE is currently planning to use coal with higher than 1.92% sulfur by weight. LE has conducted several SAM tests in the past and based on the evaluation of the test results, it can be reasonably assured that even with 3.4% sulfur coal there will still be an overall decrease in SAM emissions compared to the baseline actual emissions of 136 TPY. As a result, further SAM testing should not be required. Documents supporting the previous SAM testing evaluation are presented as an attachment to the AC permit application package.

If you have any comments or questions, please feel free to contact me at (352) 336-5600 or at ken\_kosky@golder.com.

Sincerely,

**GOLDER ASSOCIATES INC.**

A handwritten signature in black ink, appearing to read 'Kennard F. Kosky'.

Kennard F. Kosky, P.E.  
Principal

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**Golder Associates Inc.**  
6026 NW 1<sup>st</sup> Place  
Gainesville, FL 32607 USA  
Tel: (352) 336-5600 Fax: (352) 336-6603 www.golder.com



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Permit Application

# APPLICATION FOR AIR CONSTRUCTION PERMIT AND REVISED TITLE V AIR OPERATION PERMIT

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

**Prepared For:** Lakeland Electric  
501 East Lemon Street  
Lakeland, FL 33801-5079

**Submitted By:** Golder Associates Inc.  
6026 NW 1st Place  
Gainesville, FL 32607 USA

**Distribution:** Florida Department of Environmental Protection – 4 copies  
Lakeland Electric – 2 copies  
Golder Associates Inc. – 2 copies

April 2014

14-02857

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**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 any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

**Air Operation Permit** – Use this form to apply for:

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

**To ensure accuracy, please see form instructions.**

#### Identification of Facility

1. Facility Owner/Company Name: <b>Lakeland Electric</b>	
2. Site Name: <b>C. D. McIntosh, Jr. Power Plant</b>	
3. Facility Identification Number: <b>1050004</b>	
4. Facility Location... Street Address or Other Locator: <b>3030 East Lake Parker Drive</b> City: <b>Lakeland</b> County: <b>Polk</b> Zip Code: <b>33805</b>	
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: <b>Ms. Farzie Shelton, Associate General Manager of Technical Support</b>	
2. Application Contact Mailing Address... Organization/Firm: <b>Lakeland Electric</b> Street Address: <b>501 East Lemon Street</b> City: <b>Lakeland</b> State: <b>FL</b> Zip Code: <b>33801-5079</b>	
3. Application Contact Telephone Numbers... Telephone: <b>(863) 834 - 6603</b> ext. Fax: <b>(863) 834 - 6362</b>	
4. Application Contact E-mail Address: <b>farzie.shelton@lakelandelectric.com</b>	

#### Application Processing Information (DEP Use)

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

## APPLICATION INFORMATION

### Purpose of Application

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

#### **Air Construction Permit**

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

#### **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 to request removal of Sulfuric Acid Mist (SAM) performance test requirements for Unit 3 (EU006) at the McIntosh Jr. Power Plant, established by Air Construction Permit No. 1050004-26-AC (Condition No. 15) and contained in Specific Condition D.35 of Title V air operating permit No. 1050004-33-AV.**



## APPLICATION INFORMATION

### Owner/Authorized Representative Statement

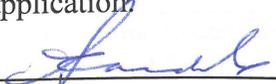
**Complete if applying for an air construction permit or an initial FESOP.**

1. Owner/Authorized Representative Name :
2. Owner/Authorized Representative Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Owner/Authorized Representative Telephone Numbers... Telephone: ( ) ext. Fax: ( )
4. Owner/Authorized Representative E-mail Address:
5. Owner/Authorized Representative Statement:  <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>  _____ Signature  _____ Date

**APPLICATION INFORMATION**

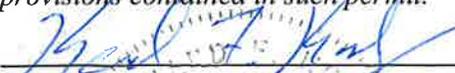
**Application Responsible Official Certification**

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

1. Application Responsible Official Name: <b>Mr. Tony Candales, Associate General Manager of Production</b>
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 checked="" 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 or CAIR source.
3. Application Responsible Official Mailing Address... Organization/Firm: <b>City of Lakeland</b> Street Address: <b>501 East Lemon Street</b> City: <b>Lakeland</b> State: <b>FL</b> Zip Code: <b>33801-5079</b>
4. Application Responsible Official Telephone Numbers... Telephone: <b>(863) 834-6559</b> ext. Fax: <b>(863) 834-6363</b>
5. Application Responsible Official E-mail Address: <b>Tony.Candales@lakelandelectric.com</b>
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 <b>4/16/14</b>

# APPLICATION INFORMATION

## Professional Engineer Certification

1. Professional Engineer Name: <b>Kennard F. Kosky</b> Registration Number: <b>14996</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Golder Associates Inc.**</b> Street Address: <b>6026 NW 1st Place</b> City: <b>Gainesville</b> State: <b>FL</b> Zip Code: <b>32607</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(352) 336-5600</b> ext. <b>21156</b> Fax: <b>(352) 336-6603</b>
4. Professional Engineer E-mail Address: <b>kkosky@golder.com</b>
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 checked="" 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>  Signature: <u></u> Date: <u>4/4/14</u> (seal): 

\* Attach any exception to certification statement.

\*\*Board of Professional Engineers Certificate of Authorization #00001670.



**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 checked="" 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 checked="" 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:  <b>Unit 1 (EU 001), Unit 2 (EU 005), Unit 3 (EU 006), and Unit 5 (EU 028) are regulated under Acid Rain Phase II.</b>  <b>Unit 2 and Unit 3 are subject to NSPS Subpart D, Standards of Performance for Fossil Fuel-Fired Steam Generators (Construction after August 17, 1971).</b>  <b>Unit 5 is subject to Subpart GG, Standards of Performance for New Stationary Gas Turbines.</b>  <b>The facility has several Reciprocating Internal Combustion Engines (RICE) subject to 40 CFR 63 Subpart ZZZZ.</b>  <b>Lakeland Electric intends to comply with 40 CFR 63 Subpart UUUUU, National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units (Compliance date April 15, 2015).</b>	

**List of Pollutants Emitted by Facility**

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
<b>PM</b>	<b>A</b>	<b>N</b>
<b>PM10</b>	<b>A</b>	<b>N</b>
<b>VOC</b>	<b>A</b>	<b>N</b>
<b>SO2</b>	<b>A</b>	<b>N</b>
<b>NOx</b>	<b>A</b>	<b>N</b>
<b>CO</b>	<b>A</b>	<b>N</b>
<b>HAPs</b>	<b>A</b>	<b>N</b>
<b>HCl</b>	<b>A</b>	<b>N</b>
<b>SAM</b>	<b>A</b>	<b>N</b>



### 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: <u>May 2013</u>
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: <u>May 2013</u>
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: <u>May 20013</u>

#### 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, Modification, or Plantwide Applicability Limit (PAL): <input checked="" type="checkbox"/> Attached, Document ID: <u>See Part II</u>
3. Rule Applicability Analysis: <input type="checkbox"/> Attached, Document ID: <u>See Part II</u>
4. List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7. Source Impact Analysis (Rule 62-212.400(5), 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(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(8) 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

**C. FACILITY ADDITIONAL INFORMATION (CONTINUED)**

**Additional Requirements for FESOP Applications**

- |   |
|---|
| 1. List of Exempt Emissions Units:<br><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> 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)<br><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> 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)<br><input type="checkbox"/> Attached, Document ID: _____<br><input type="checkbox"/> Not Applicable (revision application with no change in applicable requirements)  |
| 3. Compliance Report and Plan: (Required for all initial/revision/renewal applications)<br><input type="checkbox"/> Attached, Document ID: _____<br>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)<br><input type="checkbox"/> Attached, Document ID: _____<br><input type="checkbox"/> Equipment/Activities Onsite but Not Required to be Individually Listed<br><input type="checkbox"/> Not Applicable   |
| 5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only)<br><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable  |
| 6. Requested Changes to Current Title V Air Operation Permit:<br><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable   |

**C. FACILITY ADDITIONAL INFORMATION (CONTINUED)**

**Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program**

1. Acid Rain Program Forms:

Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: **May, 2013**

Not Applicable (not an Acid Rain source)

Phase II NO<sub>x</sub> Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: \_\_\_\_\_

Not Applicable

New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: \_\_\_\_\_

Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: **May, 2013**

Not Applicable (not a CAIR source)

**Additional Requirements Comment**

## **EMISSIONS UNIT INFORMATION**

### **Section [3]**

#### **McIntosh Unit 3 – Fossil Fuel Fired Steam Generator**

### **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 an initial, revised or renewal 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. 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 an 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 or 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. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes 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 [3]

#### McIntosh Unit 3 – Fossil Fuel Fired Steam Generator

### 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:  
**McIntosh Unit 3 – Fossil Fuel Fired Steam Generator**

3. Emissions Unit Identification Number: **006**

4. Emissions Unit Status Code: <b>A</b>	5. Commence Construction Date:	6. Initial Startup Date: <b>Sept, 1982</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
--	--------------------------------	---	--

8. Federal Program Applicability: (Check all that apply)

- Acid Rain Unit
- CAIR Unit
- Hg Budget Unit

9. Package Unit:

Manufacturer:

Model Number:

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

11. Emissions Unit Comment:

**This emission unit is a coal, residual oil, natural gas, or petroleum coke-fired steam-generating unit.**

**Permit No. 1050004-032-AC curtails petroleum coke firing effective from the date of EPA's approval of Specific Condition No. B.1 in the Florida Regional Haze State Implementation Plan.**

**EMISSIONS UNIT INFORMATION**

**Section [3]**

**McIntosh Unit 3 – Fossil Fuel Fired Steam Generator**

**Emissions Unit Control Equipment/Method: Control 1 of 4**

1. Control Equipment/Method Description:  
**PM – Electrostatic Precipitator (ESP)**

2. Control Device or Method Code: **010**

**Emissions Unit Control Equipment/Method: Control 2 of 4**

1. Control Equipment/Method Description:  
**SO2 – Flue Gas Desulfurization (FGD) system.**

2. Control Device or Method Code: **067**

**Emissions Unit Control Equipment/Method: Control 3 of 4**

1. Control Equipment/Method Description:  
**NOx – Low NOx burners (LNB), Overfire air (OFA) system**

2. Control Device or Method Code: **205, 204**

**Emissions Unit Control Equipment/Method: Control 4 of 4**

1. Control Equipment/Method Description:  
**Selective Catalytic Reduction  
(installed voluntarily for CAIR purposes)**

2. Control Device or Method Code: **139**

**Emissions Unit Control Equipment/Method: Control of**

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**EMISSIONS UNIT INFORMATION**

**Section [3]**

**McIntosh Unit 3 – Fossil Fuel Fired Steam Generator**

**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:	<b>3,640</b> million Btu/hr
4. Maximum Incineration Rate:	pounds/hr tons/day
5. Requested Maximum Operating Schedule:	<b>24</b> hours/day <b>7</b> days/week <b>52</b> weeks/year <b>8760</b> hours/year
6. Operating Capacity/Schedule Comment:	<b>Emission unit fires coal, residual oil, natural gas, and coal/petroleum coke. Heat input based on fuel flow sampling.</b>  <b>Maximum heat input based on Permit No. 1050004-033-AV.</b>

**EMISSIONS UNIT INFORMATION**

**Section [3]**

**McIntosh Unit 3 – Fossil Fuel Fired Steam Generator**

**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: <b>S003</b>		2. Emission Point Type Code: <b>1</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: <b>Exhausts through a single stack.</b>			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: <b>006</b>			
5. Discharge Type Code: <b>V</b>	6. Stack Height: <b>250 feet</b>	7. Exit Diameter: <b>18 Feet</b>	
8. Exit Temperature: <b>125°F</b>	9. Actual Volumetric Flow Rate: <b>1,260,536 acfm</b>	10. Water Vapor: <b>%</b>	
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: <b>Stack parameters based on Title V permit No. 1050004-033-AV.</b>			

## EMISSIONS UNIT INFORMATION

Section [3]

McIntosh Unit 3 – Fossil Fuel Fired Steam Generator

### D. SEGMENT (PROCESS/FUEL) INFORMATION

**Segment Description and Rate:** Segment 1 of 4

1. Segment Description (Process/Fuel Type): <b>External combustion Boilers; Electric Generation, Coal.</b>		
2. Source Classification Code (SCC): <b>1-01-001-01</b>	3. SCC Units: <b>Tons</b>	
4. Maximum Hourly Rate: <b>165.5</b>	5. Maximum Annual Rate: <b>1,449,780</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>1.6 (as received)</b>	8. Maximum % Ash: <b>8.5 (as received)</b>	9. Million Btu per SCC Unit: <b>22</b>
10. Segment Comment: <b>Up to 20 percent petroleum coke is authorized to be co-fired with coal. Maximum hourly rate = 3,640 MMBtu/hr / 22 MMBtu/ton (HHV) = 165.5 tons/hr. Maximum annual rate = 165.5 ton/hr x 8,760 hr/yr = 1,449,780 tons/year</b>		

**Segment Description and Rate:** Segment 2 of 4

1. Segment Description (Process/Fuel Type): <b>External Combustion Boilers; Electric Generation; Residual Oil.</b>		
2. Source Classification Code (SCC): <b>1-01-004-01</b>	3. SCC Units: <b>1,000 Gallons Burned</b>	
4. Maximum Hourly Rate: <b>24.27</b>	5. Maximum Annual Rate: <b>212,579</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>0.73</b>	8. Maximum % Ash:	9. Million Btu per SCC Unit: <b>150</b>
<b>Maximum hourly rate = 3,640 MMBtu/hr / (150 MMBtu/1000 gallons) = 24,267 gallons/hr Maximum annual rate = 24,267 gal/hr x 8,760 hr/yr = 212,578.9x10<sup>3</sup> gallons/year</b>		

**EMISSIONS UNIT INFORMATION**

**Section [3]**

**McIntosh Unit 3 – Fossil Fuel Fired Steam Generator**

**D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)**

**Segment Description and Rate: Segment 3 of 4**

1. Segment Description (Process/Fuel Type): <b>External Combustion Boilers; Electric Generation; Petroleum Coke.</b>		
2. Source Classification Code (SCC): <b>1-01-008-01</b>		3. SCC Units: <b>Tons</b>
4. Maximum Hourly Rate: <b>33.1</b>	5. Maximum Annual Rate: <b>289,956</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: <b>Up to 20 percent petroleum coke is authorized to be co-fired with coal. Maximum hourly rate = 165.5 tons/hr (coal) x 0.2 = 33.1 ton/hr Maximum annual rate = 33.1 ton/hr x 8,760 hr/yr = 289,956 tons/year Please note that Petroleum coke firing would be curtailed effective from the date of EPA's approval of Specific Condition No. B.1 in the Florida Regional Haze State Implementation Plan per Permit No. 1050004-032-AC.</b>		

**Segment Description and Rate: Segment 4 of 4**

1. Segment Description (Process/Fuel Type): <b>External combustion Boilers; Electric Generation, Natural Gas</b>		
2. Source Classification Code (SCC): <b>1-01-006-01</b>		3. SCC Units: <b>Million Cubic Feet</b>
4. Maximum Hourly Rate: <b>3.56</b>	5. Maximum Annual Rate: <b>31,139</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: <b>1,024</b>
10. Segment Comment: <b>Natural gas or propane only or in combination with any other fuels or fuel combinations. Maximum hourly rate = 3,640 MMBtu/hr / (1,024 MMBtu/MMft<sup>3</sup>) = 3.56 MMft<sup>3</sup>/hr</b>		

**EMISSIONS UNIT INFORMATION**

**Section [3]**

**McIntosh Unit 3 – Fossil Fuel Fired Steam Generator**

**E. EMISSIONS UNIT POLLUTANTS**

**List of Pollutants Emitted by Emissions Unit**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
<b>PM</b>	<b>010</b>		<b>EL</b>
<b>SO2</b>	<b>067</b>		<b>EL</b>
<b>NOx</b>	<b>205, 204</b>		<b>EL</b>
<b>CO</b>			<b>EL</b>
<b>VOC</b>			<b>NS</b>
<b>PM10</b>	<b>067</b>		<b>NS</b>
<b>HCl</b>	<b>067</b>		<b>NS</b>
<b>H107</b>	<b>010</b>		<b>NS</b>
<b>NH3</b>	<b>139</b>		<b>EL*</b>
<b>SAM</b>			<b>WP</b>

**\* Not Federally Enforceable**



**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method): <b>No change in allowable emissions as a result of the project.</b>	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	



**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method): <b>No change in allowable emissions as a result of the project.</b>	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	



**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions **1** of **1**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: <b>No change in allowable emissions as a result of the project.</b>	
6. Allowable Emissions Comment (Description of Operating Method): From Permit:	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	



**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):  <b>No change in allowable emissions as a result of the project.</b>	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	



**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):  <b>No change in allowable emissions as a result of the project.</b>	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

## EMISSIONS UNIT INFORMATION

Section [3]

McIntosh Unit 3 – Fossil Fuel Fired Steam Generator

### G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

**Visible Emissions Limitation:** Visible Emissions Limitation 1 of 2

1. Visible Emissions Subtype: <b>VE20</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>20 %</b> Exceptional Conditions: <b>27 %</b> Maximum Period of Excess Opacity Allowed: <b>6 min/hour</b>	
4. Method of Compliance: <b>VE test using DEP Method 9</b>	
5. Visible Emissions Comment: <b>40 CFR 60.42(a)(2) and Permit No. 1050004-033-AV</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation 2 of 2

1. Visible Emissions Subtype: <b>VE99</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>%</b> Exceptional Conditions: <b>100 %</b> Maximum Period of Excess Opacity Allowed: <b>60 min/hour</b>	
4. Method of Compliance: <b>None</b>	
5. Visible Emissions Comment: <b>Excess VE emissions allowed under FDEP Rule 62-210.700(1) and 40 CFR 60.8(c), and 60.11(c) for 2 hours per 24-hour period for startup, shutdown, and malfunction.</b>	

## EMISSIONS UNIT INFORMATION

Section [3]

McIntosh Unit 3 – Fossil Fuel Fired Steam Generator

### H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

**Continuous Monitoring System:** Continuous Monitor 1 of 6

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>SO<sub>2</sub></b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Thermo Electron Corp.</b> Model Number: <b>43I-ANSAB</b> Serial Number: <b>0608716018</b>	
5. Installation Date: <b>23 May 2008</b>	6. Performance Specification Test Date:
7. Continuous Monitor Comment: <b>CEM required pursuant to 40 CFR 75, PSD-FL-008(B), and Title V Permit No. 1050004-033-AV.</b>	

**Continuous Monitoring System:** Continuous Monitor 2 of 6

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>NO<sub>x</sub></b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Thermo Electron Corp.</b> Model Number: <b>42I-ANMSDAB</b> Serial Number: <b>0608716016</b>	
5. Installation Date: <b>23 May 2008</b>	6. Performance Specification Test Date:
7. Continuous Monitor Comment: <b>CEM required pursuant to 40 CFR 75, PSD-FL-008(B), and Title V Permit No. 1050004-033-AV.</b>	

## EMISSIONS UNIT INFORMATION

Section [3]

McIntosh Unit 3 – Fossil Fuel Fired Steam Generator

### H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

**Continuous Monitoring System:** Continuous Monitor **3** of **6**

1. Parameter Code: <b>VE</b>	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Teledyne</b> Model Number: <b>Lighthawk #560</b> Serial Number: <b>5602407</b>	
5. Installation Date: <b>27 May 2013</b>	6. Performance Specification Test Date:
7. Continuous Monitor Comment: <b>CEM required pursuant to 40 CFR 75, PSD-FL-008(B), and Title V Permit No. 1050004-033-AV.</b>	

**Continuous Monitoring System:** Continuous Monitor **4** of **6**

1. Parameter Code: <b>CO2</b>	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Thermo Electron Corp.</b> Model Number: <b>410I-ANPDAB</b> Serial Number: <b>0608716015</b>	
5. Installation Date: <b>23 May 2008</b>	6. Performance Specification Test Date:
7. Continuous Monitor Comment: <b>CEM required pursuant to 40 CFR 75.</b>	

**EMISSIONS UNIT INFORMATION**

Section [3]

McIntosh Unit 3 – Fossil Fuel Fired Steam Generator

**H. CONTINUOUS MONITOR INFORMATION (CONTINUED)****Continuous Monitoring System:** Continuous Monitor **5** of **6**

1. Parameter Code: <b>FLOW</b>	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>United Science, Inc.</b> Model Number: <b>ULTRAFLOW 100</b> Serial Number: <b>1001060</b>	
5. Installation Date: <b>19 Mar 2000</b>	6. Performance Specification Test Date:
7. Continuous Monitor Comment: <b>FLOW monitor required pursuant to 40 CFR 75.</b>	

**Continuous Monitoring System:** Continuous Monitor **6** of **6**

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>CO</b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Thermo Electron Corp.</b> Model Number: <b>48I-TLE</b> Serial Number: <b>0712221616</b>	
5. Installation Date: <b>6 Oct 2007</b>	6. Performance Specification Test Date:
7. Continuous Monitor Comment: <b>Rule 62-4.070(3) and 62-210.200(BACT), F.A.C.; and PSD-FL-387.</b>	

# EMISSIONS UNIT INFORMATION

## Section [3]

### McIntosh Unit 3 – Fossil Fuel Fired Steam Generator

#### I. EMISSIONS UNIT ADDITIONAL INFORMATION

##### Additional Requirements for All Applications, Except as Otherwise Stated

<p>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)</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>May, 2013</u></p>
<p>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)</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>May, 2013</u></p>
<p>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)</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>May, 2013</u></p>
<p>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)</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____</p> <p><input checked="" type="checkbox"/> Not Applicable (construction application)</p>
<p>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)</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____</p> <p><input checked="" type="checkbox"/> Not Applicable</p>
<p>6. Compliance Demonstration Reports/Records:</p> <p><input type="checkbox"/> Attached, Document ID: _____</p> <p>Test Date(s)/Pollutant(s) Tested: _____</p> <p><input type="checkbox"/> Previously Submitted, Date: _____</p> <p>Test Date(s)/Pollutant(s) Tested: _____</p> <p><input type="checkbox"/> To be Submitted, Date (if known): _____</p> <p>Test Date(s)/Pollutant(s) Tested: _____</p> <p><input type="checkbox"/> Not Applicable</p> <p>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.</p>
<p>7. Other Information Required by Rule or Statute:</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p>



## **PART II**

**PART II**  
**APPLICATION FOR MINOR SOURCE AIR CONSTRUCTION PERMIT  
FOR DELETION OF SULFURIC ACID MIST TESTING REQUIREMENT FOR  
MCINTOSH UNIT 3 (EU006)**

**PROJECT SUMMARY**

In this air construction permit application Lakeland Electric (LE) is requesting the Florida Department of Environmental Protection (FDEP) remove the sulfuric acid mist (SAM) testing requirement related to increasing the percent sulfur in coal for the fossil fuel steam generator Unit 3 (EU ID 006) at the McIntosh Jr. Power Plant.

Specific Condition D.35 of Title V Air Operating Permit No. 1050004-033-AV (condition established by Permit No. 1050004-026-AC) requires Unit 3 to conduct stack tests to determine the uncontrolled SAM emission rate, the controlled SAM emission rate, and actual control efficiency of the installed sorbent injection system. LE conducted these tests and submitted test reports to Florida Department of Environmental Protection (FDEP) in January, March, and April, 2010. The tests demonstrated that the sorbent system was not required to reduce SAM emissions at the stack.

Specific Condition D.35 also includes a condition that requires LE to re-test within 45 days if a fuel blend with a sulfur content that is 0.20% sulfur by weight higher than the maximum sulfur content previously tested is fired. Therefore, if previous testing was conducted using a maximum of 1.72% sulfur coal, re-testing will be required for firing higher than 1.92% sulfur coal. The data analysis and conclusions drawn from of the previous test results indicate that additional testing is not necessary and therefore, LE is requesting removal of the additional SAM testing requirements from the air permit. Since the proposed change is modification of a permit condition that was issued under an air construction permit, an air construction permit is required from the FDEP.

LE provided a summary of the SAM stack testing results to Mr. Jeff Koerner of FDEP in letter dated April 26, 2010, which included an evaluation completed by Golder Associates Inc. (Golder). The Golder evaluation is also attached in Appendix A of this document.

Table 1 of Appendix A presented a summary of the test results and provides SO<sub>3</sub> emissions in lb/MMBtu at four locations – before and after the SCR, at the ESP inlet, and at the stack. Table 2 presented the SAM emissions increases and decreases between the locations presented in Table 1. The tests conducted at the SCR inlet and SCR outlet clearly demonstrates an increase in SAM emissions resulting from the SCR catalyst as predicted in the original permitting for the installation of the SCR system. A sorbent injection was installed to account for the increase in predicted SAM emissions from the SCR system. However, at the time there was no specific information on the removal capabilities of the downstream equipment (air preheater, ESP and FGD system). The SAM testing demonstrated that there

were no noticeable differences in the stack exit SAM emissions based on the operation of the sorbent injection system. It was also observed that when sorbent is injected, the amount of SAM reduction in the air heater is higher. Additional SAM reduction was also achieved in the ESP and FGD system as shown in Table 2. The overall conclusion from the testing was that the sorbent injection system did not have a measurable influence in reducing SAM emission at the stack and there was no difference in the stack SAM emissions using 1.55 percent and 1.72 percent sulfur coals. As a result, the requirement to utilize the sorbent system was removed.

Table 3 of Appendix A compared projected actual SAM emissions based on the test results and conservative operating hours to the baseline actual SAM emissions of 136 tons per year (TPY). As shown, there was an overall decrease in SAM emissions compared to the baseline actual SAM emissions of 136 TPY. In Table 4 of Appendix A, the projected actual emissions were estimated due to 3.4% sulfur coal based on linear interpolation. For example, in Scenario A the SAM emissions were 63.4 lb/hr with 1.55 percent sulfur coal and were projected to be 139.1 lb/hr using 3.4 percent sulfur coal (i.e., 63.4 lb/hr at 3.4/1.55). Using the removal efficiencies from testing of 62.1 percent for the air preheater and 63.6 percent for the ESP/FGD systems, the projected SAM emissions without sorbent injection would be 84.1 TPY. The results of all scenarios demonstrated that Unit 3's SAM emissions without sorbent injection would still be approximately 44-52% less than the baseline actual emissions of 136 TPY. With sorbent injection the reduction would be approximately 55%.

LE is currently planning to use coal with a maximum sulfur content higher than 1.92%. Based on the evaluation of numerous SAM test results presented in Appendix A, it can be reasonably assured that there will still be an overall decrease in SAM emissions compared to the baseline actual emissions of 136 TPY. As a result, further SAM testing is not required and requests FDEP to remove Specific Condition No. 15 of permit No. 1050004-026-AC (basis for Condition D.35 of Permit No. 1050004-033-AV), which requires SAM performance tests and sorbent injection for SAM emissions control.

McIntosh Unit 3 is currently permitted to fire coal, residual oil, and natural gas. The use of higher sulfur coal is not a physical or operational change since coal is an authorized fuel. Petroleum coke was previously authorized as a fuel. However, the use of petroleum coke was prohibited by Permit No. 1050004-032-AC and is effective upon the date of EPA's approval of the Florida Regional Haze State Implementation Plan.

Since there are no physical changes to the emission unit and no change in emissions, the proposed change in permit condition is not a "modification" as defined in Rule 62-210.200(205), Florida Administrative Code (F.A.C.). As a result, a minor source air construction permit is being submitted for the project.

This air construction permit application package consists of the appropriate application form [DEP Form 62-210.900(1)], a description of the proposed change, and rule applicability.

## RULE APPLICABILITY

Under federal and state of Florida Prevention of Significant Deterioration (PSD) review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. The U.S. Environmental Protection Agency (EPA) has approved Florida's State Implementation Plan (SIP), which contains PSD regulations. The applicable PSD rules in Florida are found in Rule 62-212.400, F.A.C.

A "major facility" is defined as any of 28 named source categories that have the potential to emit 100 TPY or more, or any other stationary facility that has the potential to emit 250 TPY or more, of any pollutant regulated under the CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. Once a new source is determined to be a "major facility" for a particular pollutant, any pollutant emitted in amounts greater than the PSD significant emission rates is subject to PSD review. For an existing source 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.

PSD review is used to determine whether significant air quality deterioration will result from the new or modified facility. Federal PSD requirements are contained in Title 40, Part 52.21 of the Code of Federal Regulations (40 CFR 52.21), Prevention of Significant Deterioration of Air Quality. The state of Florida has adopted the federal PSD regulations by reference (Rule 62-212.400, F.A.C.). Major facilities and major modifications are required to undergo the following analyses related to PSD for each pollutant emitted in significant amounts:

- Control technology review
- Source impact analysis
- Air quality analysis (monitoring)
- Source information
- Additional impact analyses

The McIntosh Power Plant is a major facility under FDEP rules. Based on Rule 62-210.200(205), F.A.C., modification is defined as any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any pollutant subject to new source review regulation under the CAA. Because there are no physical changes, nor a change in the method of operation, the project is not a modification as defined in the FDEP rules in Rule 62-210.200 and under the PSD rules in Rule 62-212.400, F.A.C. PSD review would be required for the project if there were a significant net increase in emissions. There are no changes in emissions as a result of the project. Therefore, PSD review does not apply and baseline-to-future projected actual emissions test is not required.

## APPENDIX A

April 21, 2010

103-87550

Ms. Farzie Shelton, Associate General Manager Technical Support  
Lakeland Electric  
501 East Lemon Street  
Lakeland, Florida 33801

**RE: C.D. MCINTOSH JR. POWER PLANT UNIT 3 SULFURIC ACID MIST TESTING  
PROJECT NO. 1050004-027-AC**

Dear Ms. Shelton:

Lakeland Electric recently completed installation of the selective catalytic reduction (SCR) system on McIntosh Unit 3 that was authorized under the Florida Department of Environmental Protection (FDEP) Air Construction Permit No. 1050004-019-AC. According to Condition 11 of the permit, Lakeland Electric is required to demonstrate through testing and reporting that the actual annual sulfuric acid mist (SAM) emissions due to the SCR system will be less than 7 tons per year (TPY) over the baseline SAM emissions of 136 TPY. To meet this requirement, Lakeland Electric installed a sorbent injection system to provide additional SAM control for potential increase in SAM due to the SCR system (Condition 9 of the permit). Lakeland Electric is required to conduct initial performance tests of the sorbent injection system (Specific Condition No. 15 of the permit). This permit Condition specifically requires Lakeland Electric to determine the controlled SAM emission rate, uncontrolled SAM emission rate, and the actual control efficiency of the sorbent injection system by conducting tests while firing the highest sulfur fuel. The detailed requirements for the testing were specified in FDEP's letter dated November 25, 2009. Lakeland Electric conducted tests on February 1 through 10, 2010, and submitted test reports on March 26, 2010. This correspondence provides a presentation and evaluation of the test results for compliance with the air construction permit conditions.

The SAM tests were conducted at the following test locations at loads of 100, 88, and 74\* percent with the sorbent injection system operating and not operating:

- Before the SCR – Baseline SAM emission rate
- After the SCR – Estimation of SAM emissions increase due to the SCR system
- After the Air Heater – Estimation of SAM emissions after being absorbed by the sorbent
- At the stack – SAM emissions released into the atmosphere

\*Load on the Unit was increased from 69% to 74% load to meet the SCR system's minimum temperature operating setpoint requirements.

A summary of these tests provided to FDEP is presented in attached Tables 1 through 4. A total of 12 scenarios were tested with a total of 16 test runs based on the Test Protocol submitted to FDEP in September 2009 and detailed in FDEP's November 25, 2009, authorization. Table 1 presents a summary of the test results and provides sulfur trioxide (SO<sub>3</sub>) emissions in pounds per million British thermal units (lb/MMBtu) at four locations – before and after the SCR, at the electrostatic precipitator (ESP) inlet, and at the stack. Table 2 presents the SAM emissions increases and decreases between the locations presented in Table 1 as well as the SAM reductions. The tests conducted at the SCR inlet and SCR outlet clearly indicate an increase in SAM emissions resulting from the SCR catalyst. The increases were generally higher at the 100 percent load. Table 2 shows the reduction in SAM emission rates between the two testing locations for each scenario as well as the percent reduction. The results of Scenarios 1A-C, 2A-B, and 3A-B indicate that, as expected, SAM is reduced in the air heater located after the SCR outlet and before the ESP inlet. However, when sorbent is injected, the amount of SAM reduction in the air

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heater is higher. Additional reduction is also achieved in the ESP and flue gas desulfurization (FGD) system as shown in Table 2. Comparing the scenarios with and without sorbent injection suggests that there is no difference in the stack emission rates. Overall, the increase in SAM emissions observed from the SCR catalyst is being removed effectively in the air pre-heater (APH), ESP, and FGD system.

Table 3 presents the projected actual SAM emissions based on the test data compared to the baseline actual SAM emissions. The calculations were based on the pound per hour (lb/hr) SAM emissions rates calculated using the SAM emission rates in lb/MMBtu and the heat inputs observed during the tests. The annual projected actual SAM emissions were based on the assumption that Unit 3 operated for 8,760 hours per year for each scenario. As a result, the comparison is especially conservative for higher loads. This table shows that there is an overall decrease in SAM emissions compared to the baseline actual SAM emissions of 136 TPY using a conservative calculation.

Table 4 presents an illustration of the projected actual SAM emissions with the potential fuel sulfur content of 3.4 percent compared to the baseline actual emissions. For this comparison, the sulfur content of 3.4 percent was used to increase the SAM emissions based on a linear relationship. For example, the SAM emissions for Scenarios 1A through 1C were increased by the ratio 3.4/1.55. The percentage of SAM emissions removed within the system – at the APH and within the ESP – observed in the testing was used to reduce the increased SAM emissions. Table 4 shows that using coal with a sulfur content of 3.4 percent would have resulted in project actual SAM emissions less than the baseline actual emissions.

Based on the test conditions and results, the SAM emissions from combustion and increased by the SCR catalyst are effectively limited by the air preheater, ESP and FGD system. Within the air preheater the reduction is likely due to a combination of the reduction in temperature and interaction with the ash. The use of the sorbent injection, while incrementally effective in reducing SAM at the air preheater, does not have a measurable influence in reducing SAM emission at the stack. This is evidence in Table 1 where the stack emissions with and without the sorbent injection system are the same.

If you have any questions, please do not hesitate to call us at (352) 336-5600 or via email ([kkosky@golder.com](mailto:kkosky@golder.com) or [smohammad@golder.com](mailto:smohammad@golder.com)).

Sincerely,

**GOLDER ASSOCIATES INC.**

  
Kennard F. Kosky, P.E.  
Principal Engineer

  
Salahuddin Mohammad  
Senior Project Engineer

cc: Bret Galbraith, Lakeland Electric

Enclosures

SKM/tz

**TABLE 1  
SAM TEST RESULTS  
MCINTOSH UNIT 3**

Scenario	Unit Capacity (%)	Gross Output (MW)	Heat Input (lb/MMBtu)	Fuel Sulfur (%)	Sorbent Injection Rate [lb/hr Ca(OH) <sub>2</sub> ]	SO <sub>3</sub> at SCR Inlet		SO <sub>3</sub> at SCR Outlet		SO <sub>3</sub> at ESP Inlet		SO <sub>3</sub> at Stack
						South Duct (Side 31) (lb/MMBtu)	North Duct (Side 32) (lb/MMBtu)	South Duct (Side 31) (lb/MMBtu)	North Duct (Side 32) (lb/MMBtu)	South Duct (Side 31) (lb/MMBtu)	North Duct (Side 32) (lb/MMBtu)	Average (lb/MMBtu)
1A	100	365	3571	1.55	0	0.001	0.002	0.013	0.019	0.002	0.009	0.0020
1B	100	365	3893	1.55	0	0.001	0.005	0.013	0.022	0.003	0.011	0.0020
1C	100	365	3908	1.55	0	0.002	0.005	0.014	0.020	0.006	0.010	0.0020
2A	88	320	3291	1.31	0	0.001	0.004	0.004	0.009	0.003	0.003	0.0010
2B	88	320	3240	1.31	0	0.001	0.004	0.008	0.016	0.004	0.003	0.0010
3A	74	270	2911	1.43	0	0.003	0.009	0.010	0.016	0.005	0.005	0.0010
3B	74	270	2928	1.43	0	0.002	0.005	0.009	0.014	0.002	0.004	0.0010
4	100	365	3807	1.72	120	0.001	0.005	0.004	0.021	0.000	0.010	0.0020
5	100	365	3825	1.72	360	0.004	0.007	0.015	0.018	0.001	0.008	0.0020
6	100	365	3822	1.72	240	0.003	0.004	0.013	0.025	0.001	0.017	0.0020
7	88	320	3287	1.31	105	0.001	0.004	0.008	0.012	0.000	0.004	0.0010
8	88	320	3285	1.31	316	0.000	0.003	0.009	0.013	0.000	0.003	0.0010
9	88	320	3288	1.31	211	0.000	0.002	0.009	0.014	0.000	0.005	0.0010
10	74	270	2938	1.43	89	0.001	0.003	0.008	0.016	0.002	0.003	0.0010
11	74	270	2960	1.43	267	0.002	0.002	0.009	0.017	0.002	0.003	0.0010
12	74	270	2961	1.43	179	0.001	0.004	0.009	0.016	0.002	0.003	0.0010

Note: Data based on SAM tests conducted on February 1, 2, 3, 8, and 9, 2010.

**TABLE 2  
SO<sub>3</sub> EMISSIONS AND PERCENT REDUCTION  
MCINTOSH UNIT 3**

Scenario	Unit Capacity (%)	Gross Output (MW)	Heat Input (lb/MMBtu)	Fuel Sulfur (%)	Sorbent Injection Rate [lb/hr Ca(OH) <sub>2</sub> ]	SCR Outlet - Inlet		ESP Inlet - SCR Outlet				Stack - ESP Inlet	
						Emission Increase		Emission Reduction		Emission Reduction %		Emission Reduction	Emission Reduction %
						South Duct (Side 31)	North Duct (Side 32)	South Duct (Side 31)	North Duct (Side 32)	South Duct (Side 31)	North Duct (Side 32)	Average (lb/MMBtu)	Average
1A	100	365	3571	1.55	0	0.012	0.017	-0.011	-0.010	84.6%	52.6%	-0.0035	63.6%
1B	100	365	3893	1.55	0	0.012	0.017	-0.01	-0.011	76.9%	50.0%	-0.0050	71.4%
1C	100	365	3908	1.55	0	0.012	0.015	-0.008	-0.010	57.1%	50.0%	-0.0060	75.0%
2A	88	320	3291	1.31	0	0.003	0.005	-0.001	-0.006	25.0%	66.7%	-0.0020	66.7%
2B	88	320	3240	1.31	0	0.007	0.012	-0.004	-0.013	50.0%	81.3%	-0.0025	71.4%
3A	74	270	2911	1.43	0	0.007	0.007	-0.005	-0.011	50.0%	68.8%	-0.0040	80.0%
3B	74	270	2928	1.43	0	0.007	0.009	-0.007	-0.010	77.8%	71.4%	-0.0020	66.7%
4	100	365	3807	1.72	120	0.003	0.016	-0.004	-0.011	100.0%	52.4%	-0.0030	60.0%
5	100	365	3825	1.72	360	0.011	0.011	-0.014	-0.010	93.3%	55.6%	-0.0025	55.6%
6	100	365	3822	1.72	240	0.010	0.021	-0.012	-0.008	92.3%	32.0%	-0.0070	77.8%
7	88	320	3287	1.31	105	0.007	0.008	-0.008	-0.008	100.0%	66.7%	-0.0010	50.0%
8	88	320	3285	1.31	316	0.009	0.01	-0.009	-0.010	100.0%	76.9%	-0.0005	33.3%
9	88	320	3288	1.31	211	0.009	0.012	-0.009	-0.009	100.0%	64.3%	-0.0015	60.0%
10	74	270	2938	1.43	89	0.007	0.013	-0.006	-0.013	75.0%	81.3%	-0.0015	60.0%
11	74	270	2960	1.43	267	0.007	0.015	-0.007	-0.014	77.8%	82.4%	-0.0015	60.0%
12	74	270	2961	1.43	179	0.008	0.012	-0.007	-0.013	77.8%	81.3%	-0.0015	60.0%

Note: Data based on SAM tests conducted on February 1, 2, 3, 8, and 9, 2010.

**TABLE 3  
PROJECTED ACTUAL SAM EMISSIONS BASED ON TEST DATA COMPARED TO BASELINE ACTUAL SAM EMISSIONS  
MCINTOSH UNIT 3**

Scenario	Unit Capacity (%)	Gross Output (MW)	Heat Input (lb/MMBtu)	Fuel Sulfur (%)	Sorbent Injection Rate [lb/hr Ca(OH) <sub>2</sub> ]	SO <sub>3</sub> Generated in SCR <sup>a</sup>			SO <sub>3</sub> at ESP Inlet <sup>a</sup>			SO <sub>3</sub> at Stack <sup>a</sup>			Project Actual SAM <sup>b</sup> (TPY)	Difference from Baseline Actual <sup>d</sup> (TPY)		
						South Duct (Side 31) (lb/MMBtu)	North Duct (Side 32) (lb/MMBtu)	Average SO <sub>3</sub> (lb/MMBtu)	Average SO <sub>3</sub> (lb/hr)	Average SAM <sup>c</sup> (lb/hr)	Average SO <sub>3</sub> (lb/MMBtu)	Average SO <sub>3</sub> (lb/hr)	Average SAM <sup>c</sup> (lb/hr)	Average SO <sub>3</sub> (lb/MMBtu)			Average SO <sub>3</sub> (lb/hr)	Average SAM <sup>c</sup> (lb/hr)
1A	100	365	3571	1.55	0	0.012	0.017	0.015	51.8	63.4	0.0055	19.6	24.1	0.0020	7.1	8.7	38.3	-97.7
1B	100	365	3893	1.55	0	0.012	0.017	0.015	56.4	69.1	0.0070	27.3	33.4	0.0020	7.8	9.5	41.8	-94.2
1C	100	365	3908	1.55	0	0.012	0.015	0.014	52.8	64.6	0.0080	31.3	38.3	0.0020	7.8	9.6	41.9	-94.1
2A	88	320	3291	1.31	0	0.003	0.005	0.004	13.2	16.1	0.0030	9.9	12.1	0.0010	3.3	4.0	17.7	-118.3
2B	88	320	3240	1.31	0	0.007	0.012	0.010	30.8	37.7	0.0035	11.3	13.9	0.0010	3.2	4.0	17.4	-118.6
3A	74	270	2911	1.43	0	0.007	0.007	0.007	20.4	25.0	0.0050	14.6	17.8	0.0010	2.9	3.6	15.6	-120.4
3B	74	270	2928	1.43	0	0.007	0.009	0.008	23.4	28.7	0.0030	8.8	10.8	0.0010	2.9	3.6	15.7	-120.3
4	100	365	3807	1.72	120	0.003	0.016	0.010	36.2	44.3	0.0050	19.0	23.3	0.0020	7.6	9.3	40.9	-95.1
5	100	365	3825	1.72	360	0.011	0.011	0.011	42.1	51.5	0.0045	17.2	21.1	0.0020	7.7	9.4	41.0	-95.0
6	100	365	3822	1.72	240	0.010	0.021	0.016	59.2	72.6	0.0090	34.4	42.1	0.0020	7.6	9.4	41.0	-95.0
7	88	320	3287	1.31	105	0.007	0.008	0.008	24.7	30.2	0.0020	6.6	8.1	0.0010	3.3	4.0	17.6	-118.4
8	88	320	3285	1.31	316	0.009	0.010	0.010	31.2	38.2	0.0015	4.9	6.0	0.0010	3.3	4.0	17.6	-118.4
9	88	320	3288	1.31	211	0.009	0.012	0.011	34.5	42.3	0.0025	8.2	10.1	0.0010	3.3	4.0	17.6	-118.4
10	74	270	2938	1.43	89	0.007	0.013	0.010	29.4	36.0	0.0025	7.3	9.0	0.0010	2.9	3.6	15.8	-120.2
11	74	270	2960	1.43	267	0.007	0.015	0.011	32.6	39.9	0.0025	7.4	9.1	0.0010	3.0	3.6	15.9	-120.1
12	74	270	2961	1.43	179	0.008	0.012	0.010	29.6	36.3	0.0025	7.4	9.1	0.0010	3.0	3.6	15.9	-120.1

<sup>a</sup> Based on SAM test results presented in Table 1.

<sup>b</sup> Based on 8,760 hr/yr operation.

<sup>c</sup> Based on assuming 100 percent of SO<sub>3</sub> converts to H<sub>2</sub>SO<sub>4</sub> and using a molar ratio of (98/80).

<sup>d</sup> Increase over baseline emissions of 136 TPY.

**TABLE 4  
PROJECTED ACTUAL SAM EMISSIONS WITH POTENTIAL FUEL SULFUR COMPARED TO BASELINE ACTUAL SAM EMISSIONS  
MCINTOSH UNIT 3**

Scenario	Unit Capacity (%)	Gross Output (MW)	Heat Input (lb/MMBtu)	Fuel Sulfur (%)	Sorbent Injection Rate [lb/hr Ca(OH) <sub>2</sub> ]	SAM Emissions <sup>a</sup>					Potential Scenario with 3.4% Fuel Sulfur <sup>d</sup>				
						Generated in SCR (lb/hr)	at ESP Inlet (lb/hr)	at Stack (lb/hr)	% Removal in APH <sup>b</sup> (%)	% Removal in ESP and FGD <sup>c</sup> (%)	Generated in SCR (lb/hr)	at ESP Inlet (lb/hr)	at Stack (lb/hr)	Projected Actual SAM (TPY)	Difference from Baseline Actual (TPY)
1A	100	365	3571	1.55	0	63.4	24.1	8.7	62.1%	63.6%	139.1	52.8	19.2	84.1	-51.9
1B	100	365	3893	1.55	0	69.1	33.4	9.5	51.7%	71.4%	151.7	73.2	20.9	91.6	-44.4
1C	100	365	3908	1.55	0	64.6	38.3	9.6	40.7%	75.0%	141.8	84.0	21.0	92.0	-44.0
2A	88	320	3291	1.31	0	16.1	12.1	4.0	25.0%	66.7%	41.9	31.4	10.5	45.8	-90.2
2B	88	320	3240	1.31	0	37.7	13.9	4.0	63.2%	71.4%	97.9	36.1	10.3	45.1	-90.9
3A	74	270	2911	1.43	0	25.0	17.8	3.6	28.6%	80.0%	59.3	42.4	8.5	37.1	-98.9
3B	74	270	2928	1.43	0	28.7	10.8	3.6	62.5%	66.7%	68.2	25.6	8.5	37.4	-98.6
4	100	365	3807	1.72	120	44.3	23.3	9.3	47.4%	60.0%	87.6	46.1	18.4	80.8	-55.2
5	100	365	3825	1.72	360	51.5	21.1	9.4	59.1%	55.6%	101.9	41.7	18.5	81.1	-54.9
6	100	365	3822	1.72	240	72.6	42.1	9.4	41.9%	77.8%	143.5	83.3	18.5	81.1	-54.9
7	88	320	3287	1.31	105	30.2	8.1	4.0	73.3%	50.0%	78.4	20.9	10.5	45.8	-90.2
8	88	320	3285	1.31	316	38.2	6.0	4.0	84.2%	33.3%	99.2	15.7	10.4	45.7	-90.3
9	88	320	3288	1.31	211	42.3	10.1	4.0	76.2%	60.0%	109.8	26.1	10.5	45.8	-90.2
10	74	270	2938	1.43	89	36.0	9.0	3.6	75.0%	60.0%	85.6	21.4	8.6	37.5	-98.5
11	74	270	2960	1.43	267	39.9	9.1	3.6	77.3%	60.0%	94.8	21.6	8.6	37.8	-98.2
12	74	270	2961	1.43	179	36.3	9.1	3.6	75.0%	60.0%	86.2	21.6	8.6	37.8	-98.2

<sup>a</sup> Based on Table 2.

<sup>b</sup> Removal percentage in air pre-heater (APH) is calculated based on SAM emissions generated in the SCR and detected at ESP inlet.

<sup>c</sup> Calculated based on SAM emissions rate detected at the stack and at the ESP inlet.

<sup>d</sup> Calculated based on multiplying the actual SAM generated in SCR from the test results by the ratio of potential 3.4% fuel sulfur content and the actual sulfur content and using the actual SAM removal percentages in the APH and ESP from the test results.