

**APPLICATION FOR MODIFICATION
TO INCREASE THE AMOUNT OF
PETROLEUM COKE CO-FIRED WITH COAL**

**ST. JOHNS RIVER POWER PARK
JACKSONVILLE, FLORIDA**

**Prepared For:
St. Johns River Power Park
11201 New Berlin Road
Jacksonville, Florida 32226**

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

**January 2005
043-7580-0100**

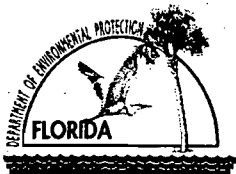
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FEB 02 2005

BUREAU OF AIR REGULATION

PART I



Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

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

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

Air Operation Permit – Use this form to apply for:

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

Air Construction Permit & Revised/Renewal Title V Air Operation Permit (Concurrent Processing Option) – Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: JEA	
2. Site Name: St. Johns River Power Park (SJRPP)	
3. Facility Identification Number: 0310045	
4. Facility Location...: Street Address or Other Locator: 11201 New Berlin Road City: Jacksonville County: FL Zip Code: 32226	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Application Contact Name: Jay A. Worley, SJRPP, Group Leader, Bulk Materials	
2. Application Contact Mailing Address... Organization/Firm: SJRPP Street Address: 11201 New Berlin Road City: Jacksonville State: FL Zip Code: 32226	
3. Application Contact Telephone Numbers... Telephone: (904) 665-8729 ext. Fax: (904) 665-8719	
4. Application Contact Email Address: worlja@jea.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	<i>2-2-05</i>
2. Project Number(s):	<i>0310045-014-AC</i>
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

APPLICATION INFORMATION

Purpose of Application

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

Air Construction Permit

Air construction permit.

Air Operation Permit

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

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

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

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

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

Application Comment

An air construction permit application is being requested to increase the amount of petroleum coke co-fired with coal from up to 20 percent to 30 percent. The authorization for the increase is being sought as a minor source increase that will not trigger review under the FDEP Prevention of Significant Deterioration rules in 62-212.400 F.A.C. under 40 CFR Part 52.21(b)2(v). See Part II.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
016	SJRPP Boiler No. 1	ACIC	NA
017	SJRPP Boiler No. 2	ACIC	NA


Application Processing Fee

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

APPLICATION INFORMATION

Owner/Authorized Representative Statement

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

1. Owner/Authorized Representative Name : James M. Chansler, V.P. Operations and Maintenance
2. Owner/Authorized Representative Mailing Address... Organization/Firm: JEA Street Address: 21 West Church Street City: Jacksonville State: FL Zip Code: 32202
3. Owner/Authorized Representative Telephone Numbers... Telephone: (904) 665-4433 ext. Fax: () -
4. Owner/Authorized Representative Email Address: chanjm@jea.com
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.</i>  Signature <u>1/28/05</u> Date

APPLICATION INFORMATION

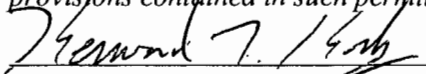
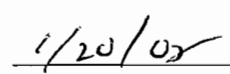
Application Responsible Official Certification

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

1. Application Responsible Official Name:			
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):			
<input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.			
<input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively.			
<input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.			
<input type="checkbox"/> The designated representative at an Acid Rain source.			
3. Application Responsible Official Mailing Address...			
Organization/Firm:			
Street Address:			
City:	State:	Zip Code:	
4. Application Responsible Official Telephone Numbers...			
Telephone:	() - ext.	Fax:	() -
5. Application Responsible Official Email Address:			
6. Application Responsible Official Certification:			
<i>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.</i>			
_____ Signature		_____ Date	

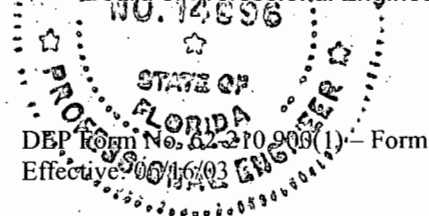
APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Kennard F. Kosky Registration Number: 14996
2. Professional Engineer Mailing Address... Organization/Firm: Golder Associates Inc.** Street Address: 6241 NW 23rd Street, Suite 500 City: Gainesville State: FL Zip Code: 32653
3. Professional Engineer Telephone Numbers... Telephone: (352) 336-5600 ext. 516 Fax: (352) 336-6603
4. Professional Engineer Email Address: kkosky@golder.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  Signature.....  Date

* Attach any exception to certification statement.

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



APPLICATION INFORMATION

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone 17 East (km) 446.90 North (km) 3359.15		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) 30/21/52 Longitude (DD/MM/SS) 81/37/25	
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 : The facility includes the JEA Northside Generating Station and SJRPP.			

Facility Contact

1. Facility Contact Name: Jay A. Worley, Group Leader, Bulk Materials
2. Facility Contact Mailing Address... Organization/Firm: SJRPP Street Address: 11201 New Berlin Road City: Jacksonville State: FL Zip Code: 32226
3. Facility Contact Telephone Numbers: Telephone: (904) 665-8729 ext. Fax: (904) 665-8719
4. Facility Contact Email Address: worlja@jea.com

Facility Primary Responsible Official

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

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

FACILITY INFORMATION

Facility Regulatory Classifications

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

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

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
PM/PM ₁₀	A	N
SO ₂	A	N
NO _x	A	N
CO	A	N
VOC	A	N
SAM	A	N

FACILITY INFORMATION

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID Nos. Under Cap (if not all units)	4. Hourly Cap (lb/hr)	6. Basis for Emissions Cap	6. Basis for Emissions Cap

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

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>6/20/2003</u>
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>6/20/2003</u>
3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>6/20/2003</u>

Additional Requirements for Air Construction Permit Applications

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

FACILITY INFORMATION

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities (Required for initial/renewal applications only): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable (revision application)

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

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

4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities On site but Not Required to be Individually Listed <input type="checkbox"/> Not Applicable

5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) : <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
--

6. Requested Changes to Current Title V Air Operation Permit: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
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Additional Requirements Comment

See Part II.

EMISSIONS UNIT INFORMATION

Section [1] of [1]
SJRPP Units 1 and 2

III. EMISSIONS UNIT INFORMATION

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

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

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

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

EMISSIONS UNIT INFORMATION

Section [1] of [1]
SJRPP 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:
Units 1 and 2

3. Emissions Unit Identification Number: 016 and 017

4. Emissions Unit Status Code: A	5. Commence Construction Date:	6. Initial Startup Date: 12/86	7. Emissions Unit Major Group SIC Code: 49	8. Acid Rain Unit? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	--------------------------------	--	--	--

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

10. Generator Nameplate Rating: **679.6 MW**

11. Emissions Unit Comment:

Initial Startup Date for Unit 1 as the commercial operation date. Unit 2 began commercial operation in March 1988. Generator Nameplate Rating is nominal.

EMISSIONS UNIT INFORMATION

Section [1] of [1]
SJRPP Units 1 and 2

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

Low NO_x Burners (LNB), Electrostatic Precipitators (ESP) and Flue Gas Desulfurization (FGD)

2. Control Device or Method Code(s): **025, 010, 039**

EMISSIONS UNIT INFORMATION

Section [1] of [1]
SJRPP Units 1 and 2

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:	6,144 million Btu/hr
4. Maximum Incineration Rate:	pounds/hr tons/day
5. Requested Maximum Operating Schedule:	24 hours/day 7 days/week 52 weeks/year 8,760 hours/year
6. Operating Capacity/Schedule Comment:	

EMISSIONS UNIT INFORMATIONSection [1] of [1]
SJRPP Units 1 and 2**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: NA		2. Emission Point Type Code: V			
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:					
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:					
5. Discharge Type Code:		6. Stack Height: feet		7. Exit Diameter: feet	
8. Exit Temperature: °F		9. Actual Volumetric Flow Rate: acfm		10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm			12. Nonstack Emission Point Height: feet		
13. Emission Point UTM Coordinates... Zone: East (km): North (km):			14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)		
15. Emission Point Comment: There are no changes in the emission point information as a result of this application.					

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 SJRPP Units 1 and 2

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): Co-firing up to 30 percent petroleum coke with coal		
2. Source Classification Code (SCC): 10100202		3. SCC Units: tons/hr
4. Maximum Hourly Rate: 238	5. Maximum Annual Rate: 2,084,486.4	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 2.65	8. Maximum % Ash: 9	9. Million Btu per SCC Unit: 25.82
10. Segment Comment: Based on 30% petroleum coke and 70% coal by weight at 6,144 MMBtu/hr maximum heat input (34.39% petroleum and 65.61% coal on a heat input basis; 12,910 Btu/lb). See Table 2-5 in Part II. Sulfur content based on 1.2% sulfur coal and 6% sulfur petroleum coke. NOTE: SCC code for petroleum coke is 10100801.		

Segment Description and Rate: Segment ____ of ____

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

EMISSIONS UNIT INFORMATIONSection [1] of [1]
SJRPP Units 1 and 2**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	010		EL
SO ₂	039		EL
NO _x	025		EL
CO			NS
VOC			NS
SAM			NS

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 SJRPP Units 1 and 2

POLLUTANT DETAIL INFORMATION

Page [1] of [6]
 Particulate Matter

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

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete 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 permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: PM	2. Total Percent Efficiency of Control: 99+%
3. Potential Emissions: 184.32 lb/hour 321.7 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 0.03 lb/MMBtu Reference: Permit 0310045-011-AV. Condition D6	7. Emissions Method Code: 0
8. Calculation of Emissions: Potential Emissions = 0.03 lb/MMBtu x 6,144 MMBtu/hr = 184.32	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: Annual emissions based on actual emissions for 2002-2001. See Part II	

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 SJRPP Units 1 and 2

POLLUTANT DETAIL INFORMATION

Page [1] of [6]
 Particulate Matter

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

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

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.03 lb/MMBtu	4. Equivalent Allowable Emissions: 184.32 lb/hour 321.7 tons/year
5. Method of Compliance: EPA Method 5B; 40 CFR 52.21(b)21(v) and (b)33; See Part II	
6. Allowable Emissions Comment (Description of Operating Method): No increase in representative actual annual emissions plus the PSD significant emission rate will occur as a result of increasing the amount of petroleum coke co-fired with coal.	

Allowable Emissions Allowable Emissions ____ of ____

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

Allowable Emissions Allowable Emissions ____ of ____

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

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 SJRPP Units 1 and 2

POLLUTANT DETAIL INFORMATION

Page [2] of [6]
 Sulfur Dioxide

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

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete 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 permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: SO₂	2. Total Percent Efficiency of Control: 70+%
3. Potential Emissions: 3,263.8 lb/hour 21,718.8 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 0.53 lb/MMBtu Reference: Proposed for 30% Pet Coke co-fired with coal	7. Emissions Method Code: 0
8. Calculation of Emissions: Potential Emissions = 0.53 lb/MMBtu x 6,144 MMBtu/hr = 3,263.8 lb/hr	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: Annual emissions based on actual emissions for 2002-2001. See Part II	

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 SJRPP Units 1 and 2

POLLUTANT DETAIL INFORMATION

Page [2] of [6]
 Sulfur Dioxide

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

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

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.53 lb/MMBtu	4. Equivalent Allowable Emissions: 3,263.82 lb/hour 21,718 tons/year
5. Method of Compliance: CEMS; 40 CFR 52.21(b)21(v) and (b)33; Annual Operating Reports; See Part II	
6. Allowable Emissions Comment (Description of Operating Method): No increase in representative actual annual emissions plus the PSD significant emission rate will occur as a result of increasing the amount of petroleum coke co-fired with coal.	

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):	

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

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete 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 permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: NO_x		2. Total Percent Efficiency of Control: 65+%	
3. Potential Emissions: 3,686.4 lb/hour 26,558.8 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: 0.6 lb/MMBtu Reference: Permit 0310045-011-AV. Condition D15		7. Emissions Method Code: 0	
8. Calculation of Emissions: Potential Emissions = 0.6 lb/MMBtu x 6,144 MMBtu/hr = 3,686.4 lb/hr			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: Annual emissions based on actual emissions for 2002-2001. See Part II			

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 SJRPP Units 1 and 2

POLLUTANT DETAIL INFORMATION

Page [3] of [6]
 Nitrogen Oxides

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

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

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.6 lb/MMBtu	4. Equivalent Allowable Emissions: 3,686.4 lb/hour 26,558.8 tons/year
5. Method of Compliance: CEMS; 40 CFR 52.21(b)21(v) and (b)33; Annual Operating Reports; See Part II	
6. Allowable Emissions Comment (Description of Operating Method): No increase in representative actual annual emissions plus the PSD significant emission rate will occur as a result of increasing the amount of petroleum coke co-fired with coal.	

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):	

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

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete 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 permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: CO		2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour 966.1 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code: 0	
8. Calculation of Emissions:			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: Annual emissions based on actual emissions for 2002-2001. See Part II			

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
ALLOWABLE EMISSIONS

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

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 966.1 tons/yr	4. Equivalent Allowable Emissions: lb/hour 966.1 tons/year
5. Method of Compliance: 40 CFR 52.21(b)21(v) and (b)33; Annual Operating Reports; See Part II	
6. Allowable Emissions Comment (Description of Operating Method): No increase in representative actual annual emissions plus the PSD significant emission rate will occur as a result of increasing the amount of petroleum coke co-fired with coal.	

Allowable Emissions Allowable Emissions ____ of ____

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

Allowable Emissions Allowable Emissions ____ of ____

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

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 SJRPP Units 1 and 2

POLLUTANT DETAIL INFORMATION

Page [5] of [6]
 Volatile Organic Compounds

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

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete 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 permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: VOC	2. Total Percent Efficiency of Control:
3. Potential Emissions: lb/hour 113.5 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 0
8. Calculation of Emissions:	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: Annual emissions based on actual emissions for 2002-2001. See Part II	

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 SJRPP Units 1 and 2

POLLUTANT DETAIL INFORMATION

Page [5] of [6]
 Volatile Organic Compounds

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

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

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 113.6 tons/year	4. Equivalent Allowable Emissions: lb/hour 113.5 tons/year
5. Method of Compliance: 40 CFR 52.21(b)21(v) and (b)33; Annual Operating Reports; See Part II	
6. Allowable Emissions Comment (Description of Operating Method): No increase in representative actual annual emissions plus the PSD significant emission rate will occur as a result of increasing the amount of petroleum coke co-fired with coal.	

Allowable Emissions Allowable Emissions ____ of ____

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

Allowable Emissions Allowable Emissions ____ of ____

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

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 SJRPP Units 1 and 2

POLLUTANT DETAIL INFORMATION

Page [6] of [6]
 Sulfuric Acid Mist

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

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete 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 permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: SAM	2. Total Percent Efficiency of Control: 30+%
3. Potential Emissions: lb/hour 1,316.7 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: Reference:	7. Emissions Method Code: 0
8. Calculation of Emissions:	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: Annual emissions based on actual emissions for 2002-2001. See Part II	

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 SJRPP Units 1 and 2

POLLUTANT DETAIL INFORMATION

Page [6] of [6]
 Sulfuric Acid Mist

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

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

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 1,316.9 tons/yr	4. Equivalent Allowable Emissions: lb/hour 1,316.9 tons/year
5. Method of Compliance: 40 CFR 52.21(b)21(v) and (b)33; Annual Operating Reports; See Part II	
6. Allowable Emissions Comment (Description of Operating Method): No increase in representative actual annual emissions plus the PSD significant emission rate will occur as a result of increasing the amount of petroleum coke co-fired with coal.	

Allowable Emissions Allowable Emissions ____ of ____

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

Allowable Emissions Allowable Emissions ____ of ____

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

EMISSIONS UNIT INFORMATION

Section [1] of [1]
 SJRPP Units 1 and 2

G. VISIBLE EMISSIONS INFORMATION

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

Visible Emissions Limitation: Visible Emissions Limitation 1 of 2

1. Visible Emissions Subtype: VE20	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: 20 % Exceptional Conditions: 27 % Maximum Period of Excess Opacity Allowed: 6 min/hour	
4. Method of Compliance: COMS	
5. Visible Emissions Comment: 40 CFR 60.42a(b)	

Visible Emissions Limitation: Visible Emissions Limitation 2 of 1

1. Visible Emissions Subtype: VE99	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: 100 % Maximum Period of Excess Opacity Allowed: 60 min/hour	
4. Method of Compliance: COMS	
5. Visible Emissions Comment: Excess emissions resulting from startup, shutdown, and malfunction for no more than 2 hours in any 24 hour period. Rule 62-210.700(1)	

EMISSIONS UNIT INFORMATIONSection [1] of [1]
SJRPP Units 1 and 2**H. CONTINUOUS MONITOR INFORMATION**

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

Continuous Monitoring System: Continuous Monitor 1 of 1

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: Units 1 and 2 have continuous opacity monitors (COMS) and continuous emissions monitors (CEMS) for sulfur dioxide and nitrogen oxides. There will be no changes in the existing COMS and CEMS as a result of increasing the amount of petroleum coke co-fired with coal.	

Continuous Monitoring System: Continuous Monitor ____ of ____

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

EMISSIONS UNIT INFORMATION

Section [1] of [1]

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date 6/20/2003
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date 6/20/2003
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date 6/20/2003
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> _____ Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> _____ To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute <input checked="" type="checkbox"/> Attached, Document ID: Part II <input type="checkbox"/> Not Applicable

EMISSIONS UNIT INFORMATION

Section [1] of [1]

Additional Requirements for Air Construction Permit Applications

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

Additional Requirements for Title V Air Operation Permit Applications

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

EMISSIONS UNIT INFORMATION

Section [1] of [1]

Additional Requirements Comment

See Part II

PART II

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APPENDICES

APPENDIX A CALPUFF MODEL DESCRIPTION AND METHODOLOGY

APPENDIX B EMISSIONS TABLES

1.0 INTRODUCTION

St. Johns River Power Park (SJRPP) is seeking authorization from the Florida Department of Environmental Protection (FDEP) to increase the amount of petroleum coke that is co-fired with coal. Currently, SJRPP is authorized to co-fire up to 20 percent (by weight) of petroleum coke with coal in Units 1 and 2. This authorization was issued in October 1996 through a modification of the Prevention of Significant Deterioration (PSD) approval [PSD-FL-010(B)] and a change in the Site Certification [PA 81-13H]. SJRPP requests authorization to co-fire up to 30 percent (by weight) of petroleum coke. Specifically, SJRPP requests FDEP to change the Prevention of Significant Deterioration (PSD) permit for the Facility (PSD-FL-10) and to modify the Conditions of Certification that were issued for the Facility under the Florida Electrical Power Plant Siting Act (PPSA; PA 82-13). Although a change to the Facility's PSD permit is being requested to allow an increase in the amount of petroleum coke co-fired with coal, there will not be any significant net emissions increase for Units 1 and 2, and thus the requirements of the PSD review process are not triggered.

There are five power plants in Florida in addition to SJRPP Units 1 and 2 that currently are authorized to co-fire petroleum coke with coal. These units included Seminole Electric Cooperative's Seminole Units 1 and 2, City of Lakeland's McIntosh Unit 3, Tampa Electric Company's Big Bend Units 3 and 4, Northside Generating Station Circulating Fluidized Bed Boilers 1 and 2 and the Cedar Bay Cogeneration facility. These units are both pulverized coal units with wet flue gas desulfurization and electrostatic precipitators and circulating fluidized bed boilers with dry scrubber baghouses. For the existing facilities (SJRPP, Seminole, Tampa Electric, Lakeland Electric, and Cedar Bay) the authorizations for co-firing petroleum coke with coal involved no PSD review. When co-firing petroleum coke with coal, permit conditions were issued to limit future annual emissions of particulate matter (PM), sulfur dioxide (SO₂), nitrogen oxides (NO_x), and sulfuric acid mist (SAM) to the representative actual annual emissions. This was done by limiting emissions as revised SO₂ emission limits or comparisons of representative actual and representative future emission comparisons. In many of the previous FDEP approvals to co-fire petroleum coke with coal, emission rates in pounds per million British thermal units (lb/MMBtu) were used. For many of these units, petroleum coke has been successfully co-fired for over 6 years.

SJRPP is located at 11201 New Berlin Road, Jacksonville, Duval County, Florida, and is adjacent to the JEA Northside Generating Station. Both facilities are covered under one Title V Permit [Final Title V Permit No. 0310045-011-AV].

Golder Associates Inc. (Golder) was contracted to prepare the necessary air permit application seeking authorization to co-fire up to 30 percent (by weight) of petroleum coke with coal. The air permit application consists of the appropriate applications form [Part I; DEP Form 62-210.900(1)], a technical description of the project (Part II Section 2.0), and rule applicability for the project (Part II, Section 3.0). Section 4.0, Air Quality Impacts, addresses the PSD Class I Increment consumption for SJRPP Units 1 and 2. This analysis was requested by the FDEP in a pre-application meeting in July 2004.

2.0 PROJECT DESCRIPTION

2.1 CO-FIRING PETROLEUM COKE AT SJRPP

Petroleum coke has been successfully co-fired with coal in SJRPP Units 1 and 2 since 1997. The authorization to co-fire up to 20 percent petroleum coke with coal was based on several conditions depending upon the pollutant. For SO₂, the current Title V permit condition when co-firing petroleum coke with coal is (from current Title V Permit):

D.10. Sulfur Dioxide – Coal and Petroleum Coke Blends.

- a. When coals with a sulfur content less than or equal to 2.00%, by weight, are co-fired with petroleum coke, the SO₂ emissions shall not exceed 0.55 lb/MMBtu heat input and a minimum of 76% reduction shall be achieved in the flue gas desulfurization system.
- b. When coals with a sulfur content between 2.00% and 3.63%, by weight, are co-fired with petroleum coke, the SO₂ emissions shall not exceed the following formula:

$$\text{SO}_2 \text{ (lb/MMBtu)} = (0.2 \times C/100) + 0.4$$

where: C = percent of coal co-fired on a heat input basis.

Please note: C is on a heat input basis and not on a weight input basis, so appropriate conversions should be used.

- c. When coals with a sulfur content greater than 3.63%, by weight, are co-fired with petroleum coke, the SO₂ emissions shall not exceed the following formula:

$$\text{SO}_2 \text{ (lb/MMBtu)} = (0.1653 \times C \times S - 0.4 \times C + 40) \times 1/100$$

where: C = percent of coal co-fired on a heat input basis; and,
S = weight percent sulfur in coal.

- d. The maximum SO₂ emissions rate when co-firing petroleum coke and coal shall not exceed 0.676 lb/MMBtu heat input.
- e. Compliance with the SO₂ emissions limit shall be based on a 30-day rolling average for those days when petroleum coke is fired. Any use of petroleum coke during a 24-hour period shall be considered 1 day of the 30-day rolling average. The 30-day rolling average shall be calculated according to the Standards of Performance for New Stationary Sources (NSPS) codified in 40 CFR 60, Subpart Da, except as noted above.

[PSD-FL-010(A & B)]

The SO₂ limit for co-firing petroleum coke with coal was based on limiting the SO₂ emissions to 0.4 lb/MMBtu. Since the emission limits for coal were variable based on the amount of sulfur in the coal, FDEP authorized SJRPP a range in SO₂ emission limits depending on the amount of sulfur in the coal. However, the SO₂ limit was based on the assumption that the maximum amount of

petroleum coke (i.e., 20 percent) was always co-fired with coal thus representing a conservative limit for emissions when co-firing petroleum coke with coal.

For PM and NO_x, data were submitted on an annual basis for a period of five years from the date each unit began firing petroleum coke with coal that demonstrated in accordance with 40 CFR 52.21(b)(21)(v) and (b)(33) that operational changes did not result in emissions increases of these pollutants. This demonstration was submitted to the Florida Department of Environmental Protection (FDEP) and City of Jacksonville Environmental Resource Management Department (ERMD).

These applicable rules in 40 CFR 52.21 are stated as follows:

52.21(b)(21)(v) For an electric utility steam generating unit (other than a new unit or the replacement of an existing unit) actual emissions of the unit following the physical or operational change shall equal the representative actual annual emissions of the unit, provided the source owner or operator maintains and submits to the Administrator on an annual basis for a period of 5 years from the date the unit resumes regular operation, information demonstrating that the physical or operational change did not result in an emissions increase. A longer period, not to exceed 10 years, may be required by the Administrator if he determines such a period to be more representative of normal source post-change operations.

52.21(b)(33) Representative actual annual emissions means the average rate, in tons per year, at which the source is projected to emit a pollutant for the two-year period after a physical change or change in the method of operation of a unit, (or a different consecutive two-year period within 10 years after that change, where the Administrator determines that such period is more representative of normal source operations), considering the effect any such change will have on increasing or decreasing the hourly emissions rate and on projected capacity utilization. In projecting future emissions the Administrator shall:

- (i) Consider all relevant information, including but not limited to, historical operational data, the company's own representations, filings with the State or Federal regulatory authorities, and compliance plans under title IV of the Clean Air Act; and
- (ii) Exclude, in calculating any increase in emissions that results from the particular physical change or change in the method of operation at an electric utility steam generating unit, that portion of the unit's emissions following the change that could have been accommodated during the representative baseline period and is attributable to an increase in projected capacity utilization at the unit that is unrelated to the particular change, including any increased utilization due to the rate of electricity demand growth for the utility system as a whole.

For carbon monoxide (CO), information was submitted semi-annually for a period of two years from the date each unit began co-firing petroleum coke with coal which demonstrated that the operational change did not result in significant emissions increase of CO. The information was submitted to the FDEP and ERMD. Additionally, quarterly continuous emission monitoring (CEM) data was submitted to the FDEP and ERMD for a period of two years to show the range of emissions. After two years, information was submitted annually, since the data showed no significant increase in CO emissions. The CO emissions comparisons were based on test results using EPA Method 10.

For SAM, information was submitted over a period of two years to demonstrate that the operational change did not result in an emissions increase of SAM.

To meet the requirements of the FDEP authorizations that allowed SJRPP to co-fire petroleum coke with coal, comparison for PM, NO_x, CO, and SAM were based on the emissions rates in lb/MMBtu when co-firing petroleum coke and coal. The comparison of test data in lb/MMBtu was submitted to the FDEP and ERMD for PM, NO_x, CO, and SAM to demonstrate that no significant increase in emission occurred as a result of co-firing petroleum coke with coal. There are no conditions in the current Title V permit related to these pollutants, since compliance was demonstrated that no significant increase in emissions occurred prior to the Title V renewal.

2.2 PROPOSED INCREASE IN CO-FIRING PETROLEUM COKE

Approval for increasing the amount of petroleum coke co-fired with coal at SJRPP is being proposed based on two approaches. First, SJRPP proposes to meet the requirements of 40 CFR 52.21(b)(21)(v) based on the definition of "representative actual annual emissions" in 40 CFR 52.21(b)(33). As discussed above, the SJRPP is a base load facility. Presented in Table 2-1 is the heat input reported in the Annual Operating Report (AOR) for the period 1999 through 2003. This table also presents the capacity factor for Units 1 and 2, as well as the average for both units during the same year and the period 1999 through 2003. These data demonstrate the consistent operation of Units 1 and 2. During the period 1999 through 2003 the capacity factor based on heat input ranged from 86.8 percent in 1999 to 89.8 percent in 2002. The average capacity factors for the years 2003, 2002, 2001, 2000 and 1999 were 88.1, 89.8, 89.0, 88.2, and 86.8 percent, respectively. The average two-year capacity factors based on heat input were 88.9, 89.4, 88.6 and 87.5 percent for the periods 2003-2002, 2002-2001, 2001-2000 and 2000-1999, respectively. The average 5-year capacity factor was 88.8 percent.

Table 2-2 presents the annual emissions reported in the AORs for the years 1999 through 2003 for NO_x, CO, SO₂, PM, PM₁₀, and SAM. Table 2-3 presents the annual average emissions for each consecutive two-year period from 1999 through 2003 based on the annual average emissions in Table 2-2. The annual average emissions for each consecutive two-year period is consistent with the current EPA policy for steam generating units under the provisions in 40 CFR 52.21(b)(3)(vi)a and 52.21(b)(21)(v). The highest two consecutive two years for emissions in Tables 2-3 for the period 2001-2002 are proposed as the basis for future comparisons. This two-year period also has the highest heat input. It should be noted, however, that both the heat input and emissions for the consecutive two-year periods are similar for all pollutants.

While the last two years have initially been used when the PSD rules were finalized in the early 1980s, EPA has subsequently provided guidance for electric utility units it considers "representative" operation. This is due to specific interpretations (i.e., WEPCO) that recognized the many external factors involved to supplying electric power. Indeed, the current PSD rule promulgated in 1992 clearly recognized the use of any consecutive two years within the 5-year period preceding a change for utility units. This is stated in the preamble to the rules as follows:

Under the proposed action, the administrator would presume that any 2 consecutive years within the 5 years prior to a proposed change is representative of normal source operation for a utility. This presumption is consistent with the 5-year period for "contemporaneous" emission increases and decreases in 40 CFR 52.21(b)(3)(i)(b). [57 FR 32,314]

SJRPP Units 1 and 2 are normally operated as base-load units, but, for any given year, operation can vary slightly due to electric demand and operational variability due to outages and maintenance. Due to this slight variability, two consecutive years out of the last 5 years are appropriate for any future comparisons.

It has also been EPA's intent to allow for all units the use of any 2 consecutive years within the 5 years of a proposed modification. Indeed, EPA's intent, as stated in its New Source Review Simplification Workshops, is to provide this as policy followed up by rulemaking (Workshop Summary March 17-18, 1993).

In addition to meeting the "representative actual annual emissions" test, SJRPP proposes to limit SO₂ emissions on the same premise as that developed for co-firing 20 percent petroleum coke with coal. The application for co-firing petroleum coke with coal was based on a SO₂ emission rate of

0.4 lb/MMBtu that was established using data for the last several years when only coal was fired. This SO₂ baseline was established by SJRPP in complying with the applicable NSPS for the units. At the time, lower sulfur content coal was used along with the required removal efficiency, thereby establishing the baseline SO₂ emission rate. The calculations of the 0.55 lb/MMBtu SO₂ emissions limit and minimum 76 percent SO₂ removal efficiency for using up to 2 percent sulfur coal is presented in Table 2-4. Note that these revised SO₂ emission limits were lower than the NSPS (0.6 lb/MMBtu and a minimum of 70 percent SO₂ removal) and BACT (0.76 lb/MMBtu) limits established for the facility.

For co-firing up to 30 percent petroleum coke with coal, a lower emission limit and minimum percent removal is proposed based on the established baseline of 0.4 lb/MMBtu. Table 2-5 presents the calculations, which results in a lower SO₂ emission limit of 0.53 lb/MMBtu and a minimum SO₂ removal of 79 percent. For coals with a sulfur content of greater than 2 percent, the current conditions would limit SO₂ emissions in the same way since the amount of co-firing is incorporated into the permit conditions and 0.4 lb/MMBtu is used as the baseline SO₂ emission limit.

2.3 PETROLEUM COKE HANDLING

No additional fugitive PM emissions will result from the handling of additional petroleum coke. The handling of the additional petroleum coke will be the same as that which is presently being performed. Petroleum coke has higher heat content than coal, resulting in the use of lower amounts of the petroleum coke coal mixture to obtain the same heat input as coal alone. Control devices (i.e., enclosures or bag filters) control fugitive PM in the crusher house, storage silos, and ash handling operations, will not change as a result of the increase in the amount of petroleum coke co-fired with coal.

Table 2-1. SJRPP Annual Heat Input and Capacity Factors, 1999-2003

Year	Heat Input (MMBtu/hr)			Capacity Factor		
	Unit 1	Unit 2	Total	Unit 1	Unit 2	Average
2003	46,416,440	48,376,056	94,792,496	86.24%	89.88%	88.06%
2002	51,497,802	45,166,544	96,664,346	95.68%	83.92%	89.80%
2001	46,245,091	49,554,215	95,799,306	85.92%	92.07%	89.00%
2000	49,067,877	45,885,639	94,953,516	91.17%	85.26%	88.21%
1999	44,524,193	48,888,602	93,412,795	82.73%	90.83%	86.78%
						88.37%

Note: Capacity Factor based on the maximum heat input of 6,144 MMBtu/unit and 8,760 hrs/yr.
Heat Input calculated from Annual Operating Reports based on fuel use and heat content.

Table 2-2. SJRPP Annual Emissions Reported in Annual Operating Reports, 1999-2003

Year	Pollutant	Unit 1 (tons)	Unit 2 (tons)	Total (tons)
2003	NO _x	12,140.0	12,842.0	24,982.0
	CO	454.9	492.9	947.7
	SO ₂	9,990.0	11,123.2	21,113.2
	VOC	55.6	60.4	116.0
	PM	70.5	74.8	145.3
	PM ₁₀	69.3	74.4	143.7
	SAM	635.2	662.0	1,297.3
2002	NO _x	14,788.5	11,950.0	26,738.5
	CO	503.1	459.0	962.1
	SO ₂	10,987.0	9,915.2	20,902.2
	VOC	61.8	56.4	118.2
	PM	170.3	155.9	326.2
	PM ₁₀	39.5	36.1	75.6
	SAM	704.8	618.1	1,322.9
2001	NO _x	13,683.9	12,695.2	26,379.1
	CO	468.7	501.5	970.2
	SO ₂	11,609.2	10,926.2	22,535.4
	VOC	47.4	61.5	108.9
	PM	154.1	163.2	317.3
	PM ₁₀	35.4	37.5	73.0
	SAM	632.9	678.2	1,311.0
2000	NO _x	13,066.0	11,980.0	25,046.0
	CO	492.2	460.3	952.4
	SO ₂	11,278.0	10,300.0	21,578.0
	VOC	60.1	56.1	116.2
	PM	159.2	149.8	309.0
	PM ₁₀	36.6	34.5	71.1
	SAM	872.0	697.0	1,569.0
1999	NO _x	12,601.0	13,053.0	25,654.0
	CO	447.3	490.4	937.7
	SO ₂	12,034.0	12,453.0	24,487.0
	VOC	35.6	39.1	74.7
	PM	135.4	146.6	281.9
	PM ₁₀	31.1	33.7	64.8
	SAM	609.3	669.0	1,278.4

Note: Data from Annual Operating Reports, except for SAM emissions for 2003, 2002, 2001 and 1999. SAM emissions for these years based on the average SAM emission from tests when co-firing petroleum coke with coal. The average SAM emission rate was 0.02737 lb/MMBtu.

Table 2-3. SJRPP Annual Average Emissions for each Consecutive Two Year Period, 1999-2003

Pollutant	2003-2002 (tons)	2002-2001 (tons)	2001-2000 (tons)	2000-1999 (tons)	2003-1999 (tons)
NO _x	25,860.3	26,558.8	25,712.6	25,350.0	25,759.9
CO	954.9	966.1	961.3	945.1	954.0
SO ₂	21,007.7	21,718.8	22,056.7	23,032.5	22,123.2
VOC	117.1	113.5	112.5	95.5	106.8
PM	235.8	321.7	313.1	295.5	275.9
PM ₁₀	109.6	74.3	72.0	68.0	85.6
SAM	1,310.1	1,316.9	1,440.0	1,423.7	1,355.7

Table 2-4. Calculation of SO₂ Emission Rate for Co-firing Petroleum Coke with Coal
20 Percent Petroleum Coke with Coal

Fuel	Amount by Weight	Heat Content (MMBtu/lb)	Heat Content by Weight (Btu/lb)	Amount by Heat Input	Emissions (lb/MMBtu)	Emissions by Fuel (lb/MMBtu)
Coal	80.00%	12,100	9,680	76.58%	0.6	0.46
Pet Coke	20.00%	14,800	2,960	23.42%	0.4	0.09
Total			12,640			0.55

Minimum Removal: 70% Coal (based on NSPS)
 95% Petroleum Coke (based on meeting 0.4 lb/MMBtu)
 76% Based on amount of heat input

Note: Petroleum Coke is assumed to have 6% sulfur.

$$0.06 \text{ lb S/lb coke} \times 1 \text{ lb coke/14,800 Btu} \times 2 \text{ lb SO}_2/\text{lb S} \times 106/\text{MM} = 8.11 \text{ lb/MMBtu}$$

$$\% \text{ removal for pet coke} = (8.11 - 0.4)/8.11 = 95\%$$

Table 2-5. Calculation of Revised SO₂ Emission Rate for Co-firing Petroleum Coke with Coal
30 Percent Petroleum Coke with Coal

Fuel	Amount by Weight	Heat Content (MMBtu/lb)	Heat Content by Weight (Btu/lb)	Amount by Heat Input	Emissions (lb/MMBtu)	Emissions by Fuel (lb/MMBtu)
Coal	70.00%	12,100	8,470	65.61%	0.6	0.39
Pet Coke	30.00%	14,800	4,440	34.39%	0.4	0.14
Total			12,910			0.53

Minimum Removal:

70% Coal (based on NSPS)

95% Petroleum Coke (based on meeting 0.4 lb/MMBtu)

79% Based on amount of heat input

Note: Petroleum Coke is assumed to have 6% sulfur.

$0.06 \text{ lb S/lb coke} \times 1 \text{ lb coke/14,800 Btu} \times 2 \text{ lb SO}_2/\text{lb S} \times 106/\text{MM} = 8.11 \text{ lb/MMBtu}$

% removal for pet coke = $(8.11 - 0.4)/8.11 = 95\%$

3.0 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. EPA has approved Florida's State Implementation Plan (SIP), which contains PSD regulations. Therefore, PSD approval authority has been granted to the FDEP. For projects approved under the Florida PPSA, the PSD program is delegated.

A "major facility" is defined as any 1 of 28 named source categories that have the potential to emit 100 tons per year (TPY) or more, or any other stationary facility that has the potential to emit 250 TPY or more of any pollutant regulated under CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. Once a new source is determined to be a "major facility" for a particular pollutant, any pollutant emitted in amounts greater than the PSD significant emission rates is subject to PSD review. For an existing source for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions due to the modification is greater than the PSD significant emission rates.

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

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

SJRPP is part of the JEA Northside Generating Station/SJRPP complex, which is a major facility under FDEP Rules. Increasing the amount of petroleum coke co-fired with coal is an operational change. However, no physical changes will occur as a result of increasing the amount of petroleum coke co-fired with coal. Because there is an operational change, the project is a modification as

defined in the FDEP Rules in 62-210.200 and under the PSD rules in 62-212.400, F.A.C. PSD review would be required for the project if there were a significant net increase in emissions.

The proposed increase in the amount of petroleum coke co-fired with coal will not result in a significant net increase in actual emissions of SO₂, PM, NO_x, CO, and SAM as a result of this request. Determining the amount of the change, if any, in the facility's emissions would be performed by following the requirements in 40 CFR Parts 52.21(b)(21)(v) and 52.21(b)(33) based on a tons per year comparison. The demonstration will be based on continuous emission monitoring systems (CEMs) for SO₂ and NO_x and annual compliance tests for PM, CO, and SAM. This was similar, as previously authorized by FDEP, for co-firing 20 percent petroleum coke with coal. The proposed permit condition is listed as follows:

The applicant shall maintain and submit to the Department on an annual basis for a period of five years from the date the units are initially co-fired with petroleum coke with coal greater than a 20 to 80 percent blend, information demonstrating in accordance with 40 CFR 52.21(b)(21)(v) and 40 CFR 52.21(b)(33) that operational changes did not result in emission increases of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide and sulfuric acid mist.

For SO₂, SJRPP proposes emission rates that are lower than the currently authorized limits. The proposed SO₂ emission limits are listed as follows:

D.10. Sulfur Dioxide – Coal and Petroleum Coke Blends.

- a. When coals with a sulfur content less than or equal to 2.00%, by weight, are co-fired with petroleum coke, the SO₂ emissions shall not exceed 0.53 lb/MMBtu heat input and a minimum of 79% reduction shall be achieved in the flue gas desulfurization system.
- b. When coals with a sulfur content between 2.00% and 3.63%, by weight, are co-fired with petroleum coke, the SO₂ emissions shall not exceed the following formula:

$$\text{SO}_2 \text{ (lb/MMBtu)} = (0.2 \times C/100) + 0.4$$

where: C = percent of coal co-fired on a heat input basis.

Please note: C is on a heat input basis and not on a weight input basis, so appropriate conversions should be used.

- c. When coals with a sulfur content greater than 3.63%, by weight, are co-fired with petroleum coke, the SO₂ emissions shall not exceed the following formula:

$$\text{SO}_2 \text{ (lb/MMBtu)} = (0.1653 \times C \times S - 0.4 \times C + 40) \times 1/100$$

where: C = percent of coal co-fired on a heat input basis; and,
S = weight percent sulfur in coal.

- d. The maximum SO₂ emissions rate when co-firing petroleum coke and coal shall not exceed 0.676 lb/MMBtu heat input.

- e. Compliance with the SO₂ emissions limit shall be based on a 30-day rolling average for those days when petroleum coke is fired. Any use of petroleum coke during a 24-hour period shall be considered 1 day of the 30-day rolling average. The 30-day rolling average shall be calculated according to the Standards of Performance for New Stationary Sources (NSPS) codified in 40 CFR 60, Subpart Da, except as noted above.

The current Title V permit limits the amount of petroleum coke to 20 percent and 100,000 lb/hr/unit. These conditions are requested to be changed to 30 percent and 150,000 lb/hr. In addition, SJRPP requests that compliance with the 30 percent and 150,000 lb/hr limits be based on a 30-day rolling average using production information for the amount of coal and petroleum coke bunkered in the coal storage bins. The 30-day rolling average is appropriate, given that this is a shorter averaging time than demonstrating compliance with meeting the requirements of 40 CFR 52.21(b)(21)(v). The proposed method for demonstrating compliance with the proposed production limits of 150,000 lb/hr/unit and 30 percent petroleum coke co-fired with coal has been used for determining compliance with co-firing 20 percent petroleum coke with coal, which has been found acceptable to the compliance authority (ERMD).

4.0 AIR QUALITY IMPACTS

The proposed increase in the co-firing of petroleum coke with coal is being proposed as a minor modification of an existing major source. As such, air quality impact analyses are not required under FDEP's PSD Rules in 62-212.500, since PSD review is not being triggered for any pollutant. In addition, the proposed emissions limits for the project are not being increased; indeed, the emission limits for SO₂ when co-firing petroleum coke are being proposed as a decrease from those currently authorized by FDEP.

A multi-source air quality impact analysis was performed for the JEA Northside Repowering Project (Air Quality Permit Application, Northside Repowering Project, Circulating Fluidized Bed Combustion Technology, February 1999). The air impact analysis was performed for PM₁₀, SO₂, and NO₂, and included all sources needed to demonstrate compliance with AAQS and PSD Increments for these pollutants. The emission inventory for these analyses included SJRPP at the currently permitted emission rates. The results of the analyses demonstrated that the Northside Repowering Project, including the emissions from SJRPP, would not cause or contribute to an exceedance of the AAQS and PSD Class II Increments. Air quality impacts analyses were also performed in the nearby PSD Class I Area, the Okefenokee National Wilderness Area (NWA). The PSD Class I analysis utilized the ISCST3 dispersion model since the Okefenokee PSD Class I Area is within 50 km of the Northside Repowering Project. The results of these analyses also indicated that emissions from the Northside Repowering Project including SJRPP would not cause or contribute to an exceedance of the PSD Class I Increments.

Notwithstanding the previous PSD Class I impact analysis, an air quality modeling analysis was performed using the California puff (CALPUFF) model, Version 5.7 (EPA, 2003). This model is recommended by FDEP and the Federal Land Managers (FLMs) for addressing compliance with PSD Class I increments. CALPUFF is a Lagrangian puff model that is recommended by the FDEP and the FLM for Class I area impact analysis. A listing of the CALPUFF model features is presented in Table 4-1. The CALPUFF model was used to assess impacts at the PSD Class I area, i.e., the Okefenokee NWA. More detailed descriptions of the assumptions and methods, as well as meteorological data used for the CALPUFF model, are presented in Appendix A.

The PSD sources modeled at the Okefenokee NWA are identified in Table 4-2 with detailed stack, operating, and emission data presented in Table 4-3. The inventory was updated based on

information obtained from FDEP for the PCS, Suwannee American Cement, and Florida Rock facilities. SO₂ concentrations were predicted at 161 discrete receptors located in the Okefenokee NWA Class I area.

The maximum SO₂ emissions for the SJRPP were based on 0.76 lb SO₂/MMBtu, which is allowed in the air operating permit as a 30-day rolling average when firing coal. It should be noted that this emission rate is much higher than that proposed for co-firing petroleum coke with coal (i.e., 0.53 lb/MMBtu). This emission rate is also higher than actual hourly emissions from each unit based on the 2001 to 2003 CEM data available from the EPA Acid Rain Program, compared to the maximum permitted rate for coal-firing of 1.2 lb SO₂/MMBtu as a maximum 2-hour average. From the CEM data, the highest SO₂ emissions in lb/hr were determined for the 3- and 24-hour averaging periods, and excluded periods when the SO₂ scrubber was inoperative, which were upset conditions, and during startup conditions. Based on this analysis, the maximum actual SO₂ emissions for the two units for the 3- and 24-hour averaging periods were approximately 7,441 and 6,238 lb/hr, respectively, which are equivalent to 0.55 and 0.47 lb SO₂/MMBtu, respectively. The modeled SO₂ emission rate of 0.76 lb SO₂/MMBtu is equivalent to 4,669.4 lb/hr for one unit, or 9,338.8 lb/hr for two units combined. Summaries of the CEM data for the SJRPP are presented in Appendix B.

The SO₂ emissions, for Seminole Electric Cooperative, Inc. (SECI) plant located near Palatka, Florida, used in the PSD Class I increment analyses were based on actual emissions obtained from the continuous emission monitoring (CEM) data available from the EPA Acid Rain Program for 2001 to 2003. The highest SO₂ emissions in lb/hr were determined for the 3- and 24-hour averaging periods, and excluded periods when the SO₂ scrubber was inoperative, which were upset conditions. Based on this analysis, the maximum actual SO₂ emissions for the 3-hour and 24-hour averaging periods were approximately 12,400 and 9,850 lb/hr, respectively. The stack gas flow rate and stack temperatures were obtained from SECI for stack tests performed in April 2003. Summaries of the CEM data and stack test results for the SECI Seminole Power Plant are presented in Appendix B.

Table 4-4 presents the results of the PSD Class I Increment analysis. The results of the analysis indicates that SO₂ emissions from SJRPP when co-firing petroleum coke with coal will not cause or contribute to an exceedance of the PSD Class I Increments in the Okefenokee NWA.

Table 4-1. Major Features of the CALPUFF Model, Version 5.7

 CALPUFF Model Features

- Source types: Point, line (including buoyancy effects), volume, area (buoyant, non-buoyant)
- Non-steady-state emissions and meteorological conditions (time-dependent source and emission data; gridded 3-dimensional wind and temperature fields; spatially-variable fields of mixing heights, friction velocity, precipitation, Monin-Obukhov length; vertically and horizontally-varying turbulence and dispersion rates; time-dependent source and emission data for point, area, and volume sources; temporal or wind-dependent scaling factors for emission rates)
- Efficient sampling function (integrated puff formulation; elongated puff (slug) formation)
- Dispersion coefficient options (Pasquill-Gifford (PG) values for rural areas; McElroy-Pooler values (MP) for urban areas; CTDM values for neutral/stable; direct measurements or estimated values)
- Vertical wind shear (puff splitting; differential advection and dispersion)
- Plume rise (buoyant and momentum rise; stack-tip effects; building downwash effects; partial plume penetration above mixing layer)
- Building downwash effects (Huber-Snyder method; Schulman-Scire method)
- Complex terrain effects (steering effects in CALMET wind field; puff height adjustments using ISC model method or plume path coefficient; enhanced vertical dispersion used in CTDMPLUS)
- Subgrid scale complex terrain (CTSG option) (CTDM flow module; dividing streamline as in CTDMPLUS)
- Dry deposition (gases and particles; options for diurnal cycle per pollutant, space and time variations with a resistance model, or none)
- Overwater and coastal interaction effects (overwater boundary layer parameters; abrupt change in meteorological conditions, plume dispersion at coastal boundary; fumigation; option to use Thermal Internal Boundary Layers (TIBL) into coastal grid cells)
- Chemical transformation options (Pseudo-first-order chemical mechanisms for SO₂, SO₄, HNO₃, and NO₃; Pseudo-first-order chemical mechanisms for SO₂, SO₄, NO, NO₂, HNO₃, and NO₃ (RIVAD/ARM3 method); user-specified diurnal cycles of transformation rates; no chemical conversions)
- Wet removal (scavenging coefficient approach; removal rate as a function of precipitation intensity and type)
- Graphical user interface
- Interface utilities (scan ISC-PRIME and AUSPLUME meteorological data files for problems; translate ISC-PRIME and AUSPLUME input files to CALPUFF input files)

 Note: CALPUFF = California Puff Model

Source: EPA, 2003.

Table 4-2. Summary of SO₂ Sources Included in the PSD Class I Air Modeling Analyses
at the Okefenokee NWA

Facility	UTM Coordinates		Emission	PSD ^b
	East (km)	North (km)	Rate ^a (TPY)	Consuming (C) or Expanding (E)
Seminole Electric Cooperative, Inc. (SECI)	438.8	3289.2	43,143.0	C
Florida Power & Light (FPL)- Putnam Plant	443.3	3277.6	4,053.2	C
Florida Power & Light (FPL)- Palatka Plant	442.8	3277.6	-8,934.9	E
JEA- Brandy Branch	408.7	3,354.5	440.2	C
JEA - Northside Power Plant	447.0	3,365.2	4,847.7	C
			-44,356.2	E
JEA - St. Johns River Power Park	447.1	3,366.7	64,642.5	C
Anheiser Busch, Inc	440.6	3,366.8	74.4	C
Cedar Bay Cogeneration	441.6	3,365.5	3,357.0	C
Gilman Paper Co. St. Mary's, GA	448.2	3,401.3	7,276.4	C
			-12,931.4	E
Jefferson Smurfit Corp. (Jacksonville)	439.9	3,359.3	2,215.7	C
			-1,886.9	E
Jefferson Smurfit Corp. (Fernandina Beach)	456.2	3,394.2	15,087.7	C
			-12,656.5	E
Millenium Specialty Products	436.8	3,360.7	139.4	C
			-295.1	E
Rayonier, Inc.	454.7	3,392.2	5,536.9	C
			-1,383.5	E
Stone Container Corp. (Seminole Kraft)	443.0	3,365.4	75.1	C
			-19,261.9	E
JEA - Kennedy Power Plant	440.0	3,359.2	-11,648.7	E
JEA- Southside Power Plant	437.7	3,353.9	-17,492.2	E
PCS	328.3	3,368.8	10,000.0	C
			-13,213.0	E
Suwannee American Cement	321.4	3,315.9	124.4	C
Florida Rock Thompson S. Baker Cement Plant	348.4	3,287.0	77.5	C

Note: Detailed inventory presented in Appendix B.

^a Based on 24-hour average emission rate.

^b Consuming (C) sources are sources that were constructed or modified after the PSD baseline date.
Expanding (E) sources are sources that have shutdown or have been modified since the baseline date.

Table 4-3. Inventory of SO₂ Sources Included in the PSD Class I Air Modeling Analyses at the Okefenokee NWA

Facility	Model ID Name	UTM Coordinates		Stack Parameters								Emission Rate				PSD ^a Consuming (C) or Expanding (E)
		East (km)	North (km)	Height		Diameter		Temperature		Velocity		24-Hour		3-Hour		
				(ft)	(m)	(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	
Seminole Electric Cooperative, Inc. (SECI) Seminole Power Plant	CSEMELEC03,	438.8	3289.2	674.7	205.7	36.0	11.0	126	325	33.6	10.2 ^c	17,212.7	2,168.8 ^b	17,212.7	2,168.8 ^b	NA
	CSEMELEC24											9,850.0	1,241.1 ^b	12,400	1,562.4 ^b	C
Florida Power & Light (FPL)- Putnam Plant	CFPLPUTM	443.3	3277.6	73.1	22.3	10.3	3.2	328	437	192.2	58.6	1,549.2	195.2 ^d	1,549.2	195.2 ^d	C
												925.4	116.6 ^d	925.4	116.6 ^d	C
Florida Power & Light (FPL)- Palatka Plant	FPLPALAT	442.8	3277.6	149.9	45.7	13.0	4.0	275	408	31.2	9.5	-2,039.9	-257.0	-2,039.9	-257.0	E
JEA- Brandy Branch	S1_NG	408.7	3354.5	90.0	27.43	18.0	5.49	1080.95	856	147.7	45.04	1.11	0.1	1.11	0.1	C
	S2_NG			189.9	57.91	18.0	5.49	204	369	61.4	18.71	1.19	0.2	1.19	0.2	C
	S3_NG			189.9	57.91	18.0	5.49	265	403	69.8	21.28	98.2	12.4	98.2	12.4	C
	SFP			24.0	7.32	0.49	0.15	649	616	196.9	60.02	0.033	0.004	0.033	0.004	C
JEA - Northside Power Plant	CJEAN1	447.0	3365.2	495	151.0	15.0	4.57	136	331	63	19.20	553.3	69.7	553.3	69.7	C
	CJEAN2			495	151.0	15.0	4.57	136	331	63	19.20	553.3	69.7	553.3	69.7	C
	CJEAN3			75.1	22.9	3.4	1.04	165	347	50.0	15.24	0.28	0.04	0.3	0.035	C
	EJEAN1			250	76.2	16.0	4.87	266	403	76	23.10	-5,484.1	-691.0	-5,484.1	-691.0	E
	EJEAN2			290	88.4	16.4	5.00	250	394	43	13.10	-4,642.9	-585.0	-4,642.9	-585.0	E
JEA - St. Johns River Power Park	CRIVER1	447.1	3366.7	640	195.1	22.3	6.79	156	342	90	27.40	7,379.3	929.8 ^e	7,379.3	929.8 ^e	NA
	CRIVER2			640	195.1	22.3	6.79	156	342	90	27.40	7,379.3	929.8 ^e	7,379.3	929.8 ^e	NA
	CRIVER1			640	195.1	22.3	6.79	156	342	90	27.40	4,669.4	588.3 ^f	4,669.4	588.3 ^f	C
	CRIVER2			640	195.1	22.3	6.79	156	342	90	27.40	4,669.4	588.3 ^f	4,669.4	588.3 ^f	C
Anheiser Busch, Inc	CBUSH1	440.6	3366.8	20.0	6.1	1.97	0.60	1000	811	413.6	126.10	8.49	1.1	8.49	1.1	C
	CBUSH2			20.0	6.1	1.97	0.60	1000	811	413.6	126.10	8.49	1.1	8.49	1.1	C
Cedar Bay Cogeneration	CCBAY1	441.6	3365.5	403.1	122.9	13.4	4.10	129	327	120.0	36.60	255.3	32.2	255.3	32.2	C
	CCBAY2			403.1	122.9	13.4	4.10	129	327	120.0	36.60	255.3	32.2	255.3	32.2	C
	CCBAY3			403.1	122.9	13.4	4.10	129	327	120.0	36.60	255.3	32.2	255.3	32.2	C
	CCBAY4			63.0	19.2	4.3	1.30	82	301	93.2	28.40	0.24	0.030	0.24	0.030	C
	CCBAY5			63.0	19.2	4.3	1.30	82	301	93.2	28.40	0.24	0.030	0.24	0.030	C
Gilman Paper Co. St. Mary's, GA	CPAPER1	448.2	3401.3	275	83.8	14.1	4.30	350	450	9	2.80	693.3	87.4	693.3	87.4	C
	CPAPER2			150	45.7	10.2	3.10	127	326	26	7.80	704.9	88.8	704.9	88.8	C
	CPAPER3			180	54.9	6.9	2.10	305	425	55	16.80	120.6	15.2	120.6	15.2	C
	CPAPER4			250	76.2	8.5	2.60	280	411	40	12.20	125.5	15.8	125.5	15.8	C
	CPAPER5			100	30.5	4.9	1.50	170	350	38	11.60	16.9	2.1	16.9	2.1	C
	EPAPER1			275	83.8	14.1	4.30	350	450	24	7.30	-2,230.2	-281.0	-2,230.2	-281.0	E
	EPAPER2			120	36.6	5.9	1.80	800	700	66	20.00	-476.2	-60.0	-476.2	-60.0	E
	EPAPER3			155	47.2	7.5	2.30	307	426	43	13.10	-60.3	-7.6	-60.3	-7.6	E
	EPAPER4			175	53.3	5.2	1.60	250	394	83	25.20	-60.3	-7.6	-60.3	-7.6	E
	EPAPER5			250	76.2	8.5	2.60	309	427	72	22.10	-125.4	-15.8	-125.4	-15.8	E
Jefferson Smurfit Corp. (Jacksonville)	CMILL1	439.9	3359.3	175.2	53.4	10.5	3.20	278	410	75.1	22.90	291.9	36.8	291.9	36.8	C
	CMILL2			200.1	61.0	9.8	3.00	143	335	35.1	10.70	203.6	25.7	203.6	25.7	C
	CMILL3			209.9	64.0	4.6	1.40	163	346	36.1	11.00	10.4	1.3	10.4	1.3	C
	EMILL1			175.2	53.4	10.5	3.20	278	410	75.1	22.90	-133.3	-16.8	-133.3	-16.8	E
	EMILL2			51.8	15.8	4.9	1.50	165	347	22.0	6.70	-7.8	-1.0	-7.8	-1.0	E
	EMILL3			249.9	76.2	12.5	3.80	359	455	26.2	8.00	-289.7	-36.5	-289.7	-36.5	E

Table 4-3. Inventory of SO₂ Sources Included in the PSD Class I Air Modeling Analyses at the Okefenokee NWA

Facility	Model ID Name	UTM Coordinates		Stack Parameters								Emission Rate				PSD ^a Consuming (C) or Expanding (E)
		East (km)	North (km)	Height		Diameter		Temperature		Velocity		24-Hour		3-Hour		
				(ft)	(m)	(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	
Jefferson Smurfit Corp. (Fernandina Beach)	CBMILL1	456.2	3394.2	257	78.4	11.2	3.40	358	454	50	15.20	1,512.5	190.6	1,512.5	190.6	C
	CBMILL2			265	80.8	11.5	3.50	428	493	61	18.60	321.1	40.5	321.1	40.5	C
	CBMILL3			289	88.1	12.8	3.90	412	484	62	18.90	358.1	45.1	358.1	45.1	C
	CBMILL4			340	103.7	14.8	4.50	334	441	42	12.80	1,226.3	154.5	1,226.3	154.5	C
	CBMILL5			75	22.9	5.6	1.70	325	436	55	16.80	26.7	3.4	26.7	3.4	C
	EBMILL1			227	69.2	7.9	2.40	410	483	55	16.90	-1,150.8	-145.0	-1,150.8	-145.0	E
	EBMILL2			227	69.2	11.2	3.40	404	480	53	16.30	-1,349.2	-170.0	-1,349.2	-170.0	E
	EBMILL3			249	75.9	11.5	3.50	428	493	62	18.80	-278.6	-35.1	-278.6	-35.1	E
	EBMILL4			134	40.8	8.9	2.70	242	390	44	13.30	-83.3	-10.5	-83.3	-10.5	E
	EBMILL5			44	13.4	3.6	1.10	190	361	40	12.30	-10.3	-1.3	-10.3	-1.3	E
	EBMILL6			44	13.4	4.6	1.40	188	360	58	17.60	-10.3	-1.3	-10.3	-1.3	E
	EBMILL7			228	69.5	5.9	1.80	170	350	17	5.20	-1.6	-0.2	-1.6	-0.2	E
	EBMILL8			109	33.2	2.0	0.60	188	360	19	5.80	-5.5	-0.7	-5.5	-0.7	E
	Millenium Specialty Products	CMCHEM	436.8	3360.7	44.9	13.7	3.94	1.20	350	450	18.0	5.50	31.8	4.0	31.8	4.0
EMCHEM				40.0	12.2	3.61	1.10	725	658	33.1	10.10	-67.4	-8.5	-67.4	-8.5	E
Rayonier, Inc.	CRAY1	454.7	3392.2	180	54.9	9.8	3.00	145	336	32	9.80	422.3	53.2	422.3	53.2	C
	CRAY2			180	54.9	9.8	3.00	145	336	32	9.80	401.3	50.6	401.3	50.6	C
	CRAY3			180	54.9	9.8	3.00	133	329	32	9.80	440.6	55.5	440.6	55.5	C
	ERAY			180	54.9	9.8	3.00	133	329	32	9.80	-315.9	-39.8	-315.9	-39.8	E
Stone Container Corp. (Seminole Kraft)	CS1	443.0	3365.4	200.1	61.0	7.9	2.40	331	439	17.1	5.20	5.7	0.7	5.7	0.7	C
	CS2			200.1	61.0	7.9	2.40	331	439	17.1	5.20	5.7	0.7	5.7	0.7	C
	CS3			200.1	61.0	7.9	2.40	331	439	17.1	5.20	5.7	0.7	5.7	0.7	C
	ES1			136.0	41.5	8.1	2.46	138	332	42.7	13.01	-458.7	-57.8	-458.7	-57.8	E
	ES2			136.0	41.5	8.1	2.46	138	332	42.7	13.01	-458.7	-57.8	-458.7	-57.8	E
	ES3			106.0	32.3	6.0	1.83	359	455	46.0	14.02	-334.1	-42.1	-334.1	-42.1	E
	ES4			106.0	32.3	7.0	2.13	331	439	47.6	14.51	-488.9	-61.6	-488.9	-61.6	E
	ES5			106.0	32.3	7.0	2.13	331	439	47.6	14.51	-485.7	-61.2	-485.7	-61.2	E
	ES6			126.0	38.4	8.5	2.59	154	341	52.4	15.97	-102.4	-12.9	-102.4	-12.9	E
	ES7			126.0	38.4	9.0	2.74	161	345	51.2	15.61	-131.0	-16.5	-131.0	-16.5	E
	ES8			126.0	38.4	9.0	2.74	160	344	47.9	14.60	-131.0	-16.5	-131.0	-16.5	E
	ES9			120.0	36.6	3.5	1.07	160	344	13.0	3.96	-2.9	-0.4	-2.9	-0.4	E
	ES10			124.0	37.8	4.0	1.22	160	344	14.0	4.27	-3.7	-0.5	-3.7	-0.5	E
	ES11			124.0	37.8	4.0	1.22	160	344	14.0	4.27	-3.7	-0.5	-3.7	-0.5	E
	ES12			69.0	21.0	5.8	1.77	158	343	10.2	3.11	-6.5	-0.8	-6.5	-0.8	E
	ES13			75.0	22.9	4.7	1.42	145	336	21.4	6.52	-6.5	-0.8	-6.5	-0.8	E
	ES14			75.0	22.9	3.7	1.12	145	336	26.8	8.17	-6.5	-0.8	-6.5	-0.8	E
	ES15			136.0	41.5	8.1	2.46	138	332	42.7	13.01	-62.3	-7.9	-62.3	-7.9	E
	ES16			136.0	41.5	8.1	2.46	138	332	42.7	13.01	-74.2	-9.4	-74.2	-9.4	E
	ES17			106.0	32.3	6.0	1.83	359	455	46.0	14.02	-323.0	-40.7	-323.0	-40.7	E
	ES18			106.0	32.3	7.0	2.13	331	439	47.6	14.51	-473.0	-59.6	-473.0	-59.6	E
	ES19			106.0	32.3	7.0	2.13	331	439	47.6	14.51	-471.4	-59.4	-471.4	-59.4	E
	ES20			126.0	38.4	8.5	2.59	154	341	52.4	15.97	-97.6	-12.3	-97.6	-12.3	E
	ES21			126.0	38.4	9.0	2.74	161	345	51.2	15.61	-124.6	-15.7	-124.6	-15.7	E
	ES22			126.0	38.4	9.0	2.74	160	344	47.9	14.60	-126.2	-15.9	-126.2	-15.9	E
	ES23			120.0	36.6	3.5	1.07	160	344	13.0	3.96	-2.8	-0.4	-2.8	-0.4	E
	ES24			124.0	37.8	4.0	1.22	160	344	14.0	4.27	-3.6	-0.5	-3.6	-0.5	E
	ES25			124.0	37.8	4.0	1.22	160	344	14.0	4.27	-3.6	-0.5	-3.6	-0.5	E
ES26			69.0	21.0	5.8	1.77	158	343	10.2	3.11	-4.4	-0.6	-4.4	-0.6	E	
ES27			75.0	22.9	4.7	1.42	145	336	21.4	6.52	-5.3	-0.7	-5.3	-0.7	E	
ES28			75.0	22.9	3.7	1.12	145	336	26.8	8.17	-5.2	-0.7	-5.2	-0.7	E	

Table 4-3. Inventory of SO₂ Sources Included in the PSD Class I Air Modeling Analyses at the Okefenokee NWA

Facility	Model ID Name	UTM Coordinates		Stack Parameters								Emission Rate				PSD ^a Consuming (C) or Expanding (E)	
		East (km)	North (km)	Height		Diameter		Temperature		Velocity		24-Hour		3-Hour			
				(ft)	(m)	(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)		
JEA - Kennedy Power Plant	EKEN	440.0	3359.2	149.9	45.7	10.5	3.2	250	394	34.1	10.4	-596.0	-75.1	-596.0	-75.1	E	
	KNDY10A			136.1	41.5	9.0	2.74	309	427	79.7	24.3	-734.1	-92.5	-734.1	-92.5	E	
	KNDY10B			136.1	41.5	9.0	2.74	309	427	79.7	24.3	-734.1	-92.5	-734.1	-92.5	E	
	KNDY9			149.9	45.7	10.5	3.2	289	416	40.0	12.2	-595.2	-75.0	-595.2	-75.0	E	
JEA- Southside Power Plant	JEASS4	437.7	3353.9	143.3	43.7	10.7	3.25	275	408	60.7	18.5	-873.0	-110.0	-873.0	-110.0	E	
	JEASS5B			145.0	44.2	9.7	2.96	287	415	69.9	21.3	-825.4	-104.0	-825.4	-104.0	E	
	JEASS5A			145.0	44.2	9.7	2.96	287	415	69.9	21.3	-825.4	-104.0	-825.4	-104.0	E	
	JEASS3			133.5	40.7	10.0	3.05	304	424	44.0	13.4	-633.3	-79.8	-633.3	-79.8	E	
	JEASS2			133.5	40.7	8.0	2.44	343	446	50.8	15.5	-418.3	-52.7	-418.3	-52.7	E	
	JEASS1			133.5	40.7	8.0	2.44	343	446	50.8	15.5	-418.3	-52.7	-418.3	-52.7	E	
PCS	SULACC&D	328.3	3368.8	149.9	45.7	5.2	1.59	181	356.0	94.1	28.7	766.7	96.6	766.7	96.6	C	
	SULACE&F			200.1	61.0	9.5	2.90	181	356.0	30.5	9.3	833.3	105.0	833.3	105.0	C	
	AUXBLRE			50.2	15.3	5.2	1.60	311	428.0	52.2	15.9	170.6	21.5	170.6	21.5	C	
	AUXBLRB			35.1	10.7	4.8	1.46	383	468.0	31.2	9.5	174.6	22.0	174.6	22.0	C	
	AUXBLRC&			104.0	31.7	6.5	1.98	383	468.0	49.9	15.2	332.4	41.9	332.4	41.9	C	
	DAP2ZTR			140.1	42.7	8.0	2.44	125	325.0	43.0	13.1	5.5	0.7	5.5	0.7	C	
	SULACA&B			200.1	61.0	5.9	1.80	170	350.0	50.8	15.5	-2,416.7	-304.5	-2,416.7	-304.5	E	
	SULACC&D			149.9	45.7	5.2	1.59	181	356.0	94.1	28.7	-600.0	-75.6	-600.0	-75.6	E	
	Suwannee American Cement	AMSUWCEM	321.4	3315.9	315	96.0	9.42	2.87	205	369	46.4	14.1	28.4	3.6	28.4	3.6	C
	Florida Rock Thompson S. Baker Cement Plant	FLROCCEM	348.4	3287.0	250	76.2	9.42	2.87	356	453	47.8	14.6	17.7	2.2	17.7	2.2	C

NA= not applicable

^a Consuming (C) sources are sources that were constructed or modified after the PSD baseline date.

Expanding (E) sources are sources that have shutdown or have been modified since the baseline date.

^b Higher emissions based on maximum allowable emissions. Lower emissions are based on maximum actual 3-hour and 24-hour average emissions for the two units from CEM data. See Table 3-3 for details.

^c Stack temperature and velocity were obtained from stack tests performed in April 2003 and provided by SECI.

^d Two of the four CT units (half of the total plant emissions) consume PSD increment and are included in the PSD increment analysis.

Higher emissions based on maximum allowable emissions. Lower emissions are based on maximum actual emissions for the two units. See Table 3-3 for details.

^e Maximum allowable emissions for each unit based on 1.2 lb/MMBtu and maximum heat input rate of 6144 MMBtu/hr. For one unit, SO₂ emissions are 7,372.8 lb/hr.

^f Actual emissions for each unit were obtained from the EPA Acid Rain Program using the 2001 to 2003 CEM data:
4,669.4 lb/hr (equivalent to approximately 0.76 lb/MMBtu for each unit operating at maximum heat input rate)

Table 4-4. Maximum Predicted SO₂ Impacts For Comparison to the PSD Class I Increments at the Okefenokee and Chassahowitzka NWAs (Maximum Actual Emissions- SECI, FPL Putnam, SJRPP)

Averaging Time	Rank	Concentration ^{a,b} ($\mu\text{g}/\text{m}^3$)	Receptor UTM Location (km)		Time Period ^c YYMMYYHH	PSD Class I Increment ($\mu\text{g}/\text{m}^3$)
			East	North		
<u>Okefenokee NWA</u>						
24-hour	HSH	3.41	390.35	3385.80	90031524	5
		3.69	391.80	3418.65	92072224	
		4.02	391.45	3389.90	96012624	
3-hour	HSH	17.1	389.20	3381.70	90021824	25
		17.0	391.45	3389.90	92012721	
		24.3	389.80	3383.90	96122815	

Note: UTM = Universal Transverse Mercator.
HSH = Highest, Second-Highest

^a Concentrations were predicted using the following emissions:

Seminole Electric Cooperative, Inc. (SECI) Seminole Power Plant-	12,400 lb/hr, 3-hour
FPL Putam Plant-	9,850 lb/hr, 24-hour, annual
St. Johns River Power Park (SJRPP) (modeled at Okefenokee NWA)	925 lb/hr
	9,339 lb/hr

^b Based on the CALPUFF model using 1990, 1992, and 1996 surface and upper air meteorological data developed with the CALMET program. UTM coordinates relative to Zone 17.

^c YY = Year; MM = Month; DD = Day; HH = Hour ending.

APPENDIX A

CALPUFF MODEL DESCRIPTION AND METHODOLOGY

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APPENDIX A

CALPUFF MODEL DESCRIPTION AND METHODOLOGY

A.1 INTRODUCTION

Currently, there are several air quality modeling approaches recommended by the Interagency Workgroup on Air Quality Models (IWAQM) to perform these analyses. The IWAQM consists of EPA and Federal Land Managers (FLM) of Class I areas that are responsible for ensuring that AQRVs are not adversely impacted by new and existing sources. These recommendations have been summarized in two documents:

- *Interagency Workgroup on Air Quality Models (IWAQM), Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* (EPA, 1998), referred to as the IWAQM Phase 2 report.
- *Federal Land Managers' Air Quality Related Values Workgroup (FLAG), Phase I Report*, USFS, NPS, USFWS (December, 2000), referred to as the FLAG document.

For a project located within 50 km of a PSD Class I area, a short-range transport air dispersion model should be used to address air quality impacts. For a project located beyond 50 km of a PSD Class I area, a long-range air dispersion model should be used to address air quality impacts.

A.2 GENERAL AIR MODELING APPROACH

The general modeling approach was based on using the long-range transport model, California Puff model (CALPUFF, Version 5.7). At distances beyond 50 km, the ISCST3 model is considered to over predict air quality impacts, because it is a steady-state model. At those distances, the CALPUFF model is recommended for use. The FLM have requested that air quality impacts for a source located more than 50 km from a Class I area be predicted using the CALPUFF model.

The methods and assumptions used in the CALPUFF model were based on the latest recommendations for a refined analysis as presented in the IWAQM Phase 2 Summary Report and the FLAG document.

The following sections present the methods and assumptions used to assess the impacts of the source modeled. The analysis is consistent with a "refined analysis" since it was performed using the

detailed weather data from multiple surface and upper air stations as well as the MM4/MM5 prognostic with fields.

A.3 MODEL SELECTION AND SETTINGS

The California Puff (CALPUFF, version 5.7) air modeling system was used to model to assess the impacts at the PSD Class I area. CALPUFF is a non-steady state Lagrangian Gaussian puff long-range transport model that includes algorithms for building downwash effects as well as chemical transformations (important for visibility controlling pollutants), and wet/dry deposition. The CALPUFF meteorological and geophysical data preprocessor (CALMET, Version 5.4), a preprocessor to CALPUFF, is a diagnostic meteorological model that produces a three-dimensional field of wind and temperature and a two-dimensional field of other meteorological parameters. CALMET was designed to process raw meteorological, terrain and land-use databases to be used in the air modeling analysis. The CALPUFF modeling system uses a number of FORTRAN preprocessor programs that extract data from large databases and converts the data into formats suitable for input to CALMET. The processed data produced from CALMET was input to CALPUFF to assess the pollutant specific impact. Both CALMET and CALPUFF were used in a manner that is recommended by the IWAQM Phase 2 and FLAG reports.

A.3.1 CALPUFF MODEL APPROACHES AND SETTINGS

The IWAQM has recommended approaches for performing a Phase 2 refined modeling analyses that are presented in Table A-1. These approaches involve use of meteorological data, selection of receptors and dispersion conditions, and processing of model output.

The specific settings used in the CALPUFF model are presented in Table A-2.

A.3.2 EMISSION INVENTORY AND BUILDING WAKE EFFECTS

The CALPUFF model included the facility's emission, stack, and operating data, as well as building dimensions to account for the effects of building-induced downwash on the emission sources. Dimensions for all significant building structures were processed with the Building Profile Input Program modified to process additional direction-specific building information (BPIP), Version 95039, and were included in the CALPUFF model input. The modeling presents a listing of the facility's emissions and structures included in the analysis.

A.4 RECEPTOR LOCATIONS

For the refined analyses, pollutant concentrations were predicted in an array of 161 discrete receptors located at the Okefenokee NWA.

A.5 METEOROLOGICAL DATA

CALMET was used to develop the grid pattern for the parameter fields required for the refined modeling analyses for the Okefenokee NWA. The following sections discuss the specific data used and processed in the CALMET model.

CALMET Settings

The CALMET settings contained in Table A-3 were used for the refined modeling analysis. All input data files needed for CALMET were developed by Golder staff.

Modeling Domain

A rectangular modeling domain extending 316 km in the east-west (x) direction and 412 km in the north-south (y) direction was used for the refined modeling analysis. The southwest corner of the domain is the origin and is located at 29.25 degrees north, latitude; and 84.0 degrees west, longitude (east and north UTM coordinates of 208.0 and 3239.0 km, respectively, zone 17). This location is in the Gulf of Mexico, approximately 110 km west of Cedar Key, Florida. For the processing of meteorological and geophysical data, the domain contains 80 grid cells in the x-direction and 104 grid cells in the y-direction. The domain grid resolution is 4 km. The air modeling analysis was performed in the UTM coordinate system.

Mesoscale Model – Generations 4 and 5 (MM4 and MM5) Data

Pennsylvania State University, in conjunction with the NCAR Assessment Laboratory, developed the MM4 and MM5 data set, a prognostic wind field or “guess” field, for the United States. The hourly meteorological variables used to create this data set (wind, temperature, dew point depression, and geopotential height for eight standard levels and up to 15 significant levels) are extensive and are available for 1990, 1992, and 1996. The analysis used the MM4 and MM5 data to initialize the CALMET wind field. The MM4 and MM5 data available for 1990 and 1992, respectively, have a horizontal spacing of 80 km and are used to simulate atmospheric variables within the modeling domain. The MM5 data are also available for 1996 and have a horizontal spacing of 36 km.

The MM4 and MM5 data used in the CALMET, although advanced, lacks the fine detail of specific temporal and spatial meteorological variables and geophysical data. These variables were processed into the appropriate format and introduced into the CALMET model through the additional data files obtained from the following sources.

Surface Data Stations and Processing

The surface station data processed for the CALPUFF analyses consisted of data from ten NWS stations or Federal Aviation Administration (FAA) Flight Service stations for Columbus, Macon, Savannah, Augusta, Athens, and Atlanta in Georgia; and Tampa, Jacksonville, Daytona Beach, Tallahassee, and Gainesville in Florida. A summary of the surface station information and locations are presented in Table A-4. The surface station parameters include wind speed, wind direction, cloud ceiling height, opaque cloud cover, dry bulb temperature, relative humidity, station pressure, and a precipitation code that is based on current weather conditions. The surface station data were processed into a SURF.DAT file format for CALMET input.

Because the modeling domain extends over water, three sea surface stations were used. Data were obtained from two C-Man stations from Folly Island, South Carolina, and Savannah Light, Georgia, and one buoy identified NOAA Buoy 41008. These data were processed into an over-water surface station format (i.e., SEA*.DAT) for input to CALMET. The over-water station data include wind direction, wind speed and air temperature.

Upper Air Data Stations and Processing

Upper air data from the following NWS stations, based on the availability of the upper air data, were used in the modeling analysis:

- Waycross, Georgia (1990, 1992);
- Athens, Georgia (1990, 1992);
- Charleston, South Carolina (1990, 1992, 1996);
- Apalachicola, Florida (1990);
- Ruskin, Florida (1990, 1992, 1996);
- Tallahassee, Florida (1992, 1996);
- Jacksonville, Florida (1996); and
- Peachtree City, Georgia (1996).

The data and locations for the upper air stations are presented in Table A-4.

Precipitation Data Stations and Processing

Precipitation data were processed from a network of hourly precipitation data files collected from primary and secondary NWS precipitation-recording stations located within the latitude and longitudinal limits of the modeling domain. Data for 19 stations in Georgia and 22 stations in Florida were obtained in NCDC TD-3240 variable format and converted into a fixed-length format. The utility programs PXTRACT and PMERGE were then used to process the data into the format for the PRECIP.DAT file that is used by CALMET. A listing of the precipitation stations used for the modeling analysis is presented in Table A-5.

Geophysical Data Processing

Terrain elevations for each grid cell of the modeling domain were obtained from 1-degree Digital Elevation Model (DEM) files obtained from the U.S. Geographical Survey (USGS) Internet website. The DEM data was extracted for the modeling domain grid using the utility program TERREL. Land-use data were also extracted from 1-degree USGS files and processed using utility programs CTGCOMP and CTGPROC. Both the terrain and land use files were combined into a GEO.DAT file for input to CALMET with the MAKEGEO utility program.

Table A-1. Refined Modeling Analyses Recommendations^a

Model Input/Output	Description
Meteorology	Use CALMET (minimum 6 to 10 layers in the vertical; top layer must extend above the maximum mixing depth expected); horizontal domain extends 50 to 80 km beyond outer receptors and sources being modeled; terrain elevation and land-use data is resolved for the situation.
Receptors	Within Class I area(s) of concern; obtain regulatory concurrence on coverage.
Dispersion	<ol style="list-style-type: none"> 1. CALPUFF with default dispersion settings. 2. Use MESOPUFF II chemistry with wet and dry deposition. 3. Define background values for ozone and ammonia for area.
Processing	<ol style="list-style-type: none"> 1. For PSD increments: use highest, second highest 3-hour and 24-hour average SO₂ concentrations; highest, second highest 24-hour average PM₁₀ concentrations; and highest annual average SO₂, PM₁₀ and NO_x concentrations. 2. For haze: process, on a 24-hour basis, compute the source extinction from the maximum increase in emissions of SO₂, NO_x and PM₁₀; compute the daily relative humidity factor [f(RH)], provided from an external disk file; and compute the maximum percent change in extinction using the FLM supplied background extinction data in the FLAG document. 3. For significant impact analysis: use highest annual and highest short-term averaging time concentrations for SO₂, PM₁₀, and NO_x.

^a IWAQM Phase II report (December, 1998) and FLAG document (December, 2000)

Table A-2. CALPUFF Model Settings

Parameter	Setting
Pollutant Species	SO ₂ , SO ₄ , NO _x , HNO ₃ , NO ₃ , PM ₁₀
Chemical Transformation	MESOPUFF II scheme including hourly ozone data
Deposition	Include both dry and wet deposition, plume depletion
Meteorological/Land Use Input	CALMET
Plume Rise	Transitional, Stack-tip downwash, Partial plume penetration
Dispersion	Puff plume element, PG /MP coefficients, rural mode, ISC building downwash scheme
Terrain Effects	Partial plume path adjustment
Output	Create binary concentration file including output species for SO ₄ , NO ₃ , PM ₁₀ , SO ₂ , and NO _x ; process for visibility change using Method 2 and FLAG background extinctions
Model Processing	For haze: highest predicted 24-hour extinction change (%) for the year For significant impact analysis: highest predicted annual and highest short-term averaging time concentrations for SO ₂ , NO _x , and PM ₁₀ .
Background Values	Ozone: 50 ppb; Ammonia: 1 ppb

Table A-3. CALMET Settings, Okefenokee NWA PSD Class I Area Analysis

Parameter	Setting
Horizontal Grid Dimensions	316 by 412 km, 4 km grid resolution
Vertical Grid	10 layers
Weather Station Data Inputs	Surface, upper air, and precipitation stations
Wind model options	Diagnostic wind model, no kinematic effects
Prognostic wind field model	1990 MM4 and 1992 data, 80 km resolution; 1996 MM5 data, 36 km resolution; used for wind field initialization
Output	Binary hourly grid pattern for meteorological data file for CALPUFF input

Table A-4. Surface and Upper Air Stations Used in the CALPUFF Analysis,
Okefenokee NWA PSD Class I Area

Station Name	Station Symbol	WBAN Number	UTM Coordinates			Anemometer Height (m)
			Easting (km)	Northing (km)	Zone	
<u>Surface Stations</u>						
Tampa, FL	TPA	12842	349.17	3094.25	17	6.7
Jacksonville, FL	JAX	13889	432.82	3374.19	17	6.1
Daytona Beach, FL	DAB	12834	495.14	3228.09	17	9.1
Tallahassee, FL	TLH	93805	173.04 ^a	3363.99	16	7.6
Columbus, GA	COL	93842	112.57 ^a	3599.35	16	9.1
Macon, GA	MCN	3813	251.58	3620.93	17	7.0
Savannah, GA	SAV	3822	481.13	3555.03	17	9.1
Gainesville, FL	GNV	12816	377.43	3284.16	17	6.7
Augusta, GA	AGS	3820	410.25	3692.49	17	6.1
Athens, GA	AHN	13873	284.98	3758.67	17	7.6
Atlanta, GA	ATL	13874	158.65 ^a	3725.04	16	6.1
<u>Sea Surface Stations</u>						
NOAA Buoy 41008	41008	-	490.42	3396.12	17	4.0
Folly Island (SC) C-Man	FBIS1	-	603.15	3618.33	17	6.7
Savannah Light (GA) C-Man	SVLS1	-	528.37	3540.27	17	10.0
<u>Upper Air Stations</u>						
Ruskin, FL	TBW	12842	361.95	3064.55	17	NA
Waycross, GA	AYS	13861	366.68	3457.95	17	NA
Athens, GA	AHN	13873	285.91	3758.83	17	NA
Charleston, SC	CHS	13880	590.42	3640.42	17	NA
Apalachicola, FL	AQQ	12832	110.22 ^a	3290.65	16	NA
Tallahassee, FL	TLH	93805	173.04 ²	3363.99	17	NA
Jacksonville, FL	JAX	13889	459.61	3351.92	17	NA
Peachtree, GA	FFC	53819	188.65 ²	3679.35	16	na

^a Equivalent coordinate for Zone 17.

Table A-5. Hourly Precipitation Stations Used in the Okefenokee NWA CALPUFF Analysis

Station Name	Station Number	UTM Coordinate		
		Easting (km)	Northing (km)	Zone
Florida				
Branford	80975	315.61	3315.96	17
Bristol	81020	113.72 ^a	3366.47	16
Brooksville 7 SSW	81048	358.03	3149.55	17
Cross city 2 WNW	82008	290.27	3281.75	17
Daytona Beach WSO AP	82158	495.14	3228.09	17
Deland 1 SSE	82229	470.78	3209.66	17
Dowling Park 1 W	82391	283.51	3348.42	17
Gainesville 11 WNW	83322	354.85	3284.43	17
Inglis 3 E	84273	342.63	3211.65	17
Jacksonville WSO AP	84358	434.27	3372.40	17
Lakeland	84797	409.87	3099.18	17
Lisbon	85076	423.59	3193.26	17
Lynne	85237	409.26	3230.30	17
Marineland	85391	479.19	3282.03	17
Melbourne WSO	85612	534.38	3109.97	17
Monticello 3 W	85879	220.17	3381.29	17
Orlando WSO McCoy	86628	468.99	3146.88	17
Panacea 3 s	86828	172.45 ^a	3319.61	16
Raiford State Prison	87440	385.93	3326.55	17
Saint Leo	87851	376.48	3135.09	17
Tallahassee WSO AP	88758	173.04 ^a	3363.99	16
Woodruff Dam	89795	124.29 ^a	3399.94	16
Georgia				
Abbeville 4 S	90010	281.84	3535.69	17
Bainbridge Intl Paper Co	90586	144.85 ^a	3409.59	16
Brunswick	91340	452.34	3447.98	17
Coolidge	92238	226.34	3434.77	17
Doles	92728	226.73	3510.59	17
Edison	93028	135.13 ^a	3494.43	16
Fargo	93312	349.92	3395.35	17
Folkston 3 SW	93460	401.13	3407.69	17
Hazlehurst	94204	348.49	3526.08	17
Jesup	94671	416.21	3498.08	17
Pearson	96879	325.50	3464.09	17
Richmond Hill	97468	468.92	3535.69	17
Valdosta 4 NW	98974	276.90	3416.95	17
Claxton	91973	415.05	3559.19	17
Dublin 2	92844	321.61	3603.71	17
Lizella	95249	235.94	3633.39	17
Macon Middle Ga Regional	95443	251.13	3619.58	17
Savannah WSO Airport	97847	480.92	3553.43	17
Sylvania 2 SSE	98517	442.11	3621.57	17

^a Equivalent coordinate for Zone 17.

APPENDIX B

EMISSIONS TABLES

Table B-1. SO₂ Emissions, Seminole Electric Cooperative Inc., Seminole Power Plant-
Summary of the Maximum Emissions for the 3-Hour Averaging Period
with Periods of Suspect Operations Identified
(January 1, 2001- June 30, 2003)

		Total Units 1 & 2 SO ₂ Emissions (lb/hr)	
Date	Hour Ending	3-Hr	
8/16/2001	8	38,271.80	Suspect
8/16/2001	11	28,191.70	Suspect
8/16/2001	5	27,926.40	Suspect
9/12/2001	20	26,632.40	Suspect
9/12/2001	23	24,207.47	Suspect
6/21/2001	17	18,767.33	Suspect
9/7/2001	23	16,775.70	Suspect
8/22/2001	14	12,391.90	Selected

Note: Suspect operations include periods when the scrubber appears to be malfunctioning or not operating

Table B-2. Average Hourly SO₂ Emissions, Seminole Electric Cooperative Inc., Seminole Power Plant- Suspect Periods for the 3-hour Averaging Periods (January 1, 2001- June 30, 2003)

Date	Hour	Unit 1					Unit 2					Total			
		SO ₂ Emissions (lbs)					SO ₂ Emissions (lbs)					SO ₂ Emissions (lbs)			
		Heat Input (MMBtu)	SO ₂ (lbs)	SO ₂ (lb/MMBtu)	Skip	1-Hr	3-Hr	Heat Input (MMBtu)	SO ₂ (lbs)	SO ₂ (lb/MMBtu)	Skip	1-Hr	3-Hr	1-Hr	3-Hr
6/21/2001	12	4388.80	2694.00	0.61		2694.00		7619.00	5778.80	0.76		5778.80		8472.80	
6/21/2001	13	4454.60	2726.70	0.61		2726.70		7620.10	5860.40	0.77		5860.40		8587.10	
6/21/2001	14	4444.90	2815.90	0.63		2815.90	2745.53	7589.40	5920.40	0.78		5920.40	5853.20	8736.30	8598.73
6/21/2001	15	4415.10	2674.00	0.61		2674.00		6899.00	5829.40	0.84		5829.40		8503.40	
6/21/2001	16	4446.30	2774.50	0.62		2774.50		7427.90	21425.80	2.88 *				24200.30	
6/21/2001	17	4423.90	2761.80	0.62		2761.80	2736.77	7223.50	20836.50	2.88 *			5829.40	23598.30	18767.33
6/21/2001	18							7391.50	21321.00	2.88 *				21321.00	
6/21/2001	19	193.30	18.80	0.10		18.80		7589.30	6237.20	0.82		6237.20		6256.00	
6/21/2001	20	944.70	142.30	0.15		142.30	80.55	7710.50	5811.20	0.75		5811.20	6024.20	5953.50	11176.83
8/16/2001	0	5154.20	1625.80	0.32		1625.80		7653.00	8723.10	1.14		8723.10		10348.90	
8/16/2001	1	5060.80	1553.50	0.31		1553.50		7562.30	10866.60	1.44 *				12420.10	
8/16/2001	2	5093.10	1568.80	0.31		1568.80	1582.70	7599.10	7630.10	1.00		7630.10	8176.60	9198.90	10655.97
8/16/2001	3	5378.10	2011.00	0.37		2011.00		7249.80	23017.20	3.17 *				25028.20	
8/16/2001	4	5681.60	2736.70	0.48		2736.70		5889.90	23248.00	3.95 *				25984.70	
8/16/2001	5	6538.10	3498.50	0.54		3498.50	2748.73	6717.90	29267.80	4.36 *				32766.30	27926.40
8/16/2001	6	7034.20	4379.80	0.62		4379.80		7231.70	32691.50	4.52 *				37071.30	
8/16/2001	7	7171.10	4918.80	0.69		4918.80		7270.60	33872.80	4.66 *				38791.60	
8/16/2001	8	7302.30	4153.40	0.57		4153.40	4484.00	7430.10	34799.10	4.68 *				38952.50	38271.80
8/16/2001	9	7159.70	4111.20	0.57		4111.20		7341.50	34087.20	4.64 *				38198.40	
8/16/2001	10	7372.00	4555.50	0.62		4555.50		7789.90	30449.90	3.91 *				35005.40	
8/16/2001	11	7353.80	4750.50	0.65		4750.50	4472.40	8173.90	6620.80	0.81		6620.80	6620.80	11371.30	28191.70
8/16/2001	12	7444.60	4719.00	0.63		4719.00		8112.30	3791.00	0.47		3791.00		8510.00	
8/16/2001	13	7403.00	4508.90	0.61		4508.90		8180.20	3560.70	0.44		3560.70		8069.60	
8/16/2001	14	7430.70	4515.90	0.61		4515.90	4581.27	8108.80	3331.00	0.41		3331.00	3560.90	7846.90	8142.17
9/7/2001	18	6718.10	4742.60	0.71		4742.60		7024.10	3146.30	0.45		3146.30		7888.90	
9/7/2001	19	6861.40	4828.50	0.70		4828.50		7093.20	3356.70	0.47		3356.70		8185.20	
9/7/2001	20	6661.20	4376.90	0.66		4376.90	4649.33	7024.50	6341.70	0.90		6341.70	4281.57	10718.60	8930.90
9/7/2001	21	6623.40	4191.20	0.63		4191.20		6863.60	23427.10	3.41 *				27618.30	
9/7/2001	22	6648.40	4197.80	0.63		4197.80		6847.70	10047.50	1.47 *				14245.30	
9/7/2001	23	6549.10	3970.50	0.61		3970.50	4119.83	6755.40	4493.00	0.67		4493.00	4493.00	8463.50	16775.70
9/8/2001	0	6553.70	3850.60	0.59		3850.60		6778.30	5388.90	0.80		5388.90		9239.50	
9/8/2001	1	6466.10	3860.50	0.60		3860.50		6808.60	6403.90	0.94		6403.90		10264.40	
9/8/2001	2	5931.40	3105.80	0.52		3105.80	3605.63	6230.70	2884.00	0.46		2884.00	4892.27	5989.80	8497.90
9/12/2001	15	6934.40	4360.60	0.63		4360.60		7291.50	4859.40	0.67		4859.40		9220.00	
9/12/2001	16	6959.80	4422.50	0.64		4422.50		7491.30	5370.30	0.72		5370.30		9792.80	
9/12/2001	17	6964.90	4417.60	0.63		4417.60	4400.23	7247.30	4919.10	0.68		4919.10	5049.60	9336.70	9449.83
9/12/2001	18	6846.40	4409.60	0.64		4409.60		7154.30	14051.10	1.96 *				18460.70	
9/12/2001	19	6814.20	4660.30	0.68		4660.30		7056.40	23718.20	3.36 *				28378.50	
9/12/2001	20	6881.40	6185.40	0.90		6185.40	5085.10	6853.20	26872.60	3.92 *				33058.00	26632.40
9/12/2001	21	6843.70	4641.40	0.68		4641.40		6710.10	28043.00	4.18 *				32684.40	
9/12/2001	22	6824.70	4731.80	0.69		4731.80		6753.90	22727.30	3.37 *				27459.10	
9/12/2001	23	6843.70	4296.20	0.63		4296.20	4556.47	6084.40	8182.70	1.34		8182.70	8182.70	12478.90	24207.47
9/13/2001	0	5783.00	2884.40	0.50		2884.40		5787.70	2161.70	0.37		2161.70		5046.10	
9/13/2001	1	5497.30	2528.30	0.46		2528.30		5614.00	1843.70	0.33		1843.70		4372.00	
9/13/2001	2	5332.90	2502.20	0.47		2502.20	2638.30	5453.60	1714.10	0.31		1714.10	1906.50	4216.30	4544.80

Note: Suspect Periods

Averaging Period	Date	Hour Ending
3-hour	6/21/2001	17
	8/16/2001	5
	8/16/2001	8
	8/16/2001	11
	9/7/2001	23
	9/12/2001	20
	9/12/2001	23

Table B-3. SO₂ Emissions, Seminole Electric Cooperative Inc., Seminole Power Plant-
Summary of the Maximum Emissions for the 24-Hour Averaging Period
with Periods of Suspect Operations Identified
(January 1, 2001- June 30, 2003)

		Total Units 1 & 2 SO ₂ Emissions (lb/hr)	
Date	Hour Ending	24-Hr	
8/16/2001	23	17,026.91	Suspect
9/12/2001	23	12,624.85	Suspect
1/2/2001	23	9,847.02	Selected

Note: Suspect operations include periods when the scrubber appears to be malfunctioning or not operating

Table B-4. Average Hourly SO₂ Emissions, Seminole Electric Cooperative Inc., Seminole Power Plant- Suspect Periods for the 24-hour Averaging Periods (January 1, 2001- June 30, 2003)

Date	Hour	Unit 1							Unit 2							Total		
		Heat Input (MMBtu)	SO ₂ Emissions (lbs)			Heat Input (MMBtu)	SO ₂ Emissions (lbs)			SO ₂ Emissions (lbs)								
			SO ₂ (lb/MMBTU)	Skip	1-Hr		3-Hr	24-Hr	SO ₂ (lb/MMBTU)	Skip	1-Hr	3-Hr	24-Hr	1-Hr	3-Hr	24-Hr		
8/15/2001	21	6931.90	3573.80	0.52		3573.80		8173.90	5543.30	0.68		5543.30		9117.10				
8/15/2001	22	6927.10	3568.60	0.52		3568.60		7753.40	4518.60	0.58		4518.60		8087.20				
8/15/2001	23	5391.90	1928.80	0.36		1928.80	3023.73	7669.90	4575.30	0.60		4575.30	4879.07	6504.10	7902.80	9290.33		
8/16/2001	0	5154.20	1625.80	0.32		1625.80		7653.00	8723.10	1.14		8723.10		10348.90				
8/16/2001	1	5060.80	1553.50	0.31		1553.50		7562.30	10866.60	1.44 *				12420.10				
8/16/2001	2	5093.10	1568.80	0.31		1568.80	1582.70	7599.10	7630.10	1.00		7630.10	8176.60	9198.90	10655.97			
8/16/2001	3	5378.10	2011.00	0.37		2011.00		7249.80	23017.20	3.17 *				25028.20				
8/16/2001	4	5681.60	2736.70	0.48		2736.70		5889.90	23248.00	3.95 *				25984.70				
8/16/2001	5	6538.10	3498.50	0.54		3498.50	2748.73	6717.90	29267.80	4.36 *				32766.30	27926.40			
8/16/2001	6	7034.20	4379.80	0.62		4379.80		7231.70	32691.50	4.52 *				37071.30				
8/16/2001	7	7171.10	4918.80	0.69		4918.80		7270.60	33872.80	4.66 *				38791.60				
8/16/2001	8	7302.30	4153.40	0.57		4153.40	4484.00	7430.10	34799.10	4.68 *				38952.50	38271.80			
8/16/2001	9	7159.70	4111.20	0.57		4111.20		7341.50	34087.20	4.64 *				38198.40				
8/16/2001	10	7372.00	4555.50	0.62		4555.50		7789.90	30449.90	3.91 *				35005.40				
8/16/2001	11	7353.80	4750.50	0.65		4750.50	4472.40	8173.90	6620.80	0.81	6620.80	6620.80		11371.30	28191.70			
8/16/2001	12	7444.60	4719.00	0.63		4719.00		8112.30	3791.00	0.47		3791.00		8510.00				
8/16/2001	13	7403.00	4508.90	0.61		4508.90		8180.20	3560.70	0.44		3560.70		8069.60				
8/16/2001	14	7430.70	4515.90	0.61		4515.90	4581.27	8108.80	3331.00	0.41		3331.00	3560.90	7846.90	8142.17			
8/16/2001	15	7348.40	5042.30	0.69		5042.30		8021.30	3292.30	0.41				8334.60				
8/16/2001	16	7333.50	5010.50	0.68		5010.50		8047.30	3409.70	0.42		3409.70		8420.20				
8/16/2001	17	7303.20	4746.30	0.65		4746.30	4933.03	8095.20	3153.20	0.39		3153.20	3285.07	7899.50	8218.10			
8/16/2001	18	7313.30	4805.50	0.66		4805.50		8065.20	2657.40	0.33		2657.40		7462.90				
8/16/2001	19	7433.80	6077.90	0.82		6077.90		8101.20	2209.10	0.27		2209.10		8287.00				
8/16/2001	20	7420.60	5757.00	0.78		5757.00	5546.80	7891.30	3434.90	0.44		3434.90	2767.13	9191.90	8313.93			
8/16/2001	21	7204.40	4777.80	0.66		4777.80		7598.30	2128.00	0.28		2128.00		6905.80				
8/16/2001	22	7080.80	4484.30	0.63		4484.30		7310.70	1660.20	0.23		1660.20		6144.50				
8/16/2001	23	7240.30	4705.90	0.65		4705.90	4656.00	7531.70	1729.40	0.23		1729.40	1839.20	6435.30	6495.20	17026.91		
9/12/2001	0	5325.70	1866.00	0.35		1866.00		6777.00	4500.50	0.66		4500.50		6366.50				
9/12/2001	1	5060.50	1664.70	0.33		1664.70		6566.10	4762.60	0.73		4762.60		6427.30				
9/12/2001	2	5102.50	1772.40	0.35		1772.40	1767.70	6269.20	3834.10	0.61		3834.10	4365.73	5606.50	6133.43			
9/12/2001	3	5113.00	1821.60	0.36		1821.60		6226.50	3884.80	0.62		3884.80		5706.40				
9/12/2001	4	5758.60	2538.40	0.44		2538.40		6325.90	4474.00	0.71		4474.00		7012.40				
9/12/2001	5	6326.80	3332.40	0.53		3332.40	2564.13	6795.10	4796.80	0.71		4796.80	4385.20	8129.20	6949.33			
9/12/2001	6	6308.30	3279.80	0.52		3279.80		6765.10	4866.00	0.72		4866.00		8145.80				
9/12/2001	7	6631.00	4139.20	0.62		4139.20		6882.30	6271.20	0.91		6271.20		10410.40				
9/12/2001	8	6937.90	4060.20	0.59		4060.20	3826.40	7062.40	5027.60	0.71		5027.60	5388.27	9087.80	9214.67			
9/12/2001	9	6979.40	4193.40	0.60		4193.40		7011.80	4956.00	0.71		4956.00		9149.40				
9/12/2001	10	7048.30	4221.50	0.60		4221.50		7116.60	4053.30	0.57		4053.30		8274.80				
9/12/2001	11	7067.30	4438.30	0.63		4438.30	4284.40	7227.20	4258.40	0.59		4258.40	4422.57	8696.70	8706.97			
9/12/2001	12	7110.70	4727.00	0.66		4727.00		7397.10	4750.10	0.64		4750.10		9477.10				
9/12/2001	13	7126.00	4584.50	0.64		4584.50		7299.20	5192.30	0.71		5192.30		9776.80				
9/12/2001	14	7166.50	4651.70	0.65		4651.70	4654.40	7284.20	5208.50	0.72		5208.50	5050.30	9860.20	9704.70			
9/12/2001	15	6934.40	4360.60	0.63		4360.60		7291.50	4859.40	0.67		4859.40		9220.00				
9/12/2001	16	6959.80	4422.50	0.64		4422.50		7491.30	5370.30	0.72		5370.30		9792.80				
9/12/2001	17	6964.90	4417.60	0.63		4417.60	4400.23	7247.30	4919.10	0.68		4919.10	5049.60	9336.70	9449.83			
9/12/2001	18	6846.40	4409.60	0.64		4409.60		7154.30	14051.10	1.96 *				18460.70				
9/12/2001	19	6814.20	4660.30	0.68		4660.30		7056.40	23718.20	3.36 *				28378.50				
9/12/2001	20	6881.40	6185.40	0.90		6185.40	5085.10	6853.20	26872.60	3.92 *				33058.00	26632.40			
9/12/2001	21	6843.70	4641.40	0.68		4641.40		6710.10	28043.00	4.18 *				32684.40				
9/12/2001	22	6824.70	4731.80	0.69		4731.80		6753.90	22727.30	3.37 *				27459.10				
9/12/2001	23	6843.70	4296.20	0.63		4296.20	4556.47	6084.40	8182.70	1.34	8182.70	8182.70	4956.19	12478.90	24207.47	12624.85		
9/13/2001	0	5783.00	2884.40	0.50		2884.40		5787.70	2161.70	0.37		2161.70		5046.10				
9/13/2001	1	5497.30	2528.30	0.46		2528.30		5614.00	1843.70	0.33		1843.70		4372.00				
9/13/2001	2	5332.90	2502.20	0.47		2502.20	2638.30	5453.60	1714.10	0.31		1714.10	1906.50	4216.30	4544.80			

Note: Suspect Periods

Averaging Period	Date	Hour Ending
24-hour	8/16/2001	23
	9/12/2001	23

Table B-5. SO₂ Emissions, St. Johns River Power Park- Sorted by Maximum Total Emissions (lb) for the 3-hour and 24-hour Averaging Periods
Units 1 and 2, October 1, 2001- December 31, 2001

Date	Hour Ending	3-Hour Average		Date	Hour Ending	24-Hour Average	
		lb/hr	lb/MMBtu			lb/hr	lb/MMBtu
12/27/2001	8	6636.5	0.49	12/27/2001	23	6238.3	0.47
12/21/2001	14	6452.4	0.49	12/26/2001	23	6120.3	0.46
12/25/2001	20	6401.8	0.48	12/28/2001	23	5887.4	0.46

Table B-6. SO₂ Emissions, St. Johns River Power Park- Sorted by Maximum Total Emissions (lb) for the 3-hour and 24-hour Averaging Periods
Units 1 and 2, January 1, 2002- December 31, 2002

Date	Hour Ending	3-Hour Average		Date	Hour Ending	24-Hour Average	
		lb/hr	lb/MMBtu			lb/hr	lb/MMBtu
4/14/2002	14	6978.5	0.52	7/20/2002	23	6000.4	0.45
8/30/2002	11	6965.3	0.52	1/3/2002	23	5853.6	0.45
4/14/2002	17	6887.8	0.51	4/14/2002	23	5813.1	0.45

Table B-7. SO₂ Emissions, St. Johns River Power Park- Sorted by Maximum Total Emissions (lb) for the 3-hour and 24-hour Averaging Periods
Units 1 and 2, January 1, 2003- September 30, 2003

Date	Hour Ending	3-Hour Average		Date	Hour Ending	24-Hour Average	
		lb/hr	lb/MMBtu			lb/hr	lb/MMBtu
2/14/2003	8	14659.4	1.10 Suspect	2/14/2003	23	5825.8	0.47
4/20/2003	23	7619.5	0.88 Suspect	2/12/2003	23	5692.4	0.44
7/8/2003	14	7440.7	0.56	1/7/2003	23	5679.1	0.43

Table B-8. SO₂ Emissions, St. Johns River Power Park- Suspect Periods Sorted by Maximum Total Emissions (lb) for the 3-hour Averaging Period
Units 1 and 2, January 1, 2003- September 30, 2003

Unit 1							Unit 2							Units 1&2						
Date	Hr	Rpt. HI (mmBtu)	Rpt. SO2 (lbs)	3-hr ave			Date	Hr	Rpt. HI (mmBtu)	Rpt. SO2 (lbs)	3-hr ave			Date	Hr	Rpt. HI (mmBtu)	Rpt. SO2 (lbs)	3-hr ave		
				lb/MMBtu	lb/hr	lb/Mmbtu					lb/MMBtu	lb/hr	lb/Mmbtu					lb/MMBtu	lb/hr	lb/Mmbtu
2/14/2003	3	4920.1	1922.0	0.39			2/14/2003	3	4964.6	2151	0.433			2/14/2003	3	9884.7	4073.0	0.412		
2/14/2003	4	4915.4	1931.1	0.39			2/14/2003	4	4984.1	2064.8	0.414			2/14/2003	4	9899.5	3995.9	0.404		
2/14/2003	5	5431.2	2108.3	0.39	1987.1	0.391	2/14/2003	5	5531.1	2243.9	0.406	2153.2	0.418	2/14/2003	5	10962.3	4352.2	0.397	4140.4	0.404
2/14/2003	6	6054.1	2356.2	0.39			2/14/2003	6	6483.9	9110.5	1.405			2/14/2003	6	12538.0	11466.7	0.915		
2/14/2003	7	6425.9	2391.3	0.37			2/14/2003	7	8575.6	20517.5	2.393			2/14/2003	7	15001.5	22908.8	1.527		
2/14/2003	8	6641.4	2469.9	0.37	2405.8	0.378	2/14/2003	8	4461.6	7132.9	1.599	12253.6	1.799	2/14/2003	8	11103.0	9602.8	0.865	14659.4	1.102
2/14/2003	9	6645.3	2435.7	0.37			2/14/2003	9	3660.3	2231.4	0.610			2/14/2003	9	10305.6	4667.1	0.453		
2/14/2003	10	6718.9	2374.0	0.35			2/14/2003	10	3973.8	1187.4	0.299			2/14/2003	10	10692.7	3561.4	0.333		
2/14/2003	11	6716.2	2439.9	0.36	2416.5	0.361	2/14/2003	11	5059.3	2176.1	0.430	1865.0	0.446	2/14/2003	11	11775.5	4616.0	0.392	4281.5	0.393
4/20/2003	18	6482.9	2532.5	0.39			4/20/2003	18	323.4	712.7	2.20			4/20/2003	18	6806.3	3245.2	0.48		
4/20/2003	19	6471.2	2521.5	0.39			4/20/2003	19	525.8	834.7	1.59			4/20/2003	19	6997.0	3356.2	0.48		
4/20/2003	20	6428.8	2364.9	0.37	2473.0	0.38	4/20/2003	20	1150.3	2617.0	2.28	1388.1	2.02	4/20/2003	20	7579.1	4981.9	0.66	3861.1	0.54
4/20/2003	21	6422.7	2213.3	0.34			4/20/2003	21	1971.9	4776.4	2.42			4/20/2003	21	8394.6	6989.7	0.83		
4/20/2003	22	6397.5	2256.0	0.35			4/20/2003	22	2333.4	6024.5	2.58			4/20/2003	22	8730.9	8280.5	0.95		
4/20/2003	23	6339.1	2482.9	0.39	2317.4	0.36	4/20/2003	23	2563.4	5105.4	1.99	5302.1	2.33	4/20/2003	23	8902.5	7588.3	0.85	7619.5	0.88
4/21/2003	0	6300.3	2746.0	0.44			4/21/2003	0	3450.1	2127.6	0.62			4/21/2003	0	9750.4	4873.6	0.50		
4/21/2003	1	5251.6	2211.6	0.42			4/21/2003	1	4788.8	1894.9	0.40			4/21/2003	1	10040.4	4106.5	0.41		
4/21/2003	2	5050.8	2159.3	0.43	2372.3	0.43	4/21/2003	2	4878.3	2071.4	0.42	2031.3	0.48	4/21/2003	2	9929.1	4230.7	0.43	4403.6	0.44

Note: Suspect Periods

Averaging Period	Date	Hour Ending
3-hour	2/14/2003	8
	4/20/2003	23