

RECEIVED

MAY 15 2003

BUREAU OF AIR REGULATION

**PEAK FIRING MODE PERMIT APPLICATION
FLORIDA POWER & LIGHT COMPANY
SANFORD POWER PLANT - UNITS 4 AND 5
DEBARY, FLORIDA**

1270009-009-AC/PSD-FL-270(0)

May 15, 2003

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

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

May 2003

0337558

DISTRIBUTION:

4 Copies - FDEP

2 Copy - Florida Power & Light Company

2 Copy - Florida Power & Light Sanford Power Plant

1 Copy - Golder Associates Inc.



Department of Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - TITLE V SOURCE

See Instructions for Form No. 62-210.900(1)

RECEIVED

MAY 15 2003

BUREAU OF AIR REGULATION

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: Florida Power and Light Company	
2. Site Name: Sanford Plant	
3. Facility Identification Number: 1270009 [] Unknown	
4. Facility Location: Street Address or Other Locator: 950 South Highway 17-92 City: DeBary County: Volusia Zip Code: 32713	
5. Relocatable Facility? [] Yes [X] No	6. Existing Permitted Facility? [X] Yes [] No

Application Contact

1. Name and Title of Application Contact: Mary Archer, Principal Environmental Specialist	
2. Application Contact Mailing Address: Organization/Firm: FPL Environmental Services Dept. [JES/JB] Street Address: 700 Universe Blvd. City: Juno Beach State: FL Zip Code: 33408	
3. Application Contact Telephone Numbers: Telephone: (561) 691-7057 Fax: (561) 691-7070 or 691-7049	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	5-15-03
2. Permit Number:	1270009-009-AC
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

- Initial Title V air operation permit for an existing facility which is classified as a Title V source.
- Initial Title V air operation permit for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: _____

- Title V air operation permit revision to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: _____

Operation permit number to be revised: _____

- Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)

Operation permit number to be revised/corrected: _____

- Title V air operation permit revision for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit number to be revised: _____

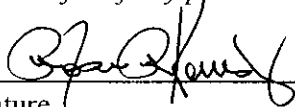
Reason for revision: _____

Air Construction Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

- Air construction permit to construct or modify one or more emissions units.
- Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.
- Air construction permit for one or more existing, but unpermitted, emissions units.

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official: Roxane Kennedy, Plant General Manager
2. Owner/Authorized Representative or Responsible Official Mailing Address: Organization/Firm: FPL Sanford Plant Street Address: 950 South Highway 17-92 City: DeBary State: FL Zip Code: 32713
3. Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: (386) 575-5211 Fax: (386) 575-5233
4. Owner/Authorized Representative or Responsible Official Statement: <i>I, the undersigned, am the owner or authorized representative*(check here [], if so) or the responsible official (check here [X], if so) of the Title V source addressed in this application, whichever is applicable. 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. 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 any permitted emissions unit.</i> Signature  Date <u>5/9/03</u>

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: Kennard F. Kosky Registration Number: 14966
2. Professional Engineer Mailing Address: Organization/Firm: Golder Associates Inc.* Street Address: 6241 NW 23rd Street, Suite 500 City: Gainesville State: FL Zip Code: 32653-1500
3. Professional Engineer Telephone Numbers: Telephone: (352) 336 - 5600 Fax: (352) 336 - 6603

*Certification of Authorization # 00001670

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(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

(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.

If the purpose of this application is to obtain a Title V source air operation permit (check here [], 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 schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X], 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.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [], 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.

Thomas A. Hardy
Signature

5/14/03
Date

(seal) *TH*

* Attach any exception to certification statement.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
004	Combined Cycle Combustion Turbine Generator 4A CT with Heat Recovery Steam Generator	AC1B	NA
005	Combined Cycle Combustion Turbine Generator 4B CT with Heat Recovery Steam Generator	AC1B	NA
006	Combined Cycle Combustion Turbine Generator 4C CT with Heat Recovery Steam Generator	AC1B	NA
007	Combined Cycle Combustion Turbine Generator 4D CT with Heat Recovery Steam Generator	AC1B	NA
009	Combined Cycle Combustion Turbine Generator 5A CT with Heat Recovery Steam Generator	AC1B	NA
010	Combined Cycle Combustion Turbine Generator 5B CT with Heat Recovery Steam Generator	AC1B	NA
011	Combined Cycle Combustion Turbine Generator 5C CT with Heat Recovery Steam Generator	AC1B	NA
012	Combined Cycle Combustion Turbine Generator 5D CT with Heat Recovery Steam Generator	AC1B	NA

Application Processing Fee

Check one: [] Attached - Amount: \$: _____ [X] Not Applicable

Construction/Modification Information

1. Description of Proposed Project or Alterations:

This application is requesting a construction permit to operate combustion turbines associated with Units 4A through 4D and Units 5A through 5D in Peak Firing Mode for up to 400 hours per year. See Part II.

2. Projected or Actual Date of Commencement of Construction: **JUNE 1, 2003**

3. Projected Date of Completion of Construction: **JULY 1, 2004**

Application Comment

See Part II.

Facility Regulatory Classifications

Check all that apply:

1. <input type="checkbox"/> Small Business Stationary Source?	<input type="checkbox"/> Unknown
2. <input checked="" type="checkbox"/> Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?	
3. <input type="checkbox"/> Synthetic Minor Source of Pollutants Other than HAPs?	
4. <input type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)?	
5. <input type="checkbox"/> Synthetic Minor Source of HAPs?	
6. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS?	
7. <input type="checkbox"/> One or More Emission Units Subject to NESHAP?	
8. <input type="checkbox"/> Title V Source by EPA Designation?	
9. Facility Regulatory Classifications Comment (limit to 200 characters): The CTs are subject to NSPS Subpart GG.	

List of Applicable Regulations

Facility applicable regulations are listed in the existing Title V permit. No additional facility applicable requirements will result from approval of this construction application.

Additional Supplemental Requirements for Title V Air Operation Permit Applications

8. List of Proposed Insignificant Activities: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. List of Equipment/Activities Regulated under Title VI: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities On site but Not Required to be Individually Listed <input checked="" type="checkbox"/> Not Applicable _____
10. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
11. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
12. Identification of Additional Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
13. Risk Management Plan Verification: <input type="checkbox"/> Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID: _____) or previously submitted to DEP (Date and DEP Office: _____) <input type="checkbox"/> Plan to be submitted to CEPPO (Date required: _____) <input checked="" type="checkbox"/> Not Applicable
14. Compliance Report and Plan: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
15. Compliance Certification (Hard-copy Required): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

**A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)**

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one) <input type="checkbox"/> 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). <input checked="" type="checkbox"/> 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. <input type="checkbox"/> 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. Regulated or Unregulated Emissions Unit? (Check one) <input checked="" type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit. <input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.			
3. Description of Emissions Unit Addressed in This Section (limit to 60 characters): Combustion Turbines 4A through 4D.			
4. Emissions Unit Identification Number: [] No ID ID: 004-007 [] ID Unknown			
5. Emissions Unit Status Code: A	6. Initial Startup Date: MAR 2003	7. Emissions Unit Major Group SIC Code: 49	8. Acid Rain Unit? <input checked="" type="checkbox"/>
9. Emissions Unit Comment: (Limit to 500 Characters) The emission units are four General Electric (GE) Frame 7FA Advanced CTs. Unit 4 will use natural gas in peak firing mode. It can be operated in only combined cycle mode. Nameplate ratings, heat input, emissions, etc., are the same for each CT.			

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

Dry Low NO_x Combustors

2. Control Device or Method Code(s): **025**

Emissions Unit Details

1. Package Unit:		
Manufacturer:	General Electric	Model Number: 7FA
2. Generator Nameplate Rating: 182 MW		
3. Incinerator Information:		
	Dwell Temperature:	°F
	Dwell Time:	seconds
	Incinerator Afterburner Temperature:	°F

**B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)**

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate:	1,918	mmBtu/hr
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Requested Maximum Operating Schedule:		
	hours/day	days/week
	weeks/year	400 hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):		
<p>Maximum heat input for peak firing mode using natural gas at turbine inlet temperature of 35 degrees Fahrenheit (°F), 20% relative humidity, and 14.7 psia. Heat input as High Heating Value (HHV). Generator nameplate Rating - 182 MW (35°F turbine inlet).</p>		

**C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)**

List of Applicable Regulations

Applicable regulations do not change as a result of this construction permit application.

**D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)**

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram?		2. Emission Point Type Code: 3	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): Unit can exhaust through HRSG stack.			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: V	6. Stack Height: 125 feet	7. Exit Diameter: 19 feet	
8. Exit Temperature: 220 °F	9. Actual Volumetric Flow Rate: 1,036,915 acfm	10. Water Vapor: 8.6 %	
11. Maximum Dry Standard Flow Rate: 738,680 dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone: 17 East (km): 468.3 North (km): 3190.3			
14. Emission Point Comment (limit to 200 characters): Stack conditions for combined cycle operation, peak firing, and turbine inlet of 59°F. Stack conditions vary based on turbine inlet temperature. All CTs equipped with inlet foggers. See Part II.			

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type) (limit to 500 characters): Natural Gas		
2. Source Classification Code (SCC): 2-01-002-01		3. SCC Units: Million Cubic Feet
4. Maximum Hourly Rate: 1.92	5. Maximum Annual Rate: 718	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 1,024
10. Segment Comment (limit to 200 characters): Maximum Hourly Rate = 1,918 (rounded to 1.81) Annual based on 59°F turbine inlet (1,838 MMBtu/hr). Million Btu/SCC as HHV.		

Segment Description and Rate: Segment of

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
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 (limit to 200 characters):		

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)**

Potential/Fugitive Emissions

1. Pollutant Emitted: PM		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 9 lb/hour		4. Synthetically Limited? <input checked="" type="checkbox"/> [X]	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 _____ to _____ tons/year			
6. Emission Factor: 9 lb/hr Reference: GE, 2000		7. Emissions Method Code: 2	
8. Calculation of Emissions (limit to 600 characters): See Part II.			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Potential emissions for one (1) CT and peak firing mode.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 10% Opacity		4. Equivalent Allowable Emissions: 9 lb/hour 1.8 tons/year	
5. Method of Compliance (limit to 60 characters): EPA Method 9			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Peak firing mode with natural gas. Equivalent allowable emissions for one (1) CT.			

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)**

Potential/Fugitive Emissions

1. Pollutant Emitted: SO₂		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 5.1 lb/hour 1.02 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/>	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 _____ to _____ tons/year			
6. Emission Factor: 1 grain S/100 cf Gas Reference: GE, 2000; Golder, 2003		7. Emissions Method Code: 2	
8. Calculation of Emissions (limit to 600 characters): See Part II.			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Potential emissions for one (1) CT and peak firing mode.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:		4. Equivalent Allowable Emissions: 5.1 lb/hour 1.02 tons/year	
5. Method of Compliance (limit to 60 characters): Fuel Sampling; Vendor Sampling Pipeline Quality Natural Gas			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Equivalent allowable emissions for one (1) CT. Allowable based on typical maximum fuel sulfur content. Peak firing mode with natural gas.			

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)**

Potential/Fugitive Emissions

1. Pollutant Emitted: NO_x		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 101.2 lb/hour 20.24 tons/year		4. Synthetically Limited? [<input checked="" type="checkbox"/>]	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 _____ to _____ tons/year			
6. Emission Factor: 15 ppmvd @ 15% O₂ Reference: GE, 2000		7. Emissions Method Code: 2	
8. Calculation of Emissions (limit to 600 characters): See Part II			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Potential emissions for one (1) CT and peak firing mode.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 15 ppmvd @ 15% O₂		4. Equivalent Allowable Emissions: 101.2 lb/hour 20.24 tons/year	
5. Method of Compliance (limit to 60 characters): CEM - Part 75			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Allowable emissions are a 3-hour block average. CEM is installed in HRSG stack. Equivalent allowable emissions for one (1) CT. Peak firing mode with natural gas.			

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)**

Potential/Fugitive Emissions

1. Pollutant Emitted: CO		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 28.9 lb/hour		4. Synthetically Limited? <input checked="" type="checkbox"/> [X]	
		5.78 tons/year	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 _____ to _____ tons/year			
6. Emission Factor: 9 ppmvd Reference: GE, 2000		7. Emissions Method Code: 2	
8. Calculation of Emissions (limit to 600 characters): See Part II.			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Potential emissions for one (1) CT and peak firing mode.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 9 ppmvd		4. Equivalent Allowable Emissions: 28.9 lb/hour 5.78 tons/year	
5. Method of Compliance (limit to 60 characters): EPA Method 10; Annual Test			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Peak firing mode with natural gas. Equivalent allowable emissions for one (1) CT.			

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: VOC		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 2.81 lb/hour 0.56 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/>	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 to tons/year			
6. Emission Factor: 1.4 ppmvw Reference: GE, 2000		7. Emissions Method Code: 2	
8. Calculation of Emissions (limit to 600 characters): See Part II.			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Potential emissions for on (1) CT and peak firing mode.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 1.4 ppmvw		4. Equivalent Allowable Emissions: 2.81 lb/hour 0.56 tons/year	
5. Method of Compliance (limit to 60 characters): EPA Method 18 or 25A; Initial Compliance Test only			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Equivalent allowable emissions for one (1) CT. Peak firing mode with natural gas.			

H. VISIBLE EMISSIONS INFORMATION
 (Only Regulated Emissions Units Subject to a VE 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. Requested Allowable Opacity: Normal Conditions: 10 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: Annual VE Test - EPA Method 9.	
5. Visible Emissions Comment (limit to 200 characters): Peak Firing Mode with Natural Gas	

I. CONTINUOUS MONITOR INFORMATION
 (Only Regulated Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor 1 of 1

1. Parameter Code: EM	2. Pollutant(s): NO_x
3. CMS Requirement: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other	
4. Monitor Information: Manufacturer: To be provided with initial Title V application. Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters): CEMs meet 40 CFR Part 75.	

**J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)**

Supplemental Requirements

1. Process Flow Diagram <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Fuel Analysis or Specification <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Detailed Description of Control Equipment <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
5. Compliance Test Report <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable
6. Procedures for Startup and Shutdown <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
8. Supplemental Information for Construction Permit Application <input checked="" type="checkbox"/> Attached, Document ID: Part II <input type="checkbox"/> Not Applicable
9. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Supplemental Requirements Comment:

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
12. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
13. Identification of Additional Applicable Requirements <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
14. Compliance Assurance Monitoring Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
15. Acid Rain Part Application (Hard-copy Required) <input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ <input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ <input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ <input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ <input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) Attached, Document ID: _____ <input type="checkbox"/> Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

**A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)**

Emissions Unit Description and Status

<p>1. Type of Emissions Unit Addressed in This Section: (Check one)</p> <p><input type="checkbox"/> 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).</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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.</p>			
<p>2. Regulated or Unregulated Emissions Unit? (Check one)</p> <p><input checked="" type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.</p> <p><input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.</p>			
<p>3. Description of Emissions Unit Addressed in This Section (limit to 60 characters): Combustion Turbines 5A through 5D.</p>			
<p>4. Emissions Unit Identification Number: <input type="checkbox"/> No ID</p> <p>ID: 009-012 <input type="checkbox"/> ID Unknown</p>			
<p>5. Emissions Unit Status Code: A</p>	<p>6. Initial Startup Date: FEB 2002</p>	<p>7. Emissions Unit Major Group SIC Code: 49</p>	<p>8. Acid Rain Unit? <input checked="" type="checkbox"/></p>
<p>9. Emissions Unit Comment: (Limit to 500 Characters)</p> <p>The emission units are four General Electric (GE) Frame 7FA Advanced CTs. Unit 5 will use natural gas in peak firing mode. It can be operated in only combined cycle mode. Nameplate ratings, heat input, emissions, etc., are the same for each CT.</p>			

Emissions Unit Control Equipment

<p>1. Control Equipment/Method Description (Limit to 200 characters per device or method):</p> <p>Dry Low NO_x Combustors</p>
<p>2. Control Device or Method Code(s): 025</p>

Emissions Unit Details

<p>1. Package Unit: Manufacturer: General Electric Model Number: 7FA</p>
<p>2. Generator Nameplate Rating: 182 MW</p>
<p>3. Incinerator Information:</p> <p style="text-align: right;">Dwell Temperature: °F</p> <p style="text-align: right;">Dwell Time: seconds</p> <p style="text-align: right;">Incinerator Afterburner Temperature: °F</p>

**B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)**

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate:	1,918	mmBtu/hr
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Requested Maximum Operating Schedule:		
	hours/day	days/week
	weeks/year	400 hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):		
<p>Maximum heat input for peak firing mode using natural gas at turbine inlet temperature of 35 degrees Fahrenheit (°F), 20% relative humidity, and 14.7 psia. Heat input as High Heating Value (HHV). Generator nameplate Rating - 182 MW (35°F turbine inlet).</p>		

**C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)**

List of Applicable Regulations

Applicable regulations do not change as a result of this construction permit application.

D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram?		2. Emission Point Type Code: 3	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): Unit can exhaust through HRSG stack.			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: V	6. Stack Height: 125 feet	7. Exit Diameter: 19 feet	
8. Exit Temperature: 220 °F	9. Actual Volumetric Flow Rate: 1,036,915 acfm	10. Water Vapor: 8.6 %	
11. Maximum Dry Standard Flow Rate: 738,680 dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone: 17 East (km): 468.3 North (km): 3190.3			
14. Emission Point Comment (limit to 200 characters): Stack conditions for combined cycle operation, peak firing, and turbine inlet of 59°F. Stack conditions vary based on turbine inlet temperature. All CTs equipped with inlet foggers. See Part II.			

**E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)**

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type) (limit to 500 characters): Natural Gas		
2. Source Classification Code (SCC): 2-01-002-01		3. SCC Units: Million Cubic Feet
4. Maximum Hourly Rate: 1.92	5. Maximum Annual Rate: 718	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 1,024
10. Segment Comment (limit to 200 characters): Maximum Hourly Rate = 1,918 (rounded to 1.81) Annual based on 59°F turbine inlet (1,838 MMBtu/hr). Million Btu/SCC as HHV.		

Segment Description and Rate: Segment of

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
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 (limit to 200 characters):		

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)**

Potential/Fugitive Emissions

1. Pollutant Emitted: PM		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 9 lb/hour		4. Synthetically Limited? <input checked="" type="checkbox"/> [X]	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 _____ to _____ tons/year			
6. Emission Factor: 9 lb/hr Reference: GE, 2000		7. Emissions Method Code: 2	
8. Calculation of Emissions (limit to 600 characters): See Part II.			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Potential emissions for one (1) CT and peak firing mode.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 10% Opacity		4. Equivalent Allowable Emissions: 9 lb/hour 1.8 tons/year	
5. Method of Compliance (limit to 60 characters): EPA Method 9			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Peak firing mode with natural gas. Equivalent allowable emissions for one (1) CT.			

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
 (Regulated Emissions Units -
 Emissions-Limited and Preconstruction Review Pollutants Only)**

Potential/Fugitive Emissions

1. Pollutant Emitted: SO₂		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 5.1 lb/hour		4. Synthetically Limited? <input checked="" type="checkbox"/> [X]	
		1.02 tons/year	
5. Range of Estimated Fugitive Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/year			
6. Emission Factor: 1 grain S/100 cf Gas Reference: GE, 2000; Golder, 2003		7. Emissions Method Code: 2	
8. Calculation of Emissions (limit to 600 characters): See Part II.			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Potential emissions for one (1) CT and peak firing mode.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:		4. Equivalent Allowable Emissions: 5.1 lb/hour 1.02 tons/year	
5. Method of Compliance (limit to 60 characters): Fuel Sampling; Vendor Sampling Pipeline Quality Natural Gas			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Equivalent allowable emissions for one (1) CT. Allowable based on typical maximum fuel sulfur content. Peak firing mode with natural gas.			

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)**

Potential/Fugitive Emissions

1. Pollutant Emitted: NO_x		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 101.2 lb/hour 20.24 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/>	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 _____ to _____ tons/year			
6. Emission Factor: 15 ppmvd @ 15% O₂ Reference: GE, 2000		7. Emissions Method Code: 2	
8. Calculation of Emissions (limit to 600 characters): See Part II			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Potential emissions for one (1) CT and peak firing mode.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 15 ppmvd @ 15% O₂		4. Equivalent Allowable Emissions: 101.2 lb/hour 20.24 tons/year	
5. Method of Compliance (limit to 60 characters): CEM - Part 75			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Allowable emissions are a 3-hour block average. CEM is installed in HRSG stack. Equivalent allowable emissions for one (1) CT. Peak firing mode with natural gas.			

**G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)**

Potential/Fugitive Emissions

1. Pollutant Emitted: CO		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 28.9 lb/hour 5.78 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/>	
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 _____ to _____ tons/year			
6. Emission Factor: 9 ppmvd Reference: GE, 2000		7. Emissions Method Code: 2	
8. Calculation of Emissions (limit to 600 characters): See Part II.			
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Potential emissions for one (1) CT and peak firing mode.			

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER		2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 9 ppmvd		4. Equivalent Allowable Emissions: 28.9 lb/hour 5.78 tons/year	
5. Method of Compliance (limit to 60 characters): EPA Method 10; Annual Test			
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Peak firing mode with natural gas. Equivalent allowable emissions for one (1) CT.			

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: VOC	2. Total Percent Efficiency of Control:
3. Potential Emissions: 2.81 lb/hour 0.56 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/>
5. Range of Estimated Fugitive Emissions: [] 1 [] 2 [] 3 _____ to _____ tons/year	
6. Emission Factor: 1.4 ppmvw Reference: GE, 2000	7. Emissions Method Code: 2
8. Calculation of Emissions (limit to 600 characters): See Part II.	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Potential emissions for on (1) CT and peak firing mode.	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 1.4 ppmvw	4. Equivalent Allowable Emissions: 2.81 lb/hour 0.56 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 18 or 25A; Initial Compliance Test only	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Equivalent allowable emissions for one (1) CT. Peak firing mode with natural gas.	

H. VISIBLE EMISSIONS INFORMATION
 (Only Regulated Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation 1 of 2

1. Visible Emissions Subtype: VE10	2. Basis for Allowable Opacity: [] Rule [<input checked="" type="checkbox"/>] Other
3. Requested Allowable Opacity: Normal Conditions: 10 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: Annual VE Test - EPA Method 9.	
5. Visible Emissions Comment (limit to 200 characters): Peak Firing Mode with Natural Gas	

I. CONTINUOUS MONITOR INFORMATION
 (Only Regulated Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor 1 of 1

1. Parameter Code: EM	2. Pollutant(s): NO_x
3. CMS Requirement: [<input checked="" type="checkbox"/>] Rule [] Other	
4. Monitor Information: Manufacturer: NO_x = Thermo Environmental Instruments; O₂ = Servomex Model Number: NO_x = 43CHL; O₂ = 1400 Serial Number: NO_x O₂ 5A= 42CLS-77996-387 01420C/1831 5B= 42CLS-77997-387 01420C/1832 5C= 42CLS-77998-387 01420C/1833 5D= 42CLS-77999-387 01420C/1834	
5. Installation Date: 1 JAN 2002 (5A) through 30 APR 2002 (5D) (Original NO_x replaced in 2002)	6. Performance Specification Test Date: 21 APR 2003 (5A); 22 APR 2003 (5B); 23 APR 2003 (5C); Sch. MAY 2003 (5D)
7. Continuous Monitor Comment (limit to 200 characters): CEMs meet 40 CFR Part 75.	

**J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)**

Supplemental Requirements

1. Process Flow Diagram <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Fuel Analysis or Specification <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Detailed Description of Control Equipment <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
5. Compliance Test Report <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable
6. Procedures for Startup and Shutdown <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
8. Supplemental Information for Construction Permit Application <input checked="" type="checkbox"/> Attached, Document ID: Part II _____ <input type="checkbox"/> Not Applicable
9. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Supplemental Requirements Comment:

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation [] Attached, Document ID: _____ [X] Not Applicable
12. Alternative Modes of Operation (Emissions Trading) [] Attached, Document ID: _____ [X] Not Applicable
13. Identification of Additional Applicable Requirements [] Attached, Document ID: _____ [X] Not Applicable
14. Compliance Assurance Monitoring Plan [] Attached, Document ID: _____ [X] Not Applicable
15. Acid Rain Part Application (Hard-copy Required) [] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ [] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ [] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ [] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ [] Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) Attached, Document ID: _____ [] Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) Attached, Document ID: _____ [X] Not Applicable

PART II

**APPLICATION FOR AIR CONSTRUCTION PERMIT
SANFORD UNITS 4A THROUGH 4D AND UNITS 5A THROUGH 5D
PEAK FIRING MODE**

**APPLICATION FOR AIR CONSTRUCTION PERMIT
SANFORD UNITS 4A THROUGH 4D AND UNITS 5A THROUGH 5D
PEAK FIRING MODE**

Introduction

The Florida Power & Light Company (FPL) Sanford Plant is located on approximately 1,700 acres on the St. Johns River about three (3) miles northwest of Sanford, Florida. The site is located within the City of DeBary, Volusia County, Florida. In September 1999, an Air Construction Permit and Prevention of Significant Deterioration (PSD) approval was issued for the installation of eight nominal 170-megawatt (MW) combustion turbines (CTs) with an associated heat recovery steam generators (HRSGs) for repowering two existing steam electric generators [Florida Department of Environmental Protection (FDEP) File No. 1270009-004-AC]. The CTs are designated as Units 4A through 4D associated with the repowering of the existing Unit 4 steam turbine/generator and Units 5A through 5D associated with the repowering of the existing Unit steam turbine/generator. The combustion turbines are General Electric (GE) Frame 7FA (Model PG7241) that are authorized to fire natural gas with distillate oil authorized as backup for Units 5A through 5D. Dry low-nitrogen oxides (NO_x) combustion technology is used to control emissions of NO_x to 9 parts per million by volume dry (ppmvd) corrected to 15-percent oxygen when firing natural gas. The CTs are equipped with inlet evaporative cooling systems.

This application is submitted to request authorization to allow operation in Peak Firing Mode for up to 400 hours per year.

Peak Firing Mode

Peak Firing Mode operation is a computer-controlled increase in firing temperature with greater heat input and output. It is a standard operating feature of the GE Frame 7FA CT when firing natural gas. The increase in power and heat input is about 3.8 percent at ISO conditions. The heat rate of the unit decreases by about 25 British thermal units per kilowatt-hour (Btu/Kw-hr) or about 0.3 percent. This mode of operation has been authorized for more recent projects including Martin Simple Cycle Units 8A and 8B, Fort Myers Simple Cycle Units 3A and 3B, Martin Combined Cycle Unit 8, and Manatee Combined Cycle Unit 3. Operation of up to 400 hours per year operation has been authorized.

Appendix A contains performance and emissions data and calculations for Peak Firing Mode at turbine inlet temperatures of 35 degrees Fahrenheit (°F), 59°F, 75°F, and 95°F. Appendix A also contains the GE estimated performance and emissions for Peak Firing Mode. For comparison, GE estimated performance for base load operation at 59°F is also contained in Appendix A.

Table 1 presents the hourly and annual emissions for particulate matter/particulate matter less than 10 microns (PM/PM₁₀), sulfur dioxide (SO₂), NO_x, carbon monoxide (CO), and volatile organic carbons (VOCs) for Peak Firing Mode and baseload operation. Emissions are presented for each CT and the eight CTs associated with Units 4A through 4D and Units 5A through 5D. As previously noted, Peak Firing Mode is a computer-controlled operation that increases firing temperature from baseload operation. As a result, emission increases are an incremental increase from baseload, since baseload operation must occur when peak mode begins. Peak Firing Mode only provides an incremental increase in power to meet electric demands that could not otherwise be provided by baseload operation.

Regulatory Applicability

Peak Firing Mode is a change in the method of operation of combustion turbines. A modification would occur if there is a net emissions increase pursuant to Rule 62-212.400(2)(e)1 Florida Administrative Code (F.A.C.): "A modification to a facility results in a net emissions increase when, for a pollutant regulated under the Act, the sum of all of the contemporaneous creditable increases and decreases in the actual emissions of the facility, including the increase in emissions of the modification itself and any increases and decreases in quantifiable fugitive emissions, is greater than zero." Pursuant to Rule 62-212.400(2)(e)2: "A significant net emissions increase of a pollutant regulated under the Act is a net emissions increase equal to or greater than the applicable significant emission rate listed in Table 212.400-2, Regulated Air Pollutants - Significant Emission Rates."

The EPA guidance regarding PSD applicability clearly indicates that applicability is pollutant specific. In addition, if the emissions for a project are less than the significant emission rates, then PSD review is not applicable [U.S. Environmental Protection Agency (EPA) Draft New Source Review Workshop Manual, October 1990, Table A-5]. If the significant impact levels are exceeded for that pollutant, then contemporaneous emission increases and decreases are evaluated. Based on Rule 62-212.400(2)(e)3 F.A.C., contemporaneous emissions changes are: "An increase or decrease in the actual emissions or in the quantifiable fugitive emissions of a facility is contemporaneous with a particular modification if it occurs within the period beginning five years prior to the date on which

the owner or operator of the facility submits a complete application for a permit to modify the facility and ending on the date on which the owner or operator of the modified facility projects the new or modified emissions unit(s) to begin operation. The date on which any increase in the actual emissions or in the quantifiable fugitive emissions of the facility occurs is the date on which the owner or operator of the facility begins, or projects to begin, operation of the emissions unit(s) resulting in the increase. The date on which any decrease in the actual emissions or in the quantifiable fugitive emissions of the facility occurs is the date on which the owner or operator of the facility completes, or is committed to complete through a federally enforceable permit condition, a physical change in or change in the method of operation of the facility resulting in the decrease.”

Table 1 shows that, with the exception of NO_x , the emissions from the project are below the significant emission rates. This conclusion is evident whether a comparison of project emissions and significant emission rates is made using the difference between peak firing and baseload or by using the total emissions for Peak Firing Mode with all eight CTs.

The Sanford Plant has creditable emission decreases over the last several years resulting from shutting down the existing residual oil and natural gas-fired steam-generating units (i.e., steam generators for Units 4 and 5). The steam generators for Units 4 and 5 were retired in 2002 and 2001, respectively. The emission reductions from these retirements are contemporaneous with the proposed Peak Firing Mode. Peak Firing is scheduled to be completed by June 2004, which is well within the 5-year contemporaneous period for the creditable reductions from the Units 4 and 5 steam generators. Table 2 presents a netting analysis for NO_x . As shown, the large net emissions decreases in NO_x offset the small increases from peak firing.

Table 1. Emissions for Peak Firing and Base Load at a Turbine Inlet Temperature of 59°F
FPL Sanford Plant, Units 4A Through 4D and 5A Through 5D

Pollutant		Peak Firing at 59 °F		Base Load at 59 °F		Difference	SER ^b
		per CT	8 CTs	per CT	8 CTs		
PM/PM ₁₀	lb/hr	9	72	9	72		
	TPY ^a	1.8	14.4	1.8	14.4	0	15/25
SO ₂	lb/hr	5.1	40.8	4.9	39.2		
	TPY ^a	1.02	8.16	0.98	7.84	0.32	40
NO _x	lb/hr	101.2	809.6	58.7	469.6		
	TPY ^a	20.24	161.92	11.74	93.92	68	40
CO	lb/hr	28.9	231.2	28.8	230.4		
	TPY ^a	5.78	46.24	5.76	46.08	0.16	100
VOC	lb/hr	2.81	22.48	2.79	22.32		
	TPY ^a	0.562	4.496	0.558	4.464	0.032	40

^a TPY = tons/year; reflects a maximum of 400 hours per year operation.

^b SER = significant emission rate from Table 212.400-2 F.A.C.

Source: GE, 2000; Golder, 2003.

Table 2. Net NO_x Emission Changes for FPL Sanford Plant

Pollutant	Actual Emissions	Repowering Project ^a	Peak Operation	Net Emission Change	SER ^b	PSD Review Applicable?
NO _x	9,984.0	2,738.0	68.0	-7,178.0	40	No Net Emission Increase

^a FDEP File No. 0710002-004-AC; PSD-FL-270; Sanford Repowering Project.

^b SER = significant emission rate from Table 212.400-2 F.A.C.

APPENDIX A

Table A-1. Design Information and Stack Parameters for GE Frame 7FA, Dry Low NO_x Combustor, Natural Gas
Peak Firing Mode

Parameter	Ambient Inlet Temperature			
	35 °F	59 °F	75 °F	95 °F
Combustion Turbine Performance				
Net power output (MW)	190.3	179.5	169.5	156.1
Net heat rate (Btu/kWh, LHV)	9,080	9,225	9,370	9,595
(Btu/kWh, HHV)	10,079	10,240	10,401	10,651
Heat Input (MMBtu/hr, LHV)	1,728	1,656	1,588	1,498
(MMBtu/hr, HHV)	1,918	1,838	1,763	1,663
Fuel heating value (Btu/lb, LHV)	20,835	20,835	20,835	20,835
(Btu/lb, HHV)	23,127	23,127	23,127	23,127
(HHV/LHV)	1.110	1.110	1.110	1.110
CT Exhaust Flow				
Mass Flow (lb/hr)- with no margin	3,713,000	3,558,000	3,413,000	3,238,000
- provided	3,713,000	3,558,000	3,413,000	3,238,000
Temperature (°F)	1,109	1,139	1,152	1,172
Moisture (% Vol.)	7.74	8.59	9.25	10.16
Oxygen (% Vol.)	12.39	12.20	12.12	11.99
Molecular Weight	28.48	28.38	28.31	28.21
Fuel Usage				
Fuel usage (lb/hr) = Heat Input (MMBtu/hr) x 1,000,000 Btu/MMBtu (Fuel Heat Content, Btu/lb (LHV))				
Heat input (MMBtu/hr, LHV)	1,728	1,656	1,588	1,498
Heat content (Btu/lb, LHV)	20,835	20,835	20,835	20,835
Fuel usage (lb/hr)- calculated	82,933	79,477	76,228	71,889
HRSG Stack				
CT- Stack height (ft)	125	125	125	125
Diameter (ft)	19	19	19	19
Turbine Flow Conditions				
Turbine Flow (acfm) = [(Mass Flow (lb/hr) x 1,545 x (Temp. (°F)+ 460°F)] / [Molecular weight x 2116.8] / 60 min/hr				
Mass flow (lb/hr)	3,713,000	3,558,000	3,413,000	3,238,000
Temperature (°F)	1,109	1,139	1,152	1,172
Molecular weight	28.48	28.38	28.31	28.21
Volume flow (acfm)- calculated	2,488,641	2,438,274	2,363,849	2,279,045
(ft ³ /s)- calculated	41,477	40,638	39,397	37,984
Stack Flow Conditions - HRSG				
Velocity (ft/sec) = Volume flow (acfm) / [((diameter) ² / 4) x 3.14159] / 60 sec/min				
CT Temperature (°F)	220	220	220	220
CT volume flow (acfm)	1,078,570	1,036,915	997,157	949,602
Diameter (ft)	19	19	19	19
Velocity (ft/sec)- calculated	63.4	61.0	58.6	55.8

Note: Universal gas constant = 1,545 ft-lb(force)/°R; atmospheric pressure = 2,116.8 lb(force)/ft²; 14.7 lb/ft³
Turbine inlet relative humidity is 20% at 35 °F, 60% at 59 and 75 °F, and 50% at 95 °F.

Source: GE, 2000.

Table A-2. Maximum Emissions for Criteria Pollutants for GE Frame 7FA, Dry Low NOx Combustor, Natural Gas
Peak Firing Mode

Parameter	Ambient Inlet Temperature			
	35 °F	59 °F	75 °F	95 °F
Hours of Operation	400	400	400	400
Particulate (lb/hr) = Emission rate (lb/hr) from manufacturer				
Basis (excludes H ₂ SO ₄), lb/hr	9	9	10	10
Emission rate (lb/hr)- provided	9.0	9.0	10.0	10.0
(TPY)	1.80	1.80	2.00	2.00
Sulfur Dioxide (lb/hr) = Natural gas (cf/hr) x sulfur content(gr/100 cf) x 1 lb/7000 gr x (lb SO ₂ /lb S) /100				
Fuel density (lb/ft ³)	0.0448	0.0448	0.0448	0.0448
Fuel use (cf/hr)	1,851,839	1,774,675	1,702,119	1,605,235
Sulfur content (grains/ 100 cf)	1	1	1	1
lb SO ₂ /lb S (64/32)	2	2	2	2
Emission rate (lb/hr)	5.3	5.1	4.9	4.6
(TPY)	1.06	1.01	0.97	0.92
Nitrogen Oxides (lb/hr) = NOx(ppm) x {[20.9 x (1 - Moisture%/100)] - Oxygen(%)} x 2116.8 x Volume flow (acfm) x 46 (mole. wgt NOx) x 60 min/hr / [1545 x (CT temp.(°F) + 460°F) x 5.9 x 1,000,000 (adj. for ppm)]				
Basis, ppmvd @15% O ₂	15	15	15	15
Moisture (%)	7.74	8.59	9.25	10.16
Oxygen (%)	12.39	12.2	12.12	11.99
Turbine Flow (acfm)	2,488,641	2,438,274	2,363,849	2,279,045
Turbine Exhaust Temperature (°F)	1,109	1,139	1,152	1,172
Emission rate (lb/hr)	105.1	101.2	96.5	91.1
(TPY)	21.0	20.2	19.3	18.2
Carbon Monoxide (lb/hr) = CO(ppm) x [1 - Moisture%/100] x 2116.8 lb/ft ² x Volume flow (acfm) x 28 (mole. wgt CO) x 60 min/hr / [1545 x (CT temp.(°F) + 460°F) x 1,000,000 (adj. for ppm)]				
Basis, ppmvd	9	9	9	9
Moisture (%)	7.74	8.59	9.25	10.16
Turbine Flow (acfm)	2,488,641	2,438,274	2,363,849	2,279,045
Turbine Exhaust Temperature (°F)	1,109	1,139	1,152	1,172
Emission rate (lb/hr)	30.3	28.9	27.6	26.0
(TPY)	6.1	5.8	5.5	5.2
VOCs (lb/hr) = VOC(ppmvd) x [1-Moisture%/100] x 2116.8 lb/ft ² x Volume flow (acfm) x 16 (mole. wgt as methane) x 60 min/hr / [1545 x (CT temp.(°F) + 460°F) x 1,000,000 (adj. for ppm)]				
Basis, ppmvw	1.4	1.4	1.4	1.4
Basis, ppmvd	1.52	1.53	1.54	1.56
Moisture (%)	7.74	8.59	9.25	10.16
Turbine Flow (acfm)	2,488,641	2,438,274	2,363,849	2,279,045
Turbine Exhaust Temperature (°F)	1,109	1,139	1,152	1,172
Emission rate (lb/hr)	2.92	2.81	2.70	2.57
(TPY)	0.58	0.56	0.54	0.51
Lead (lb/hr)= NA				
Emission Rate Basis	NA	NA	NA	NA
Emission rate (lb/hr)	NA	NA	NA	NA
(TPY)	NA	NA	NA	NA

Note: ppmvd= parts per million, volume dry; O₂= oxygen.

Source: GE, 2000; Golder, 2003.

FPL PEAK FIRING – ESTIMATED PERFORMANCE PG7241(FA)

Load Condition		PEAK
Ambient Temp.	Deg F.	35.
Output	kW	190,300.
Heat Rate (LHV)	Btu/kWh	9,080.
Heat Cons. (LHV) X 10 ⁶	Btu/h	1,727.9
Auxiliary Power	kW	560
Output Net	kW	189,740.
Heat Rate (LHV) Net	Btu/kWh	9,110.
Exhaust Flow X 10 ³	lb/h	3713.
Exhaust Temp.	Deg F.	1109.
Exhaust Heat (LHV) X 10 ⁶	Btu/h	1015.9

EMISSIONS

NOx	ppmvd @ 15% O2	15.
NOx AS NO2	lb/h	105.
CO	ppmvd	9.
CO	lb/h	30.
UHC	ppmvw	7.
UHC	lb/h	15.
VOC	ppmvw	1.4
VOC	lb/h	3.
Particulates	lb/h	9.0

EXHAUST ANALYSIS % VOL.

Argon	0.89
Nitrogen	75.00
Oxygen	12.39
Carbon Dioxide	3.98
Water	7.74

SITE CONDITIONS

Elevation	ft.	45.0
Site Pressure	psia	14.68
Inlet Loss	in Water	3.0
Exhaust Loss	in Water	5.5
Relative Humidity	%	20
Fuel Type		Cust Gas
Fuel LHV	Btu/lb	20835 @ 290 °F
Application		7FH2 Hydrogen-Cooled Generator
Combustion System		9/42 DLN Combustor

Emission information based on GE recommended measurement methods. NOx emissions are corrected to 15% O2 without heat rate correction and are not corrected to ISO reference condition per 40CFR 60.335(c)(1). NOx levels shown will be controlled by algorithms within the SPEEDTRONIC control system.

FPL PEAK FIRING – ESTIMATED PERFORMANCE PG7241(FA)

Load Condition		PEAK
Ambient Temp.	Deg F.	59.
Output	kW	179,500.
Heat Rate (LHV)	Btu/kWh	9,225.
Heat Cons. (LHV) X 106	Btu/h	1,655.9
Auxiliary Power	kW	560
Output Net	kW	178,940.
Heat Rate (LHV) Net	Btu/kWh	9,250.
Exhaust Flow X 103	lb/h	3541.
Exhaust Temp.	Deg F.	1139.
Exhaust Heat (LHV) X 106	Btu/h	983.3

EMISSIONS

NOx	ppmvd @ 15% O2	15.
NOx AS NO2	lb/h	101.
CO	ppmvd	9.
CO	lb/h	29.
UHC	ppmvw	7.
UHC	lb/h	14.
VOC	ppmvw	1.4
VOC	lb/h	2.8
Particulates	lb/h	9.0

EXHAUST ANALYSIS % VOL.

Argon	0.89
Nitrogen	74.34
Oxygen	12.20
Carbon Dioxide	3.98
Water	8.59

SITE CONDITIONS

Elevation	ft.	45.0
Site Pressure	psia	14.68
Inlet Loss	in Water	3.0
Exhaust Loss	in Water	5.5
Relative Humidity	%	60
Fuel Type		Cust Gas
Fuel LHV	Btu/lb	20835 @ 290 °F
Application		7FH2 Hydrogen-Cooled Generator
Combustion System		9/42 DLN Combustor

Emission information based on GE recommended measurement methods. NOx emissions are corrected to 15% O2 without heat rate correction and are not corrected to ISO reference condition per 40CFR 60.335(c)(1). NOx levels shown will be controlled by algorithms within the SPEEDTRONIC control system.

FPL PEAK FIRING - ESTIMATED PERFORMANCE PG7241(FA)

Load Condition		PEAK
Ambient Temp.	Deg F.	75.
Output	kW	169,500.
Heat Rate (LHV)	Btu/kWh	9,370.
Heat Cons. (LHV) X 106	Btu/h	1,588.2
Auxiliary Power	kW	560
Output Net	kW	168,940.
Heat Rate (LHV) Net	Btu/kWh	9,400.
Exhaust Flow X 103	lb/h	3413.
Exhaust Temp.	Deg F.	1152.
Exhaust Heat (LHV) X 106	Btu/h	952.2

EMISSIONS

NOx	ppmvd @ 15% O2	15.
NOx AS NO2	lb/h	97.
CO	ppmvd	9.
CO	lb/h	28.
UHC	ppmvw	7.
UHC	lb/h	14.
VOC	ppmvw	1.4
VOC	lb/h	2.8
Particulates	lb/h	9.0

EXHAUST ANALYSIS % VOL.

Argon	0.89
Nitrogen	73.80
Oxygen	12.12
Carbon Dioxide	3.95
Water	9.25

SITE CONDITIONS

Elevation	ft.	45.0
Site Pressure	psia	14.68
Inlet Loss	in Water	3.0
Exhaust Loss	in Water	5.5
Relative Humidity	%	60
Fuel Type		Cust Gas
Fuel LHV	Btu/lb	20835 @ 290 °F
Application		7FH2 Hydrogen-Cooled Generator
Combustion System		9/42 DLN Combustor

Emission information based on GE recommended measurement methods. NOx emissions are corrected to 15% O2 without heat rate correction and are not corrected to ISO reference condition per 40CFR 60.335(c)(1). NOx levels shown will be controlled by algorithms within the SPEEDTRONIC control system.

FPL PEAK FIRING – ESTIMATED PERFORMANCE PG7241(FA)

Load Condition		PEAK
Ambient Temp.	Deg F.	95.
Output	kW	156,100.
Heat Rate (LHV)	Btu/kWh	9,595.
Heat Cons. (LHV) X 10 ⁶	Btu/h	1,497.8
Auxiliary Power	kW	560
Output Net	kW	155,540.
Heat Rate (LHV) Net	Btu/kWh	9,630.
Exhaust Flow X 10 ³	lb/h	3238.
Exhaust Temp.	Deg F.	1172.
Exhaust Heat (LHV) X 10 ⁶	Btu/h	910.7

EMISSIONS

NO _x	ppmvd @ 15% O ₂	15.
NO _x AS NO ₂	lb/h	91.
CO	ppmvd	9.
CO	lb/h	26.
UHC	ppmvw	7.
UHC	lb/h	13.
VOC	ppmvw	1.4
VOC	lb/h	2.6
Particulates	lb/h	9.0

EXHAUST ANALYSIS % VOL.

Argon	0.88
Nitrogen	73.06
Oxygen	11.99
Carbon Dioxide	3.91
Water	10.16

SITE CONDITIONS

Elevation	ft.	45.0
Site Pressure	psia	14.68
Inlet Loss	in Water	3.0
Exhaust Loss	in Water	5.5
Relative Humidity	%	50
Fuel Type		Cust Gas
Fuel LHV	Btu/lb	20835 @ 290 °F
Application		7FH2 Hydrogen-Cooled Generator
Combustion System		9/42 DLN Combustor

Emission information based on GE recommended measurement methods. NO_x emissions are corrected to 15% O₂ without heat rate correction and are not corrected to ISO reference condition per 40CFR 60.335(c)(1). NO_x levels shown will be controlled by algorithms within the SPEEDTRONIC control system.

FPL PEAK FIRING – ESTIMATED PERFORMANCE WITH FOGGER ON PG7241(FA)

Load Condition		PEAK	PEAK	PEAK
Ambient Temp.	Deg F.	59.	75.	95.
Ambient Relative Humid.	%	60.	60.	50.
Fogger Status		On	On	On
Fogger Effectiveness	%	95	95	95
Fuel Type		Cust Gas	Cust Gas	Cust Gas
Fuel LHV	Btu/lb	20,835	20,835	20,835
Fuel Temperature	Deg F	290	290	290
Output	kW	183,000.	175,200.	166,100.
Heat Rate (LHV)	Btu/kWh	9,185.	9,300.	9,450.
Heat Cons. (LHV) X 10 ⁶	Btu/h	1,680.9	1,629.4	1,569.6
Auxiliary Power	kW	560	560	560
Output Net	kW	182,440.	174,640.	165,540.
Heat Rate (LHV) Net	Btu/kWh	9,210.	9,330.	9,480.
Exhaust Flow X 10 ³	lb/h	3588.	3478.	3356.
Exhaust Temp.	Deg F.	1130.	1145.	1158.
Exhaust Heat (LHV) X 10 ⁶	Btu/h	995.4	972.4	945.9

EMISSIONS

NOx	ppmvd @ 15% O2	15.	15.	15.
NOx AS NO2	lb/h	103.	99.	96.
CO	ppmvd	9.	9.	9.
CO	lb/h	29.	28.	27.
UHC	ppmvw	7.	7.	7.
UHC	lb/h	14.	14.	13.
VOC	ppmvw	1.4	1.4	1.4
VOC	lb/h	2.8	2.8	2.6
Particulates	lb/h	9.0	9.0	9.0

EXHAUST ANALYSIS % VOL.

Argon	0.89	0.87	0.87
Nitrogen	74.14	73.54	72.64
Oxygen	12.15	12.01	11.81
Carbon Dioxide	3.98	3.97	3.95
Water	8.84	9.61	10.73

SITE CONDITIONS

Elevation	ft.	45.0
Site Pressure	psia	14.68
Inlet Loss	in Water	3.0
Exhaust Loss	in Water	5.5
Application		7FH2 Hydrogen-Cooled Generator
Combustion System		9/42 DLN Combustor

Emission information based on GE recommended measurement methods. NOx emissions are corrected to 15% O2 without heat rate correction and are not corrected to ISO reference condition per 40CFR 60.335(c)(1). NOx levels shown will be controlled by algorithms within the SPEEDTRONIC control system.

**FPL GAS FUEL LOAD AT 59°F AND 60% REL.HUMIDITY –
ESTIMATED PERFORMANCE PG7241(FA)**

Load Condition		BASE
Ambient Temp.	Deg F.	59.
Fuel Type		Cust Gas
Fuel LHV	Btu/lb	20,835
Fuel Temperature	Deg F	290
Output	kW	173,000.
Heat Rate (LHV)	Btu/kWh	9,250.
Heat Cons. (LHV) X 106	Btu/h	1,600.3
Auxiliary Power	kW	560
Output Net	kW	172,440.
Heat Rate (LHV) Net	Btu/kWh	9,280.
Exhaust Flow X 103	lb/h	3539.
Exhaust Temp.	Deg F.	1116.
Exhaust Heat (LHV) X 106	Btu/h	951.8

EMISSIONS

NOx	ppmvd @ 15% O2	9.
NOx AS NO2	lb/h	59.
CO	ppmvd	9.
CO	lb/h	29.
UHC	ppmvw	7.
UHC	lb/h	14.
VOC	ppmvw	1.4
VOC	lb/h	2.8
Particulates	lb/h	9.0

EXHAUST ANALYSIS % VOL.

Argon	0.88
Nitrogen	74.42
Oxygen	12.44
Carbon Dioxide	3.87
Water	8.39

SITE CONDITIONS

Elevation	ft.	45.0
Site Pressure	psia	14.68
Inlet Loss	in Water	3.0
Exhaust Loss	in Water	5.5
Relative Humidity	%	60
Application		7FH2 Hydrogen-Cooled Generator
Combustion System		9/42 DLN Combustor

Emission information based on GE recommended measurement methods. NOx emissions are corrected to 15% O2 without heat rate correction and are not corrected to ISO reference condition per 40CFR 60.335(c)(1). NOx levels shown will be controlled by algorithms within the SPEEDTRONIC control system.