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DIVISION OF AIR
RESOURCE MANAGEMENT

APPLICATION FOR AIR CONSTRUCTION PERMIT

Module

AB219

Florida Power & Light Company
Manatee Power Plant

Project No: 0810010-020-AC

Prepared For: Florida Power & Light Company
700 Universe Boulevard
Juno Beach, FL 33408

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

Distribution: 4 copies – FDEP
2 copies – FPL
1 copy – Golder Associates Inc.

October 2013

133-87568B

Permit Application

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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

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DIVISION OF AIR
RESOURCE MANAGEMENT

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: Florida Power & Light Company (FPL)	
2. Site Name: Manatee Power Plant	
3. Facility Identification Number: 0810010	
4. Facility Location... Street Address or Other Locator: 19050 State Road 62 City: Parrish County: Manatee Zip Code: 34219-9920	
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: Kevin Washington, Project Manager	
2. Application Contact Mailing Address... Organization/Firm: Florida Power & Light Company Street Address: 700 Universe Blvd. City: Juno Beach State: FL Zip Code: 33408	
3. Application Contact Telephone Numbers... Telephone: (561) 691-2877 ext. Fax: (561) 691-7049	
4. Application Contact E-mail Address:	

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 10-15-12	3. PSD Number (if applicable):
2. Project Number(s): 0810010-020-AC	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 improve the performance of existing General Electric (GE) Model PG7241(7FA.03) CTs associated with Units 3A, 3B, 3C, and 3D at the Manatee Power Plant with GE 7FA.04 components.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
005	Unit 3A - 170 MW gas turbine with supplementary-fired HRSG	AC1B	N/A
006	Unit 3B - 170 MW gas turbine with supplementary-fired HRSG	AC1B	N/A
007	Unit 3C - 170 MW gas turbine with supplementary-fired HRSG	AC1B	N/A
008	Unit 3D - 170 MW gas turbine with supplementary-fired HRSG	AC1B	N/A

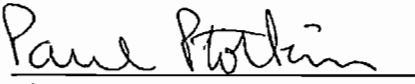
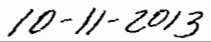
Application Processing Fee

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 : Paul Plotkin, Plant General Manager
2. Owner/Authorized Representative Mailing Address... Organization/Firm: Florida Power & Light Company Street Address: 19050 SR 62 City: Parrish State: FL Zip Code: 34219
3. Owner/Authorized Representative Telephone Numbers... Telephone: (941) 776-5211 ext. Fax: ()
4. Owner/Authorized Representative E-mail Address: pplotkin@fpl.com
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

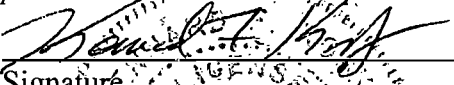
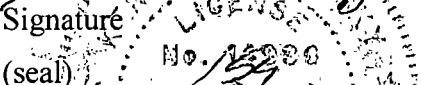
Application Responsible Official Certification

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:		
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 or CAIR 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 E-mail Address:		
6. Application Responsible Official Certification: <p>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.</p> <div style="display: flex; justify-content: space-between;"><div>_____ Signature</div><div>_____ Date</div></div>		

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: 6026 NW 1st Place City: Gainesville State: FL Zip Code: 32607
3. Professional Engineer Telephone Numbers... Telephone: (352) 336-5600 ext. 21156 Fax: (352) 336-6603
4. Professional Engineer E-mail Address: Ken_Kosky@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>  Signature _____ Date <u>10/14/13</u> (seal) 

* Attach any exception to certification statement.

** Board of Professional Engineers Certificate of Authorization # 00001670

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone 17 East (km) 367.25 North (km) 3054.15		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) 27° 36' 21" Longitude (DD/MM/SS) 82° 20' 44"	
3. Governmental Facility Code: 0	4. Facility Status Code: A	5. Facility Major Group SIC Code: 49	6. Facility SIC(s): 4911
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: Mary Maxwell, Senior Environmental Specialist
2. Facility Contact Mailing Address... Organization/Firm: Florida Power & Light Company Street Address: 19050 SR 62; 5 miles NE of Parrish City: Parrish State: FL Zip Code: 34219-9220
3. Facility Contact Telephone Numbers: Telephone: (941) - 776- 5278 ext. Fax: (941)-776-5219
4. Facility Contact E-mail Address: mary.maxwell@fpl.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 E-mail Address:

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:	

List of Pollutants Emitted by Facility

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

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'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:

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>July 2008</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>July 2008</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>July 2008</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>Part II</u>
3. Rule Applicability Analysis: <input checked="" type="checkbox"/> Attached, Document ID: <u>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 -- NA

- | |
|---|
| 1. List of Exempt Emissions Units:
<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-- NA

1. List of Insignificant Activities: (Required for initial/renewal applications only) <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) <input type="checkbox"/> Attached, Document ID: _____ <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) <input type="checkbox"/> 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) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities Onsite but Not Required to be Individually Listed <input type="checkbox"/> Not Applicable
5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
6. Requested Changes to Current Title V Air Operation Permit: <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_x 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 [1]

Units 3A, 3B, 3C, and 3D Gas Turbines

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 [1]

Units 3A, 3B, 3C, and 3D Gas Turbines

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:

Units 3A – 3D: Four identical gas turbines with heat recovery steam generators

3. Emissions Unit Identification Number:

EU 005 (Unit 3A), EU 006 (Unit 3B), EU 007 (Unit 3C), EU 008 (Unit 3D)

4. Emissions Unit Status Code: A	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: 49
--	--------------------------------	--------------------------	---

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

☒ Acid Rain Unit ☒ CAIR Unit

9. Package Unit:

Manufacturer: **General Electric** Model Number: **PG7241, 7FA.04 (components)**

10. Generator Nameplate Rating:

11. Emissions Unit Comment:

4-on-1 combined cycle system will consist of four nominal 170 MW GE 7FA.04 gas turbine-electrical generator sets and one nominal 470 MW steam turbine-electrical generator with a total nominal capacity of 1,150 MW fired only with natural gas. Initial startup dates: 10-Dec-04 (Unit 3A), 12-Dec-04 (Unit 3B), 18-Dec-04 (Unit 3C), and 16-Dec-04 (Units 3D).

EMISSIONS UNIT INFORMATION

Section [1]

Units 3A, 3B, 3C, and 3D Gas Turbines

Emissions Unit Control Equipment/Method: Control 1 of 2

1. Control Equipment/Method Description:

Low NOx Burners - Dry low-NOx combustors

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

Emissions Unit Control Equipment/Method: Control 2 of 2

1. Control Equipment/Method Description:

SCR (Selective Catalytic Reduction) - SCR system to reduce NOx emissions

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 [1]

Units 3A, 3B, 3C, and 3D Gas Turbines

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: Nominal power output for the combined-cycle unit – 1,150 MW
3. Maximum Heat Input Rate: 6,400 MMBtu/hr (LHV)
4. Maximum Incineration Rate: pounds/hr tons/day
5. Requested Maximum Operating Schedule: <div style="display: flex; justify-content: space-between;"><div>24 hours/day 52 weeks/year</div><div>7 days/week 8,760 hours/year</div></div>
6. Operating Capacity/Schedule Comment: Maximum heat input and power outputs are for the 4-on-1 combined cycle system based on 59 °F ambient temperature. Nominal power outputs for each turbine – 170 MW Maximum heat input rate for each turbine: 1,600 MMBtu/hr/LHV) HRSG duct burners have heat input of 495 MMBtu/hr (LHV)

EMISSIONS UNIT INFORMATION

Section [1]

Units 3A, 3B, 3C, and 3D Gas Turbines

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: 3A-3D HRSG STACK		2. Emission Point Type Code: 1	
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: V	6. Stack Height: 120 feet	7. Exit Diameter: 19 feet	
8. Exit Temperature: 202°F	9. Actual Volumetric Flow Rate: 1,004,200 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: Stack parameters (combined-cycle operation) based on Title V permit renewal application dated May 2013.			

EMISSIONS UNIT INFORMATION

Section [1]

Units 3A, 3B, 3C, and 3D Gas Turbines

D. SEGMENT (PROCESS/FUEL) INFORMATION**Segment Description and Rate:** Segment 1 of 1

1. Segment Description (Process/Fuel Type): Internal Combustion Engines; Electric Generation; Natural Gas Turbine		
2. Source Classification Code (SCC): 2-01-002-01		3. SCC Units: Million cubic feet burned
4. Maximum Hourly Rate: 7.10	5. Maximum Annual Rate: 62,196	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 1,000 (HHV)
10. Segment Comment: <u>COMBUSTION TURBINES:</u> Hourly rate = 1,600 MMBtu/hr x 1.11 (HHV/LHV) / 1000 MMBtu/ MMft ³ x 4 turbines = 7.10 MMft ³ /hr Annual rate = 7.10 x 10 ⁶ ft ³ /hr x 8,760 hrs/yr = 62,196 MMft ³ /yr Note: Does not include duct burners that have a heat input of 495 MMBtu/hr (LHV) and total heat input limit of 5,702,400 MMBtu (LHV) during any consecutive 12 months.		

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]

Units 3A, 3B, 3C, and 3D Gas Turbines

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
NO _x	205, 139		EL
CO			EL
PM/PM ₁₀			WP
VOC			EL
SO ₂			WP
NH ₃			EL

POLLUTANT DETAIL INFORMATION

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Units 3A, 3B, 3C, and 3D Gas Turbines

Nitrogen Oxide – NO_x

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive and Baseline & Projected Actual Emissions

1. Pollutant Emitted: NOx		2. Total Percent Efficiency of Control:	
3. Potential Emissions lb/hour tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code:	
8.a. Baseline Actual Emissions (if required): 247.85 tons/year		8.b. Baseline 24-month Period: From: 1/1/2008 To: 12/31/2009	
9.a. Projected Actual Emissions (if required): 253.86 tons/year		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: See Table 9 of Part II.			
11. Potential, Fugitive, and Actual Emissions Comment:			

EMISSIONS UNIT INFORMATION

Section [1]
Units 3A, 3B, 3C, and 3D Gas Turbines

POLLUTANT DETAIL INFORMATION

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Nitrogen Oxide – NO_x

**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 6

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 9.0 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 58.7 lb/hour tons/year
5. Method of Compliance: CEMS (24-hr Block Average) or Stack test (3-run average) using EPA Method 7E or 20	
6. Allowable Emissions Comment (Description of Operating Method): Based on simple-cycle operation at 100% load and 59 F. Equivalent allowable emissions rates are for each turbine Based on PSD-FL-328 and Permit No. 0810010-019-AV.	

Allowable Emissions Allowable Emissions 2 of 6

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 12.0 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 76.2 lb/hour tons/year
5. Method of Compliance: CEMS (24-hr Block Average) or Stack test (3-run average) using EPA Method 7E or 20	
6. Allowable Emissions Comment (Description of Operating Method): Based on simple-cycle operation at Power Augmentation mode at 100% load and 59 F. Equivalent emissions rates are for each turbine. Based on PSD-FL-328 and Permit No. 0810010-019-AV.	

Allowable Emissions Allowable Emissions 3 of 6

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 15.0 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 95.3 lb/hour tons/year
5. Method of Compliance: CEMS (24-hr Block Average) or Stack test (3-run average) using EPA Method 7E or 20	
6. Allowable Emissions Comment (Description of Operating Method): Based on simple-cycle operation at Peaking Mode at 100% load and 59 F. Equivalent emissions rates are for each turbine. Based on PSD-FL-328 and Permit No. 0810010-019-AV.	

EMISSIONS UNIT INFORMATION

Section [1]
Units 3A, 3B, 3C, and 3D Gas Turbines

POLLUTANT DETAIL INFORMATION

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Nitrogen Oxide – NO_x

**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 4 of 6

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 2.5 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 16.3 lb/hour tons/year
5. Method of Compliance: CEMS (24-hr Block Average) or Stack test (3-run average) using EPA Method 7E or 20	
6. Allowable Emissions Comment (Description of Operating Method): Based on combined-cycle operation with SCR control at 100% load and 59 F. Equivalent emissions rates are based on post turbine improvement (GE data) and for each turbine. Based on PSD-FL-328 and Permit No. 0810010-019-AV.	

Allowable Emissions Allowable Emissions 5 of 6

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 2.5 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 23.6 lb/hour tons/year
5. Method of Compliance: CEMS (24-hr Block Average) or Stack test (3-run average) using EPA Method 7E or 20	
6. Allowable Emissions Comment (Description of Operating Method): Based on combined-cycle operation with SCR control and duct firing at 100% load and 59°F. Equivalent emissions rates are for each turbine. Duct burner emission rate = (23.6-16.3) lb/hr (Permit No. 0810010-014-AV) = 7.3 lb/hr Rate after turbine improvement = 16.8 lb/hr (GE data) + 7.3 lb/hr = 24.1 lb/hr CT with SCR control at all modes limited to 2.5 ppmvd @ 15% O₂ Based on PSD-FL-338 and Permit No. 0810010-019-AV.	

Allowable Emissions Allowable Emissions 6 of 6

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 2.5 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 16.8 lb/hour tons/year
5. Method of Compliance: Stack test (3-run average) using EPA Method 7E or 20	
6. Allowable Emissions Comment (Description of Operating Method): Based on combined-cycle operation at 100% load and 59°F. Equivalent emissions rates are based on post turbine improvement = 16.8 lb/hr (GE data) and for each turbine. Based on PSD-FL-338 and Permit No. 0810010-019-AV.	

POLLUTANT DETAIL INFORMATION

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Units 3A, 3B, 3C, and 3D Gas Turbines

Page [2] of [6]
Carbon Monoxide – CO

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive and Baseline & Projected Actual Emissions

1. Pollutant Emitted: CO		2. Total Percent Efficiency of Control:	
3. Potential Emissions lb/hour tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code:	
8.a. Baseline Actual Emissions (if required): 30.31 tons/year		8.b. Baseline 24-month Period: From: 1/1/2008 To: 12/31/2009	
9.a. Projected Actual Emissions (if required): 31.14 tons/year		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: See Table 9 of Part II.			
11. Potential, Fugitive, and Actual Emissions Comment:			

EMISSIONS UNIT INFORMATION

Section [1]

Units 3A, 3B, 3C, and 3D Gas Turbines

POLLUTANT DETAIL INFORMATION

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Carbon Monoxide – CO

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 3

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 7.4 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 27.5 lb/hour tons/year
5. Method of Compliance: Stack test (3-hr average) using EPA Method 10	
6. Allowable Emissions Comment (Description of Operating Method): Based on gas-firing simple cycle or combined-cycle normal operation at 100% load and 59 °F. Equivalent emissions rates are for each turbine. Based on PSD-FL-328 and Permit No. 0810010-019-AV.	

Allowable Emissions Allowable Emissions 2 of 3

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 12.0 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 45.0 lb/hour tons/year
5. Method of Compliance: Stack test (3-hr average) using EPA Method 10 or CEMS (24-hr Block Average)	
6. Allowable Emissions Comment (Description of Operating Method): Based on natural gas-firing simple-cycle operation at Power Augmentation mode at 100% load and 59 °F. Equivalent emissions rates are for each turbine. Based on PSD-FL-328 and Permit No. 0810010-019-AV.	

Allowable Emissions Allowable Emissions 3 of 3

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 10.0 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: CEMS (24-hr Block Average)	
6. Allowable Emissions Comment (Description of Operating Method): Based on natural Gas-firing combined-cycle normal operation at all modes at 100% load and 59 °F. Equivalent emissions rates are for each turbine. Based on PSD-FL-328 and Permit No. 0810010-019-AV.	

POLLUTANT DETAIL INFORMATION

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Units 3A, 3B, 3C, and 3D Gas Turbines

Volatile Organic Compounds-VOC

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive and Baseline & Projected Actual Emissions

1. Pollutant Emitted: VOC		2. Total Percent Efficiency of Control:	
3. Potential Emissions lb/hour tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code:	
8.a. Baseline Actual Emissions (if required): 22.18 tons/year		8.b. Baseline 24-month Period: From: 1/1/2008 To: 12/31/2009	
9.a. Projected Actual Emissions (if required): 22.71 tons/year		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: See Table 9 of Part II.			
11. Potential, Fugitive, and Actual Emissions Comment:			

EMISSIONS UNIT INFORMATION

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Units 3A, 3B, 3C, and 3D Gas Turbines

POLLUTANT DETAIL INFORMATION

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Volatile Organic Compounds-VOC

**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 2

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 1.3 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 2.8 lb/hour tons/year
5. Method of Compliance: Stack test using EPA Methods 25A or 18 (3-run average)	
6. Allowable Emissions Comment (Description of Operating Method): Based on simple or combined-cycle normal operation Equivalent emissions rates are for each turbine. Based on PSD-FL-328 and Permit No. 0810010-019-AV.	

Allowable Emissions Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 4.0 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 10.5 lb/hour tons/year
5. Method of Compliance: Stack test using EPA Methods 25A or 18 (3-run average)	
6. Allowable Emissions Comment (Description of Operating Method): Based on combined-cycle with duct firing and/or Peak Augmentation mode. Equivalent emissions rates are for each turbine. Based on PSD-FL-328 and Permit No. 0810010-019-AV.	

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):	

POLLUTANT DETAIL INFORMATION

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Units 3A, 3B, 3C, and 3D Gas Turbines

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Particulate Matter-PM/PM10

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive and Baseline & Projected Actual Emissions

1. Pollutant Emitted: PM/PM10		2. Total Percent Efficiency of Control:	
3. Potential Emissions lb/hour tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code:	
8.a. Baseline Actual Emissions (if required): 0.16 tons/year		8.b. Baseline 24-month Period: From: 1/1/2008 To: 12/31/2009	
9.a. Projected Actual Emissions (if required): 0.17 tons/year		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: See Table 9 of Part II.			
11. Potential, Fugitive, and Actual Emissions Comment:			

EMISSIONS UNIT INFORMATION

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Units 3A, 3B, 3C, and 3D Gas Turbines

POLLUTANT DETAIL INFORMATION

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PM/PM10

**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: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: ≤ 10% Opacity	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: EPA Method 9	
6. Allowable Emissions Comment (Description of Operating Method): Based on simple or combined-cycle operation on a 6-minute block average. Emissions rates are for each turbine. Based on PSD-FL-328 and Permit No. 0810010-019-AV.	

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):	

POLLUTANT DETAIL INFORMATION

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Units 3A, 3B, 3C, and 3D Gas Turbines

Sulfur Dioxide – SO₂

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive and Baseline & Projected Actual Emissions

1. Pollutant Emitted: SO₂		2. Total Percent Efficiency of Control:	
3. Potential Emissions lb/hour tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code:	
8.a. Baseline Actual Emissions (if required): 14.70 tons/year		8.b. Baseline 24-month Period: From: 1/1/2008 To: 12/31/2009	
9.a. Projected Actual Emissions (if required): 15.05 tons/year		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: See Table 9 of Part II.			
11. Potential, Fugitive, and Actual Emissions Comment:			

EMISSIONS UNIT INFORMATION

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Units 3A, 3B, 3C, and 3D Gas Turbines

POLLUTANT DETAIL INFORMATION

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Sulfur Dioxide – SO₂

**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: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 2 gr S/100 scf	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: Fuel Analysis	
6. Allowable Emissions Comment (Description of Operating Method): Based on simple or combined cycle mode of operation Based on PSD-FL-328 and Permit No. 0810010-019-AV.	

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):	

POLLUTANT DETAIL INFORMATION

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Units 3A, 3B, 3C, and 3D Gas Turbines

Ammonia – NH₃

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive and Baseline & Projected Actual Emissions

1. Pollutant Emitted: Ammonia - NH₃		2. Total Percent Efficiency of Control:	
3. Potential Emissions lb/hour tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code:	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:			
11. Potential, Fugitive, and Actual Emissions Comment:			

EMISSIONS UNIT INFORMATION

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Units 3A, 3B, 3C, and 3D Gas Turbines

POLLUTANT DETAIL INFORMATION

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Ammonia – NH₃**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: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 5 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: Stack test using EPA Method CTC-027	
6. Allowable Emissions Comment (Description of Operating Method): Based on Combined cycle operation with SCR control	

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 [1]

Units 3A, 3B, 3C, and 3D Gas Turbines

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: VE10	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: 10 % Exceptional Conditions: 20 % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: EPA Method 9	
5. Visible Emissions Comment: During startup, shutdown, and malfunction, visible emissions in excess of 10% are authorized for up to ten, 6-minute averaging periods per 24 hr period. Also used as a surrogate standard for minimizing PM/PM10 emissions.	

Visible Emissions Limitation: Visible Emissions Limitation 2 of 2

1. Visible Emissions Subtype: VE99	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: 100% Maximum Period of Excess Opacity Allowed: 60 min/hour	
4. Method of Compliance: None	
5. Visible Emissions Comment: Per 62-210.700(1), excess emissions during startup, shutdown, or malfunction limited to 2 hours per 24 hour period.	

EMISSIONS UNIT INFORMATION

Section [1]

Units 3A, 3B, 3C, and 3D Gas Turbines

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 3

1. Parameter Code: O₂ - Oxygen	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: SERVOMEX Model Number: 1440D Serial Number: 3A: 01440D1/4704, 3B: 01440D1/4705, 3C: 01440D1/4706, 3D: 01440D1/4707	
5. Installation Date: 3A-3D: Feb 2013	6. Performance Specification Test Date: 3A-3D: Feb 2013
7. Continuous Monitor Comment: CEM required pursuant to 40 CFR 75.	

Continuous Monitoring System: Continuous Monitor 2 of 3

1. Parameter Code: EM - EMISSION	2. Pollutant(s): CO
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: HORIBA Model Number: 48 Serial Number: 3A: 0335003686/ 3B:0335003687/ 3C:0335003688/ 3D:0335003689	
5. Installation Date: 3A: 22-MAY-05/ 3B: 26-MAY-05/ 3C: 23-MAY-05/ 3D: 27-MAY-05	6. Performance Specification Test Date: 3A: 22-MAY-05/ 3B: 26-MAY-05/ 3C: 23-MAY-05/ 3D: 27-MAY-05
7. Continuous Monitor Comment: CEM required pursuant to 40 CFR 75.	

EMISSIONS UNIT INFORMATION

Section [1]

Units 3A, 3B, 3C, and 3D Gas Turbines

H. CONTINUOUS MONITOR INFORMATION

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

Continuous Monitoring System: Continuous Monitor 3 of 3

1. Parameter Code: EM - EMISSION	2. Pollutant(s): NO_x
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: TECO Model Number: 42I-LS Serial Number: 3A: 1233555755/ 3B: 1233555756/ 3C: 1233555757/ 3D: 1233555758	
5. Installation Date: 3A-3D: Feb 2013	6. Performance Specification Test Date: 3A-3D: Feb 2013
7. Continuous Monitor Comment: CEM required pursuant to 40 CFR 75.	

Continuous Monitoring System: Continuous Monitor of

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION

Section [1]

Units 3A, 3B, 3C, and 3D Gas Turbines

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 <u>July, 2008</u>
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 <u>July, 2008</u>
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 <u>July, 2008</u>
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 type="checkbox"/> Previously Submitted, Date _____ <input checked="" 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 type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

Units 3A, 3B, 3C, and 3D Gas Turbines

Additional Requirements for Air Construction Permit Applications

Additional Requirements for Title V Air Operation Permit Applications – N/A

Additional Requirements Comment

[illegible]

PART II

PART II
APPLICATION FOR MINOR SOURCE AIR CONSTRUCTION PERMIT
FOR IMPROVING MANATEE UNITS 3A, 3B, 3C, AND 3D
(EU IDS 005, 006, 007, AND 008)

EXECUTIVE SUMMARY

Florida Power & Light Company (FPL) is seeking authorization from the Florida Department of Environmental Protection (FDEP) to improve the performance of the General Electric (GE) Model PG7241 gas turbines (7FA.03) associated with Units 3A through 3D (EU IDs 005, 006, 007, and 008) at the FPL Manatee Power Plant. The purpose of the project is to improve the performance of the GE Model PG7241 turbines with 7FA.04 components. The components being replaced are typically those requiring routine replacement due to normal operation. However, replacing the 7FA.03 components with 7FA.04 components results in higher efficiency and provides approximately a four percent increase in output power per turbine with an approximate two percent decrease in heat rate (heat input/output power) per turbine.

The 7FA.04 components have a projected design heat input capacity approximately two percent higher than the 7FA.03. As a result, there will be an expected increase in the design fuel flow for the units compared to same turbine inlet temperature based on manufacturer information. In addition, hourly emissions of air pollutants regulated under FDEP and federal Prevention of Significant Deterioration (PSD) program that are directly related to fuel, such as sulfur dioxide (SO₂), sulfuric acid mist (SAM), and particulate matter (PM), including PM with aerodynamic diameter equal to or less than 10 or 2.5 microns (PM₁₀/PM_{2.5}), will also potentially increase. Based on GE data for the 7FA.04 components, there will be no increase in hourly mass emissions of carbon monoxide (CO) or volatile organic compounds (VOCs), and a small increase in the hourly mass emission rate of nitrogen oxides (NO_x), which will be controlled by the downstream SCR. Based on the current actual-to-projected actual annual emissions test, the turbine improvement project will not result in a net increase of any regulated pollutant, nor of greenhouse gases (GHGs) regulated under the Tailoring Rule, above the PSD significant emission rates.

INTRODUCTION

The Manatee Power Plant is located at 19050 State Road 62 of Parrish City in Manatee County, Florida. The facility is currently operating under Title V Permit No. 0810010-014-AV (draft Proposed Title V issued July 19, 2013).

Golder Associates Inc. (Golder) was contracted to prepare and submit the necessary air permit application seeking authorization for the installation of 7FA.04 components and assist with any FDEP questions and additional information requests. This air permit application consists of the appropriate application form [Part I; DEP Form 62-210.900(1)], a technical description of the project, rule applicability

for the project, and emissions calculations demonstrating that the proposed project will not result in a significant net emissions increase.

Manatee Power Plant Unit 3's four gas turbines are permitted to fire only natural gas. The current design heat input rate for the turbines are 1,552 million British thermal units per hour (MMBtu/hr) [75 degrees Fahrenheit (°F) ambient temperature, PSD permit application dated September 2003]. There will be no change in the type of permitted fuel as a result of the project. The design heat input rates for natural gas-firing will increase by 39 MMBtu/hr (2.5 percent), based on GE data on 7FA.04 turbines at 75°F ambient temperature. Data from the National Climatic Data Center (NCDC) indicates the 30-year (1983 to 2012) average temperature for Tampa is 73°F (median 73.6°F). As a result, GE data for an ambient temperature of 75°F represent annual operating conditions and were used in the calculation.

The current permitted emissions limits for the Unit 3 gas turbines are listed in Condition No. B.10 of Title V Permit No. 0810010-014-AV (Title V Permit No. 0810010-019-AV). The improved 7FA.04 model turbines will guarantee the same concentration-based emissions limits for NO_x, CO, and VOC. There will also be no increase in hourly mass emission rates for CO and VOC. However, the potential hourly mass emission rate of NO_x will increase by 0.5 pound per hour (lb/hr) (at 75°F) for natural gas-firing.

There are currently no mass based emissions limits for SO₂, SAM, or PM/PM₁₀/PM_{2.5}. Since emissions of these pollutants are directly proportional to fuel flow and the proposed project will increase the design fuel flow capacity of the turbines, the potential hourly mass emission rates of these pollutants will also increase. Due to the improved efficiency and higher output of the installation of the 7FA.04 components, potential emissions of all pollutants will decrease on a per megawatt-hour (MW-hr) basis.

There are currently no post-combustion control technologies for emissions of CO, VOC, SO₂, SAM, or PM/PM₁₀/PM_{2.5}. Emissions of NO_x are controlled by Dry Low-NO_x (DLN) combustion technology, and a selective catalytic reduction (SCR) system. The installation of the 7FA.04 components will rely on the same existing control technologies.

PROJECT DESCRIPTION

Manatee Power Plant Unit 3 consists of four gas turbine electrical generator sets, which include GE Model PG7241 turbines/generators, heat recovery steam generators, and a steam electric generator. The proposed project will replace component parts normally associated with maintenance outages for the GE PG7241, 7FA.03 turbine with 7FA.04 components, which offer greater output and greater efficiency without sacrificing reliability, availability, or operational flexibility. The 7FA.04 components will increase the output power by approximately four percent (baseload with natural gas-firing at 75°F). As a result of the greater output, mass emission rates of all criteria pollutants will decrease on a per MW-hr basis.

The project will include installation of new hot gas path components, new combustion liners and flow sleeves, and new control software to increase firing temperature. The advanced gas path of 7FA.04 uses less air for cooling the parts. As a result, more air is available for combustion and power generation. The turbines will remain equipped with the DLN 2.6 combustion system, which is GE's latest evolution of Dry Low-NO_x combustion technology.

The current schedule for the project has the installation for Units 3A-3D to be completed by Spring of 2014.

RULE APPLICABILITY

PSD/New Source Review (NSR)

Under Federal and State of Florida 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, Florida Administrative Code (F.A.C.).

A "major facility" is defined as any 1 of 28 named source categories that have the potential to emit 100 tons per year (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.

The Manatee Power Plant is an existing major facility under PSD rules. For an existing major facility for which a project is proposed, the project is subject to PSD review if the net increase in emissions due to the project is greater than the PSD significant emission rates for any applicable pollutant. A "modification" is defined in FDEP Rule 62-210.200(205), F.A.C., 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 regulation under the [Clean Air] Act, including any not previously emitted, from any emission unit or facility". Because there is a physical change and the hourly mass emission rates will potentially increase, the project is a potential modification as defined in Rules 62-210.200 and 62-212.400 (PSD), F.A.C.

To demonstrate that the proposed project is not a major modification under the Department's PSD rules, an emissions comparison between baseline actual emissions and projected actual emissions was conducted pursuant to FDEP Rule 62-212.400(2)(1), F.A.C., for Manatee Power Plant Unit 3 (Units 3A,

3B, 3C, and 3D). The baseline, or current, actual emissions are the emissions over a consecutive 24-month period within the 5 years immediately preceding the date that a complete application is submitted. The use of different consecutive 24-month periods for each pollutant is allowed. Projected actual emissions are maximum annual rate, in tons per year, at which the existing emission unit is projected to emit a PSD pollutant in any of the 5 years following the date the unit resumes regular operation.

Table 1 presents the total actual heat input from natural gas reported in the Annual Operating Reports (AORs) as well as the actual operating hours for the period 2008 through 2012 for Units 3A through 3D.

Table 2 summarizes the annual emissions reported in the AORs for each calendar year in the period 2008 through 2012. The carbon dioxide (CO₂) emission rates in Table 2 were obtained from EPA's Acid Rain database.

Since emissions of nitrous oxide (N₂O) and methane (CH₄) were not reported in the AORs, they were calculated based on the actual annual heat input and emission factors from Title 40, Part 98 of the Code of Federal Regulations (40 CFR 98), Subpart C. These emissions are summarized in Table 3, which also shows the CO₂ equivalent (CO₂e) rates for these pollutants.

Table 4 presents the average emissions for each consecutive 2-year period based on the calendar year emissions in Tables 2 and 3. The annual average emissions for each consecutive 2-year period are consistent with the definition of baseline actual emissions for fossil fuel-fired steam electric generating units.

The actual hourly emission rates were calculated based on the reported annual emission rates and operating hours in the AORs, which are summarized in Table 5.

The actual emission factors in pounds per million British thermal units heat input (lb/MMBtu) were calculated in Table 6 for each calendar year in the period 2008 through 2012. The factors are calculated by dividing the total annual emissions by the total annual heat input.

The projected increases in annual emissions for each turbine are presented in Table 7. The emission increases are calculated based on the maximum actual emission factors (lb/MMBtu) for each pollutant shown in Table 6 and the maximum annual increase in design heat input rate. The maximum annual increase in design heat input rate was calculated using the hourly increase in design heat input rate for each fuel at 75°F ambient temperature and projected operating hours for each fuel. The calculation considers the projected annual operating hours of 8,104 hours per year (hr/yr) for natural gas, which is based on maximum actual operation on natural gas for any of the four turbines in the period 2008 to 2012 (see Table 1).

Table 8 presents the projected annual emissions, which were calculated by adding the projected annual increase in emissions from Table 7 to the baseline emissions. The baseline emissions are based on maximum 2-year average emissions from Table 4.

Table 9 compares baseline actual emissions and projected actual emissions for Units 3A, 3B, 3C, and 3D. The baseline 2-year average emissions from Table 4 and the projected actual emissions from Table 8 are used to calculate the increase in emissions as a result of the project. These increases are the same as the increases calculated in Table 8. The projected annual emissions increases were based on an operation of 8,104 hr/yr, which are based on the maximum operating hours for any CT for Unit 3 during the baseline period. The installation of the 7FA.04 components result in a slight increase in the energy output while improving the heat rate. Any difference between the hours of operation associated with the baseline actual emissions and hours associated with projected actual emissions are a result of the growth in projected demand. Pursuant to Rule 62-210.200(249)(c), F.A.C., any emissions associated with the demand growth are excluded from the definition of projected actual emissions.

The projected increase in GHG emissions as total CO₂e is also shown in Table 9. As shown, the projected increase in all regulated pollutants including GHGs is less than the PSD significant emission rates in the EPA Tailoring Rule. As a result, the proposed project is not subject to PSD review. A minor source air construction permit application is applicable to the project.

While there is a slight project increase in GHG emissions, there is an overall reduction in heat rate (Btu/kWh) that reduces the amount of emissions for each megawatt-hour (MWh) generated. For example, there is an approximate 2 percent decrease in heat rate as a result of the project. As shown in Table 9, the baseline actual CO₂e emissions are approximately 2.9 million tons/year. With a 2 percent reduction in heat rate for the project, the CO₂e emissions for the same amount of generation as 2008-2009 would be approximately 58,000 tons lower. Since the proposed project will increase power output, on a lb CO₂e/MWh basis, Manatee Power Plant Unit 3 will have less CO₂e emissions than it currently does. The output based emissions for other air emissions will also decrease on a lb/MWh basis.

NSPS

Manatee Power Plant Units 3A through 3D are currently subject to 40 CFR 60 Subpart GG, Standard of Performance for Stationary Gas Turbines. For the purpose of New Source Performance Standards (NSPS) applicability, 40 CFR 60.14 defines modification as any physical or operational change to an existing facility that results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies. 40 CFR 60.14 also states that the emission rate shall be expressed as kilograms per hour (kg/hr). NO_x and SO₂ are regulated under NSPS for Stationary Gas Turbines. Since the hourly emission rates for these pollutants may potentially increase, the proposed project is a potential modification according to the rules for NSPS. As a result, the improved Unit 3 turbines may be subject to

40 CFR 60 Subpart KKKK, the revised Standard of Performance for Stationary Combustion Turbines, which applies to stationary combustion turbines with a heat input at peak load equal to greater than 10 MMBtu/hr that commence construction, modification, or reconstruction after February 18, 2005.

Moreover, Manatee Power Plant Unit 3 was approved with several operating modes that could produce higher or equivalent emissions as the 7FA.04 project. In addition, after the energy improvement, the turbines will comply with the same concentration-based NO_x emissions standards they are currently subject to, which are 2.5 parts per million, dry volume basis, at 15-percent oxygen (ppmvd @ 15% O₂) for natural gas-firing, during combined-cycle operation.

NSPS Subpart KKKK limits NO_x emissions to 15 ppmvd @ 15% O₂ for natural gas-firing for turbines with heat input rate greater than 850 MMBtu/hr (high heating value). NSPS Subpart KKKK also limits NO_x emissions to 0.43 pound per megawatt-hour (lb/MWh) for natural gas-firing. Based on the current design gross power output of the CT of 175 megawatts (MW) (at 59°F), output-based current emissions limits are 0.093 lb/MWh (using 16.3 lb/hr with SCR control). After the improvement, these emission rates will be 0.090 lb/MWh (based on 184 MW at 59°F).

Finally, the 7FA.04 improvement decreases the exhaust mass flow of the combustion turbine slightly. As a result, there is not expected to be any increase in kg/hr emissions of NO_x based on the use of SCR.

For these reasons, it is believed no increase in kg/hr NO_x emissions will occur from the project. It is proposed that the CEMs data post the upgrades be reviewed to determine if an increase has occurred. In any event, the 7FA.04 project will comply with, and be much less than, the emission limiting standards of Subpart KKKK for NO_x.

NSPS Subpart KKKK limits SO₂ emissions by limiting the sulfur in the fuel (0.06 lb/MMBtu) or based on the output (0.9 lb/MWh). Based on AOR data for the period 2008 – 2012, the current actual maximum SO₂ emission rate is 0.00061 lb/MMBtu. The potential heat input rate for the turbines will increase by approximately two percent. SO₂ emissions are directly proportional to heat input for the same sulfur content of fuel and the lb/MMBtu rate is expected to remain the same. Since natural gas is the only permitted fuel, the amount of sulfur will vary slightly. As a result, the projected minor increase in heat input may not increase emissions based on the normal variability of sulfur in natural gas. Indeed, Section 60.14(2) of 40 CFR 60 recognizes the potential for statistical variability in determining an increase in kg/hr (i.e., Appendix C of 40 CFR 60). For this reason, future sulfur content data post upgrades will be reviewed to determine if an increase in kg/hr SO₂ emissions has occurred. In any event, the 7FA.04 project will comply with the emission limiting standards of Subpart KKKK for SO₂.

PROPOSED CHANGES TO EXISTING PERMIT CONDITIONS

The Manatee Power Plant is currently operating under Title V air operating permit No. 0810010-014-AV. Condition No. B.10 of Title V permit lists the emissions limitations and standards for Units 3A through 3D. NO_x, CO, and VOC are the three pollutants with concentration-based and mass emissions limits, which are based on GE performance data for base load operation at 59°F ambient temperature. Based on GE data, the improved turbines will achieve the same concentration-based emissions and same mass emission rates for CO and VOC. Therefore, FPL is requesting no change to the existing emissions limits for CO and VOC (concentrations and mass based), and the same concentration-based limits for NO_x. Based on GE data, the mass emission rate potential for NO_x will slightly increase. The proposed mass emissions limits for NO_x at a turbine inlet temperature of 59°F are presented below:

Fuel	Method of Operation	Current	Proposed
Natural gas-firing	Combined-cycle with SCR	16.3 lb/hr	16.8 lb/hr
	Combined-cycle with SCR and duct firing	23.6 lb/hr	24.1 lb/hr

The proposed rates are based on GE performance data for 7FA.04 improvement at 59°F ambient temperature. It should be noted that the mass emissions are used only for comparison with annual emissions tests. Compliance is based on 2.5 ppmvd corrected to 15 percent oxygen. As a result, actual hourly emissions on a kg/hr are not expected to increase.

FPL also requests that the gas turbine heat input rates in permit No. 0810010-019-AV be revised from 1,600 MMBtu/hr (LHV) to 1,659 MMBtu/hr (LHV) at the compressor inlet air temperature of 59°F.

TABLES

**Table 1. Manatee Power Plant Unit 3
Annual Heat Inputs and Operating Hours, 2008 - 2012**

UNIT 3

Year	Total Actual Heat Input from Natural Gas (MMBtu/yr)				
	Unit 3A	Unit 3B	Unit 3C	Unit 3D	Total
2012	11,159,000	12,349,000	11,449,000	12,366,000	47,323,000
2011	9,839,089	9,989,000	10,276,000	10,126,000	40,230,089
2010	10,336,000	11,847,000	11,093,000	10,324,000	43,600,000
2009	12,377,000	12,145,000	12,878,000	12,904,000	50,304,000
2008	12,034,000	11,932,000	12,739,000	12,613,000	49,318,000

UNIT 3

Year	Total Actual Operating Hours (hr/yr)				
	Unit 3A	Unit 3B	Unit 3C	Unit 3D	Total
2012	7,094	7,683	7,261	7,677	29,715
2011	6,300	6,190	6,604	6,389	25,483
2010	6,567	7,482	6,970	6,562	27,581
2009	7,670	7,517	7,920	7,928	31,035
2008	7,681	7,615	8,104	8,016	31,416

Note: All values are based on annual operating reports for the period 2008 - 2012.

Table 2. Annual Emissions Reported in 2008-2012 Annual Operating Reports and Acid Rain Database for Unit 3

Year	Pollutant	Unit 3A (tons)	Unit 3B (tons)	Unit 3C (tons)	Unit 3D (tons)	Total (tons)
2012	NO _x	59.6	63.2	54.9	57.3	234.9
	CO	6.2	6.2	5.2	6.9	24.5
	SO ₂	3.4	3.7	3.5	3.8	14.4
	VOC	7.24	3.69	6.53	3.38	20.8
	PM	0.037	0.041	0.038	0.041	0.16
	PM ₁₀	0.037	0.041	0.038	0.041	0.16
	SAM ^a	--	--	--	--	2.2
	CO ₂	670,075.1	741,465.6	687,505.9	743,851.6	2,842,898.2
2011	NO _x	47.8	43.2	47.5	50.6	189.1
	CO	5.8	6.1	4.1	7.1	23.2
	SO ₂	2.8	3.0	3.0	3.0	11.8
	VOC	6.43	2.97	5.94	2.81	18.2
	PM	0.032	0.033	0.034	0.033	0.13
	PM ₁₀	0.032	0.033	0.034	0.033	0.13
	SAM ^a	--	--	--	--	1.8
	CO ₂	584,725.4	593,634.4	610,707.2	601,775.9	2,390,842.8
2010	NO _x	56.9	61.7	48.1	58.1	224.8
	CO	6.0	7.4	4.4	7.3	25.1
	SO ₂	3.0	3.5	3.3	3.0	12.8
	VOC	6.70	3.59	6.27	2.89	19.4
	PM	0.034	0.039	0.037	0.034	0.14
	PM ₁₀	0.034	0.039	0.037	0.034	0.14
	SAM ^a	--	--	--	--	2.0
	CO ₂	604,753.1	702,666.0	641,828.6	600,286.2	2,549,533.9
2009	NO _x	66.3	64.5	61.8	62.2	254.8
	CO	5.3	5.2	7.6	7.6	25.7
	SO ₂	3.6	3.6	3.7	3.9	14.8
	VOC	7.82	3.61	7.13	3.49	22.0
	PM	0.041	0.040	0.042	0.043	0.2
	PM ₁₀	0.041	0.040	0.042	0.043	0.2
	SAM ^a	--	--	--	--	2.3
	CO ₂	733,562.1	724,253.1	746,786.6	760,908.1	2,965,509.9
2008	NO _x	58.8	61.9	57.5	62.7	240.9
	CO	9.6	8.4	7.7	9.2	34.9
	SO ₂	3.6	3.5	3.7	3.8	14.6
	VOC	7.83	3.66	7.29	3.53	22.3
	PM	0.040	0.039	0.042	0.042	0.16
	PM ₁₀	0.040	0.039	0.042	0.042	0.16
	SAM ^a	--	--	--	--	2.2
	CO ₂	706,165.4	696,361.5	732,475.6	736,636.0	2,871,638.5

^a Not reported in AORs - based on assuming 10% of SO₂ converts to SO₃, all of which converts to SAM.

Source: Annual Operating Report (AOR) for Manatee Power Plant, 2008 - 2012; EPA's Acid Rain database.

Table 3. Actual Annual Emissions of N₂O and CH₄ for the Period 2008 - 2012
Units 3 CT Improvement Project

Unit	Actual Annual Heat Input ^a (MMBtu/yr)	N ₂ O Emissions				CH ₄ Emissions			
		Emission Factor ^b (lb/MMBtu)	Annual Emissions		CO ₂ e ^c Rate (TPY)	Emission Factor ^b (lb/MMBtu)	Annual Emissions		CO ₂ e ^c Rate (TPY)
			(lb/yr)	(TPY)			(lb/yr)	(TPY)	
<u>Unit 3 - Natural Gas-Firing</u>									
2012	47,323,000	2.20E-04	10,430.0	5.2	1,616.6	2.2E-03	104,299.9	52.1	1,095.1
2011	40,230,089	2.20E-04	8,866.7	4.4	1,374.3	2.2E-03	88,667.1	44.3	931.0
2010	43,600,000	2.20E-04	9,609.4	4.8	1,489.5	2.2E-03	96,094.4	48.0	1,009.0
2009	50,304,000	2.20E-04	11,087.0	5.5	1,718.5	2.2E-03	110,870.0	55.4	1,164.1
2008	49,318,000	2.20E-04	10,869.7	5.4	1,684.8	2.2E-03	108,696.9	54.3	1,141.3
<u>Total</u>									
2012	--	--	--	5.2	1,616.6	--	--	52.1	1,095.1
2011	--	--	--	4.4	1,374.3	--	--	44.3	931.0
2010	--	--	--	4.8	1,489.5	--	--	48.0	1,009.0
2009	--	--	--	5.5	1,718.5	--	--	55.4	1,164.1
2008	--	--	--	5.4	1,684.8	--	--	54.3	1,141.3

^a Based on AOR data - see Table 1.

^b Table C-2, Subpart C, 40 CFR 98. Emission factors in kg/MMBtu were converted to lb/MMBtu by multiplying by 2.204.

^c N₂O and CH₄ are multiplied by a factor of 310 and 21, respectively, to determine CO₂ equivalence.

Table 4. Annual Average Emissions for Manatee Power Plant Unit 3 for Each Consecutive Two-Year Period, 2008-2012

Pollutant	Annual Emissions for Unit 3					Two-Year Average Emissions			
	2012	2011	2010	2009	2008	2012-2011 (tons)	2011-2010 (tons)	2010-2009 (tons)	2009-2008 (tons)
NO _x	234.9	189.1	224.8	254.8	240.9	212.0	207.0	239.8	247.9
CO	24.5	23.2	25.1	25.7	34.9	23.9	24.1	25.4	30.3
SO ₂	14.4	11.8	12.8	14.8	14.6	13.1	12.3	13.8	14.7
VOC	20.8	18.2	19.4	22.0	22.3	19.5	18.8	20.7	22.2
PM	0.2	0.1	0.1	0.2	0.2	0.14	0.14	0.15	0.16
PM ₁₀	0.2	0.1	0.1	0.2	0.2	0.14	0.14	0.15	0.16
PM _{2.5} ^a	0.2	0.1	0.1	0.2	0.2	0.14	0.14	0.15	0.16
SAM ^b	2.2	1.8	2.0	2.3	2.2	2.0	1.9	2.1	2.3
CO ₂	2,842,898.2	2,390,842.8	2,549,533.9	2,965,509.9	2,871,638.5	2,616,870.5	2,470,188.4	2,757,521.9	2,918,574.2
N ₂ O ^c (CO ₂ e)	1,616.6	1,374.3	1,489.5	1,718.5	1,684.8	1,495.5	1,431.9	1,604.0	1,701.6
CH ₄ ^c (CO ₂ e)	1,095.1	931.0	1,009.0	1,164.1	1,141.3	1,013.1	970.0	1,086.6	1,152.7

^a Assuming equal to PM₁₀ emissions.

^b Not reported in AORs - based on assuming 10% of SO₂ converts to SO₃, all of which converts to SAM.

^c Calculated based on actual annual heat input - see Table 3.

Source: Annual Operating Report (AOR) for Manatee Power Plant, 2008 - 2012; EPA's Acid Rain database.

Table 5. Actual Hourly Emission Rates, FPL Manatee Power Plant Units 3A, 3B, 3C, and 3D

Pollutant	Year	Annual Emissions ^a (tons)				Operating Hours ^a				Hourly Emission Rates (lb/hr)				Maximum Rate (lb/hr)
		Unit 3A	Unit 3B	Unit 3C	Unit 3D	Unit 3A	Unit 3B	Unit 3C	Unit 3D	Unit 3A	Unit 3B	Unit 3C	Unit 3D	
NO _x	2012	59.6	63.2	54.9	57.3	7,094	7,683	7,261	7,677	16.8	16.4	15.1	14.9	17.71
	2011	47.8	43.2	47.5	50.6	6,300	6,190	6,604	6,389	15.2	14.0	14.4	15.8	
	2010	56.9	61.7	48.1	58.1	6,567	7,482	6,970	6,562	17.3	16.5	13.8	17.7	
	2009	66.3	64.5	61.8	62.2	7,670	7,517	7,920	7,928	17.3	17.2	15.6	15.7	
	2008	58.8	61.9	57.5	62.7	7,681	7,615	8,104	8,016	15.3	16.3	14.2	15.6	
									Maximum =	17.3	17.2	15.6	17.7	
CO	2012	6.2	6.2	5.2	6.9	7,094	7,683	7,261	7,677	1.7	1.6	1.4	1.8	2.50
	2011	5.8	6.1	4.1	7.1	6,300	6,190	6,604	6,389	1.8	2.0	1.3	2.2	
	2010	6.0	7.4	4.4	7.3	6,567	7,482	6,970	6,562	1.8	2.0	1.3	2.2	
	2009	5.3	5.2	7.6	7.6	7,670	7,517	7,920	7,928	1.4	1.4	1.9	1.9	
	2008	9.6	8.4	7.7	9.2	7,681	7,615	8,104	8,016	2.5	2.2	1.9	2.3	
									Maximum =	2.5	2.2	1.9	2.3	
VOC	2012	7.236	3.688	6.535	3.378	7,094	7,683	7,261	7,677	2.0	1.0	1.8	0.9	2.04
	2011	6.426	2.971	5.944	2.811	6,300	6,190	6,604	6,389	2.0	1.0	1.8	0.9	
	2010	6.698	3.591	6.273	2.887	6,567	7,482	6,970	6,562	2.0	1.0	1.8	0.9	
	2009	7.823	3.608	7.128	3.488	7,670	7,517	7,920	7,928	2.0	1.0	1.8	0.9	
	2008	7.835	3.655	7.294	3.527	7,681	7,615	8,104	8,016	2.0	1.0	1.8	0.9	
									Maximum =	2.0	1.0	1.8	0.9	
SO ₂	2012	3.4	3.7	3.5	3.8	7,094	7,683	7,261	7,677	1.0	1.0	1.0	1.0	0.98
	2011	2.8	3.0	3.0	3.0	6,300	6,190	6,604	6,389	0.9	1.0	0.9	0.9	
	2010	3.0	3.5	3.3	3.0	6,567	7,482	6,970	6,562	0.9	0.9	0.9	0.9	
	2009	3.6	3.6	3.7	3.9	7,670	7,517	7,920	7,928	0.9	1.0	0.9	1.0	
	2008	3.6	3.5	3.7	3.8	7,681	7,615	8,104	8,016	0.9	0.9	0.9	0.9	
									Maximum =	1.0	1.0	1.0	1.0	
PM/PM ₁₀ /PM _{2.5}	2012	0.0	0.0	0.0	0.0	7,094	7,683	7,261	7,677	0.0	0.0	0.0	0.0	0.01
	2011	0.03	0.03	0.03	0.03	6,300	6,190	6,604	6,389	0.0	0.0	0.0	0.0	
	2010	0.0	0.0	0.0	0.0	6,567	7,482	6,970	6,562	0.0	0.0	0.0	0.0	
	2009	0.04	0.04	0.04	0.04	7,670	7,517	7,920	7,928	0.0	0.0	0.0	0.0	
	2008	0.0	0.0	0.0	0.0	7,681	7,615	8,104	8,016	0.0	0.0	0.0	0.0	
									Maximum =	0.0	0.0	0.0	0.0	

^a Reported in AORs for the period 2008 - 2012.

Table 6. Manatee Power Plant Unit 3 Actual Emissions as a Function of Heat Input, 2008 - 2012

Year	Actual Annual Heat Input (MMBtu/yr) ^a					Units 3A, 3B, 3C, & 3D Total Actual Emissions (TPY) ^b							Emissions per Unit Heat Input ^c (lb/MMBtu)						
	Unit 3A	Unit 3B	Unit 3C	Unit 3D	Total	NO _x	CO	VOC	SO ₂	PM/PM ₁₀	SAM	CO ₂	NO _x	CO	VOC	SO ₂	PM/PM ₁₀	SAM	CO ₂
2012	11,159,000	12,349,000	11,449,000	12,366,000	47,323,000	234.9	24.5	20.8	14.4	0.2	2.2	2,842,898.2	0.0099	0.0010	0.0009	0.00061	0.000007	0.0001	120.1
2011	9,839,089	9,989,000	10,276,000	10,126,000	40,230,089	189.1	23.2	18.2	11.8	0.1	1.8	2,390,842.8	0.0094	0.0012	0.0009	0.00059	0.000007	0.0001	118.9
2010	10,336,000	11,847,000	11,093,000	10,324,000	43,600,000	224.8	25.1	19.4	12.8	0.1	2.0	2,549,533.9	0.0103	0.0012	0.0009	0.00059	0.000007	0.0001	117.0
2009	12,377,000	12,145,000	12,878,000	12,904,000	50,304,000	254.8	25.7	22.0	14.8	0.2	2.3	2,965,509.9	0.0101	0.0010	0.0009	0.00059	0.0000066	0.0001	117.9
2008	12,034,000	11,932,000	12,739,000	12,613,000	49,318,000	240.9	34.9	22.3	14.6	0.2	2.2	2,871,638.5	0.0098	0.0014	0.0009	0.00059	0.000007	0.0001	116.5
				Maximum =	50,304,000							Maximum =	0.0103	0.0014	0.00090	0.00061	0.000007	0.000093	120.1

^a Based on AOR data, see Table 1.
^b Based on AOR data, see Table 2.
^c Total actual emissions divided by total heat input.

Table 7. Projected Increase in Annual Emissions for Each CT, FPL Manatee Power Plant Units 3A, 3B, 3C, and 3D (EU IDs 005, 006, 007, and 008)

Pollutant	Emission Factor ^a (lb/MMBtu)	Current Design Heat Input ^b	Future Design Heat Input ^c	Max Increase in Design Heat Input	Projected Operating ^d	Annual Increase in Design Heat Input	Increase in Annual Emissions
		(MMMBtu/hr, HHV) NG-Firing	(MMMBtu/hr, HHV) NG-Firing	(MMBtu/hr, HHV) NG-Firing	Hours (hr/yr) NG-Firing	(MMMBtu/yr)	(TPY)
NO _x	0.0103	1,722.4	1,758.4	36.0	8,104	291,452.3	1.50
CO	0.0014	1,722.4	1,758.4	36.0	8,104	291,452.3	0.206
SO ₂	0.00061	1,722.4	1,758.4	36.0	8,104	291,452.3	0.088
VOC	0.0009	1,722.4	1,758.4	36.0	8,104	291,452.3	0.132
PM	0.000007	1,722.4	1,758.4	36.0	8,104	291,452.3	0.001
PM ₁₀	0.000007	1,722.4	1,758.4	36.0	8,104	291,452.3	0.001
PM _{2.5}	0.000007	1,722.4	1,758.4	36.0	8,104	291,452.3	0.001
SAM	0.000093	1,722.4	1,758.4	36.0	8,104	291,452.3	0.014
<u>GHGs</u>							
CO ₂	120.1	1,722.4	1,758.4	36.0	8,104	291,452.3	17,509
N ₂ O	2.20E-04	1,722.4	1,758.4	36.0	8,104	291,452.3	0.032
CH ₄	2.20E-03	1,722.4	1,758.4	36.0	8,104	291,452.3	0.32

^a Maximum actual emission factor for the period 2008-2012 - see Table 6.

^b Based on GE data for 7FA.03 turbines at 75 F for NG firing. Heat input rate at HHV = Heat input rate (LHV) x 1.11

^c Based on GE data for improved 7FA.04 turbines, at 75°F.

^d Highest fuel usage for all four CTs during baseline actual period. See Table 1.

**Table 8. Projected Annual Emissions and PSD Applicability for Manatee Unit 3
GE 7FA.04 Improvements**

Pollutant	Baseline (Maximum 2-Year Average Actual) Emissions ^a (TPY)	Projected Increase for One CT ^b (TPY)	Projected Increase for Four CTs ^b (TPY)	Projected Annual Emissions (TPY)
NO _x	247.85	1.50	6.0	253.86
CO	30.31	0.21	0.8	31.14
SO ₂	14.70	0.09	0.35	15.05
VOC	22.18	0.13	0.5	22.71
PM	0.16	9.62E-04	3.85E-03	0.17
PM ₁₀	0.16	9.62E-04	3.85E-03	0.17
PM _{2.5}	0.16	9.62E-04	3.85E-03	0.17
SAM	2.25	0.014	0.05	2.31
CO ₂	2,918,574	17,509	70,035	2,988,609
N ₂ O (CO ₂ e)	1,701.64	9.96	39.8	1,741
CH ₄ (CO ₂ e)	1,152.73	6.74	27.0	1,180

^a Maximum 2-Year average emissions - see Table 4.

^b Projected increase in emissions due to the project - see Table 7.

**Table 9. PSD Applicability - Manatee Power Plant Unit 3
GE 7FA.04 Improvements**

Pollutant	Baseline (Maximum 2-Year Average Actual) Emissions^a (TPY)	Projected Actual Emissions^b (TPY)	Increase/Decrease in Annual Emissions^c (TPY)	PSD Significant Emission Rates (TPY)
NO _x	247.85	253.86	6.0	40
CO	30.31	31.14	0.82	100
SO ₂	14.70	15.05	0.35	40
VOC	22.18	22.71	0.53	40
PM	0.16	0.17	3.85E-03	25
PM ₁₀	0.16	0.17	3.85E-03	15
PM _{2.5}	0.16	0.17	3.85E-03	10
SAM	2.25	2.31	0.054	7
<u>GHGs</u>				
CO ₂	2,918,574.21	2,988,609.42	70,035.2	^d
N ₂ O (CO ₂ e)	1,701.64	1,741.47	39.8	^d
CH ₄ (CO ₂ e)	1,152.73	1,179.71	27.0	^d
Total GHGs (CO₂e)	2,921,428.6	2,991,530.6	70,102.0	75,000

^a Maximum 2-Year average emissions - see Tables 4.

^b Projected actual annual emissions for Manatee Unit 3 - see Table 8.

^c Projected actual emissions minus baseline actual emissions.

^d Does not take into account heat rate.

APPENDIX A

Appendix A
Manatee Power Plant
Summary of AOR Data for Unit 3 (EU IDs 005, 006, 007, 008)

Emission Unit 005 Unit 3A - 170 MW gas turbine with gas-fired HRSG					Emission Unit 006 Unit 3B - 170 MW gas turbine with gas-fired HRSG				
2012	Natural Gas TPY	Total TPY	Hours		2012	Natural Gas TPY	Total TPY	Hours	
NOx	59.61	59.61	7094		NOx	63.16	63.16	7683	
CO	6.20143	6.20			CO	6.23826	6.24		
SO2	3.38	3.38			SO2	3.74	3.74		
VOC	7.23588	7.24			VOC	3.68784	3.69		
PM	0.036825	0.04			PM	0.040752	0.04		
PM10	0.036825	0.04			PM10	0.040752	0.04		
Unit 3A - 170 MW gas turbine with gas-fired HRSG					Unit 3B - 170 MW gas turbine with gas-fired HRSG				
2011	Natural Gas TPY	Total TPY	Hours		2011	Natural Gas TPY	Total TPY	Hours	
NOx	47.8	47.80	6300		NOx	43.2	43.20	6190	
CO	5.796	5.80			CO	6.1281	6.13		
SO2	2.8	2.80			SO2	3	3.00		
VOC	6.426	6.43			VOC	2.9712	2.97		
PM	0.032469	0.03			PM	0.032964	0.03		
PM10	0.032469	0.03			PM10	0.032964	0.03		
Unit 3A - 170 MW gas turbine with gas-fired HRSG					Unit 3B - 170 MW gas turbine with gas-fired HRSG				
2010	Natural Gas TPY	Total TPY	Hours		2010	Natural Gas TPY	Total TPY	Hours	
NOx	56.9	56.90	6567		NOx	61.7	61.70	7482	
CO	6.04164	6.04			CO	7.40718	7.41		
SO2	3	3.00			SO2	3.5	3.50		
VOC	6.69834	6.70			VOC	3.59136	3.59		
PM	0.034109	0.03			PM	0.039095	0.04		
PM10	0.034109	0.03			PM10	0.039095	0.04		
Unit 3A - 170 MW gas turbine with gas-fired HRSG					Unit 3B - 170 MW gas turbine with gas-fired HRSG				
2009	Natural Gas TPY	Total TPY	Hours		2009	Natural Gas TPY	Total TPY	Hours	
NOx	66.3	66.30	7670		NOx	64.5	64.50	7517	
CO	5.33065	5.33			CO	5.18673	5.19		
SO2	3.6	3.60			SO2	3.6	3.60		
VOC	7.8234	7.82			VOC	3.60816	3.61		
PM	0.040844	0.04			PM	0.040079	0.04		
PM10	0.040844	0.04			PM10	0.040079	0.04		
Unit 3A - 170 MW gas turbine with gas-fired HRSG					Unit 3B - 170 MW gas turbine with gas-fired HRSG				
2008	Natural Gas TPY	Total TPY	Hours		2008	Natural Gas TPY	Total TPY	Hours	
NOx	58.8	58.80	7681		NOx	61.9	61.90	7615	
CO	9.60125	9.60			CO	8.3765	8.38		
SO2	3.6	3.60			SO2	3.5	3.50		
VOC	7.83462	7.83			VOC	3.6552	3.66		
PM	0.039712	0.04			PM	0.039376	0.04		
PM10	0.039712	0.04			PM10	0.039376	0.04		

Appendix A
Manatee Power Plant
Summary of AOR Data for Unit 3 (EU IDs 005, 006, 007, 008)

Emission Unit 007				Emission Unit 008			
Unit 3C - 170 MW gas turbine with gas-fired HRSG				Unit 3D - 170 MW gas turbine with gas-fired HRSG			
2012	Natural Gas TPY	Total TPY	Hours	2012	Natural Gas TPY	Total TPY	Hours
NOx	54.85	54.85	7261	NOx	57.3	57.30	7677
CO	5.20588	5.21		CO	6.88426	6.88	
SO2	3.47	3.47		SO2	3.76	3.76	
VOC	6.5349	6.53		VOC	3.37788	3.38	
PM	0.037782	0.04		PM	0.040808	0.04	
PM10	0.037782	0.04		PM10	0.040808	0.04	
Unit 3C - 170 MW gas turbine with gas-fired HRSG				Unit 3D - 170 MW gas turbine with gas-fired HRSG			
2011	Natural Gas TPY	Total TPY	Hours	2011	Natural Gas TPY	Total TPY	Hours
NOx	47.5	47.50	6604	NOx	50.6	50.60	6389
CO	4.1275	4.13		CO	7.12374	7.12	
SO2	3	3.00		SO2	3	3.00	
VOC	5.9436	5.94		VOC	2.81116	2.81	
PM	0.033912	0.03		PM	0.033416	0.03	
PM10	0.033912	0.03		PM10	0.033416	0.03	
Unit 3C - 170 MW gas turbine with gas-fired HRSG				Unit 3D - 170 MW gas turbine with gas-fired HRSG			
2010	Natural Gas TPY	Total TPY	Hours	2010	Natural Gas TPY	Total TPY	Hours
NOx	48.1	48.10	6970	NOx	58.1	58.10	6562
CO	4.35625	4.36		CO	7.31663	7.32	
SO2	3.3	3.30		SO2	3	3.00	
VOC	6.273	6.27		VOC	2.88728	2.89	
PM	0.036607	0.04		PM	0.034069	0.03	
PM10	0.036607	0.04		PM10	0.034069	0.03	
Unit 3C - 170 MW gas turbine with gas-fired HRSG				Unit 3D - 170 MW gas turbine with gas-fired HRSG			
2009	Natural Gas TPY	Total TPY	Hours	2009	Natural Gas TPY	Total TPY	Hours
NOx	61.8	61.80	7920	NOx	62.2	62.20	7928
CO	7.6032	7.60		CO	7.61088	7.61	
SO2	3.7	3.70		SO2	3.9	3.90	
VOC	7.128	7.13		VOC	3.48832	3.49	
PM	0.042497	0.04		PM	0.042583	0.04	
PM10	0.042497	0.04		PM10	0.042583	0.04	
Unit 3C - 170 MW gas turbine with gas-fired HRSG				Unit 3D - 170 MW gas turbine with gas-fired HRSG			
2008	Natural Gas TPY	Total TPY	Hours	2008	Natural Gas TPY	Total TPY	Hours
NOx	57.5	57.50	8104	NOx	62.7	62.70	8016
CO	7.6988	7.70		CO	9.2184	9.22	
SO2	3.7	3.70		SO2	3.8	3.80	
VOC	7.2936	7.29		VOC	3.52704	3.53	
PM	0.042039	0.04		PM	0.041623	0.04	
PM10	0.042039	0.04		PM10	0.041623	0.04	

Appendix A
Manatee Power Plant
Summary of AOR Data for Unit 3 (EU IDs 005, 006, 007, 008)

<u>Fuel Usage</u>		<u>Fuel Heat Content</u>		<u>Heat Input per Year</u>	
Natural Gas MMBtu/yr		Natural Gas MMBtu/MMBtu		Natural Gas MMBtu/yr	Total MMBtu/yr
Unit 3A - 170 MW gas turbine with gas-fired HRSG		Unit 3A - 170 MW gas turbine with gas-fired HRSG		Unit 3A - 170 MW gas turbine with gas-fired HRSG	
2012	11159	2012	1000	2012	11159000
2011	9839	2011	1000	2011	9839089
2010	10336	2010	1000	2010	10336000
2009	12377	2009	1000	2009	12377000
2008	12034	2008	1000	2008	12034000
Unit 3B - 170 MW gas turbine with gas-fired HRSG		Unit 3B - 170 MW gas turbine with gas-fired HRSG		Unit 3B - 170 MW gas turbine with gas-fired HRSG	
2012	12349	2012	1000	2012	12349000
2011	9989	2011	1000	2011	9989000
2010	11847	2010	1000	2010	11847000
2009	12145	2009	1000	2009	12145000
2008	11932	2008	1000	2008	11932000
Unit 3C - 170 MW gas turbine with gas-fired HRSG		Unit 3C - 170 MW gas turbine with gas-fired HRSG		Unit 3C - 170 MW gas turbine with gas-fired HRSG	
2012	11449	2012	1000	2012	11449000
2011	10276	2011	1000	2011	10276000
2010	11093	2010	1000	2010	11093000
2009	12878	2009	1000	2009	12878000
2008	12739	2008	1000	2008	12739000
Unit 3D - 170 MW gas turbine with gas-fired HRSG		Unit 3D - 170 MW gas turbine with gas-fired HRSG		Unit 3D - 170 MW gas turbine with gas-fired HRSG	
2012	12366	2012	1000	2012	12366000
2011	10126	2011	1000	2011	10126000
2010	10324	2010	1000	2010	10324000
2009	12904	2009	1000	2009	12904000
2008	12613	2008	1000	2008	12613000

APPENDIX B

Appendix B
CEM Reports from Acid Rain Database
Annual Reports

STATE	FACILITY_ NAME	ORISPL_ CODE	UNITID	OP_YEA R	ASSOC_ STACKS	PRG_COD E	NUM_ MONTHS_ REPORTED		SUM_OP TIME	D	GLOAD	SO2_MASS	NOX_RATE	NOX_MASS	CO2_MASS	HEAT_ INPUT	UNIT_TYPE_ INFO	PRIMARY_FUEL_IN FO	SECONDARY CAPACITY	
																			FUEL_INFO	INPUT
FL	Manatee Power Plant	6042	MTCT3A	2008		ARP		7628.4	12	1104724.9	3.565	0.0128	58.9010	706165.4110	11882637.14	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3B	2008		ARP		7546.1	12	1076395.4	3.515	0.014	61.923	696361.501	11717632.651	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3C	2008		ARP		8068.2	12	1161059.1	3.698	0.011	57.541	732475.648	12325291.362	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3D	2008		ARP		7982.3	12	1144143.4	3.719	0.012	62.589	736635.971	12395336.451	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
								31224.9		4486322.8			240.95							
FL	Manatee Power Plant	6042	MTCT3A	2009		ARP		7588.4	12	1161188.9	3.703	0.015	66.401	733562.146	12343569.119	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3B	2009		ARP		7439.0	12	1132457.3	3.656	0.015	64.520	724253.055	12187003.007	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3C	2009		ARP		7877.0	12	1194003.5	3.770	0.012	61.783	746786.625	12566125.159	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3D	2009		ARP		7895.7	12	1199140.8	3.841	0.011	62.166	760908.054	12803683.314	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
								30800.1		4686790.5			254.87							
FL	Manatee Power Plant	6042	MTCT3A	2010		ARP		6479.5	12	948689.8	3.053	0.017	56.938	604753.121	10176112.303	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3B	2010		ARP		7414.3	12	1093069.7	3.547	0.014	61.745	702665.968	11823711.593	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3C	2010		ARP		6937.2	12	1022546.0	3.240	0.011	48.124	641828.609	10799917.500	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3D	2010		ARP		6454.1	12	940295.3	3.030	0.017	58.125	600286.239	10100961.639	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
								27285.0		4004600.9			224.93							
FL	Manatee Power Plant	6042	MTCT3A	2011		ARP		6242.8	12	1406180.0	2.952	0.013	47.750	584725.360	9839089.807	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3B	2011		ARP		6176.6	12	899977.2	2.997	0.009	43.245	593634.430	9989039.958	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3C	2011		ARP		6545.6	12	1497410.7	3.083	0.012	47.455	610707.173	10276334.160	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3D	2011		ARP		6347.7	12	1452071.1	3.038	0.012	50.575	601775.863	10125988.285	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
								25312.6		5255639.0			189.03							
FL	Manatee Power Plant	6042	MTCT3A	2012		ARP		6953.7	12	1659546.2	3.383	0.017	59.612	670075.057	11275321.123	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3B	2012		ARP		7597.2	12	1824602.4	3.743	0.013	63.157	741465.624	12476527.450	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3C	2012		ARP		7171.1	12	1716553.8	3.471	0.013	54.846	687505.875	11568633.041	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
FL	Manatee Power Plant	6042	MTCT3D	2012		ARP		7618.2	12	1845964.4	3.755	0.011	57.302	743851.642	12516845.209	Combined cycle Pipeline Natural Gas	Diesel Oil	1910		
								29340.1		7046666.8			234.92							

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

solutions@golder.com
www.golder.com

Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607 USA
Tel: (352) 336-5600
Fax: (352) 336-6603

