Tom

Permit Application

APPLICATION FOR AIR CONSTRUCTION PERMIT

Module: AB107

FPL Martin Plant
Installation of Electrostatic Precipitators (ESPs)

Project No: 0850001-029-AC

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

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

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July 2012

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Module AB107

FPL

July 31, 2012

Mr. Jeff Koerner
Florida Department of Environmental Protection
Bureau of Air Regulations
111 South Magnolia St.
Tallahassee, FL 32399

Project:
0850001-029-AC

Subject: **FPL Martin Plant Units 1 and 2**
Air Construction Permit Application
Installation of Electrostatic Precipitators

Dear Mr. Koerner:

Enclosed please find FPL's Air Construction permit application for the installation of electrostatic precipitators (ESPs) on Units 1 and 2 at the FPL Martin Plant. The application consists of the appropriate FDEP application form, a technical description of the project, rule applicability for the project, and emissions calculations demonstrating the emissions reduction estimated to be achieved by the project.

On May 3, 2011, EPA proposed the Utility NESHAP Rule (40 CFR 63, Subpart UUUUU), which is intended to reduce emissions from new and existing coal- and oil-fired power plants (76 FR 24976-25147). EPA finalized the rule February 16, 2012. In order to meet the new criteria outlined in the rule, FPL is proposing to install ESP's at Martin Units 1 and 2.

The current schedule calls for construction to begin on Unit 1 at the Martin Plant in June 2013, with an in-service date in July 2014. Construction on Unit 2 is scheduled to begin in the spring of 2014, with an in-service date of April 2015. FPL requests a 180-day period after initial startup of the ESP to optimize the ESP performance for each unit. FPL will perform initial compliance testing for the PM limits after the optimization period for each unit. The compliance date for the final Subpart UUUUU requirements is three years from the final promulgation of the rule. The rule was promulgated in February 16, 2012, which would make the compliance date April 16, 2015 (i.e., three years after publication) for existing units. In order to accommodate these activities, an expiration date of the air construction permit for Units 1 and 2 of July 1, 2015 is requested.

Thank you for your attention to this matter. If you have any questions, please call me at (561) 691-2808 or Stacy Foster at (561) 691-7065.

Sincerely,
Florida Power & Light Company

Matthew J. Raffenberg
Director, FPL Licensing and Permitting

Cc: Cindy Mulkey, DEP Siting Office
David Williams, Martin Plant Manager
Ken Kosky, Golder Associates
Mike Halpin, DEP Siting Office
Jeff Koerner, DEP Bureau of Air Regulations

Bcc: Tom Young, FPL
Chris Herron, FPL
John Hampp, FPL
Kevin Washington, FPL
Ashley Pinnock, FPL
Stacy Foster, FPL
Willie Welch, FPL
Paul Callahan

APPLICATION FOR AIR PERMIT

LONG FORM

Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

RECEIVED
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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**	
2. Site Name: **Martin Plant**	
3. Facility Identification Number: **0850001**	
4. Facility Location... Street Address or Other Locator: **21900 SW Warfield Blvd.** City: **Indiantown** County: **Martin** Zip Code: **34956-0176**	
5. Relocatable Facility? ☐ Yes ☒ No	6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Facility Contact Name: **Brad Williams, Regional Plant General Manager**
2. Facility Contact Mailing Address... Organization/Firm: **Florida Power & Light Company – Martin Plant** Street Address: **21900 SW Warfield Boulevard** City: **Indiantown** State: **FL** Zip Code: **34956**
3. Facility Contact Telephone Numbers: Telephone: **(772) 597-7106** ext. Fax: **(772) 597-7416**
4. Facility Contact E-mail Address: **David.Williams@fpl.com**

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 8-1-12	3. PSD Number (if applicable):
2. Project Number(s): 0850001-029-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

Application for an air construction permit to install electrostatic precipitators (ESPs) on Martin Units 1 and 2.

ESPs will be installed to address emissions of particulate matter (PM) and particulate matter with less than 10 microns (PM_{10}) that will be required by NESHAPs adopted as Title 40, Part 63 of the Code of Federal Regulations (40 CFR 63), Subpart UUUUU.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
001	Fossil Fuel Generator Unit 1	AC1F	N/A
002	Fossil Fuel Generator Unit 2	AC1F	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 :
   Brad Williams, Regional Plant General Manager
2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **Florida Power & Light Company**
   Street Address: **21900 SW Warfield Blvd.**
   City: **Indiantown** State: **FL** Zip Code: **34956**
3. Owner/Authorized Representative Telephone Numbers...
   Telephone: **(772) 597-7106** ext. Fax: **(772) 597-7416**
4. Owner/Authorized Representative E-mail Address: **David.Williams@fpl.com**
5. Owner/Authorized Representative Statement:

   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.

   Signature

   7/31/12
   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):

- ☐ 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.
- ☐ For a partnership or sole proprietorship, a general partner or the proprietor, respectively.
- ☐ For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.
- ☐ 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:

I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.

Signature Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **Kennard F. Kosky**
   Registration Number: **14996**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.****
   Street Address: **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, 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.

(3) If the purpose of this application is to obtain a Title V 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 plan and schedule is submitted with this application.

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, 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 ☐, 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.

(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 ☐, 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.

Signature Date 7/31/12

(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) **542.68** North (km) **2992.65**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) **27/03/25 N** Longitude (DD/MM/SS) **80/33/55 W**	
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: **Willie J. Welch, PGD Environmental Leader**
2. Facility Contact Mailing Address... Organization/Firm: **Florida Power & Light Company – Martin Plant** Street Address: **21900 SW Warfield Blvd.** City: **Indiantown** State: **FL** Zip Code: **34956**
3. Facility Contact Telephone Numbers: Telephone: **(772) 597-7211** ext. Fax: **(772) 597-7416**
4. Facility Contact E-mail Address: **Willie.Welch@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. ☐ Small Business Stationary Source	☐ Unknown
2. ☐ Synthetic Non-Title V Source	
3. ☒ Title V Source	
4. ☒ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. ☐ Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. ☒ Major Source of Hazardous Air Pollutants (HAPs)	
7. ☐ Synthetic Minor Source of HAPs	
8. ☒ One or More Emissions Units Subject to NSPS (40 CFR 60)	
9. ☐ One or More Emissions Units Subject to Emission Guidelines (40 CFR 60)	
10. ☐ One or More Emissions Units Subject to NESHAP (40 CFR 61 or Part 63)	
11. ☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	

Facility is classified as a prevention of significant deterioration (PSD) major facility. Martin Units 1 and 2 are subject to Acid Rain and Clean Air Interstate Rule (CAIR) programs.

Martin Units 1 and 2 are subject to 40 CFR 63 Subpart UUUUU, National Emission Standards for Hazardous Air Pollutants: Coal and Oil-Fired Electric Utility Steam Generating Units, which was finalized on December 16, 2011 and effective since April 16, 2012.

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
PM/PM10	A	N
NOX	A	N
CO	A	N
VOC	A	N
SO2	A	N
SAM	A	N
Pb	B	N
HAPS	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)
   ☒ Attached, Document ID: **FPL-FI-C1** ☐ Previously Submitted, Date: _____

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)
   ☒ Attached, Document ID: **See EU section** ☐ Previously Submitted, Date: _____

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)
   ☐ Attached, Document ID: _____ ☒ Previously Submitted, Date: **July 2008**

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location:
   ☐ Attached, Document ID: _____ ☒ Not Applicable (existing permitted facility)

2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL):
   ☒ Attached, Document ID: **Part II**

3. Rule Applicability Analysis:
   ☒ Attached, Document ID: **Part II**

4. List of Exempt Emissions Units:
   ☐ Attached, Document ID: _____ ☒ Not Applicable (no exempt units at facility)

5. Fugitive Emissions Identification:
   ☐ Attached, Document ID: _____ ☒ Not Applicable

6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.):
   ☐ Attached, Document ID: _____ ☒ Not Applicable

7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.):
   ☐ Attached, Document ID: _____ ☒ Not Applicable

8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.):
   ☐ Attached, Document ID: _____ ☒ Not Applicable

9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.):
   ☐ Attached, Document ID: _____ ☒ Not Applicable

10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.):
    ☐ Attached, Document ID: _____ ☒ Not Applicable

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units:
   ☐ Attached, Document ID:_____ ☐ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities: (Required for initial/renewal applications only)
   ☐ Attached, Document ID:_____ ☐ Not Applicable (revision application)

2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought)
   ☐ Attached, Document ID:_____
   ☐ Not Applicable (revision application with no change in applicable requirements)

3. Compliance Report and Plan: (Required for all initial/revision/renewal applications)
   ☐ Attached, Document ID:_____
   Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.

4. List of Equipment/Activities Regulated under Title VI: (If applicable, required for initial/renewal applications only)
   ☐ Attached, Document ID:_____
   ☐ Equipment/Activities Onsite but Not Required to be Individually Listed
   ☐ Not Applicable

5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only)
   ☐ Attached, Document ID:_____ ☐ Not Applicable

6. Requested Changes to Current Title V Air Operation Permit:
   ☐ Attached, Document ID:_____ ☐ Not Applicable

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: **June 2008**
   ☐ 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: **June 2008**
   ☐ Not Applicable

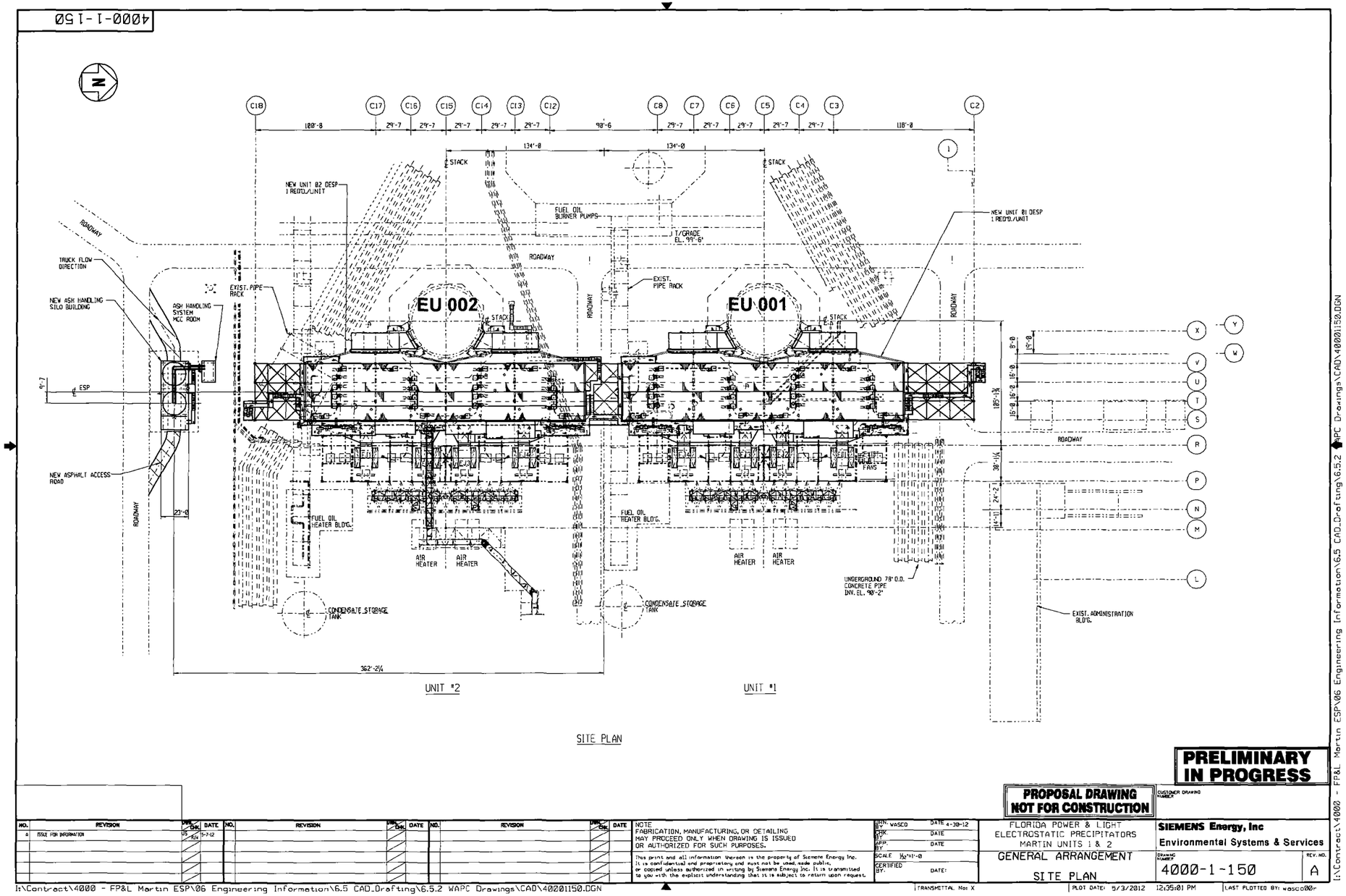
   New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):
   ☐ Attached, Document ID:_____ ☒ Previously Submitted, Date: **May 2008**
   ☐ Not Applicable (not a CAIR source)

Additional Requirements Comment

ATTACHMENT FPL-FI-C1

FACILITY PLOT PLAN



PRELIMINARY IN PROGRESS

PROPOSAL DRAWING NOT FOR CONSTRUCTION

NO.	REVISION	DWN. CK.	DATE
A	ISSUE FOR INFORMATION	WS KH	5-7-12

NOTE
FABRICATION, MANUFACTURING, OR DETAILING MAY PROCEED ONLY WHEN DRAWING IS ISSUED OR AUTHORIZED FOR SUCH PURPOSES.

DRN. WASCO DATE 4-30-12
CK'D. DATE
APP'D. DATE
SCALE ½"=1'-0
CERTIFIED BY: DATE:

FLORIDA POWER & LIGHT
ELECTROSTATIC PRECIPITATORS
MARTIN UNITS 1 & 2
GENERAL ARRANGEMENT
SITE PLAN

SIEMENS Energy, Inc
Environmental Systems & Services

CUSTOMER DRAWING NUMBER
DRAWING NUMBER 4000-1-150
REV. NO. A

I:\Contract\4000 - FP&L Martin ESP\06 Engineering Information\6.5 CAD_Drafting\6.5.2 WAPC Drawings\CAD\40001150.DGN
TRANSMITTAL Nos X
PLOT DATE: 5/3/2012 12:35:01 PM
LAST PLOTTED BY: wasco00r

I:\Contract\4000 - FP&L Martin ESP\06 Engineering Information\6.5 CAD_Drafting\6.5.2 WAPC Drawings\CAD\40001150.DGN

Attachment FPL-FI-C1
Facility Plot Plan

Y:\Projects\2012\123-87571 FPL Martin\AC Pmt\Final\Att\FPL-FI-C1.docx

Golder Associates

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 1 and 2

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:
Fossil Fuel Steam Generator Unit 1 (EU 001)
Fossil Fuel Steam Generator Unit 2 (EU 002)

3. Emissions Unit Identification Number: **001, 002**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:
A		**Unit 1 - Dec, 1980** **Unit 2 - June, 1981**	**49**

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

☒ Acid Rain Unit

☒ CAIR Unit

9. Package Unit:
Manufacturer: **Foster-Wheeler** Model Number:

10. Generator Nameplate Rating: **863.3** MW **(each)**

11. Emissions Unit Comment:
Unit 1 and 2 are each nominal 800 MW fossil fuel fired steam electric generators.

Emissions Unit Control Equipment/Method: Control **1** of **2**

1. Control Equipment/Method Description: **Low NOx Burners**
2. Control Device or Method Code: **205**

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

1. Control Equipment/Method Description: **Electrostatic Precipitator**
2. Control Device or Method Code: **128**

Emissions Unit Control Equipment/Method: Control ____ of ____

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ____ of ____

1. Control Equipment/Method Description:
2. Control Device or Method Code:

B. EMISSIONS UNIT CAPACITY INFORMATION
(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate:	
3. Maximum Heat Input Rate: **18,080** million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule: **24** hours/day **52** weeks/year	**7** days/week **8,760** hours/year
6. Operating Capacity/Schedule Comment: **Maximum heat input is for both Units 1 and 2 (9,040 MMBtu/hr, each) when firing natural gas alone.** **Maximum heat input is 17,300 MMBtu/hr for both Units 1 and 2 (8,650 MMBtu/hr, each) when firing low sulfur fuel oil.**	

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: **EU001 and EU002**	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: **499** feet	7. Exit Diameter: **36** feet
8. Exit Temperature: **338**°F	9. Actual Volumetric Flow Rate: **2,634,519** 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 are for both Units.** **Stack parameters based on Title V Permit No. 0850001-021-AV.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 4

1. Segment Description (Process/Fuel Type): **External Combustion Boiler; Electric Generation; Residual Oil - Grade 6 Oil: Normal Firing**		
2. Source Classification Code (SCC): **1-01-004-01**	3. SCC Units: **Thousand Gallons Burned**	
4. Maximum Hourly Rate: **113.82**	5. Maximum Annual Rate: **997,026.3**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: **0.7**	8. Maximum % Ash:	9. Million Btu per SCC Unit: **152**
10. Segment Comment: ***Rates are for both Units 1 and 2.*** **Max. hourly = 17,300 MMBtu/hr / 152 MMBtu/10^3 gallons = 113.82 x 10^3 gallons/hr** **When co-firing with natural gas, maximum 1% sulfur content is allowed**		

Segment Description and Rate: Segment 2 of 4

1. Segment Description (Process/Fuel Type): **External Combustion Boilers; Electric Generation; Natural Gas**		
2. Source Classification Code (SCC): **1-01-006-01**	3. SCC Units: **Million Cubic Feet Burned**	
4. Maximum Hourly Rate: **18.08**	5. Maximum Annual Rate: **158,380.8**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: **1,000**
10. Segment Comment: **Rates are for both Units 1 and 2.** **Max. hourly = 18,080 MMBtu/hr / 1000 MMBtu/10^6 ft^3 = 18.08 x 10^6 ft^3/hr**		

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

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

1. Segment Description (Process/Fuel Type): **External Combustion Boiler; Electric Generation; Liquid Waste: Specify Waste Material**		
2. Source Classification Code (SCC): **1-01-013-01**	3. SCC Units: **Thousand Gallons Burned**	
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: **Chemical cleaning waste firing. This activity to be undertaken on a periodic basis in accordance with DARM guidance and EPA waste rules (40 CFR 279.72).**		

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

1. Segment Description (Process/Fuel Type): **External Combustion Boiler; Electric Generation; Liquid Waste: Waste Oil**		
2. Source Classification Code (SCC): **1-01-013-02**	3. SCC Units: **Thousand Gallons Burned**	
4. Maximum Hourly Rate:	5. Maximum Annual Rate: **10**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Annual rate is total for one or both boilers.** **Maximum used oil usage limited to 10,000 gallons/yr.** **Used oil specifications: Arsenic 5 ppm, Cadmium 2 ppm, Chromium 10 ppm, Lead 100 ppm, Total Halogens 1000 ppm, PCB 50 ppm, Flash point 100°F.**		

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
PM	128		EL*
PM10	128		NS

*** Is Subject to 40 CFR 63, Subpart UUUUU. Filterable PM is an alternate method of compliance and basis of emissions.**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL 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**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **519** lb/hour **2,273.2** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.03 lb/MMBtu** Reference: **Table 2 to Subpart UUUUU of Part 63**	7. Emissions Method Code: **0**
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: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

Hourly PM emissions during normal operation: 0.03 lb/MMBtu x 8,650 MMBtu/hr = 259.5 lb/hr
Hourly emissions of two units:259.5 lb/hr x 2 = 519 lb/hr
Annual emissions: 519 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 2273.2 TPY
See Table 2 of Part II.
Work Practice requirements are applicable for periods of startup and shutdown.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions represent total for both units.

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: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **0.03 lb/MMBtu**	4. Equivalent Allowable Emissions: **519** lb/hour **2,273.2** tons/year
5. Method of Compliance: **Compliance testing per Table 5 to Subpart UUUUU of Part 63.**	
6. Allowable Emissions Comment (Description of Operating Method): **Allowable emissions except during periods of startup and shutdown. Compliance testing not required when firing only natural gas or when fuel oil firing < 400hr/yr.**	

Allowable Emissions Allowable Emissions **2** of **2**

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: **Work Practice**	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: **Table 3 to Subpart UUUUU of Part 63.**	
6. Allowable Emissions Comment (Description of Operating Method): **Allowable emissions applicable during periods of startup and shutdown.**	

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):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL, FUGITIVE, AND ACTUAL 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: **PM10**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **519** lb/hour **2,273.2** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **100% of PM** Reference:	7. Emissions Method Code: **5**
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: ☐ 5 years ☐ 10 years
10. Calculation of Emissions:	
11. Potential, Fugitive, and Actual Emissions Comment: **PM_{10} emissions are assumed equal to PM emissions.**	

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 ____ 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):	

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):	

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 1

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **20** % Exceptional Conditions: **27** % Maximum Period of Excess Opacity Allowed: **6** min/hour	
4. Method of Compliance: **DEP Method 9**	
5. Visible Emissions Comment: **40 CFR 60.42(a)(2).**	

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

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 1

1. Parameter Code: **VE**	2. Pollutant(s):
3. CMS Requirement: ☒ Rule ☐ Other	
4. Monitor Information... Manufacturer: **PHOENIX INSTRUMENTS** Model Number: **OPAC 20/20** Serial Number: **OPAC-1069/1070- Unit 1** **OPAC-1071/1072 – Unit 2**	
5. Installation Date: **12/13/2000 - Unit 1** **12/01/1995 - Unit 2**	6. Performance Specification Test Date: **01/08/2001 - Unit 1** **01/01/1995 - Unit 2**
7. Continuous Monitor Comment: **40 CFR 75, Acid Rain requirements.** **Units 1 and 2 are also equipped with continuous monitoring systems for CO_2 and NO_x for Acid Rain requirements.** **Two serial numbers are provided since each duct leading to the stack has its own transmissometer.**	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

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)
   ☒ Attached, Document ID: **FPL-EU1-I1** ☐ Previously Submitted, Date _____

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)
   ☐ Attached, Document ID: _____ ☒ Previously Submitted, Date **July 2008**

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)
   ☒ Attached, Document ID: **Part II** ☐ Previously Submitted, Date _____

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)
   ☐ Attached, Document ID: _____ ☒ Previously Submitted, Date **July 2008**
   ☐ 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)
   ☐ Attached, Document ID: _____ ☐ Previously Submitted, Date _____
   ☒ Not Applicable

6. Compliance Demonstration Reports/Records:
   ☐ Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   ☐ Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   ☐ To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   ☒ 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:
   ☐ Attached, Document ID: _____ ☒ Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications

1.	Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☒ Not Applicable
2.	Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☒ Not Applicable
3.	Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

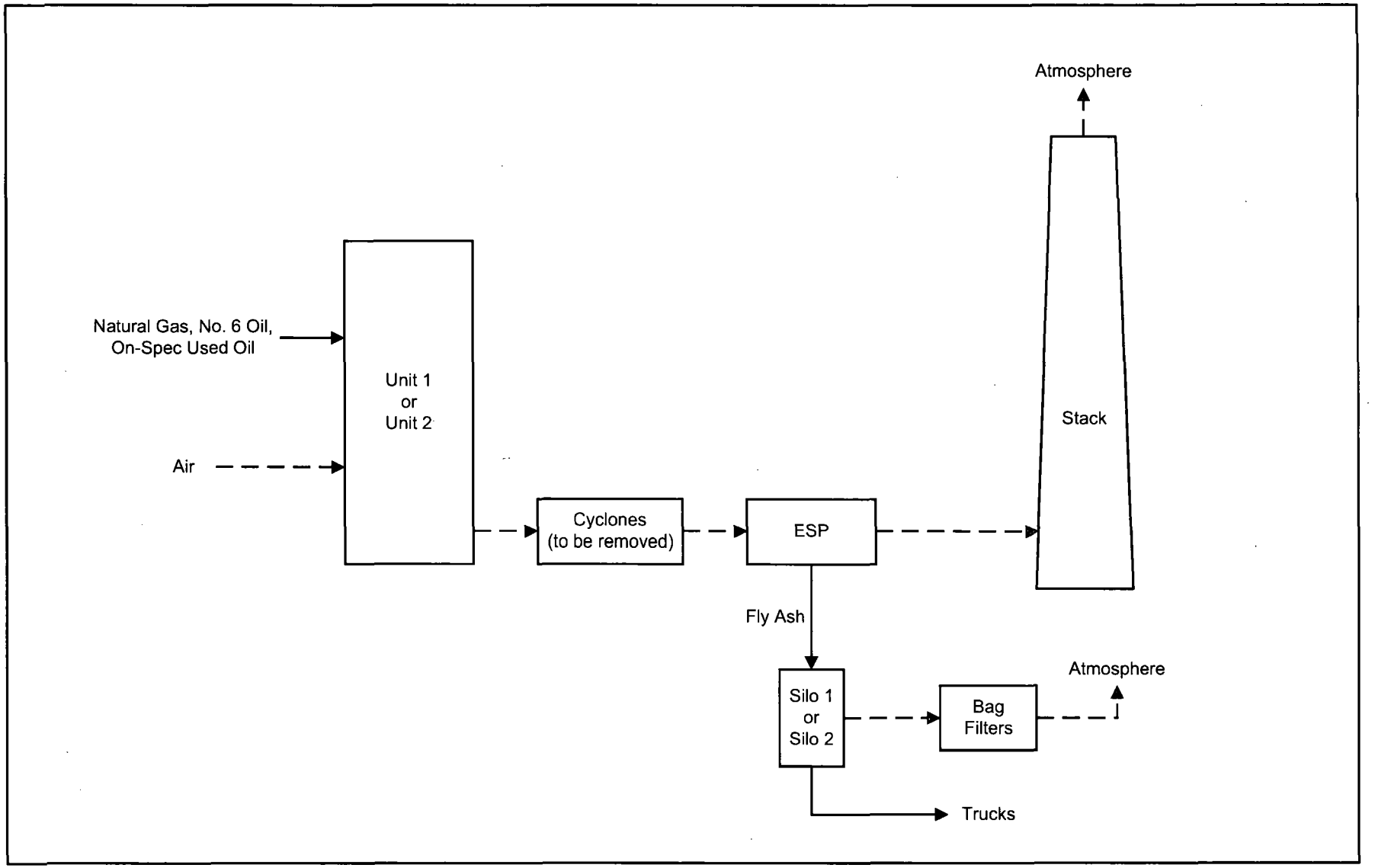
1.	Identification of Applicable Requirements: ☐ Attached, Document ID: _____
2.	Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ ☐ Not Applicable
3.	Alternative Methods of Operation: ☐ Attached, Document ID: _____ ☐ Not Applicable
4.	Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☐ Not Applicable

Additional Requirements Comment

Units will be subject to Compliance Assurance Monitoring (CAM) for PM. CAM Plan will be developed and submitted to FDEP following the 180-day optimization period of the last ESP installation.

ATTACHMENT FPL-EU1-I1

PROCESS FLOW DIAGRAM



Attachment FPL-EU1-I1
Units 1 and 2
Process Flow Diagram
FPL Martin Plant

Process Flow Legend
Solid/Liquid
Gas

Golder Associates

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PART II

PART II

APPLICATION FOR MINOR SOURCE AIR CONSTRUCTION PERMIT FOR INSTALLING ELECTROSTATIC PRECIPITATORS (ESPS) AT MARTIN UNITS 1 AND 2 (EU IDS 001 AND 002)

EXECUTIVE SUMMARY

Florida Power & Light Company (FPL) is seeking authorization from the Florida Department of Environmental Protection (FDEP) for installing electrostatic precipitators (ESPs) for the fossil fuel steam generator Units 1 and 2 (EU IDs 001 and 002) at the Martin Plant. The purpose of the project is to address emissions of particulate matter (PM), PM less than 10 microns (PM10) that will be required under the new National Emission Standards for Hazardous Air Pollutants (NESHAP) from Coal- and Oil-fired *Electric Utility Steam Generating Units [adopted as Title 40, Part 63 of the Code of Federal Regulations* (40 CFR 63), Subpart UUUUU]. Subpart UUUUU was finalized on December 16, 2011 and is effective since April 16, 2012. The project will include installation of electrostatic precipitators (ESPs) for the control of PM and PM10 and a fly ash handling system. PM emissions from Units 1 and 2 are currently controlled by multiple cyclones, which will be removed. The Martin Plant is classified as a Prevention of Significant Deterioration (PSD) major facility. Based on the current baseline actual-to-projected actual emissions test, the installation of ESPs will reduce approximately 110 tons per year (TPY) of actual PM and PM10 emissions. This will also reduce the potential emissions of Hazardous Air Pollutants (HAPs) under Subpart UUUUU. Emissions of any other regulated pollutants will not be affected by the project.

INTRODUCTION

The Martin Plant is located at 21900 SW Warfield Blvd, Martin County, Florida. The facility is currently operating under Title V Permit No.0850001-021-AV.

Golder Associates Inc. (Golder) was contracted to prepare and submit the necessary air permit application seeking authorization to install the electrostatic precipitators 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 the emissions reduction estimated to be achieved by the project.

Fossil fuel steam generator Units 1 and 2 are permitted to fire natural gas, low sulfur No.6 fuel, and on-specification used oil for normal operation. Maximum heat input rate for Units 1 and 2 is 8,650 million British thermal units per hour (MMBtu/hr) each when firing low sulfur fuel No.6 oil and 9,040 MMBtu/hr when firing natural gas. The project will not make any changes to the currently permitted fuels or heat input rates.

PM emissions from Units 1 and 2 are currently controlled by multiple cyclones, which are inherent process equipment with no vents. Nitrogen oxides (NO_x) emissions from Units 1 and 2 are controlled by low NO_x burners.

On December 16, 2012, EPA finalized 40 CFR 63 Subpart UUUUU, NESHAP from Coal- and Oil-fired Electric Utility Steam Generating Units (effective April 16, 2012). This final rule, also known as the Mercury and Air Toxics Standards (MATS) reduces emissions of metals, including mercury (Hg), arsenic, chromium, and nickel, acid gases, including hydrogen chloride (HCl) and hydrogen fluoride (HF), and PM from new and existing coal- and oil-fired power plants (units greater than 25 MW). Based on the emissions standards in Subpart UUUUU, Martin Units 1 and 2 are subject to a PM emissions standard of 0.03 lb/MMBtu and work practice standards during startup and shutdown operations. FPL understands that compliance with the PM standards will require the installation of ESPs for Martin Units 1 and 2.

For existing electric generating units, compliance date for 40 CFR 63 Subpart UUUUU is April 16, 2015. The installation of air control equipment such as ESPs at an existing operating facility can take many years, and FPL will be able to coordinate the planning, engineering, and construction of ESPs for Martin Units 1 and 2 as well as other affected oil-fired units in FPL's generating fleet most efficiently and cost-effectively by starting now. As a result, FPL is seeking authorization to install the ESPs at this time.

To address the final NESHAP Subpart UUUUU, FPL is proposing to install ESPs, which will control PM emissions and HAPs. FPL will also install a fly ash handling system to handle the fly ash collected by the ESPs. Two silos will be constructed to store the fly ash. PM emissions from the silos will be controlled by a bagfilter system (or equivalent, e.g., filter vent) installed on top of each silo to minimize fugitive PM emissions. Fly ash removed from the silos will be mixed with water (e.g., pug mill or equivalent) to minimize fugitive PM emissions while loading on trucks.

As a part of the ESP installation, foundations for ancillary equipment that may be required for additional control will be installed under this air construction permit.

PROJECT DESCRIPTION

The air pollution control device to be installed in this project is an ESP. In an ESP, a high-voltage electric field is produced to impart an electric charge to the solid particles in the flue gas stream. The pulsating direct current voltage in the range of 20,000 to 100,000 volts is used to ionize the gas stream, known as corona. The ions, usually produced using a negative corona, are attracted to the particles while traveling in the ionized gas stream. These particles are then removed from the gas stream by migrating toward oppositely charged collectors. Rapping mechanisms, that are operated intermittently, dislodge the collected particles, which subsequently fall into a hopper. Other supporting equipment will also be installed.

The proposed project will include the following components and associated equipment:

- ESPs – A Siemens Environmental Systems & Services (SESS) rigid frame type Dry ESP (DESP) is proposed for each fossil fuel steam generator unit (total of two per site) complete with rapper systems, control systems, and various other auxiliaries for a complete system. Each precipitator consists of four (4) cells across the gas flow, six (6) mechanical fields along the gas flow, with twenty-four (24) independent electrical bus sections. The DESP is designed to process 100 percent of the total unit flue gas from the upstream air heater to remove solid particulate before exhausting to the stack.
- Design current density is 0.047 milliampere per square foot (mA/ft^2) of plate area. The specific collection area is 105 square feet per 1,000 actual cubic feet per minute (acfm). The ESP will have an energy management system to adjust the current as needed. Total installed power rating is 2,832 kilovolt-amperes (kVA). The design residence time is about 10 seconds.
- The ESP will have 1056 collection plates. The plates will be periodically cleaned by a rapping system to release the layer of ash. The ash will fall into each of 24 hoppers and will be transferred into a silo.
- A total of two ash silos will collect and store fly ash from either or both of Units 1 and 2. The silo system will have the capacity of 5 days of active storage volume for the site's two units.
- Water spray will be used to control fugitive dust emissions while unloading ash from the silos into the trucks. Moisture level expected in fly ash unloaded into trucks is approximately 30 percent.

RULE APPLICABILITY

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 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 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 Martin 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 Act (Clean Air Act), including any not previously emitted, from any emission unit or

facility". While there is a change in the method of operation with the installation of ESPs, the project will not increase actual emissions or result in emissions not previously emitted by the emission unit or facility.

The proposed project will reduce PM emissions in accordance with the final rule for Subpart UUUUU. While there will be a small increase in fugitive PM emissions emitted by the vent filters on the ash silos and truck loading, the emissions from these activities will be well under the threshold for classifying insignificant activities under FDEP rules.

To demonstrate that the proposed project is not a 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 Units 1 and 2, along with emission estimates of the insignificant activities associated with material handling. 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 actual annual heat inputs from fuel oil and natural gas reported in the Annual Operating Reports (AORs) for the period 2007 through 2011. This table also presents the total actual heat input from both fuels for Units 1 and 2, as well as the actual operating hours for each unit.

Table 2 presents the potential emissions after the ESPs are installed. The potential annual heat input is based on maximum permitted heat input rate of 8,650 MMBtu/hr for low sulfur fuel oil. The PM emissions limit being proposed for Martin Units 1 and 2 is 0.03 lb/MMBtu that meets Subpart UUUUU, Table 2 for liguid-oil firing continental subcategory. The potential projected actual emission rate is divided by the projected heat input to calculate a projected actual emission factor in lb/MMBtu.

Table 3 presents actual emissions reported in the annual operating reports for each calendar year in the period 2007 through 2011.

Table 4 presents the average emissions for each consecutive 2-year period based on the calendar year emissions in Table 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.

Table 5 presents the comparison of baseline actual emissions and projected actual emissions for Units 1 and 2. The pollutants affected by the project are PM including PM_{10}. The baseline actual 2-year average emissions for these pollutants from Table 4 and the baseline actual 2-year average heat input from Table 1 are used in Table 5 to calculate baseline actual emission factors in lb/MMBtu. The proposed PM emission factor of 0.03 lb/MMBtu and the projected annual heat input from the last 5 years (see Table 1)

are used to calculate the projected actual emissions. The projected actual heat input was based on the highest annual heat input from the last 5 years for Units 1 and 2 for PM and PM_{10}. The baseline actual emissions were subtracted from the projected actual emissions to calculate the difference.

Table 6 presents the estimated PM and PM_{10} emissions from the silo vent filters. Based on the manufacturer specifications for the dust collector (Size 33 Model 36 WCC Bin Vent High Energy Pulse Cleaned Cartridge), a grain loading of 0.005 grain per cubic foot of exhaust air was used to estimate the PM/PM_{10} emissions and PM_{10} was assumed equal to PM. As shown, the total PM/PM_{10} emissions increase due to the new dust collectors is estimated to be 0.79 TPY. The ash will be transported out of the facility by trucks and a maximum of two truck trips will be required per day. The fugitive PM emissions generated by these two trucks per day are negligible compared to the PM emissions decrease due to the ESPs.

Tables 7 and 8 present the estimated fugitive PM emissions from truck traffic and truck loading operations, respectively.

As shown in Table 5, there will be a decrease in PM and PM_{10}. While there are minor amount of fugitive PM emissions, these emissions increases are negligible compared to the approximately 110 TPY PM emissions reduction due to the installation of ESPs. As a result, the proposed project is not a modification and not subject to PSD review. Note that the estimated reduction is based on an average baseline actual emission factor of 0.034 lb/MMBtu (Table 5), which combines both natural gas and oil firing. If only oil-firing is considered, the baseline actual emission factor will be 0.078 lb/MMBtu, which will increase the estimated emission reduction to approximately 404 TPY.

A minor source air construction permit application is applicable to the project. A PM emission limit of 0.03 lb/MMBtu is proposed as a condition of the minor source air construction permit.

TABLES

TABLE 1
FOSSIL FUEL STEAM GENERATOR UNITS 1 AND 2 ANNUAL HEAT INPUTS, 2007 - 2011

	Heat Input from No. 6 Fuel Oil (MMBtu/yr)			Heat Input from Natural Gas (MMBtu/yr)			Total Actual Heat Input (MMBtu/yr)			Actual Operating Hours (hr/yr)	
Year	Unit 1	Unit 2	Total	Unit 1	Unit 2	Total	Unit 1	Unit 2	Total	Unit 1	Unit 2
2011	850,744	769,272	1,620,016	15,516,000	14,184,000	29,700,000	16,366,744	14,953,272	31,320,016	5,518	5,061
2010	8,099,168	6,502,256	14,601,424	14,866,000	11,245,000	26,111,000	22,965,168	17,747,256	40,712,424	6,698	5,406
2009	6,482,952	6,777,680	13,260,632	17,337,000	15,356,000	32,693,000	23,819,952	22,133,680	45,953,632	6,504	6,146
2008	6,970,112	8,890,480	15,860,592	10,419,000	14,871,000	25,290,000	17,389,112	23,761,480	41,150,592	4,660	6,372
2007	9,627,376	10,796,712	20,424,088	11,383,000	10,269,000	21,652,000	21,010,376	21,065,712	42,076,088	5,435	5,135

Note: All values are based on annual operating reports for the period 2007 - 2011.

TABLE 2
POTENTIAL EMISSIONS FOR FOSSIL FUEL GENERATOR UNITS 1 AND 2

Pollutant	Heat Input [a] (MMBtu/hr)	Normal Operation (hrs/yr)	Normal Operation Emission Factor [b] (lb/MMBtu)	Potential Hourly Emissions (lb/hr)	Potential Annual Emissions (TPY)
PM	17,300.0	8,760	0.03	519.0	2,273.2
PM_{10}	17,300.0	8,760	0.03	519.0	2,273.2

[a] Maximum permitted heat input for Units 1 and 2 combined firing fuel oil (8,650 MMBtu/hr for each).

[b] PM/PM_{10} emissions factors are based on Table 2 To 40 CFR 63 Subpart UUUUU.

TABLE 3
ANNUAL EMISSIONS REPORTED
IN 2007-2011 ANNUAL OPERATING REPORTS

Year	Pollutant	Unit No. 1 (tons)	Unit No. 2 (tons)	Total (tons)
2011	PM	82.4	75.1	157.4
	PM_{10}	82.4	75.1	157.4
2010	PM	311.2	247.2	558.5
	PM_{10}	311.2	247.2	558.5
2009	PM	309.0	312.5	621.5
	PM_{10}	309.0	312.5	621.5
2008	PM	311.5	403.3	714.8
	PM_{10}	311.5	403.3	714.8
2007	PM	421.7	463.5	885.2
	PM_{10}	421.7	463.5	885.2

Source: Annual Operating Report (AOR) for FPL Martin Plant, 2007 - 2011.

TABLE 4
ANNUAL AVERAGE EMISSIONS FOR UNIT NOS. 1 AND 2
FOR EACH CONSECUTIVE TWO-YEAR PERIOD, 2007-2011

Pollutant	2011-2010 (tons)	2010-2009 (tons)	2009-2008 (tons)	2008-2007 (tons)
PM	357.9	590.0	668.1	800.0
PM_{10}	357.9	590.0	668.1	800.0

Source: Annual Operating Report (AOR) for FPL Martin Plant, 2007 - 2011.

TABLE 5
PSD APPLICABILITY - FOSSIL FUEL STEAM GENERATOR UNITS 1 AND 2
INSTALLATION OF ELECTROSTATIC PRECIPITATORS (ESPs)

Pollutant	Baseline Actual (2-Year Average) Emissions[a] (TPY)	Baseline 2-Year Period[a]	Baseline 2-Year Average Heat Input[b] (MMBtu/yr)	Projected Actual Heat Input[b] (MMBtu/yr)	Baseline Actual Emission Factors[c] (lb/MMBtu)	Projected Actual Emission Factors[d] (lb/MMBtu)	Projected Actual Emissions[e] (TPY)	Increase/Decrease in Emissions (Projected – Baseline Emissions) (TPY)
PM	800	2008 - 2007	41,613,340	45,953,632	0.038	0.030	689.3	-110.7
PM_{10}	800	2008 - 2007	41,613,340	45,953,632	0.038	0.030	689.3	-110.7

[a] Based on AOR data for the period 2007 - 2011, see Table 4.
[b] Based on the maximum annual heat input for both units AOR data for the period 2007 through 2011, see Table 1.
[c] Baseline actual emissions divided by worst-case 2-year average heat input.
[d] Proposed emission limit.
[e] Projected actual emissions calculated based on future potential emission factors and worst-case heat input based on 5-year data (2007 - 2011).

TABLE 6
POTENTIAL EMISSIONS FROM SILO DUST COLLECTORS
MARTIN PLANT ESP PROJECT

Parameters		Ash Silo Unit 1 Dust Collector	Ash Silo Unit 2 Dust Collector	TOTAL
Emission Point		SILO1	SILO2	
Operation Data				
Daily activity hours	Daily	24	24	
Annual activity days	Annual	365	365	
Material Throughput				
Material Throughput [a]	Daily (lb/day)	39,024.0	39,024.0	
	Hourly (lb/hr)	1,626.0	1,626.0	
Bin Vent Filter (or equivalent)				
Air Volume Flow Rate [b]	ft^3/min	2,100.0	2,100.0	
Particulate Matter Dust Loading [c]	grains/ft^3	0.005	0.005	
Estimated Emission Rate (ER)				
PM ER	lb/hr	0.0900	0.0900	0.1800
	tons/yr (TPY)	0.3942	0.3942	0.7884
PM_{10} ER	lb/hr	0.0900	0.0900	0.1800
	TPY	0.3942	0.3942	0.7884

[a] Material throughput based on maximum design ash production estimate of 1,626 lb/hr per unit.
[b] Air flow rate of typicaly bin vent filter system.
[c] Particulate matter dust loading of exhaust air based 0.005 grains/ft^3 for typical bin vent filter (cartridge or bag).

TABLE 7
POTENTIAL EMISSIONS FROM TRUCK TRAFFIC ON PAVED ROADS
MARTIN PLANT ESP PROJECT

General Data		Truck for SILO1	Truck for SILO2
Throughput Data			
Operation days		365	365
Hourly fly ash production [a] (lb/hr)		1,626	1,626
Hourly water added to fly ash (30% by weight) (lb/hr)		488	488
Hourly total material throughput (lb/hr)		2,114	2,114
Daily total material throughput (ton/day)		25	25
Vehicle Data			
Vehicle weight [b] (W), ton	Loaded	39	39
	Unloaded	14	14
	Average	26.5	26.5
	Payload	25	25
Number of vehicles/day	Daily	2	2
Distance (miles) travelled/ vehicle/ route [c]	Per trip	3.0	3.0
VMT (no. vehicles x miles travelled)	Daily	6.0	6.0
General/ Site Characteristics			
Days of precipitation greater than or equal to 0.254 mm (p) [e], N	Annual	136	136
Silt Loading (sL), g/m^2 [d]		1.0	1.0
Particle size multiplier, PM (k), lb/VMT		0.011	0.011
PM_{10} (k), lb/VMT		0.0022	0.0022
Emission Control Data			
Emission control method		None	None
Emission control removal efficiency, %		0	0
Emission Factor (EF) Equation (Equation 1, AP-42, Section 13.2.1.3)			
Uncontrolled daily EF (UEF) Equation - PM	$UEF(lb/VMT) = [k \times \{(sL)^{0.91} \times (W(ton, ave))^{1.02}\}] \times (1-P/4*365)$		
PM_{10}	$UEF(lb/VMT) = [k \times \{(sL)^{0.91} \times (W(ton, ave))^{1.02}\}] \times (1-P/4*365)$		
Controlled daily EF (CEF) Equation	CEF(lb/VMT) = UEF (lb/VMT) x (100 - Removal efficiency (%))		
Calculated PM Emission Factor (EF)			
Uncontrolled EF, lb/VMT	Daily	0.28	0.28
Controlled EF, lb/VMT	Daily	0.28	0.28
Calculated PM_{10} Emission Factor (EF)			
Uncontrolled EF, lb/VMT	Daily	0.056	0.056
Controlled EF, lb/VMT	Daily	0.056	0.056
Estimated Daily Emission Rate (ER)			
PM Emission Rate (lb/day)	Daily	1.7	1.7
PM_{10} Emission Rate (lb/day)	Daily	0.34	0.34
Estimated Annual Emission Rate (ER)			
PM Emission Rate (TPY)	Annual	0.31	0.31
PM_{10} Emission Rate (TPY)	Annual	0.062	0.062

[a] Material throughput based on maximum ash production estimate of 2,120 lb/hr per unit.
[b] Typical 25-ton trucks.
[c] Conservative assumption of 1 mile each way inside the plant property.
[d] Based on silt loading developed for the permit application (DEP File No. 0571244-001-AC) for the solid and molten sulfur handling and storage facilities, Big Bend Transfer Company, LLC, 2001
[e] 30 year average (1971-2000) no. of days with precipitation >0.01 in from West Palm Beach, NOAA.

TABLE 8
ESTIMATION OF PM EMISSION FACTORS AND RATES FOR FLY ASH HANDLING
MARTIN PLANT ESP PROJECT

Parameters		Flyash Loading into Trucks SILO1	Flyash Loading into Trucks SILO2
Emission Point/Area		*Batch Drop*	*Batch Drop*
Material Handling Data			
Material type		Fly Ash (Wet)	Fly Ash (Wet)
Material throughput [a], lb/hr (design)		2,114	2,114
ton/hr		1.06	1.06
Material throughput, ton/yr		9,258	9,258
Moisture content [b] (M), % (nominal)		20	20
Number of transfers		1	1
General/ Site Characteristics			
Mean wind speed [e], mph		9.6	9.6
Particle size multiplier, PM (k)		0.74	0.74
Particle size multiplier, PM_{10} (k)		0.35	0.35
Emission Control Data:			
Emission control method		None	None
Emission control removal efficiency, %		0	0
Emission Factor (EF) Equations [d]			
Uncontrolled EF (UEF) Equation	$UEF\ (lb/ton) = k \times (0.0032) \times (U / 5)^{1.3})/[(M / 2)^{1.4}]$		
Controlled EF (CEF) Equation	CEF (lb/ton) = UEF (lb/ton) x [100% - Removal efficiency (%)]		
Calculated PM Emission Factor (EF)			
Uncontrolled EF, lb/ton	Short term	0.000220	0.000220
Controlled EF, lb/ton	Short term	0.000220	0.000220
Calculated PM_{10} Emission Factor (EF)			
Uncontrolled EF, lb/ton	Short term	0.000104	0.000104
Controlled EF, lb/ton	Short term	0.000104	0.000104
Estimated Hourly Emission Rate (ER)			
PM ER lb/hr		0.00023	0.00023
PM_{10} ER lb/hr		0.00011	0.00011
Estimated Annual Emission Rate [c] (ER)			
PM ER TPY		0.00102	0.00102
PM_{10} ER TPY		0.00048	0.00048

[a] Material throughput based on maximum design ash production estimate of 1,626 lb/hr per unit and 30% by weight water added to ash. See Table 7.

[b] Maximum moisture level expected in unloaded ash is estimated to be 30% by weight. Moisture level of 20% used in calculation.

[c] Based on 8,760 hrs/yr operation.

[d] Based on USEPA, 2006; AP-42, Section 13.2.4 for Aggregate Handling and Storage Piles.

[e] Mean 30-year (1971-2000) wind speed from West Palm Beach, NOAA.

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