



# Department of Environmental Protection

Jeb Bush  
Governor

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Colleen M. Castille  
Secretary

April 4, 2005

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James M. Chansler  
V. P. Operations and Maintenance  
JEA  
St. Johns River Power Park  
21 West Church Street  
Jacksonville, Florida 32202

Dear Mr. Chansler:

Re: Request for Permit Amendment  
Jacksonville Electric Authority, St. Johns River Power Park  
DEP File Numbers PSD-FL-010, 0310045-014-AC and PA 81-13

The Department hereby amends the specific conditions related to sulfur dioxide (SO<sub>2</sub>) emissions and fuel use in the subject Final Determination (dated March 12, 1982) pursuant to 40 CFR 52.21 - Prevention of Significant Deterioration (PSD Permit). The PSD Permit is amended as follows:

Condition 2.A. (revised)

i. When blends of petroleum coke and coal with a sulfur content of up to or equal to 2 percent by weight are fired in Units 1 or 2, the SO<sub>2</sub> emissions shall not exceed ~~0.55~~ 0.53 pound per million British thermal units (lb/MMBtu) and a minimum of ~~76~~ 79 percent reduction in the flue gas desulfurization system.

ii. When co-firing petroleum coke with coals having a sulfur content between 2 and 3.63 percent by weight the emission limitation shall be based on the following formula:

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

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

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

iii. When coals with a sulfur content greater than 3.63 percent by weight are co-fired with petroleum coke, the SO<sub>2</sub> 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  
S = weight percent sulfur in the coal

*"More Protection, Less Process"*

*Printed on recycled paper.*

Mr. James M. Chansler, VP  
JEA/SJRPP  
Petcoke increase

iv. The maximum SO<sub>2</sub> emission rate when firing petroleum coke and coal shall not exceed 0.676 lb/MMBtu heat input.

v. Compliance with the SO<sub>2</sub> emissions limit shall be based on a 30-day rolling average for those days when petroleum coke is fired. Any use of petroleum 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 New Source Performance Standards (NSPS) codified in 40 CFR 60 Subpart Da, except as noted above.

Condition 2.B. (revised)

The petroleum coke-coal blends shall be limited to a maximum of ~~20~~ 30 percent petroleum coke, by weight. The maximum weight of the petroleum coke burned shall not exceed ~~100,000~~ 150,000 lb/hr based on a 30-day rolling average using production information for the amount of coal and petcoke metered from the coal storage bins to the boilers. The maximum sulfur content of the petroleum coke-coal blend shall not exceed 4 percent, by weight.

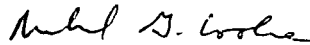
Condition 3. (revised)

The applicant shall maintain and submit to the Department on an annual basis for a period of five years from the date the unit is ~~initially~~ co-fired with petroleum coke above 20% by weight, information demonstrating in accordance with 40 CFR 52.21 (b) (21) (v) and 40 CFR 52.21 (b) (33) that the operational changes did not result in emissions increases of nitrogen oxides, carbon monoxide, sulfur dioxide, sulfuric acid mist, volatile organic compounds and particulate matter.

A copy of this amendment letter and the Technical Evaluation and Final Determination shall be attached to and shall become a part of Permit PSD-FL-010. All other conditions of the referenced permits remain unchanged. A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permit modification is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.



Michael G. Cooke, Director  
Division of Air Resource  
Management

Mr. James M. Chansler, VP  
JEA/SJRPP  
Petcoke increase

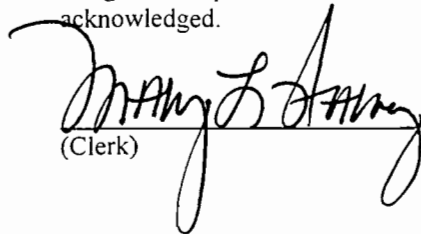
**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE and the DRAFT AIR CONSTRUCTION PERMIT) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 4/11/05 to the person(s) listed:

James M. Chansler, JEA \*  
Jay A. Worley, JEA  
Gregg Worley, EPA  
John Bunyak, NPS  
Chris Kirts, NED  
Richard Robinson, P.E. ERMD  
Mr. Hamilton S. Oven, DEP-Siting

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

  
(Clerk) 4/11/05  
(Date)

**TECHNICAL EVALUATION  
AND  
FINAL DETERMINATION**

**St. Johns River Power Park**

**Increased Co-Firing of Petroleum Coke**

**JEA / DUVAL COUNTY**

**0310045-014-AC**



**Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation  
North Permitting Section**

**March 30, 2005**

# TECHNICAL EVALUATION AND FINAL DETERMINATION

## 1. GENERAL INFORMATION

### 1.1 APPLICANT NAME AND ADDRESS

St. Johns River Power Park  
JEA  
11201 New Berlin Road  
Jacksonville, Florida 32226

Authorized Representative: James M. Chansler, V.P. Operations and Maintenance

### 1.2 REVIEWING AND PROCESS SCHEDULE

February 2, 2005	Received permit application
March 4, 2005	Issued Draft Intent
March 31, 2005	Issued Final permit revision

## 2. FACILITY INFORMATION

### 2.1 FACILITY LOCATION

The facility is located in Jacksonville, Duval County. The UTM coordinates are Zone 17; 446.90 km E; 3359.15 km N. This site is approximately 54 kilometers from the Okefenokee National Wildlife Refuge and 98 kilometers from the Wolf Island National Wildlife Refuge, both Class I PSD Areas.

### 2.2 STANDARD INDUSTRIAL CLASSIFICATION CODES (SIC)

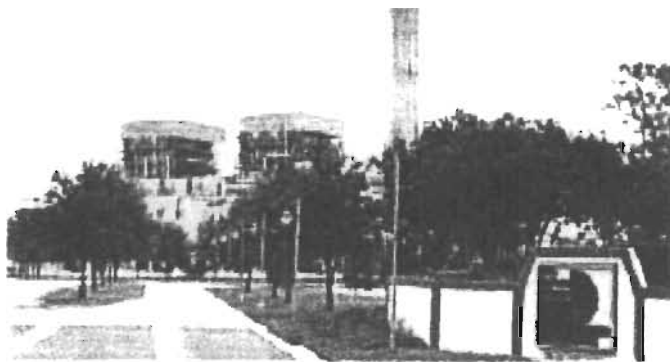
Industry Group No.	49	Electric, Gas and Sanitary Services
Industry No.	4911	Electric Services

### 2.3 FACILITY CATEGORY

This facility consists of five boilers, Northside Generating Station (NGS) Boilers Nos. 1, 2 and 3 (No. 2 was placed on long-term reserve shutdown on March 1, 1984) and St. Johns River Power Park (SJRPP) Boilers Nos. 1 and 2; four combustion turbines, NGS Nos. 3, 4, 5 and 6 (Nos. 1 and 2 are inactive); and, an auxiliary boiler, NGS No. 1.

SJRPP Boilers Nos. 1 and 2 are fossil fuel-fired steam generators, each having a nominal nameplate rating of 679.6 megawatts (electric). The emissions units are allowed to fire pulverized coal, a blend of petroleum coke and coal, new No. 2 distillate fuel oil (startup and low-load operation), and "on-specification" used oil. The maximum heat input to each emissions unit is 6,144 million Btu per hour. SJRPP Boilers Nos. 1 and 2 are dry bottom wall-fired boilers and will use an electrostatic precipitator (ESP) to control particulate matter, a wet limestone flue gas desulphurization (FGD) unit to control sulfur dioxide, low NO<sub>x</sub> burners and low excess-air firing to control nitrogen oxides, and good combustion to control carbon monoxide.

Based on the initial Title V permit application received June 14, 1996, this facility is a major source of hazardous air pollutants (HAPs). This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD).



# TECHNICAL EVALUATION AND FINAL DETERMINATION

## 3. PROJECT DESCRIPTION

This project primarily addresses the following emissions unit(s):

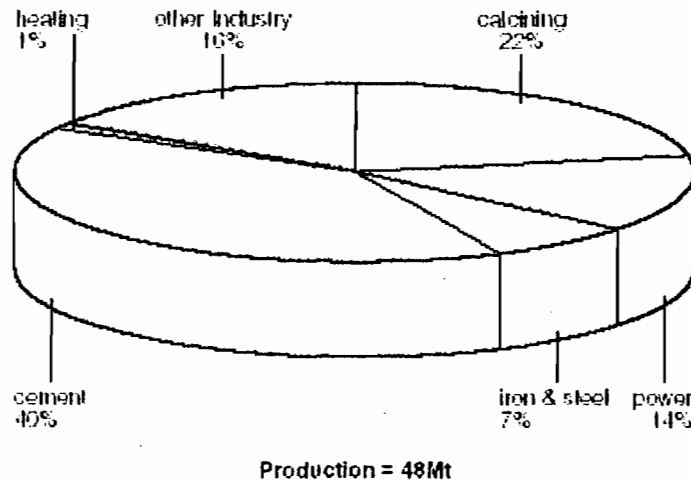
Emissions Unit No.	Emissions Unit Description
016	SJRPP Boiler Number 1 – dry bottom wall-fired boiler w/FGD, ESP and LNB
017	SJRPP Boiler Number 2 – dry bottom wall-fired boiler w/FGD, ESP and LNB

The applicant proposes to increase the combustion of petroleum coke (petcoke) from a maximum of 20% (on a weight basis) to 30%. The facility currently combusts coal as its primary fuel. The applicant indicates that this permit modification can be made in such a way that air emissions will not increase beyond historical levels, thus a PSD Review will not be triggered. The applicant further proposes that data can be provided in accordance with 40 CFR 52.21(b)(21)(v) and 40 CFR 52.21(b)(33) showing that the operational change associated with the use of increased petroleum coke did not result in significant emission increases for PSD pollutants (i.e., the WEPCO provision); emission analyses follow.

### 3.1 PETCOKE DISCUSSION

Much of this review was obtained from The Clean Coal Centre of the United Kingdom, in an article entitled "*The use of petroleum coke in a coal-fired plant*". Petroleum coke is a by-product from oil refineries and is composed mainly of carbon though it also contains high levels of sulfur and some heavy metals such as vanadium and nickel. There has been considerable interest in petcoke for several years, where it is available, as it is generally significantly cheaper than coal. The price does vary depending on the volumes produced and worldwide demand. The world production of petcoke grew by 50% from 1987 to 1998. It reached nearly 50 Million Tons (Mt) in 1999 and is expected to reach 100 Mt by 2010. The USA is the world's largest producer, producing three-quarters of world supplies. There are three types of petroleum coke, which can be produced depending on the process of production. The three processes are delayed, fluid and flexicoking with delayed coking producing over 90%. All three types of petcoke have higher calorific values than coal and contain less volatile matter and ash. The main uses of petcoke are as an energy source for power generation, in cement production and iron and steel production (which account for about two thirds of production) and the remainder is used mainly as a carbon source.

**FIGURE 3 - 1999 WORLD PETROLEUM COKE MARKET PROFILE**



The following additional information was compiled for the Year 2001. The source of this data is FERC Form 423, although the Energy Information Administration (EIA) summarized it in a report entitled "*Cost and Quality of Fuels for Electric Utility Plants 2001*", dated March 2004. This data was accumulated for electric generating plants with nameplate capacity of 50 megawatts or more. Tables 25 and 28 from that report are shown below:

# TECHNICAL EVALUATION AND FINAL DETERMINATION

**Table 25. The Top 20 Electric Utilities, Ranked by Receipts of Coal, 2001**

Electric Utility	Receipts: (thousand short tons)	Average Delivered Cost		Total Delivered Cost (million dollars)
		(cents per million Btu)	(dollars per short ton)	
1. Tennessee Valley Authority.....	36,556	121.92	27.99	1,023.15
2. Georgia Power Co.....	32,639	166.38	39.06	1,313.94
3. TNU Electric Co.....	27,297	151.74	18.61	491.74
4. Alabama Power Co.....	24,211	141.63	30.67	728.00
5. PacifiCorp.....	22,216	87.26	17.25	383.23
6. Detroit Edison Co.....	20,185	122.38	25.65	505.59
7. Ameren UE.....	18,797	93.10	17.28	324.37
8. Duke Power Co.....	17,395	157.21	38.53	670.23
9. Public Service Co of Indiana.....	16,542	110.30	24.35	402.51
10. Reliant HL&P.....	16,423	157.06	24.47	401.93
11. Basin Electric Power Coop.....	16,275	59.00	8.85	143.95
12. Ohio Power Co.....	15,598	143.01	34.62	530.59
13. Kansas Power and Light Co.....	13,942	115.59	20.69	286.03
14. MidAmerican Energy.....	12,607	74.96	12.90	175.50
15. Northern States Power Co.....	12,255	94.62	16.70	221.26
16. Arkansas Power and Light Co.....	12,631	73.54	13.74	174.20
17. Indiana Michigan Power.....	11,994	117.41	22.71	270.30
18. Southwestern Electric Power.....	11,833	150.44	24.11	256.51
19. Wisconsin Electric Power Co.....	11,868	102.91	19.29	228.91
20. Appalachian Power Co.....	11,858	129.66	31.69	368.34

Note: Data are for electric generating plants with a total steam-electric and combined-cycle nameplate capacity of 50 or more megawatts.  
Source: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

**Table 28. Receipts of Petroleum Coke by Electric Utility, 2001**

Electric Utility	Receipts: (thousand short tons)	Average Quality			Average Delivered Cost	
		Btu (per pound)	Sulfur (percent by weight)	Ask (percent by weight)	(cents per million Btu)	(dollars per short ton)
Ameren UE.....	197	14,303	3.72	0.40	66.55	19.12
Central Elec Power Coop-Missouri.....	*	14,235	3.20	.56	52.82	15.64
Jacksonville Electric Auth.....	568	14,255	6.28	.26	62.63	17.85
Lakeland City of.....	18	13,955	4.19	.44	127.02	35.48
Miamitowoc Public Utilities.....	36	14,234	5.51	.65	54.73	15.58
Michigan South Central Power.....	*	14,002	4.65	.43	150.01	42.61
Northern States Power Co.....	201	13,613	5.64	.70	39.12	10.65
Northern Indiana Pub Serv Co.....	149	13,927	4.34	.26	69.12	19.31
Reliant HL&P.....	132	13,609	1.66	.44	156.87	42.61
Salt River Proj. Ag. I. & P Dist.....	17	14,500	3.67	.90	100.48	29.14
Seminole Electric Coop.....	152	14,394	5.58	.41	110.74	31.83
Tampa Electric Power Co.....	303	13,945	4.90	.46	82.57	23.06
Wisconsin Power & Light.....	71	13,920	5.70	.56	96.25	26.30
Wisconsin Electric Power Co.....	145	14,201	5.24	.26	87.79	24.93
Total.....	2,019	14,079	4.13	.40	73.38	22.07

\* Includes a small amount of coal.

\* = Number less than 0.5.

Note: \* Total may not equal sum of components because of independent rounding. \* Data are for electric generating plants with a total steam-electric and combined-cycle nameplate capacity of 50 or more megawatts.

Source: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Of interest, no Florida utilities show up in the top 20 listing of coal users, even though Florida is one of the most populous states. It is observed that the cost of petroleum coke in year 2000 was approximately 1/2 that of coal. According to Table 28, Florida had 4 users of petcoke out of 14 listed users. The tables also show that receipts of petcoke totaled 2019 thousand short tons, or about 0.5% of the sum of coal receipts of the top 20 coal users. Only 4 utilities are listed on both tables: Northern States Power, Ameren UE, Wisconsin Electric Power Co. and Reliant HL&P (Northern States Power is now known as XCEL Energy, headquartered in Minnesota). Jacksonville Electric Authority (JEA) is indicated as the largest utility user of petcoke during year 2001 for electrical generation.

# TECHNICAL EVALUATION AND FINAL DETERMINATION

## 4. PROJECT EMISSIONS

### 4.1 HISTORICAL EMISSIONS

The following table summarizes the historical emissions (EU-016 and 017) based upon Department records (ARMS):

Pollutant	2001 Actual Emissions (TPY)	2002 Actual Emissions (TPY)	2001-2002 Average (TPY)	PSD Significant Emission Rates (TPY)	Maximum average Emission Rate without a PSD review (TPY)
NO <sub>x</sub>	26379.1	26738.5	26558.8	40	26598.7
CO	970.178	962.093	966.14	100	1066.0
VOC	118.873	118.179	118.53	40	158.5
SO <sub>2</sub>	22535.41	20902.199	21718.8	40	21758.7
SAM	1311.0	1322.9	1316.9	7	1323.8
PM	317.258	326.2401	321.75	25	346.7
PM <sub>10</sub>	72.964	75.596	74.28	15	89.2
Pb	1.21	0.81	1.01	0.6	1.59

Note: Years 2001 and 2002 were proposed by the applicant as a "representative" period for comparison to future emissions.

## 5. RULE APPLICABILITY

This facility is located in an area designated, in accordance with Rule 62-204.340, F.A.C., as attainment for all pollutants. Rule 62-4.030, F.A.C., prohibits modification of any existing emissions unit without first receiving a permit. It further specifies that a permitted installation may only be modified in a manner that is consistent with the terms of such a permit. Rule 62-210.200, F.A.C., defines "modification" to mean generally a physical change or change in the method of operation that results in an increase in actual emissions of regulated air pollutants. Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C., also reiterate the requirement for construction permits. Additionally, Rule 62-210.300 requires an Air Construction permit for all new sources of air pollution unless specifically exempt.

FDEP deems that a change to the quantity or quality of fuel burned is a change in the method of operation. Given that the source is major with regard to PSD, an analysis must be performed to verify that the increased burning of petcoke will not result in a significant net emissions increase and that, consequently, use of additional petcoke is not a major modification subject to PSD review. The emission units affected by this permit shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein).



# TECHNICAL EVALUATION AND FINAL DETERMINATION

## 6. PSD POLLUTANT ANALYSIS

### 6.1 COAL VERSUS PETCOKE

The following table was excerpted from a paper presented at the 2003 International Power-Gen Conference in Las Vegas, Nevada. The paper is entitled "Reducing NO<sub>x</sub> and LOI at the St. Johns River Power Park":

	Pet. Coke	Colombian Coal
<b>Prox. Analysis</b>		
Fixed Carbon	83.92	47.60
VM	8.50	33.40
Ash	0.52	7.40
Moisture	7.06	11.60
Total	100.00	100.00
<b>Ult. Analysis</b>		
Carbon	82.22	66.54
Hydrogen	3.35	4.50
Oxygen	0.00	7.99
Nitrogen	1.71	1.32
Sulfur	5.14	0.65
Ash	0.52	7.40
Moisture	7.06	11.60
Total	100.00	100.00
HHV, Btu/lb as-rec'd	14,200	11,800

This table was excerpted from a cement plant application in the United Kingdom (Castle Cement dated May 17, 1999):

Chemical Names	Units	Coal	Petroleum coke	Increase or Decrease
Heat Content	CV-MJ/kg	25.5	31.41	Increase
Carbon	% Carbon	73.4	85	Increase
Chlorine	Cl %	0.03	NA	Decrease
Copper	Cu (ppm)	12	3	Decrease
Lead	Pb	16	5	Decrease
Zinc	Zn	NA	17	Increase
Cadmium	Cd	10	0.04	Decrease
Chromium	Cr	8	5	Decrease
Thallium	Th	10	0.05	Decrease
Arsenic	As	7	1	Decrease
Mercury	Hg	10	NA	Decrease
Antimony	Sb	3	1	Decrease
Cobalt	Co	2	3	Increase
Manganese	Mn	71	NA	Decrease
Nickel	N	6	252	Increase
Tin	Sn	10	1	Decrease
Vanadium	V	4	150	Increase
Sulfur	S%	1.4	5.0	Increase

# TECHNICAL EVALUATION AND FINAL DETERMINATION

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The purpose of the above tables is to illustrate that the PSD pollutant of most concern is sulfur. Due to the decreases in the lead and ash content in petcoke, increased firing should lead to reductions in the emissions of PM, PM<sub>10</sub> and Pb. The Department notes that the emissions of nickel and vanadium are not subject to PSD, but may subject the facility to a future MACT requirement.

## 6.2 CARBON MONOXIDE (CO) AND VOLATIVE ORGANIC COMPOUNDS (VOC)

The applicant contends that there will be no increase in CO or VOC emissions from the increased co-firing of petcoke. The annual CO emissions for these emission units averaged 966 TPY, while annual VOC emissions averaged 118 TPY. The Significant Emission Rate for CO is 100 TPY, and for VOC is 40 TPY. Given that the available data shows reduced CO and VOC emissions from the firing of petcoke as compared to coal, the Department finds it unlikely that the increased co-firing of petcoke will cause annual emissions to exceed the PSD thresholds of each pollutant beyond representative past emission rates. Accordingly, a BACT review is not required for these pollutants.

## 6.3 NITROGEN OXIDE (NO<sub>x</sub>)

Test results from other facilities indicate that NO<sub>x</sub> emissions are typically less for petcoke firing as compared to coal firing. The annual NO<sub>x</sub> emissions for these emission units averaged 26558.8 TPY and the Significant Emission Rate for NO<sub>x</sub> is 40 TPY. The Department accepts the premise that increased petcoke firing (and decreased coal firing) will not cause annual NO<sub>x</sub> emissions to increase, nor specifically to exceed an average of 26598.7 TPY per emission unit. Accordingly, a BACT review is not required.

## 6.4 SULFUR DIOXIDE (SO<sub>2</sub>) AND SULFURIC ACID MIST (SAM)

The past actual average emissions of SO<sub>2</sub> and SAM were 21718.8 and 1316.9 TPY respectively. The Significant Emission Rate (SER) is 40 TPY for SO<sub>2</sub> and 7 TPY for SAM. The Department accepts the applicant's proposal that SO<sub>2</sub> and SAM emissions can be maintained below the respective SER by additional scrubbing with the existing wet FGD. The applicant additionally proposes to reduce the SO<sub>2</sub> limit (while co-firing) below the existing permit limit, as an additional means of providing assurance to the Department that SO<sub>2</sub> (as well as SAM) emissions will not increase. The combination of additional scrubbing and a reduced emission limit is acceptable to the Department and should ensure that the annual emission levels of SO<sub>2</sub> and SAM do not exceed the PSD thresholds for each pollutant beyond representative past emission rates (21758.7 TPY SO<sub>2</sub> and 1323.8 TPY SAM). In addition to this, the Department will place a limit on the throughput of petcoke at 30% on a heat input basis. Accordingly, the SO<sub>2</sub> and SAM emission increases are considered insignificant for PSD purposes and BACT reviews are not required.

## 6.5 PARTICULATE MATTER (PM/PM<sub>10</sub>)

As indicated above, it is reasonable to assume that PM<sub>10</sub> and PM emissions will be lowered as a result of the ten-fold decrease in fuel ash. Accordingly, the annual PM/PM<sub>10</sub> emissions from the stack are likely to be maintained with no increase above the PSD significant emission rate of 25/15 tons/year.

With regard to ancillary (or fugitive) emissions, the applicant estimates that particulate matter emissions will be reduced. This is based upon the increased heat input value of petcoke as compared to coal, meaning that a reduction in the overall tons of fuel handled will occur. In summary, the average PM/PM<sub>10</sub> emissions from each emission unit are likely to remain less than the PSD thresholds for each pollutant and no PSD Review is required.

## 6.6 SUMMARY

A preliminary review supports the applicant's contention that PSD is not triggered, eliminating the requirement for a BACT review and related modeling. PSD regulations (under the provisions commonly known as the "WEPCO rule") allow a source undertaking a non-routine change that could affect emissions at an electric utility steam generating unit to lawfully avoid the major source permitting process by using the unit's representative actual annual emissions to calculate emissions following the change, if the source submits information for 5 years following the change to confirm its pre-change projection. Under the WEPCO rule, SJRPP must compute baseline actual emissions and must project the future actual emissions from the modified units for a period after the physical change. In addition, SJRPP must maintain and submit to the Department on an annual basis for a period of at least 5 years

# TECHNICAL EVALUATION AND FINAL DETERMINATION

from the date the units resume regular operation, information demonstrating that the change did not result in a significant emissions increase. If SJRPP fails to comply with the reporting requirements of the WEPCO rule or if the submitted information indicates that emissions have increased above PSD thresholds as a consequence of the change, it will be required to obtain a PSD permit for petcoke co-firing (meaning that a BACT Review would then be applicable). Finally, even though a PSD review is not triggered due to the co-firing project, SJRPP must meet all other applicable federal, state, and local air pollution requirements.

## 7. ADDITIONAL COMPLIANCE PROCEDURES (AVERAGE PER EMISSION UNIT)

Pollutant	Compliance Procedures
NO <sub>x</sub>	Five years of annual reporting by CEMS proving annual emissions do not exceed 26598.7 TPY
CO	Five years of annual reporting by stack test proving annual emissions do not exceed 1066 TPY
VOC	Five years of annual reporting by historical AOR methods, proving annual emissions do not exceed 158.5 TPY
SO <sub>2</sub>	Five years of annual reporting by CEMS proving annual emissions do not exceed 21758.7 TPY
SAM	Five years of annual reporting by stack test proving annual emissions do not exceed 1323.8 TPY
PM	Five years of annual reporting by stack test proving annual facility emissions do not exceed 346.7 TPY

Specific permit conditions shall further describe these limitations. The reporting procedures are to begin during the first calendar year in which petcoke is fired.

## 8. CONCLUSION

Based on the foregoing technical evaluation of the application, additional information submitted by the applicant and other available information, the Department has made a final determination that the proposed project will comply with all applicable state and federal air pollution regulations.

Michael P. Halpin, P.E. Review Engineer  
Department of Environmental Protection, Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

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<b>Total Pos</b>	Mr. James M. Chansler
Sent To	V.P. Operations and Maintenance
Street, Apt. or PO Box	JEA
City, State	St. Johns River Power Park
	21 West Church Street
	Jacksonville, Florida 32202

CERTIFIED MAIL



March 16, 2005

Mr. J. K. Pennington, P.E.  
Department of Environmental Protection  
Bureau of Air Regulation  
North Permitting Section  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

RECEIVED

MAR 18 2005

BUREAU OF AIR REGULATION

RE: St. Johns River Power Park  
Proof of Publication  
DEP File No. 0310045-014-AC, PSD-FL-010

Dear Mr. Pennington:

The Public Notice of Intent to Issue Air Construction Permit for the above referenced facility was published in the Florida Times-Union in Jacksonville, Florida on Monday March 14, 2005. Please find attached the newspaper affidavit, which was filed on March 15, 2005 as proof of publication.

Please contact me at (904) 665-8729 if you have any questions or need any additional information regarding this publication.

Sincerely,

A handwritten signature in black ink, appearing to read "Jay Worley".

Jay Worley  
Superintendent  
St. Johns River Power Park

Attachment: Proof of Publication

xc: M. Halpin, FDEP  
J. Chansler, JEA

RECEIVED

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT  
STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DEP File No. 0310045-014-AC  
JEA - St. Johns River Power Park  
Increase in amount of petroleum coke firing  
Duval County

THE FLORIDIA TIMES-UNION Jacksonville, FL  
Affidavit of Publication

MAR 18 2005

Florida Times-Union

The Department of Environmental Protection (Department) gives notice of its intent to issue an Air Construction permit JEA. The permit is to allow for an increase in the firing of petroleum coke (petcoke) from 20% to 30% by weight at the existing St. Johns River Power Park, located in Jacksonville, Duval County. The application and permit are structured in such a way to ensure that no significant increase in the emission of regulated air pollutants will occur.

A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21 as no significant increase in emissions will occur. An air quality impact analysis was not required nor conducted. The applicant's name and address are JEA, 21 West Church Street, Jacksonville, FL 32202.

The Department will issue the FINAL permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

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Because the Administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32301 Telephone: (850) 488-0114 Fax: (850) 922-6979	Dept. of Environmental Protection Northeast District Office 7825 Baymeadows Way, Suite 200B Jacksonville, Florida 32256-7590 Telephone: (904) 448-4300 Fax: (904) 448-4366
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

The complete project file includes the application, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, North Permitting Section at 111 South Magnolia Drive, Suite, 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

REFERENCE: 0334984  
R085611 Public

State of Florida  
County of Duval

Before the undersigned authority personally appeared Kimalete Frazier who in oath says she is a Legal Advertising Representative of The Florida Times Union, a daily newspaper published in Jacksonville in Duval County, Florida; that the attached copy of advertisement is a legal ad published in The Florida Times Union. Affiant further says that The Florida Times Union is a newspaper published in Jacksonville, in Duval County, Florida, and that the newspaper has heretofore been continuously published in Duval County, Florida each day, has been entered as second class mail matter at the post office in Jacksonville, in Duval County, Florida for a period of one year preceeding the first publication of the attached copy of advertisement; and affiant further says that ne, she has neither paid nor promised any person, firm or corporation any account, rebate, commission, or refund for the purpose of securing this advertisement for publication in said newspaper.

PUBLISHED ON: 03/14

Name: Kimalete Frazier Title: Legal Advertising Represent  
In testimony whereof, I have hereunto set my hand and affixed my seal, the day and year aforesaid.

*[Signature]*



TWILLA SHIPP  
Notary Public, State of Florida  
My Comm. Expires May 13, 2006  
Comm. No. 00 117248



# Department of Environmental Protection

Jeb Bush  
Governor

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Colleen M. Castille  
Secretary

March 4, 2005

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James M. Chansler  
V. P. Operations and Maintenance  
JEA  
St. Johns River Power Park  
21 West Church Street  
Jacksonville, Florida 32202

Re: DEP File No. 0310045-014-AC, PSD-FL-010  
St. Johns River Power Park

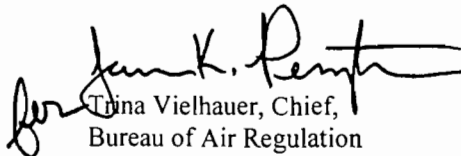
Dear Mr. Chansler:

Enclosed is one copy of the Draft air construction permit for the St. Johns River Power Park located at 11201 New Berlin Road, Jacksonville, Duval County. The Technical Evaluation and Preliminary Determination, the Department's Intent to Issue Air Construction Permit and the Public Notice of Intent to Issue Air Construction Permit are also included.

The Public Notice of Intent to Issue Air Construction Permit must be published one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to J. K. Pennington, P.E., North Permitting Section at the above letterhead address. If you have any other questions, please contact M. P. Halpin, P.E. at 850/921-9519.

Sincerely,

  
Trina Vielhauer, Chief,  
Bureau of Air Regulation

TV/mph  
Enclosures

"More Protection, Less Process"

Printed on recycled paper.

In the Matter of an  
Application for Permit by:

Mr. James M. Chansler, VP Operations and Maintenance  
JEA  
21 West Church Street  
Jacksonville, FL 32202

DEP File No. 0310045-014-AC  
St. Johns River Power Park  
Duval County

### **INTENT TO ISSUE AIR CONSTRUCTION PERMIT**

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit under the requirements for the Prevention of Significant Deterioration of Air Quality (copy of Draft Air Construction Permit attached) for the proposed project, detailed in the application specified above, for the reasons stated below.

The applicant, JEA, applied on February 2, 2005 to the Department for an Air Construction permit to increase the amount of petroleum coke (petcoke) being fired from 20% to 30% on a weight basis at the existing St. Johns River Power Park, located at 11201 New Berlin Road, Jacksonville in Duval County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit is required to conduct the work.

The Department intends to issue this Air Construction permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. and 40 CFR 52.21.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue Air Construction Permit." The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). The Department suggests that you publish the notice within thirty days of receipt of this letter. You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit or other authorization. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of "Public Notice of Intent to Issue Air Construction permit." Written comments and requests for a public meeting should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900



Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

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Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542, F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

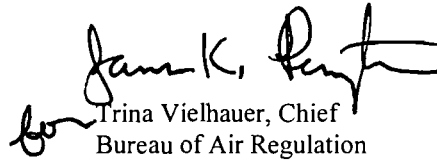
The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by

any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

  
Trina Vielhauer, Chief  
Bureau of Air Regulation

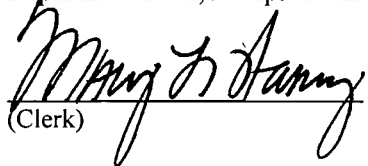
**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE and the DRAFT AIR CONSTRUCTION PERMIT) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 3/4/05 to the person(s) listed:

James M. Chansler, JEA \*  
Jay A. Worley, JEA  
Gregg Worley, EPA  
John Bunyak, NPS  
Chris Kirts, NED  
Richard Robinson, P.E. ERMD  
Mr. Hamilton S. Oven, DEP-Siting

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

  
(Clerk) 3/4/05  
(Date)

**PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0310045-014-AC  
JEA – St. Johns River Power Park  
Increase in amount of petroleum coke firing  
Duval County

The Department of Environmental Protection (Department) gives notice of its intent to issue an Air Construction permit to JEA. The permit is to allow for an increase in the firing of petroleum coke (petcoke) from 20% to 30% by weight at the existing St. Johns River Power Park, located in Jacksonville, Duval County. The application and permit are structured in such a way to ensure that no significant increase in the emission of regulated air pollutants will occur.

A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. and 40 CFR52.21 as no significant increase in emissions will occur. An air quality impact analysis was not required nor conducted. The applicant's name and address are JEA, 21 West Church Street, Jacksonville, FL 32202.

The Department will issue the FINAL permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

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Dept of Environmental Protection  
Bureau of Air Regulation  
111 S. Magnolia Drive, Suite 4  
Tallahassee, Florida 32301  
Telephone: 850/488-0114  
Fax: 850/922-6979

Dept. of Environmental Protection  
Northeast District Office  
7825 Baymeadows Way, Suite 200B  
Jacksonville, Florida 32256-7590  
Telephone: 904/448-4300  
Fax: 904/448-4366

The complete project file includes the application, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, North Permitting Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

**DRAFT**

March xx, 2005

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James M. Chansler  
V. P. Operations and Maintenance  
JEA  
St. Johns River Power Park  
21 West Church Street  
Jacksonville, Florida 32202

Dear Mr. Chansler:

Re: Request for Permit Amendment  
Jacksonville Electric Authority, St. Johns River Power Park  
PSD-FL-010; Duval County

The Department hereby amends the specific conditions related to sulfur dioxide (SO<sub>2</sub>) emissions and fuel use in the subject Final Determination (dated March 12, 1982) pursuant to 40 CFR 52.21 - Prevention of Significant Deterioration (PSD Permit). The PSD Permit is amended as follows:

Condition 2.A. (revised)

i. When blends of petroleum coke and coal with a sulfur content of up to or equal to 2 percent by weight are fired in Units 1 or 2, the SO<sub>2</sub> emissions shall not exceed ~~0.55~~ 0.53 pound per million British thermal units (lb/MMBtu) and a minimum of ~~76~~ 79 percent reduction in the flue gas desulfurization system.

ii. When co-firing petroleum coke with coals having a sulfur content between 2 and 3.63 percent by weight the emission limitation shall be based on the following formula:

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

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

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

iii. When coals with a sulfur content greater than 3.63 percent by weight are co-fired with petroleum coke, the SO<sub>2</sub> emissions shall not exceed the following formula:

**DRAFT**

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

where: C = percent of coal co-fired on a heat input basis  
S = weight percent sulfur in the coal

iv. The maximum SO<sub>2</sub> emission rate when firing petroleum coke and coal shall not exceed 0.676 lb/MMBtu heat input.

v. Compliance with the SO<sub>2</sub> emissions limit shall be based on a 30-day rolling average for those days when petroleum coke is fired. Any use of petroleum 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 New Source Performance Standards (NSPS) codified in 40 CFR 60 Subpart Da, except as noted above.

Condition 2.B. (revised)

The petroleum coke-coal blends shall be limited to a maximum of ~~20~~ 30 percent petroleum coke, by weight. The maximum weight of the petroleum coke burned shall not exceed ~~100,000~~ 150,000 lb/hr based on a 30-day rolling average using production information for the amount of coal and petcoke bunkered in the coal storage bins. The maximum sulfur content of the petroleum coke-coal blend shall not exceed 4 percent, by weight.

Condition 3. (revised)

The applicant shall maintain and submit to the Department on an annual basis for a period of five years from the date the unit is ~~initially~~ co-fired with petroleum coke above 20% by weight, information demonstrating in accordance with 40 CFR 52.21 (b) (21) (v) and 40 CFR 52.21 (b) (33) that the operational changes did not result in emissions increases of nitrogen oxides, carbon monoxide, sulfur dioxide, sulfuric acid mist, volatile organic compounds, lead and particulate matter.

A copy of this amendment letter shall be attached to and shall become a part of Permit PSD-FL-010.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION

Michael G. Cooke, Director  
Division Air Resource Management

## P.E. Certification Statement

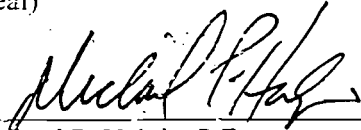
JEA  
SJRPP  
Duval County

DEP File No.: PSD-FL-010  
Facility ID No.: 0310045

**Project:** Petroleum Coke Increase -AC Permit Modification

**I HEREBY CERTIFY** that the engineering features described in the above referenced application and related additional information submittals, if any, and subject to the proposed permit conditions, provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).

(Seal)



Michael P. Halpin, P.E.  
Registration Number: 31970

3-3-05  
Date

Permitting Authority:

Florida Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation  
North Permitting Section  
Mail Station #5505  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Telephone: 850/488-0114  
Fax: 850/922-6979

**TECHNICAL EVALUATION**  
**AND**  
**PRELIMINARY DETERMINATION**

**St. Johns River Power Park**

**Increased Co-Firing of Petroleum Coke**

JEA / DUVAL COUNTY

0310045-014-AC



Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation  
North Permitting Section

March 4, 2005



# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 1. GENERAL INFORMATION

### 1.1 APPLICANT NAME AND ADDRESS

St. Johns River Power Park  
JEA  
11201 New Berlin Road  
Jacksonville, Florida 32226

Authorized Representative: James M. Chansler, V.P. Operations and Maintenance

### 1.2 REVIEWING AND PROCESS SCHEDULE

February 2, 2005                      Received permit application  
March 4, 2005                        Issued Draft Intent

## 2. FACILITY INFORMATION

### 2.1 FACILITY LOCATION

The facility is located in Jacksonville, Duval County. The UTM coordinates are Zone 17; 446.90 km E; 3359.15 km N. This site is approximately 54 kilometers from the Okefenokee National Wildlife Refuge and 98 kilometers from the Wolf Island National Wildlife Refuge, both Class I PSD Areas.

### 2.2 STANDARD INDUSTRIAL CLASSIFICATION CODES (SIC)

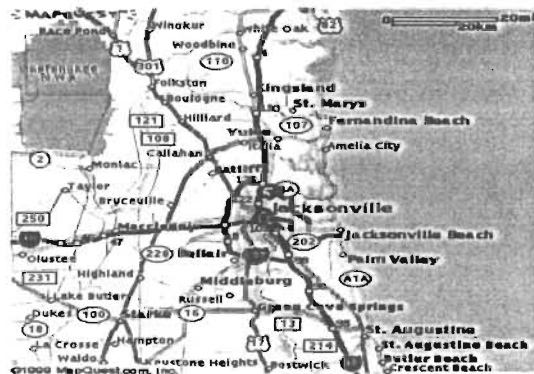
Industry Group No. .	49	Electric, Gas and Sanitary Services
Industry No.	4911	Electric Services

### 2.3 FACILITY CATEGORY

This facility consists of five boilers, Northside Generating Station (NGS) Boilers Nos. 1, 2 and 3 (No. 2 was placed on long-term reserve shutdown on March 1, 1984) and St. Johns River Power Park (SJRPP) Boilers Nos. 1 and 2; four combustion turbines, NGS Nos. 3, 4, 5 and 6 (Nos. 1 and 2 are inactive); and, an auxiliary boiler, NGS No. 1.

SJRPP Boilers Nos. 1 and 2 are fossil fuel-fired steam generators, each having a nominal nameplate rating of 679.6 megawatts (electric). The emissions units are allowed to fire pulverized coal, a blend of petroleum coke and coal, new No. 2 distillate fuel oil (startup and low-load operation), and "on-specification" used oil. The maximum heat input to each emissions unit is 6,144 million Btu per hour. SJRPP Boilers Nos. 1 and 2 are dry bottom wall-fired boilers and will use an electrostatic precipitator (ESP) to control particulate matter, a wet limestone flue gas desulphurization (FGD) unit to control sulfur dioxide, low NO<sub>x</sub> burners and low excess-air firing to control nitrogen oxides, and good combustion to control carbon monoxide.

Based on the initial Title V permit application received June 14, 1996, this facility is a major source of hazardous air pollutants (HAPs). This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD).



# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 3. PROJECT DESCRIPTION

This project primarily addresses the following emissions unit(s):

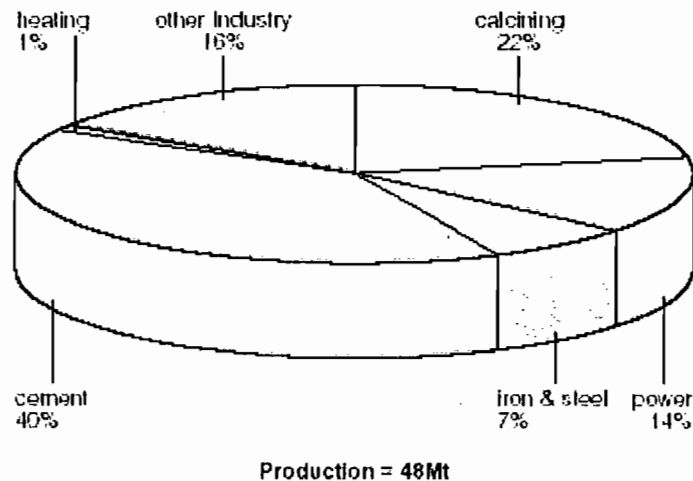
Emissions Unit No.	Emissions Unit Description
016	SJRPP Boiler Number 1 – dry bottom wall-fired boiler w/FGD, ESP and LNB
017	SJRPP Boiler Number 2 – dry bottom wall-fired boiler w/FGD, ESP and LNB

The applicant proposes to increase the combustion of petroleum coke (petcoke) from a maximum of 20% (on a weight basis) to 30%. The facility currently combusts coal as its primary fuel. The applicant indicates that this permit modification can be made in such a way that air emissions will not increase beyond historical levels, thus a PSD Review will not be triggered. The applicant further proposes that data can be provided in accordance with 40 CFR 52.21(b)(21)(v) and 40 CFR 52.21(b)(33) showing that the operational change associated with the use of increased petroleum coke did not result in significant emission increases for PSD pollutants (i.e., the WEPCO provision); emission analyses follow.

### 3.1 PETCOKE DISCUSSION

Much of this review was obtained from The Clean Coal Centre of the United Kingdom, in an article entitled "*The use of petroleum coke in a coal-fired plant*". Petroleum coke is a by-product from oil refineries and is composed mainly of carbon though it also contains high levels of sulfur and some heavy metals such as vanadium and nickel. There has been considerable interest in petcoke for several years, where it is available, as it is generally significantly cheaper than coal. The price does vary depending on the volumes produced and worldwide demand. The world production of petcoke grew by 50% from 1987 to 1998. It reached nearly 50 Million Tons (Mt) in 1999 and is expected to reach 100 Mt by 2010. The USA is the world's largest producer, producing three-quarters of world supplies. There are three types of petroleum coke, which can be produced depending on the process of production. The three processes are delayed, fluid and flexicoking with delayed coking producing over 90%. All three types of petcoke have higher calorific values than coal and contain less volatile matter and ash. The main uses of petcoke are as an energy source for power generation, in cement production and iron and steel production (which account for about two thirds of production) and the remainder is used mainly as a carbon source.

**FIGURE 3 - 1999 WORLD PETROLEUM COKE MARKET PROFILE**



The following additional information was compiled for the Year 2001. The source of this data is FERC Form 423, although the Energy Information Administration (EIA) summarized it in a report entitled "*Cost and Quality of Fuels for Electric Utility Plants 2001*", dated March 2004. This data was accumulated for electric generating plants with nameplate capacity of 50 megawatts or more. Tables 25 and 28 from that report are shown below:

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

**Table 25. The Top 20 Electric Utilities, Ranked by Receipts of Coal, 2001**

Electric Utility	Receipts (thousand short tons)	Average Delivered Cost		Total Delivered Cost (million dollars)
		(cents per million Btu)	(dollars per short ton)	
1. Tennessee Valley Authority.....	36,556	121.92	27.99	1,023.15
2. Georgia Power Co.....	33,639	166.38	39.66	1,313.94
3. TXU Electric Co.....	27,297	131.74	18.61	491.74
4. Alabama Power Co.....	24,211	141.68	30.67	728.00
5. PacifiCorp.....	22,216	87.36	17.25	383.23
6. Detroit Edison Co.....	20,185	122.38	25.65	505.59
7. Ameren UE.....	18,797	98.10	17.28	324.87
8. Duke Power Co.....	17,395	157.31	38.53	670.23
9. Public Service Co of Indiana.....	16,542	110.30	24.35	402.81
10. Reliant HL&P.....	16,423	157.06	24.47	401.93
11. Basin Electric Power Coop.....	16,275	59.06	8.85	143.95
12. Ohio Power Co.....	15,598	143.01	34.63	536.79
13. Kansas Power and Light Co.....	13,942	115.59	20.09	286.03
14. MidAmerican Energy.....	13,607	74.96	12.90	175.50
15. Northern States Power Co.....	13,255	94.62	16.70	221.36
16. Arkansas Power and Light Co.....	12,681	78.54	13.74	174.20
17. Indiana Michigan Power.....	11,904	117.41	22.71	270.30
18. Southwestern Electric Power.....	11,833	150.44	24.11	256.51
19. Wisconsin Electric Power Co.....	11,868	102.91	19.29	228.91
20. Appalachian Power Co.....	11,858	129.66	31.69	363.64

Note: Data are for electric generating plants with a total steam-electric and combined-cycle nameplate capacity of 50 or more megawatt.  
Source: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

**Table 28. Receipts of Petroleum Coke by Electric Utility, 2001**

Electric Utility	Receipts (thousand short tons)	Average Quality			Average Delivered Cost	
		Btu (per pound)	Sulfur (percent by weight)	Ash (percent by weight)	(cents per million Btu)	(dollars per short ton)
Ameren UE.....	197	14,303	3.72	0.46	66.85	19.12
Central Elec Power Coop-Missouri <sup>1</sup> .....	*	14,235	3.20	.56	52.82	15.04
Jacksonville Electric Auth.....	568	14,255	6.28	.36	62.63	17.85
Lakeland City of.....	18	13,955	4.19	.44	127.02	35.45
Mammoth Public Utilities.....	36	14,234	5.51	.65	54.73	15.58
Michigan South Central Power.....	*	14,002	4.65	.43	150.01	42.61
Northern States Power Co.....	201	13,613	5.64	.70	39.12	10.65
Northern Indiana Pub Serv Co.....	149	13,927	4.34	.26	69.32	19.31
Reliant HL&P.....	132	13,609	1.66	.44	156.57	42.61
Salt River Proj, Ag I & P Dist.....	17	14,500	3.67	.66	100.48	29.14
Seminole Electric Coop.....	182	14,394	5.88	.41	110.74	31.88
Tampa Electric Power Co.....	303	13,945	4.90	.46	82.67	23.66
Wisconsin Power & Light.....	71	13,920	5.70	.66	96.25	26.80
Wisconsin Electric Power Co.....	145	14,201	5.24	.26	87.79	24.93
<b>Total.....</b>	<b>2,019</b>	<b>14,079</b>	<b>5.13</b>	<b>.40</b>	<b>78.38</b>	<b>22.07</b>

<sup>1</sup> Includes a small amount of coal.  
\* = Number less than 0.5.

Notes: \* Totals may not equal sum of components because of independent rounding. \* Data are for electric generating plants with a total steam-electric and combined-cycle nameplate capacity of 50 or more megawatt.  
Source: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Of interest, no Florida utilities show up in the top 20 listing of coal users, even though Florida is one of the most populous states. It is observed that the cost of petroleum coke in year 2000 was approximately ½ that of coal. According to Table 28, Florida had 4 users of petcoke out of 14 listed users. The tables also show that receipts of petcoke totaled 2019 thousand short tons, or about 0.5% of the sum of coal receipts of the top 20 coal users. Only 4 utilities are listed on both tables: Northern States Power, Ameren UE, Wisconsin Electric Power Co. and Reliant HL&P (Northern States Power is now known as XCEL Energy, headquartered in Minnesota). Jacksonville Electric Authority (JEA) is indicated as the largest utility user of petcoke during year 2001 for electrical generation.

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 4. PROJECT EMISSIONS

### 4.1 HISTORICAL EMISSIONS

The following table summarizes the historical emissions (EU-016 and 017) based upon Department records (ARMS):

Pollutant	2001 Actual Emissions (TPY)	2002 Actual Emissions (TPY)	2001-2002 Average (TPY)	PSD Significant Emission Rates (TPY)	Maximum average Emission Rate without a PSD review (TPY)
NO <sub>x</sub>	26379.1	26738.5	26558.8	40	26598.7
CO	970.178	962.093	966.14	100	1066.0
VOC	118.873	118.179	118.53	40	158.5
SO <sub>2</sub>	22535.41	20902.199	21718.8	40	21758.7
SAM	1311.0	1322.9	1316.9	7	1323.8
PM	317.258	326.2401	321.75	25	346.7
PM <sub>10</sub>	72.964	75.596	74.28	15	89.2
Pb	1.21	0.81	1.01	0.6	1.59

Note: Years 2001 and 2002 were proposed by the applicant as a "representative" period for comparison to future emissions.

## 5. RULE APPLICABILITY

This facility is located in an area designated, in accordance with Rule 62-204.340, F.A.C., as attainment for all pollutants. Rule 62-4.030, F.A.C., prohibits modification of any existing emissions unit without first receiving a permit. It further specifies that a permitted installation may only be modified in a manner that is consistent with the terms of such a permit. Rule 62-210.200, F.A.C., defines "modification" to mean generally a physical change or change in the method of operation that results in an increase in actual emissions of regulated air pollutants. Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C., also reiterate the requirement for construction permits. Additionally, Rule 62-210.300 requires an Air Construction permit for all new sources of air pollution unless specifically exempt.

FDEP deems that a change to the quantity or quality of fuel burned is a change in the method of operation. Given that the source is major with regard to PSD, an analysis must be performed to verify that the increased burning of petcoke will not result in a significant net emissions increase and that, consequently, use of additional petcoke is not a major modification subject to PSD review. The emission units affected by this permit shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein).

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 6. PSD POLLUTANT ANALYSIS

### 6.1 COAL VERSUS PETCOKE

The following table was excerpted from a paper presented at the 2003 International Power-Gen Conference in Las Vegas, Nevada. The paper is entitled "Reducing NO<sub>x</sub> and LOI at the St. Johns River Power Park":

	Pet. Coke	Colombian Coal
<b>Prox. Analysis</b>		
Fixed Carbon	83.92	47.60
VM	8.50	33.40
Ash	0.52	7.40
Moisture	7.06	11.60
Total	100.00	100.00
<b>Ult. Analysis</b>		
Carbon	82.22	66.54
Hydrogen	3.35	4.50
Oxygen	0.00	7.99
Nitrogen	1.71	1.32
Sulfur	5.14	0.65
Ash	0.52	7.40
Moisture	7.06	11.60
Total	100.00	100.00
HHV, Btu/lb as-rec'd	14,200	11,800

This table was excerpted from a cement plant application in the United Kingdom (Castle Cement dated May 17, 1999):

Chemical Names	Units	Coal	Petroleum coke	Increase or Decrease
Heat Content	CV-MJ/kg	25.5	31.41	Increase
Carbon	% Carbon	73.4	85	Increase
Chlorine	Cl %	0.03	NA	Decrease
Copper	Cu (ppm)	12	3	Decrease
Lead	Pb	16	5	Decrease
Zinc	Zn	NA	17	Increase
Cadmium	Cd	10	0.04	Decrease
Chromium	Cr	8	5	Decrease
Thallium	Th	10	0.05	Decrease
Arsenic	As	7	1	Decrease
Mercury	Hg	10	NA	Decrease
Antimony	Sb	3	1	Decrease
Cobalt	Co	2	3	Increase
Manganese	Mn	71	NA	Decrease
Nickel	N	6	252	Increase
Tin	Sn	10	1	Decrease
Vanadium	V	4	150	Increase
Sulfur	S%	1.4	5.0	Increase

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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The purpose of the above tables is to illustrate that the PSD pollutant of most concern is sulfur. Due to the decreases in the lead and ash content in petcoke, increased firing should lead to reductions in the emissions of PM, PM<sub>10</sub> and Pb. The Department notes that the emissions of nickel and vanadium are not subject to PSD, but may subject the facility to a future MACT requirement.

## 6.2 CARBON MONOXIDE (CO) AND VOLATIVE ORGANIC COMPOUNDS (VOC)

The applicant contends that there will be no increase in CO or VOC emissions from the increased co-firing of petcoke. The annual CO emissions for these emission units averaged 966 TPY, while annual VOC emissions averaged 118 TPY. The Significant Emission Rate for CO is 100 TPY, and for VOC is 40 TPY. Given that the available data shows reduced CO and VOC emissions from the firing of petcoke as compared to coal, the Department finds it unlikely that the increased co-firing of petcoke will cause annual emissions to exceed the PSD thresholds of each pollutant beyond representative past emission rates. Accordingly, a BACT review is not required for these pollutants.

## 6.3 NITROGEN OXIDE (NO<sub>x</sub>)

Test results from other facilities indicate that NO<sub>x</sub> emissions are typically less for petcoke firing as compared to coal firing. The annual NO<sub>x</sub> emissions for these emission units averaged 26558.8 TPY and the Significant Emission Rate for NO<sub>x</sub> is 40 TPY. The Department accepts the premise that increased petcoke firing (and decreased coal firing) will not cause annual NO<sub>x</sub> emissions to increase, nor specifically to exceed an average of 26598.7 TPY per emission unit. Accordingly, a BACT review is not required.

## 6.4 SULFUR DIOXIDE (SO<sub>2</sub>) AND SULFURIC ACID MIST (SAM)

The past actual average emissions of SO<sub>2</sub> and SAM were 21718.8 and 1316.9 TPY respectively. The Significant Emission Rate (SER) is 40 TPY for SO<sub>2</sub> and 7 TPY for SAM. The Department accepts the applicant's proposal that SO<sub>2</sub> and SAM emissions can be maintained below the respective SER by additional scrubbing with the existing wet FGD. The applicant additionally proposes to reduce the SO<sub>2</sub> limit (while co-firing) below the existing permit limit, as an additional means of providing assurance to the Department that SO<sub>2</sub> (as well as SAM) emissions will not increase. The combination of additional scrubbing and a reduced emission limit is acceptable to the Department and should ensure that the annual emission levels of SO<sub>2</sub> and SAM do not exceed the PSD thresholds for each pollutant beyond representative past emission rates (21758.7 TPY SO<sub>2</sub> and 1323.8 TPY SAM). In addition to this, the Department will place a limit on the throughput of petcoke at 30% on a heat input basis. Accordingly, the SO<sub>2</sub> and SAM emission increases are considered insignificant for PSD purposes and BACT reviews are not required.

## 6.5 PARTICULATE MATTER (PM/PM<sub>10</sub>)

As indicated above, it is reasonable to assume that PM<sub>10</sub> and PM emissions will be lowered as a result of the ten-fold decrease in fuel ash. Accordingly, the annual PM/PM<sub>10</sub> emissions from the stack are likely to be maintained with no increase above the PSD significant emission rate of 25/15 tons/year.

With regard to ancillary (or fugitive) emissions, the applicant estimates that particulate matter emissions will be reduced. This is based upon the increased heat input value of petcoke as compared to coal, meaning that a reduction in the overall tons of fuel handled will occur. In summary, the average PM/PM<sub>10</sub> emissions from each emission unit are likely to remain less than the PSD thresholds for each pollutant and no PSD Review is required.

## 6.6 SUMMARY

A preliminary review supports the applicant's contention that PSD is not triggered, eliminating the requirement for a BACT review and related modeling. PSD regulations (under the provisions commonly known as the "WEPCO rule") allow a source undertaking a non-routine change that could affect emissions at an electric utility steam generating unit to lawfully avoid the major source permitting process by using the unit's representative actual annual emissions to calculate emissions following the change, if the source submits information for 5 years following the change to confirm its pre-change projection. Under the WEPCO rule, SJRPP must compute baseline actual emissions and must project the future actual emissions from the modified units for a period after the physical change. In addition, SJRPP must maintain and submit to the Department on an annual basis for a period of at least 5 years

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

from the date the units resume regular operation, information demonstrating that the change did not result in a significant emissions increase. If SJRPP fails to comply with the reporting requirements of the WEPCO rule or if the submitted information indicates that emissions have increased above PSD thresholds as a consequence of the change, it will be required to obtain a PSD permit for petcoke co-firing (meaning that a BACT Review would then be applicable). Finally, even though a PSD review is not triggered due to the co-firing project, SJRPP must meet all other applicable federal, state, and local air pollution requirements.

## 7. ADDITIONAL COMPLIANCE PROCEDURES (AVERAGE PER EMISSION UNIT)

Pollutant	Compliance Procedures
NO <sub>x</sub>	Five years of annual reporting by CEMS proving annual emissions do not exceed 26598.7 TPY
CO	Five years of annual reporting by stack test proving annual emissions do not exceed 1066 TPY
VOC	Five years of annual reporting by stack test proving annual emissions do not exceed 158.5 TPY
SO <sub>2</sub>	Five years of annual reporting by CEMS proving annual emissions do not exceed 21758.7 TPY
SAM	Five years of annual reporting by stack test proving annual emissions do not exceed 1323.8 TPY
PM <sub>10</sub>	Five years of annual reporting by stack test proving annual facility emissions do not exceed 89.2 TPY

Specific permit conditions shall further describe these limitations. The reporting procedures are to begin during the first calendar year in which petcoke is fired.

## 8. CONCLUSION

Based on the foregoing technical evaluation of the application, additional information submitted by the applicant and other available information, the Department has made a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations.

Michael P. Halpin, P.E. Review Engineer  
Department of Environmental Protection, Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

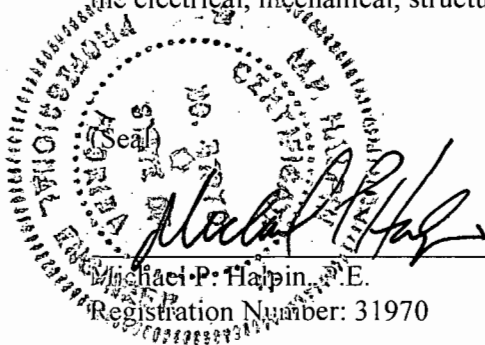
## P.E. Certification Statement

JEA  
SJRPP  
Duval County

DEP File No.: PSD-FL-010  
Facility ID No.: 0310045

**Project:** Petroleum Coke Increase -AC Permit Modification

**I HEREBY CERTIFY** that the engineering features described in the above referenced application and related additional information submittals, if any, and subject to the proposed permit conditions, provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).



Michael P. Harpin, P.E.  
Registration Number: 31970

3-3-05  
Date

Permitting Authority:  
Florida Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation  
North Permitting Section  
Mail Station #5505  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Telephone: 850/488-0114  
Fax: 850/922-6979



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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. James M. Chansler  
 V.P. Operations and Maintenance  
 JEA  
 St. Johns River Power Park  
 21 West Church Street  
 Jacksonville, Florida 32202

2. Article Number  
 (Transfer from service label)

7000 1670 0013 3109 9380

PS Form 3811, August 2001

Domestic Return Receipt

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**COMPLETE THIS SECTION ON DELIVERY**

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 X *J. Chansler*  Agent  Addressee

B. Received by (Printed Name) *J. Chansler* C. Date of Delivery *3/7/05*

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 V.P. Operations and Maintenance  
 JEA  
 St. Johns River Power Park  
 21 West Church Street  
 Jacksonville, Florida 32202

ENV013105



January 31, 2005

Ms. Trina L. Vielhauer, Chief Bureau of Air Regulation  
Bureau of Air Regulation  
Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, FL 32399

Attention: Mr. Mike Halpin, P.E., New Review Section

RE: JEA Northside Generating Station/St. Johns River Power Park (SJRPP)  
Title V Permit 0310045-008-AV; PSD-FL-10  
Request to Increase the Amount of Petroleum Coke Co-fired with Coal

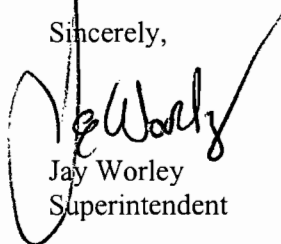
Dear Mr. Halpin:

SJRPP is currently authorized to co-fire up to 20 percent petroleum coke with coal. As discussed in our pre-application in July 2004, SJRPP is seeking authorization to co-fire up to 30 percent petroleum coke with coal. The proposed approach for increasing the amount of petroleum coke with coal is similar to the original approval by the Department to co-fire 20 percent petroleum coke with coal; we are requesting a minor modification that would not trigger review under the Department's Prevention of Significant Deterioration (PSD) regulations in Rule 62-212.400 F.A.C. In effect, the proposed increase in the amount of petroleum coke with coal will not result in an increase in annual emissions above the "past actual emissions" plus the significant emission rates, as provided for the Department's and EPA PSD regulations. The proposed approach is detailed in the attached air construction permit application. Four copies of the application have been enclosed.

In addition, as requested during the pre-application meeting, the application includes modeling of the SJRPP as well as other increment consuming and expanding sources to determine the impact to the Okefenokee PSD Class I Area. Please note that this request will not change any short-term emission rate currently authorized by the Department. Indeed, for SO<sub>2</sub> we are requesting an emission limit of 0.53 lb/MMBtu, which is lower than the 0.55 lb/MMBtu currently authorized for co-firing 20 percent petroleum coke with coal.

Please contact me at (904) 665-8729 if you have any questions.

Sincerely,



Jay Worley  
Superintendent

RECEIVED

FEB 02 2005

BUREAU OF AIR REGULATION

Enclosures

cc: Hamilton Oven, P.E., FDEP Siting Coordination Office  
Wayne Tutt, ERMD

**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**

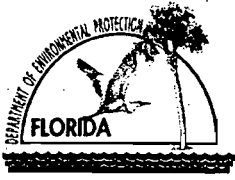
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2 Copies - Golder Associates Inc**

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

#### Application Contact

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

#### Application Processing Information (DEP Use)

1. Date of Receipt of Application:	<i>2-2-05</i>
2. Project Number(s):	<i>0310045-014-AE</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

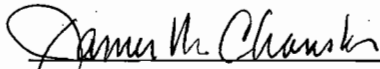
**Application Processing Fee**

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 : <b>James M. Chansler, V.P. Operations and Maintenance</b>
2. Owner/Authorized Representative Mailing Address... Organization/Firm: <b>JEA</b> Street Address: <b>21 West Church Street</b> City: <b>Jacksonville</b> State: <b>FL</b> Zip Code: <b>32202</b>
3. Owner/Authorized Representative Telephone Numbers... Telephone: <b>(904) 665-4433</b> ext. Fax: ( ) -
4. Owner/Authorized Representative Email Address: <b>chanjm@jea.com</b>
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 _____ Date <u>1/28/05</u>



# 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 23<sup>rd</sup> 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, the undersigned, hereby certify, except as particularly noted herein\*, that:*

(1) *To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and*


(2) *To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.*

(3) *If the purpose of this application is to obtain a Title V air operation permit (check here , if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.*

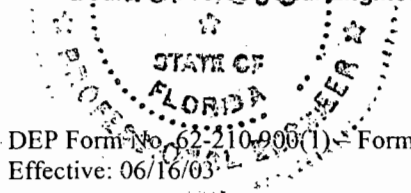
(4) *If the purpose of this application is to obtain an air construction permit (check here , if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here , if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.*

(5) *If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here , if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.*

*Kennard F. Kosky*  
 Signature \_\_\_\_\_ Date 1/20/05

(seal) 

\* 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 <b>17</b> East (km) <b>446.90</b> North (km) <b>3359.15</b>		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) <b>30/21/52</b> Longitude (DD/MM/SS) <b>81/37/25</b>	
3. Governmental Facility Code: <b>0</b>	4. Facility Status Code: <b>A</b>	5. Facility Major Group SIC Code: <b>49</b>	6. Facility SIC(s): <b>4911</b>
7. Facility Comment : <b>The facility includes the JEA Northside Generating Station and SJRPP.</b>			

**Facility Contact**

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

**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:  <b>SJRPP Units 1 and 2 are subject to 40 CFR Part 60 Subpart Da</b>	

# FACILITY INFORMATION

## List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
PM/PM <sub>10</sub>	A	N
SO <sub>2</sub>	A	N
NO <sub>x</sub>	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: <b>6/20/2003</b>
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: <b>6/20/2003</b>
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: <b>6/20/2003</b>

#### 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: <b>Part II</b>
3. Rule Applicability Analysis: <input checked="" type="checkbox"/> Attached, Document ID: <b>Part II</b>
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.):  
 Attached, Document ID: \_\_\_\_\_  Not Applicable (no exempt units at facility)

### Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities (Required for initial/renewal applications only):  
 Attached, Document ID: \_\_\_\_\_  Not Applicable (revision application)
2. Identification of Applicable Requirements (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought):  
 Attached, Document ID: \_\_\_\_\_  
 Not Applicable (revision application with no change in applicable requirements)
3. Compliance Report and Plan (Required for all initial/revision/renewal applications):  
 Attached, Document ID: \_\_\_\_\_  
Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.
4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only):  
 Attached, Document ID: \_\_\_\_\_  
 Equipment/Activities On site but Not Required to be Individually Listed  
 Not Applicable
5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only):  
 Attached, Document ID: \_\_\_\_\_  Not Applicable
6. Requested Changes to Current Title V Air Operation Permit:  
 Attached, Document ID: \_\_\_\_\_  Not Applicable

### 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: <b>A</b>	5. Commence Construction Date:	6. Initial Startup Date: <b>12/86</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>	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<sub>x</sub> 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: <b>6,144</b> million Btu/hr		
4. Maximum Incineration Rate:	pounds/hr	
	tons/day	
5. Requested Maximum Operating Schedule:		
	<b>24</b> hours/day	<b>7</b> days/week
	<b>52</b> weeks/year	<b>8,760</b> hours/year
6. Operating Capacity/Schedule Comment:		

**EMISSIONS UNIT INFORMATION**Section [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: <b>NA</b>		2. Emission Point Type Code: <b>V</b>	
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:  <b>There are no changes in the emission point information as a result of this application.</b>			

**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 INFORMATION**

Section [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 <sub>2</sub>	039		EL
NO <sub>x</sub>	025		EL
CO			NS
VOC			NS
SAM			NS

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

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

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: <b>PM</b>	2. Total Percent Efficiency of Control: <b>99+%</b>
3. Potential Emissions: <b>184.32 lb/hour                      321.7 tons/year</b>	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: <b>0.03 lb/MMBtu</b>  Reference: <b>Permit 0310045-011-AV. Condition D6</b>	7. Emissions Method Code: <b>0</b>
8. Calculation of Emissions:  <b>Potential Emissions = 0.03 lb/MMBtu x 6,144 MMBtu/hr = 184.32</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on actual emissions for 2002-2001. See Part II</b>	



**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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.03 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>184.32 lb/hour      321.7 tons/year</b>
5. Method of Compliance: <b>EPA Method 5B; 40 CFR 52.21(b)21(v) and (b)33; See Part II</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>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.</b>	

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

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

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

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

**EMISSIONS UNIT INFORMATION**

Section [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: <b>SO<sub>2</sub></b>		2. Total Percent Efficiency of Control: <b>70+%</b>	
3. Potential Emissions: <b>3,263.8 lb/hour    21,718.8 tons/year</b>		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: <b>0.53 lb/MMBtu</b>  Reference: <b>Proposed for 30% Pet Coke co-fired with coal</b>		7. Emissions Method Code: <b>0</b>	
8. Calculation of Emissions:  <b>Potential Emissions = 0.53 lb/MMBtu x 6,144 MMBtu/hr = 3,263.8 lb/hr</b>			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on actual emissions for 2002-2001. See Part II</b>			

**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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.53 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>3,263.82 lb/hour 21,718 tons/year</b>
5. Method of Compliance: <b>CEMS; 40 CFR 52.21(b)21(v) and (b)33; Annual Operating Reports; See Part II</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>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.</b>	

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

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

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

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

**EMISSIONS UNIT INFORMATION**

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

**POLLUTANT DETAIL INFORMATION**

Page [3] of [6]  
 Nitrogen Oxides

**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: <b>NO<sub>x</sub></b>		2. Total Percent Efficiency of Control: <b>65+%</b>	
3. Potential Emissions: <b>3,686.4 lb/hour    26,558.8 tons/year</b>		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: <b>0.6 lb/MMBtu</b>  Reference: <b>Permit 0310045-011-AV. Condition D15</b>		7. Emissions Method Code: <b>0</b>	
8. Calculation of Emissions:  <b>Potential Emissions = 0.6 lb/MMBtu x 6,144 MMBtu/hr = 3,686.4 lb/hr</b>			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on actual emissions for 2002-2001. See Part II</b>			

**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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.6 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>3,686.4 lb/hour 26,558.8 tons/year</b>
5. Method of Compliance: <b>CEMS; 40 CFR 52.21(b)21(v) and (b)33; Annual Operating Reports; See Part II</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>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.</b>	

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

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

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

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

**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: <b>CO</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour <b>966.1</b> 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: <b>0</b>	
8. Calculation of Emissions:			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on actual emissions for 2002-2001. See Part II</b>			

**EMISSIONS UNIT INFORMATION**

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

**POLLUTANT DETAIL INFORMATION**

Page [4] of [6]  
 Carbon Monoxide

**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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>966.1 tons/yr</b>	4. Equivalent Allowable Emissions: lb/hour <b>966.1 tons/year</b>
5. Method of Compliance: <b>40 CFR 52.21(b)21(v) and (b)33; Annual Operating Reports; See Part II</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>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.</b>	

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

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

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

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

**EMISSIONS UNIT INFORMATION**

Section [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: <b>VOC</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour <b>113.5</b> 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: <b>0</b>	
8. Calculation of Emissions:			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on actual emissions for 2002-2001. See Part II</b>			



**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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>113.6 tons/year</b>	4. Equivalent Allowable Emissions: lb/hour <b>113.5 tons/year</b>
5. Method of Compliance: <b>40 CFR 52.21(b)21(v) and (b)33; Annual Operating Reports; See Part II</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>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.</b>	

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

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

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

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

**EMISSIONS UNIT INFORMATION**

Section [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: <b>SAM</b>		2. Total Percent Efficiency of Control: <b>30+%</b>	
3. Potential Emissions: lb/hour <b>1,316.7 tons/year</b>		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: <b>0</b>	
8. Calculation of Emissions:			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on actual emissions for 2002-2001. See Part II</b>			

**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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>1,316.9 tons/yr</b>	4. Equivalent Allowable Emissions: lb/hour <b>1,316.9 tons/year</b>
5. Method of Compliance: <b>40 CFR 52.21(b)21(v) and (b)33; Annual Operating Reports; See Part II</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>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.</b>	

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

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

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

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

**EMISSIONS UNIT INFORMATION**

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

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

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

**EMISSIONS UNIT INFORMATION**

Section [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 <b>6/20/2003</b>
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 <b>6/20/2003</b>
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 <b>6/20/2003</b>
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: <b>Part II</b> <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

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## 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 (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and sulfuric acid mist (SAM) to the representative actual annual emissions. This was done by limiting emissions as revised SO<sub>2</sub> 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 SO<sub>2</sub>, 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 SO<sub>2</sub> 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 SO<sub>2</sub> 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 SO<sub>2</sub> 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 SO<sub>2</sub> emissions rate when co-firing petroleum coke and coal shall not exceed 0.676 lb/MMBtu heat input.
- e. Compliance with the SO<sub>2</sub> 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 SO<sub>2</sub> limit for co-firing petroleum coke with coal was based on limiting the SO<sub>2</sub> 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 SO<sub>2</sub> emission limits depending on the amount of sulfur in the coal. However, the SO<sub>2</sub> 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<sub>x</sub>, 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<sub>x</sub>, 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<sub>x</sub>, 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<sub>x</sub>, CO, SO<sub>2</sub>, PM, PM<sub>10</sub>, 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 SO<sub>2</sub> 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 SO<sub>2</sub> emission rate of



0.4 lb/MMBtu that was established using data for the last several years when only coal was fired. This SO<sub>2</sub> 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 SO<sub>2</sub> emission rate. The calculations of the 0.55 lb/MMBtu SO<sub>2</sub> emissions limit and minimum 76 percent SO<sub>2</sub> removal efficiency for using up to 2 percent sulfur coal is presented in Table 2-4. Note that these revised SO<sub>2</sub> emission limits were lower than the NSPS (0.6 lb/MMBtu and a minimum of 70 percent SO<sub>2</sub> 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 SO<sub>2</sub> emission limit of 0.53 lb/MMBtu and a minimum SO<sub>2</sub> removal of 79 percent. For coals with a sulfur content of greater than 2 percent, the current conditions would limit SO<sub>2</sub> 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 SO<sub>2</sub> 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 <sub>x</sub>	12,140.0	12,842.0	24,982.0
	CO	454.9	492.9	947.7
	SO <sub>2</sub>	9,990.0	11,123.2	21,113.2
	VOC	55.6	60.4	116.0
	PM	70.5	74.8	145.3
	PM <sub>10</sub>	69.3	74.4	143.7
	SAM	635.2	662.0	1,297.3
2002	NO <sub>x</sub>	14,788.5	11,950.0	26,738.5
	CO	503.1	459.0	962.1
	SO <sub>2</sub>	10,987.0	9,915.2	20,902.2
	VOC	61.8	56.4	118.2
	PM	170.3	155.9	326.2
	PM <sub>10</sub>	39.5	36.1	75.6
	SAM	704.8	618.1	1,322.9
2001	NO <sub>x</sub>	13,683.9	12,695.2	26,379.1
	CO	468.7	501.5	970.2
	SO <sub>2</sub>	11,609.2	10,926.2	22,535.4
	VOC	47.4	61.5	108.9
	PM	154.1	163.2	317.3
	PM <sub>10</sub>	35.4	37.5	73.0
	SAM	632.9	678.2	1,311.0
2000	NO <sub>x</sub>	13,066.0	11,980.0	25,046.0
	CO	492.2	460.3	952.4
	SO <sub>2</sub>	11,278.0	10,300.0	21,578.0
	VOC	60.1	56.1	116.2
	PM	159.2	149.8	309.0
	PM <sub>10</sub>	36.6	34.5	71.1
	SAM	872.0	697.0	1,569.0
1999	NO <sub>x</sub>	12,601.0	13,053.0	25,654.0
	CO	447.3	490.4	937.7
	SO <sub>2</sub>	12,034.0	12,453.0	24,487.0
	VOC	35.6	39.1	74.7
	PM	135.4	146.6	281.9
	PM <sub>10</sub>	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)
NOx	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 <sub>2</sub>	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 <sub>10</sub>	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 SO<sub>2</sub> 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 SO<sub>2</sub> 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.

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

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

### 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 SO<sub>2</sub>, PM, NO<sub>x</sub>, 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 SO<sub>2</sub> and NO<sub>x</sub> 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 SO<sub>2</sub>, SJRPP proposes emission rates that are lower than the currently authorized limits. The proposed SO<sub>2</sub> 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 SO<sub>2</sub> 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 SO<sub>2</sub> 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 SO<sub>2</sub> 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 SO<sub>2</sub> emissions rate when co-firing petroleum coke and coal shall not exceed 0.676 lb/MMBtu heat input.



- e. Compliance with the SO<sub>2</sub> 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 SO<sub>2</sub> 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 PM<sub>10</sub>, SO<sub>2</sub>, and NO<sub>2</sub>, 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. SO<sub>2</sub> concentrations were predicted at 161 discrete receptors located in the Okefenokee NWA Class I area.

The maximum SO<sub>2</sub> emissions for the SJRPP were based on 0.76 lb SO<sub>2</sub>/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 SO<sub>2</sub>/MMBtu as a maximum 2-hour average. From the CEM data, the highest SO<sub>2</sub> emissions in lb/hr were determined for the 3- and 24-hour averaging periods, and excluded periods when the SO<sub>2</sub> scrubber was inoperative, which were upset conditions, and during startup conditions. Based on this analysis, the maximum actual SO<sub>2</sub> 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 SO<sub>2</sub>/MMBtu, respectively. The modeled SO<sub>2</sub> emission rate of 0.76 lb SO<sub>2</sub>/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 SO<sub>2</sub> 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 SO<sub>2</sub> emissions in lb/hr were determined for the 3- and 24-hour averaging periods, and excluded periods when the SO<sub>2</sub> scrubber was inoperative, which were upset conditions. Based on this analysis, the maximum actual SO<sub>2</sub> 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 SO<sub>2</sub> 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

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**CALPUFF Model Features**

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- 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 SO<sub>2</sub>, SO<sub>4</sub>, HNO<sub>3</sub>, and NO<sub>3</sub>; Pseudo-first-order chemical mechanisms for SO<sub>2</sub>, SO<sub>4</sub>, NO, NO<sub>2</sub>, HNO<sub>3</sub>, and NO<sub>3</sub> (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)

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Note: CALPUFF = California Puff Model

Source: EPA, 2003.

Table 4-2. Summary of SO<sub>2</sub> Sources Included in the PSD Class I Air Modeling Analyses  
at the Okefenokee NWA

Facility	UTM Coordinates		Emission	PSD <sup>b</sup>
	East (km)	North (km)	Rate <sup>a</sup> (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.

<sup>a</sup> Based on 24-hour average emission rate.

<sup>b</sup> 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 SO<sub>2</sub> 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 * 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 <sup>c</sup>	17,212.7	2,168.8 <sup>b</sup>	17,212.7	2,168.8 <sup>b</sup>	NA
	CSEMELEC24											9,850.0	1,241.1 <sup>b</sup>	12,400	1,562.4 <sup>b</sup>	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 <sup>d</sup>	1,549.2	195.2 <sup>d</sup>	C
												925.4	116.6 <sup>d</sup>	925.4	116.6 <sup>d</sup>	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 <sup>e</sup>	7,379.3	929.8 <sup>e</sup>	NA
	CRIVER2			640	195.1	22.3	6.79	156	342	90	27.40	7,379.3	929.8 <sup>e</sup>	7,379.3	929.8 <sup>e</sup>	NA
	CRIVER1			640	195.1	22.3	6.79	156	342	90	27.40	4,669.4	588.3 <sup>f</sup>	4,669.4	588.3 <sup>f</sup>	C
	CRIVER2			640	195.1	22.3	6.79	156	342	90	27.40	4,669.4	588.3 <sup>f</sup>	4,669.4	588.3 <sup>f</sup>	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 SO<sub>2</sub> 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 <sup>1</sup> 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 SO<sub>2</sub> 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 <sup>a</sup> 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
	JEASSB			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
	DAPZZTR			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

<sup>a</sup> 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.

<sup>b</sup> 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.<sup>c</sup> Stack temperature and velocity were obtained from stack tests performed in April 2003 and provided by SECI.<sup>d</sup> 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.

<sup>e</sup> Maximum allowable emissions for each unit based on 1.2 lb/MMBtu and maximum heat input rate of 6144 MMBtu/hr. For one unit, SO<sub>2</sub> emissions are 7,372.8 lb/hr.<sup>f</sup> 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 SO<sub>2</sub> Impacts For Comparison to the PSD Class 1 Increments at the Okefenokee and Chassahowitzka NWAs (Maximum Actual Emissions- SECI, FPL Putnam, SJRPP)

Averaging Time	Rank	Concentration <sup>a,b</sup> (µg/m <sup>3</sup> )	Receptor UTM Location (km)		Time Period <sup>c</sup> YYMMYYHH	PSD Class 1 Increment (µg/m <sup>3</sup> )
			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

<sup>a</sup> Concentrations were predicted using the following emissions:

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

<sup>b</sup> 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.

<sup>c</sup> 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<sup>a</sup>

<b>Model Input/Output</b>	<b>Description</b>
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"> <li>1. CALPUFF with default dispersion settings.</li> <li>2. Use MESOPUFF II chemistry with wet and dry deposition.</li> <li>3. Define background values for ozone and ammonia for area.</li> </ol>
Processing	<ol style="list-style-type: none"> <li>1. For PSD increments: use highest, second highest 3-hour and 24-hour average SO<sub>2</sub> concentrations; highest, second highest 24-hour average PM<sub>10</sub> concentrations; and highest annual average SO<sub>2</sub>, PM<sub>10</sub> and NO<sub>x</sub> concentrations.</li> <li>2. For haze: process, on a 24-hour basis, compute the source extinction from the maximum increase in emissions of SO<sub>2</sub>, NO<sub>x</sub> and PM<sub>10</sub>; 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.</li> <li>3. For significant impact analysis: use highest annual and highest short-term averaging time concentrations for SO<sub>2</sub>, PM<sub>10</sub>, and NO<sub>x</sub>.</li> </ol>

<sup>a</sup> IWAQM Phase II report (December, 1998) and FLAG document (December, 2000)

Table A-2. CALPUFF Model Settings

<b>Parameter</b>	<b>Setting</b>
Pollutant Species	SO <sub>2</sub> , SO <sub>4</sub> , NO <sub>x</sub> , HNO <sub>3</sub> , NO <sub>3</sub> , PM <sub>10</sub>
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 <sub>4</sub> , NO <sub>3</sub> , PM <sub>10</sub> , SO <sub>2</sub> , and NO <sub>x</sub> ; 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 <sub>2</sub> , NO <sub>x</sub> , and PM <sub>10</sub> .
Background Values	Ozone: 50 ppb; Ammonia: 1 ppb

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

<b>Parameter</b>	<b>Setting</b>
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	
<b><u>Surface Stations</u></b>						
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 <sup>a</sup>	3363.99	16	7.6
Columbus, GA	COL	93842	112.57 <sup>a</sup>	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 <sup>a</sup>	3725.04	16	6.1
<b><u>Sea Surface Stations</u></b>						
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
<b><u>Upper Air Stations</u></b>						
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 <sup>a</sup>	3290.65	16	NA
Tallahassee, FL	TLH	93805	173.04 <sup>2</sup>	3363.99	17	NA
Jacksonville, FL	JAX	13889	459.61	3351.92	17	NA
Peachtree, GA	FFC	53819	188.65 <sup>2</sup>	3679.35	16	na

<sup>a</sup> 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
<b>Florida</b>				
Branford	80975	315.61	3315.96	17
Bristol	81020	113.72 <sup>a</sup>	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 <sup>a</sup>	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 <sup>a</sup>	3363.99	16
Woodruff Dam	89795	124.29 <sup>a</sup>	3399.94	16
<b>Georgia</b>				
Abbeville 4 S	90010	281.84	3535.69	17
Bainbridge Intl Paper Co	90586	144.85 <sup>a</sup>	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 <sup>a</sup>	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

<sup>a</sup> Equivalent coordinate for Zone 17.

**APPENDIX B**

**EMISSIONS TABLES**

Table B-1. SO<sub>2</sub> 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)

<u>Total Units 1 &amp; 2</u> <u>SO<sub>2</sub> Emissions (lb/hr)</u>			
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 SO<sub>2</sub> 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 <sub>2</sub> Emissions (lbs)					SO <sub>2</sub> Emissions (lbs)					SO <sub>2</sub> Emissions (lbs)		
		Heat Input (MMBtu)	SO <sub>2</sub> (lbs)	SO <sub>2</sub> (lb/MMBtu)	Skip	1-Hr	3-Hr	Heat Input (MMBtu)	SO <sub>2</sub> (lbs)	SO <sub>2</sub> (lb/MMBtu)	Skip	1-Hr	3-Hr	1-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	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	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	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	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	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	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	8173.90	6620.80	0.81		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	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	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	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	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	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	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	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	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. SO<sub>2</sub> 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)

Date	Hour Ending	Total Units 1 & 2 SO <sub>2</sub> Emissions (lb/hr)	
		24-Hr	
8/16/2001	23	17,026.91	Suspect
9/12/2001	23	<u>12,624.85</u>	<u>Suspect</u>
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 SO<sub>2</sub> 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		
		SO <sub>2</sub> Emissions (lbs)							SO <sub>2</sub> Emissions (lbs)							SO <sub>2</sub> Emissions (lbs)		
		Heat Input (MMBtu)	SO <sub>2</sub> (lbs)	SO <sub>2</sub> (lb/MMBTU)	Skip	1-Hr	3-Hr	24-Hr	Heat Input (MMBtu)	SO <sub>2</sub> (lbs)	SO <sub>2</sub> (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		6989.90	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		3292.30		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	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. SO<sub>2</sub> 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. SO<sub>2</sub> 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. SO<sub>2</sub> 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. SO<sub>2</sub> 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.		3-hr ave			Date	Hr	Rpt.		3-hr ave			Date	Hr	Rpt.		3-hr ave		
		(mmBtu)	(lbs)	lb/MMBtu	lb/hr	lb/Mmbtu			(mmBtu)	(lbs)	lb/MMBtu	lb/hr	lb/Mmbtu			(mmBtu)	(lbs)	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

Table 4-3. Inventory of SO<sub>2</sub> 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 * 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 <sup>e</sup>	17,212.7	2,168.8 <sup>b</sup>	17,212.7	2,168.8 <sup>b</sup>	NA
	CSEMELEC24											9,850.0	1,241.1 <sup>b</sup>	12,400	1,562.4 <sup>b</sup>	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 <sup>d</sup>	1,549.2	195.2 <sup>d</sup>	C
												925.4	116.6 <sup>d</sup>	925.4	116.6 <sup>d</sup>	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 - Nonhside 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 <sup>e</sup>	7,379.3	929.8 <sup>e</sup>	NA
	CRIVER2			640	195.1	22.3	6.79	156	342	90	27.40	7,379.3	929.8 <sup>e</sup>	7,379.3	929.8 <sup>e</sup>	NA
	CRIVER1			640	195.1	22.3	6.79	156	342	90	27.40	4,669.4	588.3 <sup>f</sup>	4,669.4	588.3 <sup>f</sup>	C
	CRIVER2			640	195.1	22.3	6.79	156	342	90	27.40	4,669.4	588.3 <sup>f</sup>	4,669.4	588.3 <sup>f</sup>	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 SO<sub>2</sub> 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 * 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 SO<sub>2</sub> 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 * 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	
	JEASSB			145.0	44.2	9.7	2.96	287	415	69.9	21.3	-825.4	-104.0	-825.4	-104.0	E	
	JEASSA			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

\* 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.

<sup>b</sup> 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.

<sup>c</sup> Stack temperature and velocity were obtained from stack tests performed in April 2003 and provided by SECI.

<sup>d</sup> 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.

<sup>e</sup> Maximum allowable emissions for each unit based on 1.2 lb/MMBtu and maximum heat input rate of 6144 MMBtu/hr. For one unit, SO<sub>2</sub> emissions are 7,372.8 lb/hr.

<sup>f</sup> 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 B-2. Average Hourly SO<sub>2</sub> 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	
		Heat Input (MMBtu)	SO <sub>2</sub> Emissions (lbs)			Heat Input (MMBtu)	SO <sub>2</sub> Emissions (lbs)			SO <sub>2</sub> Emissions (lbs)			
			SO <sub>2</sub> (lb/MMBtu)	Skip	1-Hr		3-Hr	SO <sub>2</sub> (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	7589.40	5920.40	0.78		5920.40	5853.20	8736.30
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	7223.50	20836.50	2.88 *			5829.40	23599.30
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	7710.50	5811.20	0.75		5811.20	6024.20	5953.50
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	7599.10	7630.10	1.00		7630.10	8176.60	9198.90
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	6717.90	29267.80	4.36 *				32766.30
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	7430.10	34799.10	4.68 *				38952.50
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	8173.90	6620.80	0.81		6620.80	6620.80	11371.30
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	7483.00	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	8108.80	3331.00	0.41		3331.00	3560.90	7846.90
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	7024.50	6341.70	0.90		6341.70	4281.57	10718.60
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	6755.40	4493.00	0.67		4493.00	4493.00	8463.50
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	6230.70	2884.00	0.46		2884.00	4892.27	5989.80
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	7247.30	4919.10	0.68		4919.10	5049.60	9336.70
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	6853.20	26872.60	3.92 *				33058.00
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	6084.40	8182.70	1.34		8182.70	8182.70	12478.90
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	5453.60	1714.10	0.31		1714.10	1906.50	4216.30

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-4. Average Hourly SO<sub>2</sub> 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		
		SO <sub>2</sub> Emissions (lbs)							SO <sub>2</sub> Emissions (lbs)							SO <sub>2</sub> Emissions (lbs)		
		Heat Input (MMBtu)	SO <sub>2</sub> (lbs)	(lb/MMBTU)	Skip	1-Hr	3-Hr	24-Hr	Heat Input (MMBtu)	SO <sub>2</sub> (lbs)	(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	5061.70	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		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		3292.30			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			6908.80			
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	3822.06	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-8. SO<sub>2</sub> 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. SO <sub>2</sub>		3-hr ave		Date	Hr	Rpt. SO <sub>2</sub>		3-hr ave		Date	Hr	Rpt. SO <sub>2</sub>		3-hr ave			
		(mmBtu)	(lbs)	lb/MMBtu	lb/hr			lb/Mmbtu	(mmBtu)	(lbs)	lb/MMBtu			lb/hr	lb/Mmbtu	(mmBtu)	(lbs)	lb/MMBtu	lb/hr
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
2/14/2003	6	<b>6054.1</b>	<b>2356.2</b>	<b>0.39</b>			2/14/2003	6	<b>6483.9</b>	<b>9110.5</b>	<b>1.405</b>			2/14/2003	6	<b>12538.0</b>	<b>11466.7</b>	<b>0.915</b>	
2/14/2003	7	<b>6425.9</b>	<b>2391.3</b>	<b>0.37</b>			2/14/2003	7	<b>8575.6</b>	<b>20517.5</b>	<b>2.393</b>			2/14/2003	7	<b>15001.5</b>	<b>22908.8</b>	<b>1.527</b>	
2/14/2003	8	<b>6641.4</b>	<b>2469.9</b>	<b>0.37</b>	<b>2405.8</b>	<b>0.378</b>	2/14/2003	8	<b>4461.6</b>	<b>7132.9</b>	<b>1.599</b>	<b>12253.6</b>	<b>1.799</b>	2/14/2003	8	<b>11103.0</b>	<b>9602.8</b>	<b>0.865</b>	<b>14659.4</b>
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
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
4/20/2003	21	<b>6422.7</b>	<b>2213.3</b>	<b>0.34</b>			4/20/2003	21	1971.9	4776.4	2.42			4/20/2003	21	<b>8394.6</b>	<b>6989.7</b>	<b>0.83</b>	
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	<b>6339.1</b>	<b>2482.9</b>	<b>0.39</b>	<b>2317.4</b>	<b>0.36</b>	4/20/2003	23	2563.4	5105.4	1.99	<b>5302.1</b>	<b>2.33</b>	4/20/2003	23	<b>8902.5</b>	<b>7588.3</b>	<b>0.85</b>	<b>7619.5</b>
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

Note: Suspect Periods

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

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STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DEP File No. 0310045-014-AC  
JEA - St. Johns River Power Park  
Increase in amount of petroleum coke firing  
Duval County

THE FLORIDIA TIMES-UNION Jacksonville, Fl  
Affidavit of Publication

BUREAU OF AIR REGULATION  
Florida Times-Union

The Department of Environmental Protection (Department) gives notice of its intent to issue an Air Construction permit JEA. The permit is to allow for an increase in the firing of petroleum coke (petcoke) from 20% to 30% by weight at the existing St. Johns River Power Park, located in Jacksonville, Duval County. The application and permit are structured in such a way to ensure that no significant increase in the emission of regulated air pollutants will occur.

A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21 as no significant increase in emissions will occur. An air quality impact analysis was not required nor conducted. The applicant's name and address are JEA, 21 West Church Street, Jacksonville, FL 32202.

The Department will issue the FINAL permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the Administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32301 Telephone: (850) 488-0114 Fax: (850) 922-6979	Dept. of Environmental Protection Northeast District Office 7825 Baymeadows Way, Suite 200B Jacksonville, Florida 32256-7590 Telephone: (904) 448-4300 Fax: (904) 448-4366
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The complete project file includes the application, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, North Permitting Section at 111 South Magnolia Drive, Suite, 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

J.E.A./ENVIRONMENTAL  
ATTN: KASEY CLEGHORN  
21 W CHURCH ST T-8  
JACKSONVILLE FL 32202

REFERENCE: 0334984  
R085611 Public

State of Florida  
County of Duval

Before the undersigned authority personally appeared Kimalete Frazier who on oath says she is a Legal Advertising Representative of The Florida Times-Union, a daily newspaper published in Jacksonville in Duval County, Florida; that the attached copy of advertisement is a legal ad published in The Florida Times-Union. Affiant further says that The Florida Times-Union is a newspaper published in Jacksonville, in Duval County, Florida, and that the newspaper has heretofore been continuously published in Duval County, Florida each day, has been entered as second class mail matter at the post office in Jacksonville, in Duval County, Florida for a period of one year preceeding the first publication of the attached copy of advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission, or refund for the purpose of securing this advertisement for publication in said newspaper.

PUBLISHED ON: 03/14

FILED ON: 03/15/05

Name: Kimalete Frazier Title: Legal Advertising Represent  
In testimony whereof, I have hereunto set my hand and affixed  
seal, the day and year aforesaid.

NOTARY: *Twillia Shipp*



**TWILLIA SHIPP**  
Notary Public, State of Florida  
My comm. expires May 13, 2006  
Comm. No. DD 117248

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. James M. Chansler  
 V.P. Operations and Maintenance  
 JEA  
 St. Johns River Power Park  
 21 West Church Street  
 Jacksonville, Florida 32202

2. Article Number  
 (Transfer from service label)

7000 1670 0013 3109 9380

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  Agent  Addressee  
*J. Chansler*

B. Received by (Printed Name) *J. Chansler* C. Date of Delivery *3/7/05*

D. Is delivery address different from item 1?  Yes  No  
 If YES, enter delivery address below:

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

**U.S. Postal Service  
 CERTIFIED MAIL RECEIPT  
 (Domestic Mail Only; No Insurance Coverage Provided)**

**OFFICIAL USE**

9380 3109 0013 1670 7000

Postage	\$	
Certified Fee		
Return Receipt Fee (Endorsement Required)		
Restricted Delivery Fee (Endorsement Required)		

Postmark  
 Here

Mr. James M. Chansler  
 V.P. Operations and Maintenance  
 JEA  
 St. Johns River Power Park  
 21 West Church Street  
 Jacksonville, Florida 32202

Table 4-3. Inventory of SO<sub>2</sub> 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 <sup>a</sup> 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, CSEMELEC24	438.8	3289.2	674.7	205.7	36.0	11.0	126	325	33.6	10.2 <sup>c</sup>	17,212.7	2,168.8 <sup>b</sup>	17,212.7	2,168.8 <sup>b</sup>	NA
														9,850.0	1,241.1 <sup>b</sup>	12,400
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 <sup>d</sup>	1,549.2	195.2 <sup>d</sup>	C
														925.4	116.6 <sup>d</sup>	925.4
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 S2_NG S3_NG SFP	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
				189.9	57.91	18.0	5.49	204	369	61.4	18.71	1.19	0.2	1.19	0.2	C
				189.9	57.91	18.0	5.49	265	403	69.8	21.28	98.2	12.4	98.2	12.4	C
				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 CJEAN2 CJEAN3 EJEAN1 EJEAN2	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
				495	151.0	15.0	4.57	136	331	63	19.20	553.3	69.7	553.3	69.7	C
				75.1	22.9	3.4	1.04	165	347	50.0	15.24	0.28	0.04	0.3	0.035	C
				250	76.2	16.0	4.87	266	403	76	23.10	-5,484.1	-691.0	-5,484.1	-691.0	E
				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 CRIVER2 CRIVER1 CRIVER2	447.1	3366.7	640	195.1	22.3	6.79	156	342	90	27.40	7,379.3	929.8 <sup>e</sup>	7,379.3	929.8 <sup>e</sup>	NA
				640	195.1	22.3	6.79	156	342	90	27.40	7,379.3	929.8 <sup>e</sup>	7,379.3	929.8 <sup>e</sup>	NA
				640	195.1	22.3	6.79	156	342	90	27.40	4,669.4	588.3 <sup>f</sup>	4,669.4	588.3 <sup>f</sup>	C
				640	195.1	22.3	6.79	156	342	90	27.40	4,669.4	588.3 <sup>f</sup>	4,669.4	588.3 <sup>f</sup>	C
Anheiser Busch, Inc	CBUSH1 CBUSH2	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
				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 CCBAY2 CCBAY3 CCBAY4 CCBAY5	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
				403.1	122.9	13.4	4.10	129	327	120.0	36.60	255.3	32.2	255.3	32.2	C
				403.1	122.9	13.4	4.10	129	327	120.0	36.60	255.3	32.2	255.3	32.2	C
				63.0	19.2	4.3	1.30	82	301	93.2	28.40	0.24	0.030	0.24	0.030	C
				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 CPAPER2 CPAPER3 CPAPER4 CPAPER5 EPAPER1 EPAPER2 EPAPER3 EPAPER4 EPAPER5	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
				150	45.7	10.2	3.10	127	326	26	7.80	704.9	88.8	704.9	88.8	C
				180	54.9	6.9	2.10	305	425	55	16.80	120.6	15.2	120.6	15.2	C
				250	76.2	8.5	2.60	280	411	40	12.20	125.5	15.8	125.5	15.8	C
				100	30.5	4.9	1.50	170	350	38	11.60	16.9	2.1	16.9	2.1	C
				275	83.8	14.1	4.30	350	450	24	7.30	-2,230.2	-281.0	-2,230.2	-281.0	E
				120	36.6	5.9	1.80	800	700	66	20.00	-476.2	-60.0	-476.2	-60.0	E
				155	47.2	7.5	2.30	307	426	43	13.10	-60.3	-7.6	-60.3	-7.6	E
				175	53.3	5.2	1.60	250	394	83	25.20	-60.3	-7.6	-60.3	-7.6	E
				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 CMILL2 CMILL3 EMILL1 EMILL2 EMILL3	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
				200.1	61.0	9.8	3.00	143	335	35.1	10.70	203.6	25.7	203.6	25.7	C
				209.9	64.0	4.6	1.40	163	346	36.1	11.00	10.4	1.3	10.4	1.3	C
				175.2	53.4	10.5	3.20	278	410	75.1	22.90	-133.3	-16.8	-133.3	-16.8	E
				51.8	15.8	4.9	1.50	165	347	22.0	6.70	-7.8	-1.0	-7.8	-1.0	E
				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 SO<sub>2</sub> 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 <sup>a</sup> 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	C
	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	

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Facility	Model ID Name	UTM Coordinates		Stack Parameters								Emission Rate				PSD <sup>a</sup> 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

<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> Stack temperature and velocity were obtained from stack tests performed in April 2003 and provided by SECI.

<sup>d</sup> 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.

<sup>e</sup> Maximum allowable emissions for each unit based on 1.2 lb/MMBtu and maximum heat input rate of 6144 MMBtu/hr. For one unit, SO<sub>2</sub> emissions are 7,372.8 lb/hr.

<sup>f</sup> 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 B-2. Average Hourly SO<sub>2</sub> 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			
		Heat Input (MMBtu)	SO <sub>2</sub> Emissions (lbs)			Heat Input (MMBtu)	SO <sub>2</sub> Emissions (lbs)			1-Hr	3-Hr				
			SO <sub>2</sub> (lb/MMBtu)	Skip	1-Hr		3-Hr	SO <sub>2</sub> (lb/MMBtu)	Skip			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-4. Average Hourly SO<sub>2</sub> 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 <sub>2</sub> Emissions (lbs)			Skip	Heat Input (MMBtu)	SO <sub>2</sub> Emissions (lbs)			Skip	SO <sub>2</sub> Emissions (lbs)						
			SO <sub>2</sub> (lb/MMBTU)	1-Hr	3-Hr			24-Hr	SO <sub>2</sub> (lb/MMBTU)	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	4228.63	7669.90	4575.30	0.60		4575.30	4879.07	5061.70	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		3292.30			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	4125.62	7531.70	1729.40	0.23		1729.40	1839.20	3822.06	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	3892.35	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-8. SO<sub>2</sub> 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.		3-hr ave			Date	Hr	Rpt.		3-hr ave			Date	Hr	Rpt.		3-hr ave		
		(mmBtu)	(lbs)	lb/MMBtu	lb/hr	lb/Mmbtu			(mmBtu)	(lbs)	lb/MMBtu	lb/hr	lb/Mmbtu			(mmBtu)	(lbs)	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
<b>2/14/2003</b>	<b>6</b>	<b>6054.1</b>	<b>2356.2</b>	<b>0.39</b>			<b>2/14/2003</b>	<b>6</b>	<b>6483.9</b>	<b>9110.5</b>	<b>1.405</b>			<b>2/14/2003</b>	<b>6</b>	<b>12538.0</b>	<b>11466.7</b>	<b>0.915</b>		
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



Jeb Bush  
Governor

Department of  
**Environmental Protection**

Extra Copy

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Colleen M. Castille  
Secretary

March 4, 2005

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James M. Chansler  
V. P. Operations and Maintenance  
JEA  
St. Johns River Power Park  
21 West Church Street  
Jacksonville, Florida 32202

Re: DEP File No. 0310045-014-AC, PSD-FL-010  
St. Johns River Power Park

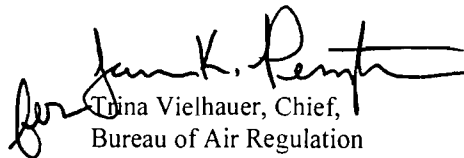
Dear Mr. Chansler:

Enclosed is one copy of the Draft air construction permit for the St. Johns River Power Park located at 11201 New Berlin Road, Jacksonville, Duval County. The Technical Evaluation and Preliminary Determination, the Department's Intent to Issue Air Construction Permit and the Public Notice of Intent to Issue Air Construction Permit are also included.

The Public Notice of Intent to Issue Air Construction Permit must be published one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to J. K. Pennington, P.E., North Permitting Section at the above letterhead address. If you have any other questions, please contact M. P. Halpin, P.E. at 850/921-9519.

Sincerely,

  
Tina Vielhauer, Chief,  
Bureau of Air Regulation

TV/mph  
Enclosures

"More Protection, Less Process"

Printed on recycled paper.

In the Matter of an  
Application for Permit by:

Mr. James M. Chansler, VP Operations and Maintenance  
JEA  
21 West Church Street  
Jacksonville, FL 32202

DEP File No. 0310045-014-AC  
St. Johns River Power Park  
Duval County

### INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit under the requirements for the Prevention of Significant Deterioration of Air Quality (copy of Draft Air Construction Permit attached) for the proposed project, detailed in the application specified above, for the reasons stated below.

The applicant, JEA, applied on February 2, 2005 to the Department for an Air Construction permit to increase the amount of petroleum coke (petcoke) being fired from 20% to 30% on a weight basis at the existing St. Johns River Power Park, located at 11201 New Berlin Road, Jacksonville in Duval County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit is required to conduct the work.

The Department intends to issue this Air Construction permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. and 40 CFR 52.21.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue Air Construction Permit." The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). The Department suggests that you publish the notice within thirty days of receipt of this letter. You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit or other authorization. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of "Public Notice of Intent to Issue Air Construction permit." Written comments and requests for a public meeting should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900

Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542, F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

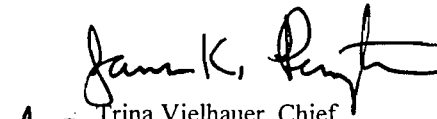
The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by



any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

  
Trina Vielhauer, Chief  
Bureau of Air Regulation

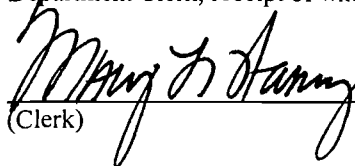
**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE and the DRAFT AIR CONSTRUCTION PERMIT) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 3/4/05 to the person(s) listed:

James M. Chansler, JEA \*  
Jay A. Worley, JEA  
Gregg Worley, EPA  
John Bunyak, NPS  
Chris Kirts, NED  
Richard Robinson, P.E. ERMD  
Mr. Hamilton S. Oven, DEP-Siting

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

  
(Clerk) 3/4/05  
(Date)

**PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0310045-014-AC  
JEA – St. Johns River Power Park  
Increase in amount of petroleum coke firing  
Duval County

The Department of Environmental Protection (Department) gives notice of its intent to issue an Air Construction permit to JEA. The permit is to allow for an increase in the firing of petroleum coke (petcoke) from 20% to 30% by weight at the existing St. Johns River Power Park, located in Jacksonville, Duval County. The application and permit are structured in such a way to ensure that no significant increase in the emission of regulated air pollutants will occur.

A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. and 40 CFR52.21 as no significant increase in emissions will occur. An air quality impact analysis was not required nor conducted. The applicant's name and address are JEA, 21 West Church Street, Jacksonville, FL 32202.

The Department will issue the FINAL permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept of Environmental Protection  
Bureau of Air Regulation  
111 S. Magnolia Drive, Suite 4  
Tallahassee, Florida 32301  
Telephone: 850/488-0114  
Fax: 850/922-6979

Dept. of Environmental Protection  
Northeast District Office  
7825 Baymeadows Way, Suite 200B  
Jacksonville, Florida 32256-7590  
Telephone: 904/448-4300  
Fax: 904/448-4366

The complete project file includes the application, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, North Permitting Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

**DRAFT**

March xx, 2005

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James M. Chansler  
V. P. Operations and Maintenance  
JEA  
St. Johns River Power Park  
21 West Church Street  
Jacksonville, Florida 32202

Dear Mr. Chansler:

Re: Request for Permit Amendment  
Jacksonville Electric Authority, St. Johns River Power Park  
PSD-FL-010; Duval County

The Department hereby amends the specific conditions related to sulfur dioxide (SO<sub>2</sub>) emissions and fuel use in the subject Final Determination (dated March 12, 1982) pursuant to 40 CFR 52.21 - Prevention of Significant Deterioration (PSD Permit). The PSD Permit is amended as follows:

Condition 2.A. (revised)

i. When blends of petroleum coke and coal with a sulfur content of up to or equal to 2 percent by weight are fired in Units 1 or 2, the SO<sub>2</sub> emissions shall not exceed ~~0.55~~ 0.53 pound per million British thermal units (lb/MMBtu) and a minimum of ~~76~~ 79 percent reduction in the flue gas desulfurization system.

ii. When co-firing petroleum coke with coals having a sulfur content between 2 and 3.63 percent by weight the emission limitation shall be based on the following formula:

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

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

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

iii. When coals with a sulfur content greater than 3.63 percent by weight are co-fired with petroleum coke, the SO<sub>2</sub> emissions shall not exceed the following formula:

**DRAFT**

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

where: C = percent of coal co-fired on a heat input basis  
S = weight percent sulfur in the coal

iv. The maximum SO<sub>2</sub> emission rate when firing petroleum coke and coal shall not exceed 0.676 lb/MMBtu heat input.

v. Compliance with the SO<sub>2</sub> emissions limit shall be based on a 30-day rolling average for those days when petroleum coke is fired. Any use of petroleum 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 New Source Performance Standards (NSPS) codified in 40 CFR 60 Subpart Da, except as noted above.

Condition 2.B. (revised)

The petroleum coke-coal blends shall be limited to a maximum of ~~20~~ 30 percent petroleum coke, by weight. The maximum weight of the petroleum coke burned shall not exceed ~~100,000~~ 150,000 lb/hr based on a 30-day rolling average using production information for the amount of coal and petcoke bunkered in the coal storage bins. The maximum sulfur content of the petroleum coke-coal blend shall not exceed 4 percent, by weight.

Condition 3. (revised)

The applicant shall maintain and submit to the Department on an annual basis for a period of five years from the date the unit is ~~initially~~ co-fired with petroleum coke above 20% by weight, information demonstrating in accordance with 40 CFR 52.21 (b) (21) (v) and 40 CFR 52.21 (b) (33) that the operational changes did not result in emissions increases of nitrogen oxides, carbon monoxide, sulfur dioxide, sulfuric acid mist, volatile organic compounds, lead and particulate matter.

A copy of this amendment letter shall be attached to and shall become a part of Permit PSD-FL-010.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION

Michael G. Cooke, Director  
Division Air Resource Management

## P.E. Certification Statement

JEA  
SJRPP  
Duval County

DEP File No.: PSD-FL-010  
Facility ID No.: 0310045

**Project:** Petroleum Coke Increase -AC Permit Modification

**I HEREBY CERTIFY** that the engineering features described in the above referenced application and related additional information submittals, if any, and subject to the proposed permit conditions, provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).

(Seal)



Michael P. Halpin, P.E.  
Registration Number: 31970

3-3-05

Date

Permitting Authority:

Florida Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation  
North Permitting Section  
Mail Station #5505  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Telephone: 850/488-0114  
Fax: 850/922-6979

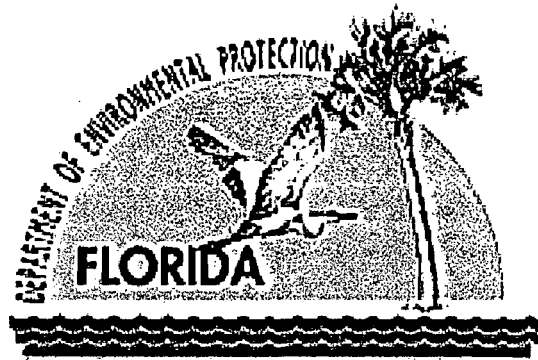
**TECHNICAL EVALUATION**  
**AND**  
**PRELIMINARY DETERMINATION**

St. Johns River Power Park

**Increased Co-Firing of Petroleum Coke**

JEA / DUVAL COUNTY

0310045-014-AC



Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation  
North Permitting Section

March 4, 2005

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 1. GENERAL INFORMATION

### 1.1 APPLICANT NAME AND ADDRESS

St. Johns River Power Park  
JEA  
11201 New Berlin Road  
Jacksonville, Florida 32226

Authorized Representative: James M. Chansler, V.P. Operations and Maintenance

### 1.2 REVIEWING AND PROCESS SCHEDULE

February 2, 2005                      Received permit application  
March 4, 2005                        Issued Draft Intent

## 2. FACILITY INFORMATION

### 2.1 FACILITY LOCATION

The facility is located in Jacksonville, Duval County. The UTM coordinates are Zone 17; 446.90 km E; 3359.15 km N. This site is approximately 54 kilometers from the Okefenokee National Wildlife Refuge and 98 kilometers from the Wolf Island National Wildlife Refuge, both Class I PSD Areas.

### 2.2 STANDARD INDUSTRIAL CLASSIFICATION CODES (SIC)

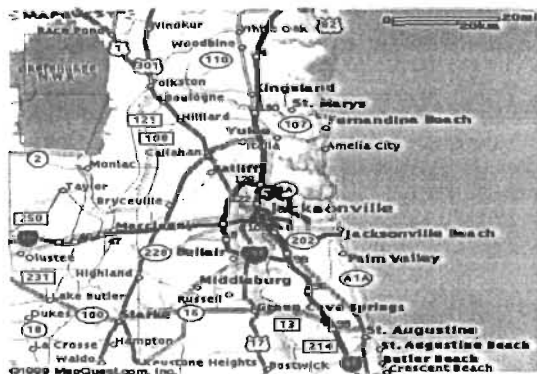
Industry Group No.	49	Electric, Gas and Sanitary Services
Industry No.	4911	Electric Services

### 2.3 FACILITY CATEGORY

This facility consists of five boilers, Northside Generating Station (NGS) Boilers Nos. 1, 2 and 3 (No. 2 was placed on long-term reserve shutdown on March 1, 1984) and St. Johns River Power Park (SJRPP) Boilers Nos. 1 and 2; four combustion turbines, NGS Nos. 3, 4, 5 and 6 (Nos. 1 and 2 are inactive); and, an auxiliary boiler, NGS No. 1.

SJRPP Boilers Nos. 1 and 2 are fossil fuel-fired steam generators, each having a nominal nameplate rating of 679.6 megawatts (electric). The emissions units are allowed to fire pulverized coal, a blend of petroleum coke and coal, new No. 2 distillate fuel oil (startup and low-load operation), and "on-specification" used oil. The maximum heat input to each emissions unit is 6,144 million Btu per hour. SJRPP Boilers Nos. 1 and 2 are dry bottom wall-fired boilers and will use an electrostatic precipitator (ESP) to control particulate matter, a wet limestone flue gas desulphurization (FGD) unit to control sulfur dioxide, low NO<sub>x</sub> burners and low excess-air firing to control nitrogen oxides, and good combustion to control carbon monoxide.

Based on the initial Title V permit application received June 14, 1996, this facility is a major source of hazardous air pollutants (HAPs). This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD).





# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 3. PROJECT DESCRIPTION

This project primarily addresses the following emissions unit(s):

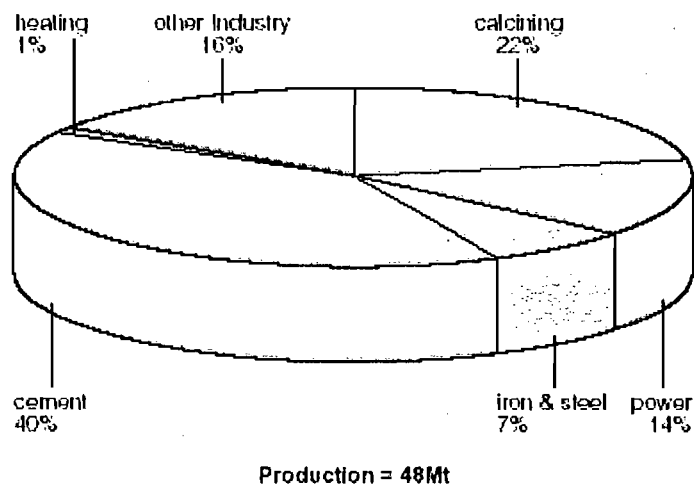
Emissions Unit No.	Emissions Unit Description
016	SJRPP Boiler Number 1 – dry bottom wall-fired boiler w/FGD, ESP and LNB
017	SJRPP Boiler Number 2 – dry bottom wall-fired boiler w/FGD, ESP and LNB

The applicant proposes to increase the combustion of petroleum coke (petcoke) from a maximum of 20% (on a weight basis) to 30%. The facility currently combusts coal as its primary fuel. The applicant indicates that this permit modification can be made in such a way that air emissions will not increase beyond historical levels, thus a PSD Review will not be triggered. The applicant further proposes that data can be provided in accordance with 40 CFR 52.21(b)(21)(v) and 40 CFR 52.21(b)(33) showing that the operational change associated with the use of increased petroleum coke did not result in significant emission increases for PSD pollutants (i.e., the WEPCO provision); emission analyses follow.

### 3.1 PETCOKE DISCUSSION

Much of this review was obtained from The Clean Coal Centre of the United Kingdom, in an article entitled "*The use of petroleum coke in a coal-fired plant*". Petroleum coke is a by-product from oil refineries and is composed mainly of carbon though it also contains high levels of sulfur and some heavy metals such as vanadium and nickel. There has been considerable interest in petcoke for several years, where it is available, as it is generally significantly cheaper than coal. The price does vary depending on the volumes produced and worldwide demand. The world production of petcoke grew by 50% from 1987 to 1998. It reached nearly 50 Million Tons (Mt) in 1999 and is expected to reach 100 Mt by 2010. The USA is the world's largest producer, producing three-quarters of world supplies. There are three types of petroleum coke, which can be produced depending on the process of production. The three processes are delayed, fluid and flexicoking with delayed coking producing over 90%. All three types of petcoke have higher calorific values than coal and contain less volatile matter and ash. The main uses of petcoke are as an energy source for power generation, in cement production and iron and steel production (which account for about two thirds of production) and the remainder is used mainly as a carbon source.

**FIGURE 3 - 1999 WORLD PETROLEUM COKE MARKET PROFILE**



The following additional information was compiled for the Year 2001. The source of this data is FERC Form 423, although the Energy Information Administration (EIA) summarized it in a report entitled "*Cost and Quality of Fuels for Electric Utility Plants 2001*", dated March 2004. This data was accumulated for electric generating plants with nameplate capacity of 50 megawatts or more. Tables 25 and 28 from that report are shown below:

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

**Table 25. The Top 20 Electric Utilities, Ranked by Receipts of Coal, 2001**

Electric Utility	Receipts (thousand short tons)	Average Delivered Cost		Total Delivered Cost (million dollars)
		(cents per million Btu)	(dollars per short ton)	
1. Tennessee Valley Authority.....	36,556	121.92	27.99	1,023.15
2. Georgia Power Co.....	33,639	166.38	39.06	1,313.94
3. TXU Electric Co.....	27,297	131.74	18.01	491.74
4. Alabama Power Co.....	24,211	141.58	30.07	728.00
5. PacifiCorp.....	22,216	87.36	17.25	383.23
6. Detroit Edison Co.....	20,185	122.38	25.65	505.59
7. Ameren UE.....	18,797	93.10	17.28	324.87
8. Duke Power Co.....	17,395	157.21	38.53	670.23
9. Public Service Co of Indiana.....	16,542	110.20	24.35	402.81
10. Reliant HL&P.....	16,423	157.06	24.47	401.93
11. Basin Electric Power Coop.....	16,275	59.00	8.85	143.95
12. Ohio Power Co.....	15,598	143.01	34.62	520.79
13. Kansas Power and Light Co.....	13,942	115.59	20.09	286.03
14. MidAmerican Energy.....	13,607	74.96	12.90	175.50
15. Northern States Power Co.....	13,255	94.62	16.70	221.36
16. Arkansas Power and Light Co.....	12,681	78.54	13.74	174.20
17. Indiana Michigan Power.....	11,904	117.41	22.71	270.30
18. Southwestern Electric Power.....	11,833	150.44	24.11	286.51
19. Wisconsin Electric Power Co.....	11,868	102.91	19.29	228.91
20. Appalachian Power Co.....	11,858	129.66	31.09	368.64

Note: Data are for electric generating plants with a total steam-electric and combined-cycle nameplate capacity of 50 or more megawatt.  
Source: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

**Table 28. Receipts of Petroleum Coke by Electric Utility, 2001**

Electric Utility	Receipts (thousand short tons)	Average Quality			Average Delivered Cost	
		Btu (per pound)	Sulfur (percent by weight)	Ash (percent by weight)	(cents per million Btu)	(dollars per short ton)
Ameren UE.....	197	14,303	3.72	0.40	66.55	19.12
Central Elec Power Coop-Missouri <sup>1</sup> .....	*	14,235	3.20	.56	52.82	15.04
Jacksonville Electric Auth.....	568	14,255	6.28	.20	62.63	17.85
Lakeland City of.....	18	13,955	4.19	.44	127.02	35.45
Manitowoc Public Utilities.....	36	14,234	5.51	.65	54.73	15.58
Michigan South Central Power.....	*	14,002	4.65	.43	150.01	42.01
Northern States Power Co.....	201	13,613	5.64	.70	39.12	10.65
Northern Indiana Pub Serv Co.....	149	13,927	4.34	.20	69.32	19.31
Reliant HL&P.....	132	13,609	1.66	.44	156.57	42.61
Salt River Proj, Ag I & P Dist.....	17	14,500	3.67	.60	100.48	29.14
Seminole Electric Coop.....	182	14,394	5.88	.41	110.74	31.88
Tampa Electric Power Co.....	303	13,945	4.90	.46	82.67	23.06
Wisconsin Power & Light.....	71	13,920	5.70	.66	96.25	26.80
Wisconsin Electric Power Co.....	145	14,201	5.24	.20	87.79	24.92
<b>Total.....</b>	<b>2,019</b>	<b>14,079</b>	<b>5.13</b>	<b>.40</b>	<b>73.38</b>	<b>22.07</b>

<sup>1</sup> Includes a small amount of coal.  
\* = Number less than 0.5.

Note: \* Total; may not equal sum of components because of independent rounding. \* Data are for electric generating plants with a total steam-electric and combined-cycle nameplate capacity of 50 or more megawatt.  
Source: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Of interest, no Florida utilities show up in the top 20 listing of coal users, even though Florida is one of the most populous states. It is observed that the cost of petroleum coke in year 2000 was approximately 1/2 that of coal. According to Table 28, Florida had 4 users of petcoke out of 14 listed users. The tables also show that receipts of petcoke totaled 2019 thousand short tons, or about 0.5% of the sum of coal receipts of the top 20 coal users. Only 4 utilities are listed on both tables: Northern States Power, Ameren UE, Wisconsin Electric Power Co. and Reliant HL&P (Northern States Power is now known as XCEL Energy, headquartered in Minnesota). Jacksonville Electric Authority (JEA) is indicated as the largest utility user of petcoke during year 2001 for electrical generation.

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 4. PROJECT EMISSIONS

### 4.1 HISTORICAL EMISSIONS

The following table summarizes the historical emissions (EU-016 and 017) based upon Department records (ARMS):

Pollutant	2001 Actual Emissions (TPY)	2002 Actual Emissions (TPY)	2001-2002 Average (TPY)	PSD Significant Emission Rates (TPY)	Maximum average Emission Rate without a PSD review (TPY)
NO <sub>x</sub>	26379.1	26738.5	26558.8	40	26598.7
CO	970.178	962.093	966.14	100	1066.0
VOC	118.873	118.179	118.53	40	158.5
SO <sub>2</sub>	22535.41	20902.199	21718.8	40	21758.7
SAM	1311.0	1322.9	1316.9	7	1323.8
PM	317.258	326.2401	321.75	25	346.7
PM <sub>10</sub>	72.964	75.596	74.28	15	89.2
Pb	1.21	0.81	1.01	0.6	1.59

Note: Years 2001 and 2002 were proposed by the applicant as a "representative" period for comparison to future emissions.

## 5. RULE APPLICABILITY

This facility is located in an area designated, in accordance with Rule 62-204.340, F.A.C., as attainment for all pollutants. Rule 62-4.030, F.A.C., prohibits modification of any existing emissions unit without first receiving a permit. It further specifies that a permitted installation may only be modified in a manner that is consistent with the terms of such a permit. Rule 62-210.200, F.A.C., defines "modification" to mean generally a physical change or change in the method of operation that results in an increase in actual emissions of regulated air pollutants. Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C., also reiterate the requirement for construction permits. Additionally, Rule 62-210.300 requires an Air Construction permit for all new sources of air pollution unless specifically exempt.

FDEP deems that a change to the quantity or quality of fuel burned is a change in the method of operation. Given that the source is major with regard to PSD, an analysis must be performed to verify that the increased burning of petcoke will not result in a significant net emissions increase and that, consequently, use of additional petcoke is not a major modification subject to PSD review. The emission units affected by this permit shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein).

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 6. PSD POLLUTANT ANALYSIS

### 6.1 COAL VERSUS PETCOKE

The following table was excerpted from a paper presented at the 2003 International Power-Gen Conference in Las Vegas, Nevada. The paper is entitled "Reducing NO<sub>x</sub> and LOI at the St. Johns River Power Park":

	Pet. Coke	Colombian Coal
<b>Prox. Analysis</b>		
Fixed Carbon	83.92	47.60
VM	8.50	33.40
Ash	0.52	7.40
Moisture	7.06	11.60
Total	100.00	100.00
<b>Ult. Analysis</b>		
Carbon	82.22	66.54
Hydrogen	3.35	4.50
Oxygen	0.00	7.99
Nitrogen	1.71	1.32
Sulfur	5.14	0.65
Ash	0.52	7.40
Moisture	7.06	11.60
Total	100.00	100.00
HHV, Btu/lb as-rec'd	14,200	11,800

This table was excerpted from a cement plant application in the United Kingdom (Castle Cement dated May 17, 1999):

Chemical Names	Units	Coal	Petroleum coke	Increase or Decrease
Heat Content	CV-MJ/kg	25.5	31.41	Increase
Carbon	% Carbon	73.4	85	Increase
Chlorine	Cl %	0.03	NA	Decrease
Copper	Cu (ppm)	12	3	Decrease
Lead	Pb	16	5	Decrease
Zinc	Zn	NA	17	Increase
Cadmium	Cd	10	0.04	Decrease
Chromium	Cr	8	5	Decrease
Thallium	Th	10	0.05	Decrease
Arsenic	As	7	1	Decrease
Mercury	Hg	10	NA	Decrease
Antimony	Sb	3	1	Decrease
Cobalt	Co	2	3	Increase
Manganese	Mn	71	NA	Decrease
Nickel	N	6	252	Increase
Tin	Sn	10	1	Decrease
Vanadium	V	4	150	Increase
Sulfur	S%	1.4	5.0	Increase

# **TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

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The purpose of the above tables is to illustrate that the PSD pollutant of most concern is sulfur. Due to the decreases in the lead and ash content in petcoke, increased firing should lead to reductions in the emissions of PM, PM<sub>10</sub> and Pb. The Department notes that the emissions of nickel and vanadium are not subject to PSD, but may subject the facility to a future MACT requirement.

## **6.2 CARBON MONOXIDE (CO) AND VOLATIVE ORGANIC COMPOUNDS (VOC)**

The applicant contends that there will be no increase in CO or VOC emissions from the increased co-firing of petcoke. The annual CO emissions for these emission units averaged 966 TPY, while annual VOC emissions averaged 118 TPY. The Significant Emission Rate for CO is 100 TPY, and for VOC is 40 TPY. Given that the available data shows reduced CO and VOC emissions from the firing of petcoke as compared to coal, the Department finds it unlikely that the increased co-firing of petcoke will cause annual emissions to exceed the PSD thresholds of each pollutant beyond representative past emission rates. Accordingly, a BACT review is not required for these pollutants.

## **6.3 NITROGEN OXIDE (NO<sub>x</sub>)**

Test results from other facilities indicate that NO<sub>x</sub> emissions are typically less for petcoke firing as compared to coal firing. The annual NO<sub>x</sub> emissions for these emission units averaged 26558.8 TPY and the Significant Emission Rate for NO<sub>x</sub> is 40 TPY. The Department accepts the premise that increased petcoke firing (and decreased coal firing) will not cause annual NO<sub>x</sub> emissions to increase, nor specifically to exceed an average of 26598.7 TPY per emission unit. Accordingly, a BACT review is not required.

## **6.4 SULFUR DIOXIDE (SO<sub>2</sub>) AND SULFURIC ACID MIST (SAM)**

The past actual average emissions of SO<sub>2</sub> and SAM were 21718.8 and 1316.9 TPY respectively. The Significant Emission Rate (SER) is 40 TPY for SO<sub>2</sub> and 7 TPY for SAM. The Department accepts the applicant's proposal that SO<sub>2</sub> and SAM emissions can be maintained below the respective SER by additional scrubbing with the existing wet FGD. The applicant additionally proposes to reduce the SO<sub>2</sub> limit (while co-firing) below the existing permit limit, as an additional means of providing assurance to the Department that SO<sub>2</sub> (as well as SAM) emissions will not increase. The combination of additional scrubbing and a reduced emission limit is acceptable to the Department and should ensure that the annual emission levels of SO<sub>2</sub> and SAM do not exceed the PSD thresholds for each pollutant beyond representative past emission rates (21758.7 TPY SO<sub>2</sub> and 1323.8 TPY SAM). In addition to this, the Department will place a limit on the throughput of petcoke at 30% on a heat input basis. Accordingly, the SO<sub>2</sub> and SAM emission increases are considered insignificant for PSD purposes and BACT reviews are not required.

## **6.5 PARTICULATE MATTER (PM/PM<sub>10</sub>)**

As indicated above, it is reasonable to assume that PM<sub>10</sub> and PM emissions will be lowered as a result of the ten-fold decrease in fuel ash. Accordingly, the annual PM/PM<sub>10</sub> emissions from the stack are likely to be maintained with no increase above the PSD significant emission rate of 25/15 tons/year.

With regard to ancillary (or fugitive) emissions, the applicant estimates that particulate matter emissions will be reduced. This is based upon the increased heat input value of petcoke as compared to coal, meaning that a reduction in the overall tons of fuel handled will occur. In summary, the average PM/PM<sub>10</sub> emissions from each emission unit are likely to remain less than the PSD thresholds for each pollutant and no PSD Review is required.

## **6.6 SUMMARY**

A preliminary review supports the applicant's contention that PSD is not triggered, eliminating the requirement for a BACT review and related modeling. PSD regulations (under the provisions commonly known as the "WEPCO rule") allow a source undertaking a non-routine change that could affect emissions at an electric utility steam generating unit to lawfully avoid the major source permitting process by using the unit's representative actual annual emissions to calculate emissions following the change, if the source submits information for 5 years following the change to confirm its pre-change projection. Under the WEPCO rule, SJRPP must compute baseline actual emissions and must project the future actual emissions from the modified units for a period after the physical change. In addition, SJRPP must maintain and submit to the Department on an annual basis for a period of at least 5 years

# **TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

from the date the units resume regular operation, information demonstrating that the change did not result in a significant emissions increase. If SJRPP fails to comply with the reporting requirements of the WEPCO rule or if the submitted information indicates that emissions have increased above PSD thresholds as a consequence of the change, it will be required to obtain a PSD permit for petcoke co-firing (meaning that a BACT Review would then be applicable). Finally, even though a PSD review is not triggered due to the co-firing project, SJRPP must meet all other applicable federal, state, and local air pollution requirements.

## **7. ADDITIONAL COMPLIANCE PROCEDURES (AVERAGE PER EMISSION UNIT)**

<b>Pollutant</b>	<b>Compliance Procedures</b>
NO <sub>x</sub>	Five years of annual reporting by CEMS proving annual emissions do not exceed 26598.7 TPY
CO	Five years of annual reporting by stack test proving annual emissions do not exceed 1066 TPY
VOC	Five years of annual reporting by stack test proving annual emissions do not exceed 158.5 TPY
SO <sub>2</sub>	Five years of annual reporting by CEMS proving annual emissions do not exceed 21758.7 TPY
SAM	Five years of annual reporting by stack test proving annual emissions do not exceed 1323.8 TPY
PM <sub>10</sub>	Five years of annual reporting by stack test proving annual facility emissions do not exceed 89.2 TPY

Specific permit conditions shall further describe these limitations. The reporting procedures are to begin during the first calendar year in which petcoke is fired.

## **8. CONCLUSION**

Based on the foregoing technical evaluation of the application, additional information submitted by the applicant and other available information, the Department has made a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations.

Michael P. Halpin, P.E. Review Engineer  
Department of Environmental Protection, Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Extra Copy



# Department of Environmental Protection

Jeb Bush  
Governor

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Colleen M. Castille  
Secretary

April 4, 2005

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James M. Chansler  
V. P. Operations and Maintenance  
JEA  
St. Johns River Power Park  
21 West Church Street  
Jacksonville, Florida 32202

Dear Mr. Chansler:

Re: Request for Permit Amendment  
Jacksonville Electric Authority, St. Johns River Power Park  
DEP File Numbers PSD-FL-010, 0310045-014-AC and PA 81-13

The Department hereby amends the specific conditions related to sulfur dioxide (SO<sub>2</sub>) emissions and fuel use in the subject Final Determination (dated March 12, 1982) pursuant to 40 CFR 52.21 - Prevention of Significant Deterioration (PSD Permit). The PSD Permit is amended as follows:

Condition 2.A. (revised)

i. When blends of petroleum coke and coal with a sulfur content of up to or equal to 2 percent by weight are fired in Units 1 or 2, the SO<sub>2</sub> emissions shall not exceed ~~0.55~~ 0.53 pound per million British thermal units (lb/MMBtu) and a minimum of ~~76~~ 79 percent reduction in the flue gas desulfurization system.

ii. When co-firing petroleum coke with coals having a sulfur content between 2 and 3.63 percent by weight the emission limitation shall be based on the following formula:

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

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

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

iii. When coals with a sulfur content greater than 3.63 percent by weight are co-fired with petroleum coke, the SO<sub>2</sub> 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  
S = weight percent sulfur in the coal

"More Protection, Less Process"

Printed on recycled paper.

Mr. James M. Chansler, VP  
JEA/SJRPP  
Petcoke increase

iv. The maximum SO<sub>2</sub> emission rate when firing petroleum coke and coal shall not exceed 0.676 lb/MMBtu heat input.

v. Compliance with the SO<sub>2</sub> emissions limit shall be based on a 30-day rolling average for those days when petroleum coke is fired. Any use of petroleum 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 New Source Performance Standards (NSPS) codified in 40 CFR 60 Subpart Da, except as noted above.

Condition 2.B. (revised)

The petroleum coke-coal blends shall be limited to a maximum of ~~20~~ 30 percent petroleum coke, by weight. The maximum weight of the petroleum coke burned shall not exceed ~~100,000~~ 150,000 lb/hr based on a 30-day rolling average using production information for the amount of coal and petcoke metered from the coal storage bins to the boilers. The maximum sulfur content of the petroleum coke-coal blend shall not exceed 4 percent, by weight.


Condition 3. (revised)

The applicant shall maintain and submit to the Department on an annual basis for a period of five years from the date the unit is ~~initially~~ co-fired with petroleum coke above 20% by weight, information demonstrating in accordance with 40 CFR 52.21 (b) (21) (v) and 40 CFR 52.21 (b) (33) that the operational changes did not result in emissions increases of nitrogen oxides, carbon monoxide, sulfur dioxide, sulfuric acid mist, volatile organic compounds and particulate matter.

A copy of this amendment letter and the Technical Evaluation and Final Determination shall be attached to and shall become a part of Permit PSD-FL-010. All other conditions of the referenced permits remain unchanged. A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permit modification is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.



Michael G. Cooke, Director  
Division of Air Resource  
Management



Mr. James M. Chansler, VP  
JEA/SJRPP  
Petcoke increase

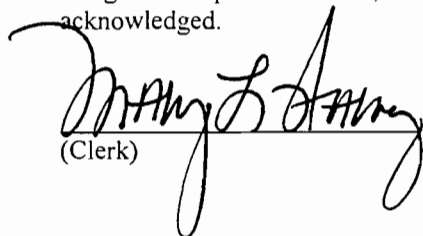
**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE and the DRAFT AIR CONSTRUCTION PERMIT) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 4/11/05 to the person(s) listed:

James M. Chansler, JEA \*  
Jay A. Worley, JEA  
Gregg Worley, EPA  
John Bunyak, NPS  
Chris Kirts, NED  
Richard Robinson, P.E. ERMD  
Mr. Hamilton S. Oven, DEP-Siting

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

  
(Clerk) 4/11/05  
(Date)

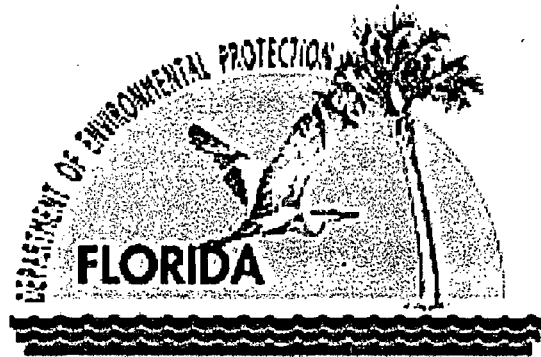
**TECHNICAL EVALUATION  
AND  
FINAL DETERMINATION**

**St. Johns River Power Park**

**Increased Co-Firing of Petroleum Coke**

**JEA / DUVAL COUNTY**

**0310045-014-AC**



**Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation  
North Permitting Section**

**March 30, 2005**

# TECHNICAL EVALUATION AND FINAL DETERMINATION

## 1. GENERAL INFORMATION

### 1.1 APPLICANT NAME AND ADDRESS

St. Johns River Power Park  
JEA  
11201 New Berlin Road  
Jacksonville, Florida 32226

Authorized Representative: James M. Chansler, V.P. Operations and Maintenance

### 1.2 REVIEWING AND PROCESS SCHEDULE

February 2, 2005            Received permit application  
March 4, 2005             Issued Draft Intent  
March 31, 2005            Issued Final permit revision

## 2. FACILITY INFORMATION

### 2.1 FACILITY LOCATION

The facility is located in Jacksonville, Duval County. The UTM coordinates are Zone 17; 446.90 km E; 3359.15 km N. This site is approximately 54 kilometers from the Okefenokee National Wildlife Refuge and 98 kilometers from the Wolf Island National Wildlife Refuge, both Class I PSD Areas.

### 2.2 STANDARD INDUSTRIAL CLASSIFICATION CODES (SIC)

Industry Group No.	49	Electric, Gas and Sanitary Services
Industry No.	4911	Electric Services

### 2.3 FACILITY CATEGORY

This facility consists of five boilers, Northside Generating Station (NGS) Boilers Nos. 1, 2 and 3 (No. 2 was placed on long-term reserve shutdown on March 1, 1984) and St. Johns River Power Park (SJRPP) Boilers Nos. 1 and 2; four combustion turbines, NGS Nos. 3, 4, 5 and 6 (Nos. 1 and 2 are inactive); and, an auxiliary boiler, NGS No. 1.

SJRPP Boilers Nos. 1 and 2 are fossil fuel-fired steam generators, each having a nominal nameplate rating of 679.6 megawatts (electric). The emissions units are allowed to fire pulverized coal, a blend of petroleum coke and coal, new No. 2 distillate fuel oil (startup and low-load operation), and "on-specification" used oil. The maximum heat input to each emissions unit is 6,144 million Btu per hour. SJRPP Boilers Nos. 1 and 2 are dry bottom wall-fired boilers and will use an electrostatic precipitator (ESP) to control particulate matter, a wet limestone flue gas desulphurization (FGD) unit to control sulfur dioxide, low NO<sub>x</sub> burners and low excess-air firing to control nitrogen oxides, and good combustion to control carbon monoxide.

Based on the initial Title V permit application received June 14, 1996, this facility is a major source of hazardous air pollutants (HAPs). This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD).



# TECHNICAL EVALUATION AND FINAL DETERMINATION

## 3. PROJECT DESCRIPTION

This project primarily addresses the following emissions unit(s):

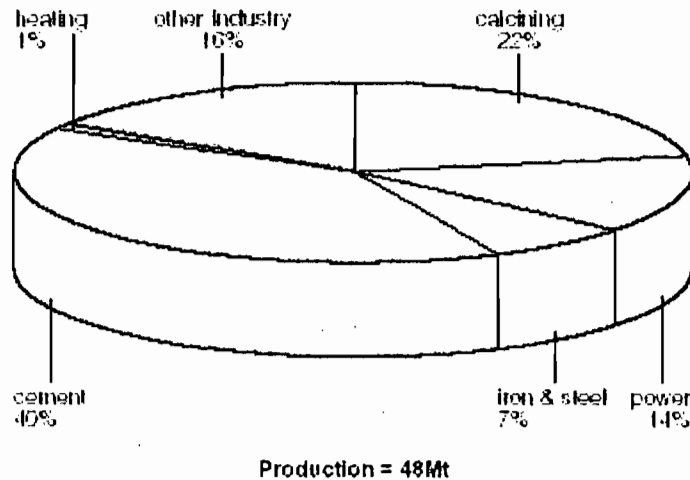
Emissions Unit No.	Emissions Unit Description
016	SJRPP Boiler Number 1 – dry bottom wall-fired boiler w/FGD, ESP and LNB
017	SJRPP Boiler Number 2 – dry bottom wall-fired boiler w/FGD, ESP and LNB

The applicant proposes to increase the combustion of petroleum coke (petcoke) from a maximum of 20% (on a weight basis) to 30%. The facility currently combusts coal as its primary fuel. The applicant indicates that this permit modification can be made in such a way that air emissions will not increase beyond historical levels, thus a PSD Review will not be triggered. The applicant further proposes that data can be provided in accordance with 40 CFR 52.21(b)(21)(v) and 40 CFR 52.21(b)(33) showing that the operational change associated with the use of increased petroleum coke did not result in significant emission increases for PSD pollutants (i.e., the WEPCO provision); emission analyses follow.

### 3.1 PETCOKE DISCUSSION

Much of this review was obtained from The Clean Coal Centre of the United Kingdom, in an article entitled "The use of petroleum coke in a coal-fired plant". Petroleum coke is a by-product from oil refineries and is composed mainly of carbon though it also contains high levels of sulfur and some heavy metals such as vanadium and nickel. There has been considerable interest in petcoke for several years, where it is available, as it is generally significantly cheaper than coal. The price does vary depending on the volumes produced and worldwide demand. The world production of petcoke grew by 50% from 1987 to 1998. It reached nearly 50 Million Tons (Mt) in 1999 and is expected to reach 100 Mt by 2010. The USA is the world's largest producer, producing three-quarters of world supplies. There are three types of petroleum coke, which can be produced depending on the process of production. The three processes are delayed, fluid and flexicoking with delayed coking producing over 90%. All three types of petcoke have higher calorific values than coal and contain less volatile matter and ash. The main uses of petcoke are as an energy source for power generation, in cement production and iron and steel production (which account for about two thirds of production) and the remainder is used mainly as a carbon source.

**FIGURE 3 - 1999 WORLD PETROLEUM COKE MARKET PROFILE**



The following additional information was compiled for the Year 2001. The source of this data is FERC Form 423, although the Energy Information Administration (EIA) summarized it in a report entitled "*Cost and Quality of Fuels for Electric Utility Plants 2001*", dated March 2004. This data was accumulated for electric generating plants with nameplate capacity of 50 megawatts or more. Tables 25 and 28 from that report are shown below:

# TECHNICAL EVALUATION AND FINAL DETERMINATION

**Table 25. The Top 20 Electric Utilities, Ranked by Receipts of Coal, 2001**

Electric Utility	Receipts: (thousand short tons)	Average Delivered Cost		Total Delivered Cost (million dollars)
		(cents per million Btu)	(dollars per short ton)	
1. Tennessee Valley Authority.....	36,556	121.92	27.99	1,023.15
2. Georgia Power Co.....	32,639	166.38	39.66	1,313.94
3. ENU Electric Co.....	27,297	131.74	18.61	491.74
4. Alabama Power Co.....	24,211	141.63	30.67	728.00
5. PacifiCorp.....	22,216	87.56	17.25	383.23
6. Detroit Edison Co.....	22,135	122.38	25.65	595.59
7. Ameren UE.....	18,797	93.10	17.28	324.87
8. Duke Power Co.....	17,395	157.31	38.53	676.23
9. Public Service Co of Indiana.....	16,542	110.30	24.55	402.51
10. Reliant HL&P.....	15,423	157.06	24.47	401.93
11. Basin Electric Power Coop.....	16,275	59.00	8.85	143.95
12. Ohio Power Co.....	15,588	143.01	34.62	536.79
13. Kansas Power and Light Co.....	13,942	115.59	20.69	286.04
14. MidAmerican Energy.....	12,607	74.96	12.90	175.50
15. Northern States Power Co.....	12,255	94.62	16.70	221.36
16. Arkansas Power and Light Co.....	12,631	73.54	13.74	174.20
17. Indiana Michigan Power.....	11,904	117.41	22.71	276.30
18. Southwestern Electric Power.....	11,833	150.44	24.11	256.51
19. Wisconsin Electric Power Co.....	11,868	102.91	19.29	228.91
20. Appalachian Power Co.....	11,858	129.56	31.69	368.64

Note: Data are for electric generating plants with a total steam-electric and combined-cycle nameplate capacity of 50 or more megawatts.  
Source: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

**Table 28. Receipts of Petroleum Coke by Electric Utility, 2001**

Electric Utility	Receipts: (thousand short tons)	Average Quality			Average Delivered Cost	
		Btu (per pound)	Sulfur (percent by weight)	Ash (percent by weight)	(cents per million Btu)	(dollars per short ton)
Ameren UE.....	197	14,303	3.72	0.46	66.55	19.12
Central Elec Power Coop-Missouri <sup>1</sup> .....	*	14,255	3.20	.56	52.52	15.64
Jacksonville Electric Auth.....	568	14,255	6.28	.36	62.65	17.85
Lakeland City of.....	18	13,955	4.19	.44	127.02	35.45
Manitowoc Public Utilities.....	36	14,234	5.51	.65	54.73	15.53
Michigan South Central Power.....	*	14,002	4.65	.43	150.91	42.61
Northern States Power Co.....	201	13,613	5.64	.70	59.12	10.65
Northern Indiana Pub Serv Co.....	149	13,927	4.34	.20	69.12	19.31
Reliant HL&P.....	132	13,609	1.66	.44	156.57	42.61
Salt River Proj, Ag, I, & P Dist.....	17	14,500	3.67	.50	100.43	29.14
Seminole Electric Coop.....	152	14,394	5.58	.41	110.74	31.85
Tampa Electric Power Co.....	303	13,945	4.90	.46	82.57	23.66
Wisconsin Power & Light.....	71	13,920	5.70	.56	96.25	26.80
Wisconsin Electric Power Co.....	145	14,201	5.24	.20	87.79	24.92
Total.....	2,019	14,079	5.13	.40	75.38	22.07

<sup>1</sup> Includes a small amount of coal.  
\* = Number less than 0.5.

Note: \* Total may not equal sum of components because of independent rounding. \* Data are for electric generating plants with a total steam-electric and combined-cycle nameplate capacity of 50 or more megawatts.  
Source: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants."

Of interest, no Florida utilities show up in the top 20 listing of coal users, even though Florida is one of the most populous states. It is observed that the cost of petroleum coke in year 2000 was approximately 1/2 that of coal. According to Table 28, Florida had 4 users of petcoke out of 14 listed users. The tables also show that receipts of petcoke totaled 2019 thousand short tons, or about 0.5% of the sum of coal receipts of the top 20 coal users. Only 4 utilities are listed on both tables: Northern States Power, Ameren UE, Wisconsin Electric Power Co. and Reliant HL&P (Northern States Power is now known as XCEL Energy, headquartered in Minnesota). Jacksonville Electric Authority (JEA) is indicated as the largest utility user of petcoke during year 2001 for electrical generation.

# TECHNICAL EVALUATION AND FINAL DETERMINATION

## 4. PROJECT EMISSIONS

### 4.1 HISTORICAL EMISSIONS

The following table summarizes the historical emissions (EU-016 and 017) based upon Department records (ARMS):

Pollutant	2001 Actual Emissions (TPY)	2002 Actual Emissions (TPY)	2001-2002 Average (TPY)	PSD Significant Emission Rates (TPY)	Maximum average Emission Rate without a PSD review (TPY)
NO <sub>x</sub>	26379.1	26738.5	26558.8	40	26598.7
CO	970.178	962.093	966.14	100	1066.0
VOC	118.873	118.179	118.53	40	158.5
SO <sub>2</sub>	22535.41	20902.199	21718.8	40	21758.7
SAM	1311.0	1322.9	1316.9	7	1323.8
PM	317.258	326.2401	321.75	25	346.7
PM <sub>10</sub>	72.964	75.596	74.28	15	89.2
Pb	1.21	0.81	1.01	0.6	1.59

Note: Years 2001 and 2002 were proposed by the applicant as a "representative" period for comparison to future emissions.

## 5. RULE APPLICABILITY

This facility is located in an area designated, in accordance with Rule 62-204.340, F.A.C., as attainment for all pollutants. Rule 62-4.030, F.A.C., prohibits modification of any existing emissions unit without first receiving a permit. It further specifies that a permitted installation may only be modified in a manner that is consistent with the terms of such a permit. Rule 62-210.200, F.A.C., defines "modification" to mean generally a physical change or change in the method of operation that results in an increase in actual emissions of regulated air pollutants. Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C., also reiterate the requirement for construction permits. Additionally, Rule 62-210.300 requires an Air Construction permit for all new sources of air pollution unless specifically exempt.

FDEP deems that a change to the quantity or quality of fuel burned is a change in the method of operation. Given that the source is major with regard to PSD, an analysis must be performed to verify that the increased burning of petcoke will not result in a significant net emissions increase and that, consequently, use of additional petcoke is not a major modification subject to PSD review. The emission units affected by this permit shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein).

# TECHNICAL EVALUATION AND FINAL DETERMINATION

## 6. PSD POLLUTANT ANALYSIS

### 6.1 COAL VERSUS PETCOKE

The following table was excerpted from a paper presented at the 2003 International Power-Gen Conference in Las Vegas, Nevada. The paper is entitled "Reducing NO<sub>x</sub> and LOI at the St. Johns River Power Park":

	Pet. Coke	Colombian Coal
<b>Prox. Analysis</b>		
Fixed Carbon	83.92	47.60
VM	8.50	33.40
Ash	0.52	7.40
Moisture	7.06	11.60
Total	100.00	100.00
<b>Ult. Analysis</b>		
Carbon	82.22	66.54
Hydrogen	3.35	4.50
Oxygen	0.00	7.99
Nitrogen	1.71	1.32
Sulfur	5.14	0.65
Ash	0.52	7.40
Moisture	7.06	11.60
Total	100.00	100.00
HHV, Btu/lb as-rec'd	14,200	11,800

This table was excerpted from a cement plant application in the United Kingdom (Castle Cement dated May 17, 1999):

Chemical Names	Units	Coal	Petroleum coke	Increase or Decrease
Heat Content	CV-MJ/kg	25.5	31.41	Increase
Carbon	% Carbon	73.4	85	Increase
Chlorine	Cl %	0.03	NA	Decrease
Copper	Cu (ppm)	12	3	Decrease
Lead	Pb	16	5	Decrease
Zinc	Zn	NA	17	Increase
Cadmium	Cd	10	0.04	Decrease
Chromium	Cr	8	5	Decrease
Thallium	Th	10	0.05	Decrease
Arsenic	As	7	1	Decrease
Mercury	Hg	10	NA	Decrease
Antimony	Sb	3	1	Decrease
Cobalt	Co	2	3	Increase
Manganese	Mn	71	NA	Decrease
Nickel	N	6	252	Increase
Tin	Sn	10	1	Decrease
Vanadium	V	4	150	Increase
Sulfur	S%	1.4	5.0	Increase

# TECHNICAL EVALUATION AND FINAL DETERMINATION

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The purpose of the above tables is to illustrate that the PSD pollutant of most concern is sulfur. Due to the decreases in the lead and ash content in petcoke, increased firing should lead to reductions in the emissions of PM, PM<sub>10</sub> and Pb. The Department notes that the emissions of nickel and vanadium are not subject to PSD, but may subject the facility to a future MACT requirement.

## 6.2 CARBON MONOXIDE (CO) AND VOLATIVE ORGANIC COMPOUNDS (VOC)

The applicant contends that there will be no increase in CO or VOC emissions from the increased co-firing of petcoke. The annual CO emissions for these emission units averaged 966 TPY, while annual VOC emissions averaged 118 TPY. The Significant Emission Rate for CO is 100 TPY, and for VOC is 40 TPY. Given that the available data shows reduced CO and VOC emissions from the firing of petcoke as compared to coal, the Department finds it unlikely that the increased co-firing of petcoke will cause annual emissions to exceed the PSD thresholds of each pollutant beyond representative past emission rates. Accordingly, a BACT review is not required for these pollutants.

## 6.3 NITROGEN OXIDE (NO<sub>x</sub>)

Test results from other facilities indicate that NO<sub>x</sub> emissions are typically less for petcoke firing as compared to coal firing. The annual NO<sub>x</sub> emissions for these emission units averaged 26558.8 TPY and the Significant Emission Rate for NO<sub>x</sub> is 40 TPY. The Department accepts the premise that increased petcoke firing (and decreased coal firing) will not cause annual NO<sub>x</sub> emissions to increase, nor specifically to exceed an average of 26598.7 TPY per emission unit. Accordingly, a BACT review is not required.

## 6.4 SULFUR DIOXIDE (SO<sub>2</sub>) AND SULFURIC ACID MIST (SAM)

The past actual average emissions of SO<sub>2</sub> and SAM were 21718.8 and 1316.9 TPY respectively. The Significant Emission Rate (SER) is 40 TPY for SO<sub>2</sub> and 7 TPY for SAM. The Department accepts the applicant's proposal that SO<sub>2</sub> and SAM emissions can be maintained below the respective SER by additional scrubbing with the existing wet FGD. The applicant additionally proposes to reduce the SO<sub>2</sub> limit (while co-firing) below the existing permit limit, as an additional means of providing assurance to the Department that SO<sub>2</sub> (as well as SAM) emissions will not increase. The combination of additional scrubbing and a reduced emission limit is acceptable to the Department and should ensure that the annual emission levels of SO<sub>2</sub> and SAM do not exceed the PSD thresholds for each pollutant beyond representative past emission rates (21758.7 TPY SO<sub>2</sub> and 1323.8 TPY SAM). In addition to this, the Department will place a limit on the throughput of petcoke at 30% on a heat input basis. Accordingly, the SO<sub>2</sub> and SAM emission increases are considered insignificant for PSD purposes and BACT reviews are not required.

## 6.5 PARTICULATE MATTER (PM/PM<sub>10</sub>)

As indicated above, it is reasonable to assume that PM<sub>10</sub> and PM emissions will be lowered as a result of the ten-fold decrease in fuel ash. Accordingly, the annual PM/PM<sub>10</sub> emissions from the stack are likely to be maintained with no increase above the PSD significant emission rate of 25/15 tons/year.

With regard to ancillary (or fugitive) emissions, the applicant estimates that particulate matter emissions will be reduced. This is based upon the increased heat input value of petcoke as compared to coal, meaning that a reduction in the overall tons of fuel handled will occur. In summary, the average PM/PM<sub>10</sub> emissions from each emission unit are likely to remain less than the PSD thresholds for each pollutant and no PSD Review is required.

## 6.6 SUMMARY

A preliminary review supports the applicant's contention that PSD is not triggered, eliminating the requirement for a BACT review and related modeling. PSD regulations (under the provisions commonly known as the "WEPCO rule") allow a source undertaking a non-routine change that could affect emissions at an electric utility steam generating unit to lawfully avoid the major source permitting process by using the unit's representative actual annual emissions to calculate emissions following the change, if the source submits information for 5 years following the change to confirm its pre-change projection. Under the WEPCO rule, SJRPP must compute baseline actual emissions and must project the future actual emissions from the modified units for a period after the physical change. In addition, SJRPP must maintain and submit to the Department on an annual basis for a period of at least 5 years



# TECHNICAL EVALUATION AND FINAL DETERMINATION

from the date the units resume regular operation, information demonstrating that the change did not result in a significant emissions increase. If SJRPP fails to comply with the reporting requirements of the WEPCO rule or if the submitted information indicates that emissions have increased above PSD thresholds as a consequence of the change, it will be required to obtain a PSD permit for petcoke co-firing (meaning that a BACT Review would then be applicable). Finally, even though a PSD review is not triggered due to the co-firing project, SJRPP must meet all other applicable federal, state, and local air pollution requirements.

## 7. ADDITIONAL COMPLIANCE PROCEDURES (AVERAGE PER EMISSION UNIT)

Pollutant	Compliance Procedures
NO <sub>x</sub>	Five years of annual reporting by CEMS proving annual emissions do not exceed 26598.7 TPY
CO	Five years of annual reporting by stack test proving annual emissions do not exceed 1066 TPY
VOC	Five years of annual reporting by historical AOR methods, proving annual emissions do not exceed 158.5 TPY
SO <sub>2</sub>	Five years of annual reporting by CEMS proving annual emissions do not exceed 21758.7 TPY
SAM	Five years of annual reporting by stack test proving annual emissions do not exceed 1323.8 TPY
PM	Five years of annual reporting by stack test proving annual facility emissions do not exceed 346.7 TPY

Specific permit conditions shall further describe these limitations. The reporting procedures are to begin during the first calendar year in which petcoke is fired.

## 8. CONCLUSION

Based on the foregoing technical evaluation of the application, additional information submitted by the applicant and other available information, the Department has made a final determination that the proposed project will comply with all applicable state and federal air pollution regulations.

Michael P. Halpin, P.E. Review Engineer  
Department of Environmental Protection, Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Florida Department of  
Environmental Protection

Memorandum

TO: Michael G. Cooke

THRU: Trina Vielhauer  
J. K. Pennington

FROM: Michael P. Halpin

DATE: March 30, 2005

SUBJECT: JEA, St. Johns River Power Park  
Petcoke increase  
DEP File No. PSD-FL-010, PA 81-13

Attached is the final air construction permit revision for St. Johns River Power Park. SJRPP Boilers Nos. 1 and 2 are fossil fuel-fired steam generators, each having a nominal nameplate rating of 679.6 megawatts (electric). The emissions units are allowed to fire pulverized coal, a blend of up to 20% petroleum coke and coal, new No. 2 distillate fuel oil (startup and low-load operation), and "on-specification" used oil. The maximum heat input to each emissions unit is 6,144 million Btu per hour. SJRPP Boilers Nos. 1 and 2 are dry bottom wall-fired boilers and will use an electrostatic precipitator (ESP) to control particulate matter, a wet limestone flue gas desulphurization (FGD) unit to control sulfur dioxide, low NO<sub>x</sub> burners and low excess-air firing to control nitrogen oxides, and good combustion to control carbon monoxide.

The applicant has requested permission to fire a blend of up to 30% petroleum coke and coal, utilizing the WEPCO provision. Based upon the submitted information and other readily available documentation, reasonable assurance exists that SJRPP can accommodate this increase without exceeding any of the PSD thresholds (which would otherwise prompt a BACT Determination).

Notice was published in the Florida Times-Union on March 15, 2005. No comments were received, other than two very minor comments from the applicant (which are accommodated within this issuance).

I recommend your approval.

Attachments

/mph

21 West Church Street  
Jacksonville, Florida 32202-3139

June 5, 2009



Ms. Trina Vielhauer  
Chief Bureau of Air Regulation  
Department of Environmental Protection  
2600 Blair Stone Road, MS-5505  
Tallahassee, FL. 32399

ELECTRIC

WATER

SEWER

RE: JEA / St. Johns River Power Park (SJRPP)  
Air Construction Permit 0310045-017-AC  
Emissions Performance Testing: Notification, Protocol & Schedule

Dear Ms. Vielhauer:

Pursuant to the above referenced JEA/SJRPP Air Construction Permit 0310045-017-AC's Emissions Performance Testing condition 8.(c): "At least 15 days prior to initiating the performance tests, the permittee shall submit a test notification, preliminary test schedule and test protocol to the Bureau of Air Regulation and the Compliance Authority", please find attached the "Protocol for Compliance Testing", which presents the required testing and scheduling information.

Please note that Clean Air Engineering (CleanAir) is tentatively scheduled to perform air emissions testing the week commencing June 22, 2009.

Please do not hesitate to contact me at (904) 665-8729 if you have any questions or require any additional information.

Sincerely,

A handwritten signature in black ink that reads "Jay Worley". The signature is written in a cursive style with a large loop at the beginning.

Jay Worley  
Director, Environmental Programs

xc: W. Walker, ERMD  
M. Halpin, FDEP  
C. Kirts, FDEP  
L. Haynes, EPA  
D. Nunez, CleanAir

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**CleanAir Engineering**  
321 Century Plaza  
Suite 130  
Houston, TX 77073-6041  
800-723-0362  
www.cleanair.com



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**PROTOCOL FOR COMPLIANCE TESTING**

To be performed for:  
**SJRPP**  
**UNIT 1 STACK**  
**SAINT JOHN'S RIVER POWER PARK**

CleanAir Project No: 10805  
Revision R1: 6/05/2009

---

To the best of our knowledge, the data presented in this protocol is accurate, complete, error free, legible and representative of the actual emissions during the test program.

Submitted by,

A handwritten signature in black ink, appearing to read 'Daniel J Nunez', written in a cursive style.

Daniel J Nunez  
Project Manager  
(281) 443-6400  
dnunez@cleanair.com

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**PROJECT OVERVIEW**

1-1

**INTRODUCTION**

In accordance with the below JEA - St. Johns River Power Park's (SJRPP) Air Construction Permit 0310045-017-AC Emissions Performance Testing 8, Clean Air Engineering (CleanAir) is tentatively scheduled to perform air emissions testing the week commencing June 22, 2009.

***Emissions Performance Testing***

8. Initial Performance Tests – Ammonia Injection for SAM Emissions Control: Within 90 days of completing construction of both Boilers 1 and 2 SCR systems, the permittee shall conduct a series of initial performance tests on either Boiler 1 or 2 to determine the SAM emissions rate under a variety of operating scenarios that documents the impact of ammonia injection on reducing SAM emissions and results in the development of correlation/curves between injection rates, operating conditions and emissions.

- a) For each set of operating conditions being evaluated, the permittee shall conduct at least a 1-hour test run to determine SAM emissions. At least nine such test runs shall be conducted to evaluate the effect of SAM emissions on such parameters as the SO<sub>2</sub> emission rate prior to the SCR catalyst (and FGD system), the unit load, the flue gas flow rate, the ammonia injection rate and the current catalyst oxidation rate.
- b) Tests shall be conducted under a variety of fuel blends and load rates that are representative of the actual operating conditions intended for Boilers 1 and 2. Sufficient tests shall be conducted to establish the SAM emissions rates for the following scenarios: bypass of the SCR reactor, SCR reactor in service without ammonia injection, and SCR reactor in service under varying operating conditions and levels of ammonia injection.
- c) At least 15 days prior to initiating the performance tests, the permittee shall submit a test notification, preliminary test schedule and test protocol to the Bureau of Air Regulation and the Compliance Authority.
- d) Within 45 days following the last test run conducted, the permittee shall provide a report summarizing the emissions tests and results. All SAM emissions test data shall be provided with this report.
- e) Within 45 days following the submittal of the emissions test report and no later than 90 days following the last test run conducted, the permittee shall submit a project report summarizing the following: identify each set of operating conditions evaluated, identify each operating parameter evaluated, identify the relative influence of each operating parameter, describe how the automated control system will adjust the ammonia injection rate based on the selected parameters, identify the frequency with which operational parameters will be reevaluated and adjusted within the automated control system, provide the algorithm used for the automated control system or a series of related performance curves, and provide details for calculating and estimated the SAM emissions rate based on the level of ammonia injection and operating

**PROJECT OVERVIEW**

1-2

conditions. The test results shall be used to adjust the ammonia injection control system and estimate SAM emissions.  
 [Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]

All testing will be conducted in accordance with the regulations set forth by the United States Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FLDEP).

**Test Program Parameters**

The testing to be performed at the Unit 1 Stack in June, 2009 will include the following emissions measurements:

- sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) (SAM)
- ammonia (NH<sub>3</sub>)
- flue gas composition (e.g., O<sub>2</sub>, CO<sub>2</sub>, H<sub>2</sub>O)
- flue gas flow rate
- flue gas temperature

**TEST PROGRAM SYNOPSIS**

**Test Schedule**

The on-site schedule followed during the test program is outlined in Table 1-1.

**Table 1-1:  
Schedule of Activities**

Day	Activity	Location	Test Method	Runs	Sample Time
1	Mobilization				
2	Set-up Equipment				
	Preliminary Flow Traverse	U1 Stack	1-4	1	Varied
3	C2 11:00-14:00				
	SAM (3 simultaneous trains)	U1 Stack	Method 8*	1	60 minutes
	Ammonia testing	U1 Stack	CTM-027	2	60 minutes
4	C5 08:00-11:00				
	SAM (3 simultaneous trains)	U1 Stack	Method 8*	1	60 minutes
	Ammonia testing	U1 Stack	CTM-027	2	60 minutes

**PROJECT OVERVIEW**

1-3

	C7 14:00-17:00					
	SAM (3 simultaneous trains)	U1 Stack	Method 8*	1	60 minutes	
	Ammonia testing	U1 Stack	CTM-027	2	60 minutes	
5	C10 11:00-14:00					
	SAM (3 simultaneous trains)	U1 Stack	Method 8*	1	60 minutes	
	Ammonia testing	U1 Stack	CTM-027	2	60 minutes	
	C12 16:00-19:00					
	SAM (3 simultaneous trains)	U1 Stack	Method 8*	1	60 minutes	
	Ammonia testing	U1 Stack	CTM-027	2	60 minutes	
6	S1 11:00-14:00					
	SAM (3 simultaneous trains)	U1 Stack	Method 8*	1	60 minutes	
	Ammonia testing	U1 Stack	CTM-027	2	60 minutes	
	SO <sub>2</sub>	U1 SCR Inlet	EPA 6C	continuous	continuous	
	SAM	U1 SCR Inlet	Method 8*	2	60 minutes	
	SAM	U1 SCR Outlet	Method 8*	2	60 minutes	
6/7	S3 22:00-01:00					
	SAM (3 simultaneous trains)	U1 Stack	Method 8*	1	60 minutes	
	Ammonia testing	U1 Stack	CTM-027	2	60 minutes	
	SO <sub>2</sub>	U1 SCR Inlet	EPA 6C	continuous	continuous	
	SAM	U1 SCR Inlet	Method 8*	2	60 minutes	
	SAM	U1 SCR Outlet	Method 8*	2	60 minutes	
7	C15 09:00-12:00					
	SAM (3 simultaneous trains)	U1 Stack	Method 8*	1	60 minutes	
	Ammonia testing	U1 Stack	CTM-027	2	60 minutes	
	SO <sub>2</sub>	U1 SCR Inlet	EPA 6C	continuous	continuous	
	SAM	U1 SCR Inlet	Method 8*	2	60 minutes	
	SAM	U1 SCR Outlet	Method 8*	2	60 minutes	



**PROJECT OVERVIEW**

1-4

7/8	C17 22:00-01:00				
	SAM (3 simultaneous trains)	U1 Stack	Method 8*	1	60 minutes
	Ammonia testing	U1 Stack	CTM-027	2	60 minutes
	SO <sub>2</sub>	U1 SCR Inlet	EPA 6C	continuous	continuous
	SAM	U1 SCR Inlet	Method 8*	2	60 minutes
	SAM	U1 SCR Outlet	Method 8*	2	60 minutes

**PROJECT OVERVIEW**  
**TEST PROGRAM SYNOPSIS (CONTINUED)**

**Table 1-2:  
 Summary of Testing Conditions**

Test Activity	Activity Name	Unit Load	SCR Operation <sup>1</sup>	Fuel <sup>2</sup>	SO <sub>3</sub> System Operation <sup>3</sup>
C2	Permit Test – Bypass	100%	SCR Bypass	Colombian	Automatic
C5	Permit Test – No SCR NH <sub>3</sub> /Auto SO <sub>3</sub>	100%	No NH <sub>3</sub> Injection	Colombian	Automatic
C7	Permit Test – No SCR NH <sub>3</sub> /SO <sub>3</sub> Off	100%	No NH <sub>3</sub> Injection	Colombian	Off
C10	Permit Test – SCR NH <sub>3</sub> Injection/SO <sub>3</sub> Off	100%	Normal	Colombian	Off
C12	Permit Test – SCR NH <sub>3</sub> Injection/ ½ SO <sub>3</sub>	100%	Normal	Colombian	½ Flow
S1a	Permit Test – Normal Operation	100%	Normal	Colombian	Automatic
S3a	Permit Test – Normal Minimum Load Operation	50%	Normal	Colombian	Automatic
C15	Permit Test – Design Load Domestic	100%	Normal	Domestic	Automatic
C17	Permit Test – Minimum Load Domestic	50%	Normal	Domestic	Automatic

Notes:

1. The following is a description of the SCR operating options:  
 SCR Bypass = SCR system is out of service, with bypass dampers in bypass position.  
 Normal = SCR system in operation with the SCR ammonia system in automatic.  
 No NH<sub>3</sub> Injection = SCR system in operation but with no ammonia being injected in to the SCR
2. The following is a description of the fuel options:  
 Colombian = Unit firing 100 percent Colombian coal.  
 Domestic = Unit firing 100 percent Domestic coal.  
 Plant Preference = Fuel choice is dictated by plant operations, no specific fuel is required for the test.
3. The following is a description of the SO<sub>3</sub> system operating options:  
 Automatic = SO<sub>3</sub> control system operating such that the DCS controls the ammonia injection rate.  
 ½ Flow = SO<sub>3</sub> control system operating with NH<sub>3</sub> injection rate set at ½ of the NH<sub>3</sub> flow rate demand from DCS.  
 Off = SO<sub>3</sub> control system not in operation, no ammonia injection.

**PROJECT OVERVIEW**

**Results Summary**

Table 1- summarizes the required results of the test program.

**Table 1-3:  
Summary of Test Results**

<u>Source</u> Constituent	Sampling Method	Average Emission	Permit Limit <sup>1</sup>
<u>Unit 1 Stack</u> SO3 (TPY)	EPA Method 8*	x.xx	1323
NH3 (ppmdv)	CTM-027	x.xx	5

<sup>1</sup> Permit limits obtained from SJRPP permit number: 0310045-017-AC.

060509 124044

**Discussion of Test Program**

CleanAir will perform EPA Methods 8\*, CTM-027, and 6C for the determination of sulfuric acid mist (SAM), ammonia, and sulfur dioxide.

At the stack, SAM testing will be performed using three (3) separate sampling trains during one (1) single 60 minute run, while the ammonia testing will utilize one (1) sample train and two (2) 60 minute runs.

During conditions S1 and S3, in addition to the SAM and ammonia testing at the stack, SO<sub>2</sub> & SAM testing will occur at the inlet of one of the two SCR reactors and SAM testing will also occur at the outlet of the same reactor.

A preliminary velocity traverse and moisture determination will be performed at all locations during set-up, in order to determine.

Analysis of the ammonia samples will be performed onsite via Ion Chromatography (IC).

The SO<sub>3</sub> fractions of the SAM testing will also be analyzed on-site using IC. The SO<sub>2</sub> fraction will be analyzed via titration.

\*SJRPP and CleanAir are currently in discussions with Florida DEP requesting approval for the alternative Method 8A (Controlled Condensation) for SAM testing. As such, methodology descriptions for both Method 8 and the alternative method are included in this protocol for reference purposes.

*End of Section 1 – Project Overview*

**DESCRIPTION OF INSTALLATION**

**PROCESS DESCRIPTION**

SJRPP operates two 624 MW power generating units. In addition to these, the plant has a series of Air Pollution Control Devices (APCDs) that are used to control emissions from the operation of the plant.

The testing reported in this document will be performed at the Unit 1 Stack and the inlet and outlet of the Unit 1 Selective Catalytic Reduction (SCR).

**DESCRIPTION OF SAMPLING LOCATIONS**

Sampling point locations were determined according to EPA Method 1.

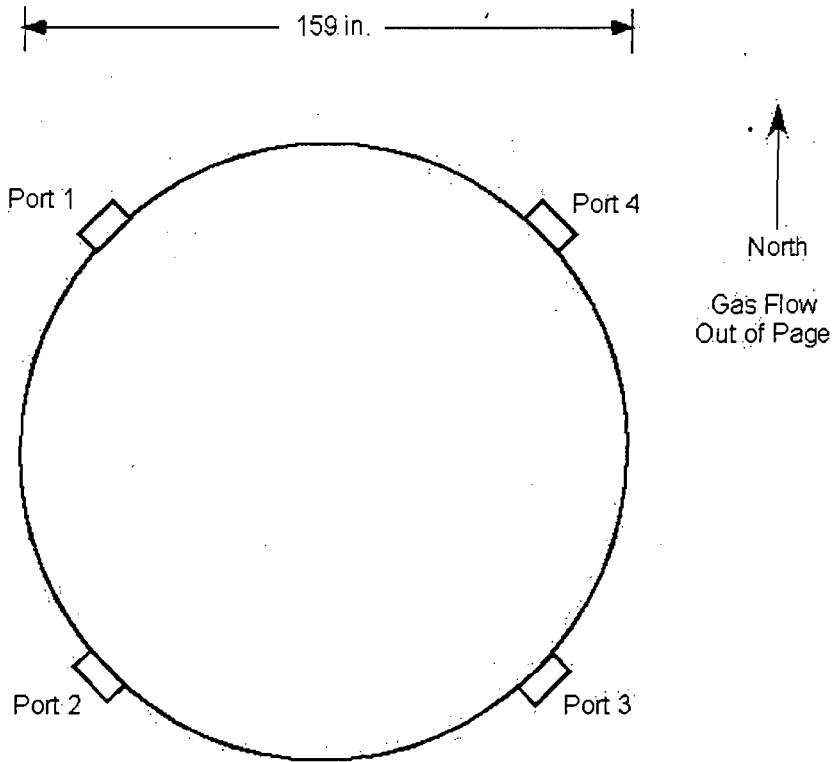
Table 2-1 outlines the sampling point configurations. Figure 2- through 2-2 illustrate the orientation of sampling ports for each of the sources to be tested in the program.

**Table 2-1:  
Sampling Points**

<u>Source</u>							
Constituent	Method	Run No.	Ports	Points per Port	Minutes per Point	Total Minutes	Figure
<u>Unit 1 Stack</u>							
SAM	EPA Method 8*	1	4	1	60	60	2-1
NH <sub>3</sub>	CTM-027	1-2	4	1	60	60	
<u>Unit 1 SCR Inlet</u>							
SAM	EPA Method 8*	1	7	1	60	60	2-2
SO <sub>2</sub>	EPA 6C	1-2	7	varied	continuous	varied	
<u>Unit 1 SCR Outlet</u>							
SAM	EPA Method 8*	1-2	12	1	60	60	2-3

**DESCRIPTION OF INSTALLATION**  
**DESCRIPTION OF SAMPLING LOCATIONS (CONTINUED)**

2-2



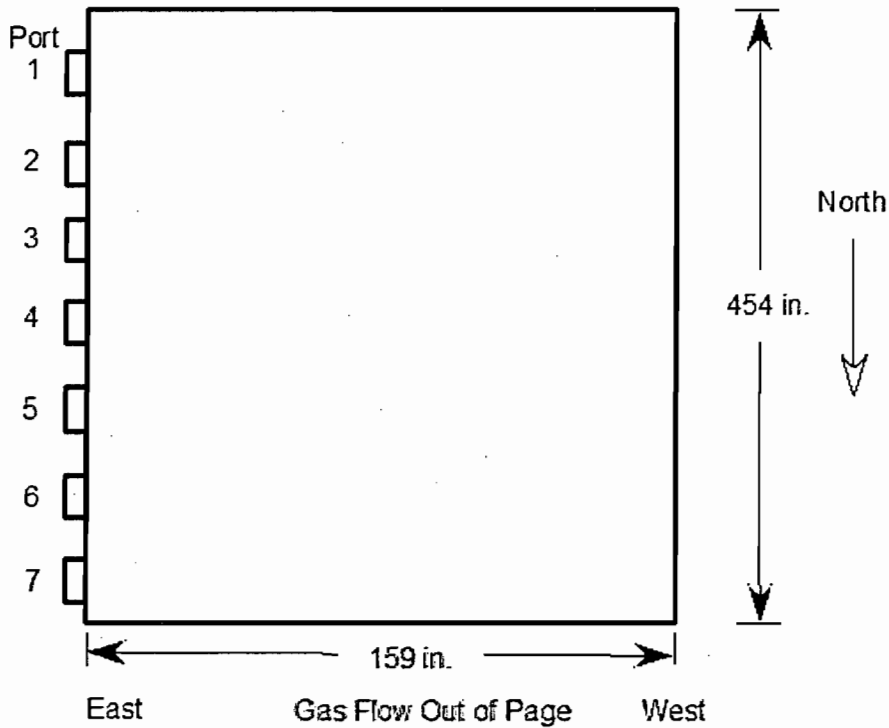
Duct diameters upstream from flow disturbance (A):	16.0	Limit: 0.5
Duct diameters downstream from flow disturbance (B):	21.4	Limit: 2.0

Figure 2-1: Unit 1 Stack

**DESCRIPTION OF INSTALLATION**

2-3

**DESCRIPTION OF SAMPLING LOCATIONS (CONTINUED)**



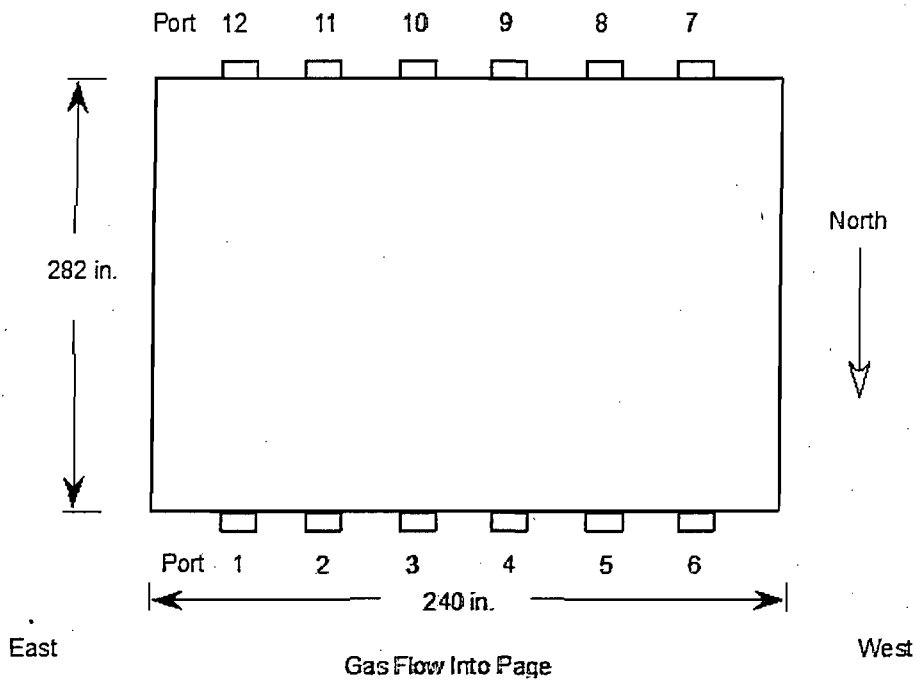
Equivalent Duct diameters upstream from flow disturbance (A):	1.22	Limit: 0.5
Equivalent Duct diameters downstream from flow disturbance (B):	3.21	Limit: 2.0

Figure 2-2: Unit 1 SCR Inlet (A or B)

**DESCRIPTION OF INSTALLATION**

2-4

**DESCRIPTION OF SAMPLING LOCATIONS (CONTINUED)**



Equivalent Duct diameters upstream from flow disturbance (A): 0.09 Limit: 0.5  
Equivalent Duct diameters downstream from flow disturbance (B): 1.42 Limit: 2.0

Figure 2-3: Unit 1 SCR Outlet (A or B)

End of Section 3 – Description of Installation

**METHODOLOGY**

Clean Air Engineering followed procedures as detailed in USEPA Methods 1, 2, 3A, 4, CTM-027 and Method 8\*. The following table summarizes the methods and their respective sources.

**Table 3-1:  
Summary of Sampling Procedures**

---

<u>Title 40 CFR Part 60 Appendix A</u>	
Method 1	"Sample and Velocity Traverses for Stationary Sources"
Method 2	"Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)"
Method 3A	"Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)"
Method 4	"Determination of Moisture Content in Stack Gases"
Method 8	"Determination of Sulfuric Acid and Sulfur Dioxide Emissions from Stationary Sources"
 <u>Conditional Test Methods (CTM)</u>	
CTM-027	"Procedure for Collection and Analysis of Ammonia in Stationary Sources"

---

These methods appear in detail in Title 40 of the Code of Federal Regulations (CFR) and on the World Wide Web at <http://www.cleanair.com>.

Diagrams of the sampling apparatus and major specifications of the sampling, recovery and analytical procedures are summarized for each method in Appendix A.

CleanAir followed specific quality assurance and quality control (QA/QC) procedures as outlined in the individual methods and in USEPA "Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III Stationary Source-Specific Methods", EPA/600/R-94/038C. Additional QA/QC methods as prescribed in CleanAir's internal Quality Manual were also followed. Results of all QA/QC activities performed by CleanAir are summarized in Appendix D.



## **METHODOLOGY**

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### Sample and Velocity Traverse Points – USEPA Method 1

USEPA Method 1 provides guidance for the selection of sampling ports and traverse points at which sampling for air pollutants will be performed. This method is designed to aid in the representative measurement of pollutant emissions and/or total volumetric flow rate from a stationary source. A measurement site where the effluent stream is flowing in a known direction is selected, and the cross-section of the stack is divided into a number of equal areas. Traverse points are then located within each of these equal areas.

The requirements of this method must be considered before construction of a new facility from which emissions are to be measured; failure to do so may require subsequent alterations to the stack or deviation from the standard procedure. Cases involving variants are subject to approval by the Administrator.

This method is applicable to gas streams flowing in ducts, stacks, and flues. It cannot be used when:

- the flow is cyclonic or swirling;
- a stack is smaller than 0.30 meter (12 in.) in diameter,
- a stack is smaller than  $0.071 \text{ m}^2$  ( $113 \text{ in}^2$ ) in cross-sectional area.

Two procedures for determining cyclonic flow are presented in Method 1: a simplified procedure, and an alternative measurement site procedure. The magnitude of cyclonic flow of effluent gas in a stack or duct is the only parameter quantitatively measured in the simplified procedure. The simplified procedure cannot be used when the measurement site is less than two stack or duct diameters downstream or less than a half diameter upstream from a flow disturbance. In these cases, the alternative measurement site procedure, which involves traversing the source with a directional flow-sensing probe (3D Probe), must be used to measure the pitch and yaw angles of the gas flow at 40 or more traverse points. The resultant angle is then calculated and compared to acceptable criteria for mean and standard deviation.

### Volumetric Flow Rate – USEPA Method 2

USEPA Method 2 is used to determine the average velocity and the volumetric flow rate of a gas stream. The average gas velocity in a stack is determined from the gas density and from measurement of the average velocity head with a Type S (Stausscheibe or reverse type) pitot tube.

This method is not applicable at measurement sites that fail to meet certain criteria of USEPA Method 1. Also, the method cannot be used for direct measurement in cyclonic or swirling gas streams. Method 1 shows how to determine cyclonic or swirling flow conditions. When unacceptable conditions exist, alternative procedures, subject to the approval of the Administrator, must be employed to produce accurate flow rate determinations. Examples of such alternative procedures are:

**METHODOLOGY**

3-3

- to install straightening vanes;
- to calculate the total volumetric flow rate stoichiometrically;
- to move to another measurement site at which the flow is acceptable.

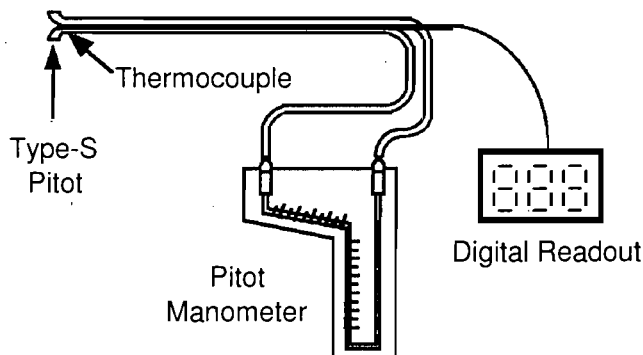


Figure 3-1: Velocity Apparatus (EPA Method 2)

#### Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrument Analyzer Procedure) – USEPA Method 3A

USEPA Method 3A applies to the determination of oxygen (O<sub>2</sub>) and carbon dioxide (CO<sub>2</sub>) concentrations in emissions from stationary sources.

A sample is continuously extracted from the effluent stream: a portion of the sample stream is conveyed to an instrumental analyzer(s) for determination of O<sub>2</sub> and CO<sub>2</sub> concentration(s). Performance specifications and test procedures are provided to ensure reliable data.

#### Determination of Moisture Content in Stack Gases – USEPA Method 4

USEPA Method 4 is used for the determination of the moisture content of stack gas. A gas sample is extracted at a constant rate from the source; moisture is removed from the sample stream and determined either volumetrically or gravimetrically.

The method contains two possible procedures:

- reference method
- approximation method

The reference method is used for accurate determinations of moisture content. The reference method is often conducted simultaneously with a pollutant emission measurement run. When it is, calculation of percent isokinetic, pollutant emission rate, etc., for the run is based upon the results of the reference method or its equivalent.

**METHODOLOGY**

3-4

The approximation method provided is used to estimate percent moisture to aid in setting isokinetic sampling rates prior to a pollutant emission measurement run. Alternative means for approximating the moisture content (*e.g.*, drying tubes, wet bulb-dry bulb techniques, condensation techniques, stoichiometric calculations, previous experience, etc.) are also acceptable as approximation methods.

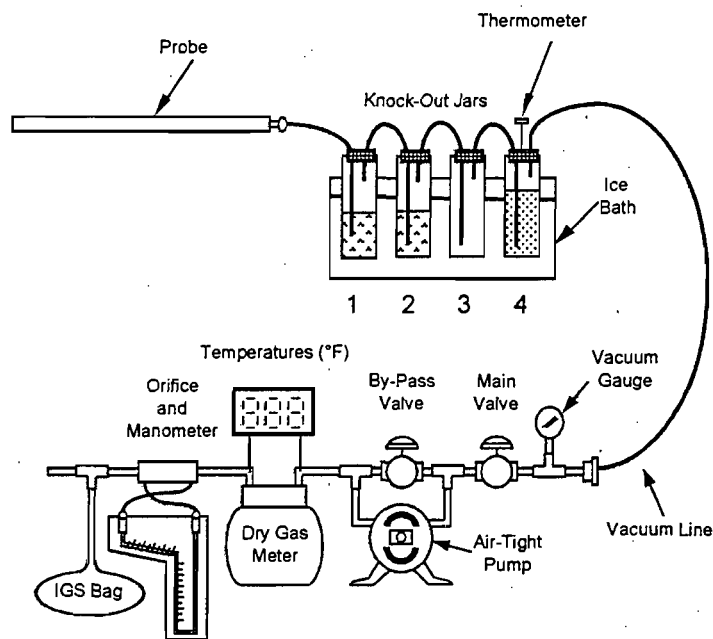


Figure 3-2: Moisture and Molecular Weight train (EPA Method 4)

### Sulfur Dioxide Emissions from Stationary Sources (Instrument Analyzer Method) – USEPA Method 6C

USEPA Method 6C is used for the determination of sulfur dioxide (SO<sub>2</sub>) concentrations in controlled and uncontrolled emissions from stationary sources.

A gas sample is continuously extracted from a stack, and a portion of the sample is conveyed to an instrumental analyzer for determination of SO<sub>2</sub> gas concentration using an ultraviolet (UV), nondispersive infrared (NDIR), or fluorescence analyzer. Performance specifications and test procedures are provided to ensure reliable data.

The analytical range is determined by the instrumental design. For this method, a portion of the analytical range is selected by choosing the span of the monitoring system. The span of the monitoring system is selected such that the pollutant gas concentration equivalent to the emission standard is not less than 30 percent of the span. If at any time during a run the measured gas concentration exceeds the span, the run is considered invalid.

**METHODOLOGY**

3-5

The minimum detectable limit depends on the analytical range, span, and signal-to-noise ratio of the measurement system. For a well designed system, the minimum detectable limit is less than 2 percent of the span.

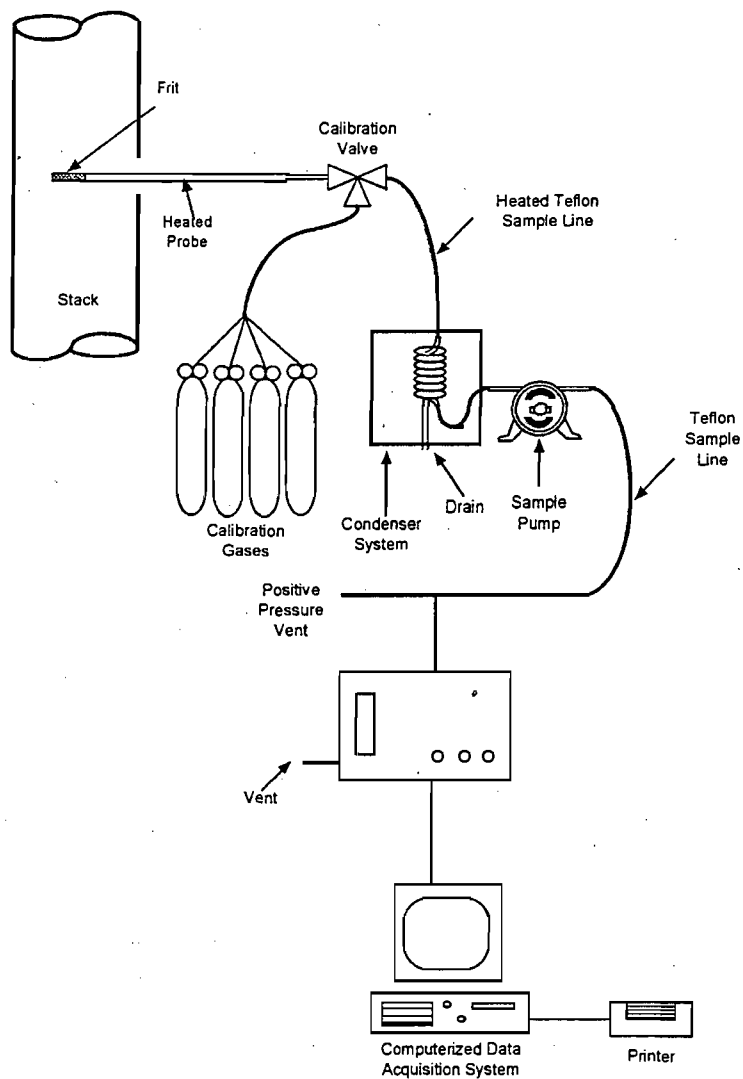


Figure 3-3: CEMs Apparatus (EPA Method 6C)

**METHODOLOGY**

3-6

Sulfuric Acid and Sulfur Dioxide Emissions from Stationary Sources – USEPA Method 8

USEPA Method 8 is used to measure sulfuric acid (including H<sub>2</sub>SO<sub>4</sub> mist and SO<sub>3</sub>) and gaseous SO<sub>2</sub> emissions from stationary sources. Source gas is withdrawn isokinetically and bubbled through isopropanol (to collect H<sub>2</sub>SO<sub>4</sub> mist and SO<sub>3</sub>) followed by a solution of hydrogen peroxide (to collect SO<sub>2</sub>). The H<sub>2</sub>SO<sub>4</sub>/SO<sub>3</sub> and the SO<sub>2</sub> fractions are measured separately by the barium-thorin titration method.

Filterable particulate matter may be determined along with SO<sub>3</sub> and SO<sub>2</sub> (subject to the approval of the Administrator) by inserting a heated glass fiber filter between the probe and isopropanol impinger. If this option is chosen, particulate analysis is done gravimetrically and sulfuric acid is not determined.

Possible interfering agents of USEPA Method 8 include fluorides, free ammonia, and dimethyl aniline. If any of these interfering agents is present (this can be determined by knowledge of the process), alternative methods, subject to the approval of the Administrator, are required.

**METHODOLOGY**

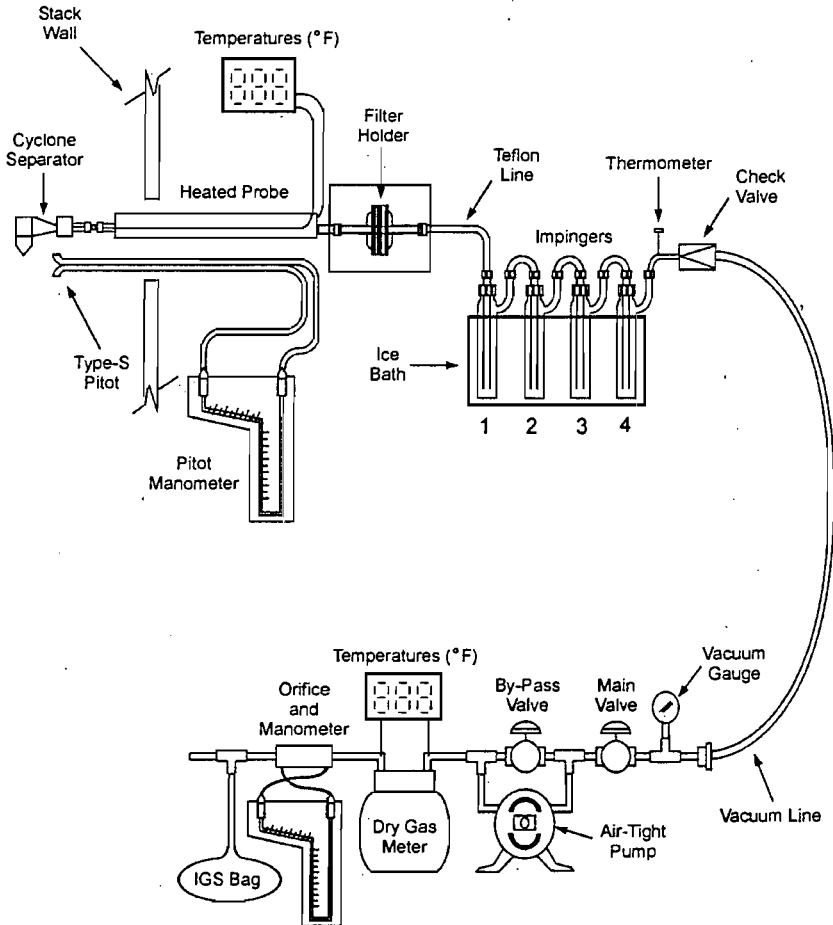


Figure 3-4: (SAM) train (EPA Method 8)

Determination of Ammonia Emissions – USEPA Conditional Test Method 027

USEPA Conditional Test Method 027 is used to determine gaseous concentration of ammonia in flue gas streams. This method collects the emission sample using a modified Method 17 sampling apparatus.

The gas sample is withdrawn isokinetically from the source and filtered in-stack using a glass-fiber filter. A glass or quartz probe is used to extract the gas sample. An acidic absorbing solution (0.1 Normal Sulfuric Acid) contained in a series of glass impingers captures the gaseous ammonia from the particulate-free gas. The acidic solutions are recovered and analyzed for ammonia using ion chromatography.

**METHODOLOGY**

3-8

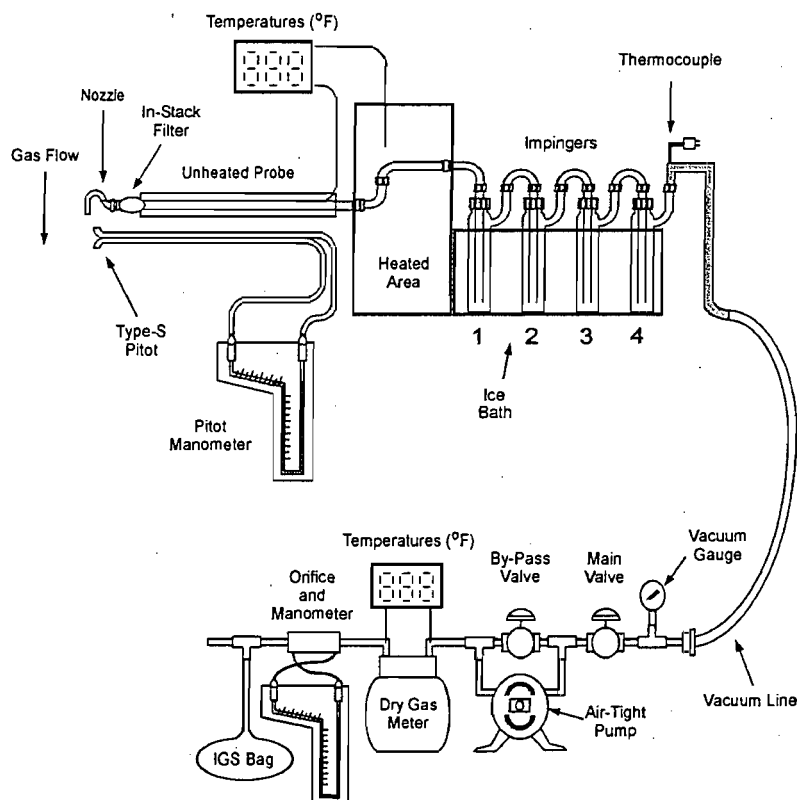


Figure 3-5: Ammonia train (EPA CTM-027)

### Sulfuric Acid Mist – Method 8A (Controlled Condensation)

This method is applicable for the determination of sulfur dioxide, sulfur trioxide, and sulfuric acid vapor and/or mist using a controlled condensation sampling system train. CleanAir developed this method as an alternate procedure to ASTM D3226-73T and NCASI Method 8A for the determination of sulfuric acid emissions from combustion sources, principally fossil fuel fired steam boilers.

A particulate-laden gas sample is extracted at a constant flow rate from the source using a glass lined probe heated to  $316 \pm 14$  °C ( $600 \pm 25$  °F), and then passed through a glass fiber filter maintained at a temperature of  $288 \pm 14$  °C ( $550 \pm 25$  °F). The gas stream sample is passed through an impaction type condenser for collection of residual sulfuric acid vapor and/or mist. The probe rinse, filter and the condenser collection media are each extracted separately with 80% isopropyl alcohol, and the extractions are titrated with barium chloride-thorin solution. The impinger solution is recovered separately, and titrated using the barium chloride-thorin titration method.

**METHODOLOGY**

Free ammonia is a possible interferent. Free ammonia interferes with this method by reacting with SO<sub>2</sub> and SO<sub>3</sub> to form particulate sulfite and sulfates and by reacting with the indicator. The presence of free ammonia in the gas stream will typically require analysis by ion chromatography.

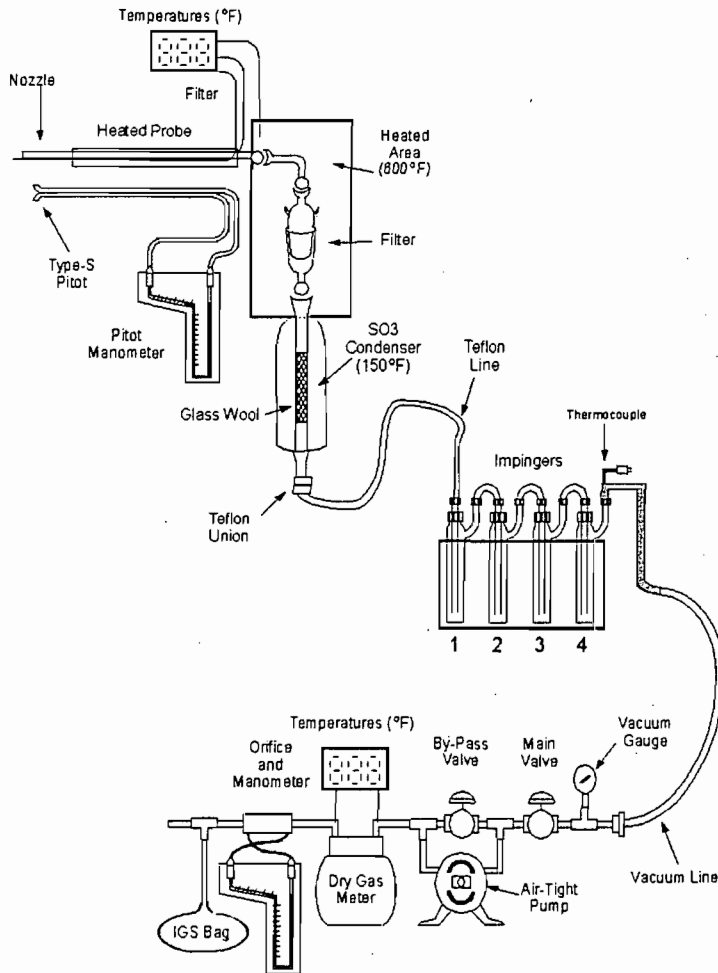


Figure 3-6: CCM (SAM) train (Method 8A)

End of Section 4 – Methodology



**RESUMES**

4-1

**Daniel J Nuñez  
Project Manager**

**Professional Profile**

Mr. Nuñez has been with CleanAir since July 2005. He has been working with the Source Testing team since September 2007; prior to that, he worked with the Analytical Services team. During his time in the laboratory, he was involved with hundreds of Ion Chromatography, Gas Chromatography and Gravimetric projects.

Since 2005, Mr. Nuñez has been involved with various projects covering a wide range of technical work. This work incorporates both laboratory and field analyses. He is responsible for project management, field testing supervision, sample preparation and analysis, as well as calibration and operation of analytical devices used in the field and laboratory.

The laboratory portion of this work includes:

- Ion Chromatography (IC) Analysis and Method Development
- Gas Chromatography (GC) Analysis
- Wet Chemistry Laboratory Analysis and Method Development
- Scrubber performance analysis according to EPRI and ASTM approved methods

Mr. Nuñez has also received his Qualified Source Testing Individual (QSTI) certification.

**Relevant Experience**

*Babcock Power / Santee Cooper*

*Winyah Generating Station; Georgetown, South Carolina*

Field Crew Member responsible for on-site Sulfate and Ammonium analysis by Ion Chromatography.

*Fuel Tech / Santee Cooper*

*Cross Generating Station; Pineville, South Carolina*

Field Crew Member for the determination of SO<sub>2</sub> conversion across the SCR and Air Pre-Heater on Units 2 and 3. SO<sub>2</sub>/SO<sub>3</sub> determinations were made by controlled condensation at the inlet and outlet of the SCR and the outlet of the Air Pre-Heater. All SO<sub>2</sub>/SO<sub>3</sub> samples were analyzed on-site by Ion Chromatography and Barium Perchlorate titrations.

*Louisa Environmental Project Partners / MidAmerican Energy Corp.*

*Louisa Generating Station; Muscatine, Iowa*

Field Test Leader and Project Manager for the Lime quality and Scrubber efficiency guarantee. Coordinated sample collection and flue gas flow rate determination over various usage periods, in order to demonstrate scrubber performance with regards to Lime quality, Lime consumption, and stoichiometric ratio of available lime and present SO<sub>2</sub>.

*Evonik-Degussa Corporation*

*Consumer Specialties; Janesville, Wisconsin*

Field Test Leader and GC operator for the compliance and pre-compliance test of a Cryogenic Scrubber installed for the removal of VOCs (primarily Methyl Chloride). Mr. Nuñez determined operating conditions for GC analysis in order to yield accurate and timely results.

*Goodyear Tire & Rubber Company*

*Natsyn Line; Beaumont, Texas*

Field Test Leader, Project Manager and GC operator for the compliance test of the Natsyn crumb tank emissions. Mr. Nuñez developed the protocol and proper GC operating conditions for the analysis of 14 compounds.

*Black & Veatch*

*Saint John's River Power Park; Jacksonville, Florida*

Field Test Leader and Project Manager for SCR Performance Guarantee. CleanAir's Multi-point Automated Sampling System (MASS) was used to determine Outlet NO<sub>x</sub> distribution in addition to removal efficiency. SO<sub>2</sub> conversion across the SCR on Unit 2 utilizing ASTM D3226-73T (Controlled Condensation) and Ammonia slip sampling by CTM 027 were also utilized. All samples were analyzed on-site to expedite the results and allow B&V to complete its guarantee in a timely manner.

**Education**

Bachelor of Arts in Chemistry, 2004

Minor in Environmental Studies

Knox College, Galesburg, Illinois

# CleanAir

## Jacob Voorhies Field Test Coordinator

### Professional Profile

Mr. Voorhies has field testing experience in both compliance and diagnostic Environmental Protection Agency (EPA) source testing, utilizing most of Methods 1 through 29 of the Code of Federal Regulations (CFR40 Part 60). Mr. Voorhies's responsibilities include pre- and post-test equipment calibration, packing, shipping, maintenance, software applications, equipment set-up, field testing, data acquisition, post-test data reduction, and report preparation.

### Relevant Experience

#### *B & W; KCPL Hawthorne Plant; Kansas City, MO*

Determination of ammonia slip at SCR Outlet. EPA methods 1-4, CTM-027 were used

#### *AES Deepwater Cogeneration; Pasadena, Texas*

Performed annual Relative Accuracy testing on boiler for flow and CEMs including SO<sub>2</sub>, NO<sub>x</sub>, CO<sub>2</sub>, and CO. EPA Methods 1-4, 3A, 6C, 7E, and 10 were used.

#### *Anthony Forest Products, Co; Urbana, Arkansas*

Perform diagnostic emission measurements on 3 wood-fired process boilers.

EPA Methods 1-4, 29 were used.

#### *Temple-Inland; Hope, Arkansas*

Perform emission measurements at pre-press bag house to determine formaldehyde concentration.

EPA Methods 1,2,3A,4, NCASI were used.

#### *Temple-Inland; Thomson, Georgia*

Perform metals & organic HAPs testing to provide the plant with data for use in Risk Modeling.

EPA Methods 1-4, 29, NCASI 99.02 were used.

#### *Goodyear; Beaumont, Texas*

Performed testing for NO, CO, NO<sub>x</sub>, NO<sub>2</sub>, and O<sub>2</sub>. EPA Methods 1-4 and CTM-030 were used

#### *Invista; Victoria, TX*

Performed particulate/metals, HCl/Cl<sub>2</sub>, particulate sizing, SO<sub>2</sub>, NO<sub>x</sub> and CO testing upon a boiler where 2 different fuels were used. EPA Methods 1-4, 5/29, 26A, CARB 501, 6C, 7E and 10 were used.

#### *Fossil & Hydro; Chesapeake, VA*

Determination of ammonia slip at SCR Outlet. EPA methods 1-4, CTM-027 were used

### Education

Bachelor of Science, Environmental Science, 2006, Springfield College

**SAMPLE CALCULATIONS**

**CTM-027  
 NH<sub>3</sub> Analyte Calculations**

**Sample data taken from Run 1**

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

052809 104742  
 K

1. Ammonium to NH<sub>3</sub> conversion factor

$$K_{NH_3} = \frac{MW_{NH_3}}{n \times MW_{NH_4^+}}$$

Where:

MW <sub>NH<sub>3</sub></sub>	= molecular weight of NH <sub>3</sub> (mg/mg-mole)	=	17.030	mg/mg-mole
MW <sub>NH<sub>4</sub><sup>+</sup></sub>	= molecular weight of ammonium ion (mg/mg-mole)	=	18.040	mg/mg-mole
n	= molar ratio of ammonium to NH <sub>3</sub>	=	1.0	mole NH <sub>4</sub> <sup>+</sup> /mole NH <sub>3</sub>
K <sub>NH<sub>3</sub></sub>	= conversion factor to convert mass NH <sub>4</sub> <sup>+</sup> to mass NH <sub>3</sub>	=	0.944	

2. Total NH<sub>3</sub> collected (mg)

$$m_{NH_3} = K_{NH_3} \times \frac{(S_{NH_4^+} v_1 + S_{NH_4^+} v_2)}{1000}$$

Where:

K <sub>NH<sub>3</sub></sub>	= conversion factor to convert mass NH <sub>4</sub> <sup>+</sup> to mass NH <sub>3</sub>	=	0.944	
S <sub>NH<sub>4</sub><sup>+</sup>1</sub>	= ammonium concentration of sample fraction 1 (mg/liter)	=	<0.0050	mg/liter
v <sub>1</sub>	= liquid volume of sample fraction 1 (ml)	=	774.0	ml
S <sub>NH<sub>4</sub><sup>+</sup>2</sub>	= ammonium concentration of sample fraction 2 (mg/liter)	=	0.0000	mg/liter
v <sub>2</sub>	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m <sub>NH<sub>3</sub></sub>	= total NH <sub>3</sub> collected in sample (mg)	=	<0.0037	mg

Note: Non-detects are treated as zero in summations.

**DEFINITION**

Fraction 1 = entire sample except last impinger containing applicable absorbing reagent.  
 Fraction 2 = last impinger containing applicable absorbing reagent, analyzed separately to evaluate collection efficiency.  
 If entire sample is analyzed as a single fraction, then data is included as Fraction 1 (Fraction 2 = 0).

3. Allowable blank subtraction (mg)

$$m_b = K_{NH_3} \times B_{NH_4^+} \times \frac{(v_1 + v_2)}{1000}$$

$$m_b = 0 \text{ if } B_{NH_4^+} < MDL$$

4. Total NH3 collected, corrected for blank (mg)

$$m_{nb} = m_{NH_3} - m_b$$

Where:

$m_{NH_3}$	= total NH <sub>3</sub> collected in sample (mg)	=	<0.0037	mg
$m_b$	= allowable blank subtraction (mg)	=	0.0000	mg
$m_{nb}$	= total NH <sub>3</sub> collected, corrected for blank (mg)	=	<0.0037	mg

5. Minimum detectable NH3 (mg)

$$m_{MDL} = K_{NH_3} \times MDL \times \frac{(v_1 + v_2)}{1000}$$

Where:

$K_{NH_3}$	= conversion factor to convert mass NH <sub>4</sub> <sup>+</sup> to mass NH <sub>3</sub>	=	0.944	
MDL	= minimum detectable ammonium concentration	=	0.063	mg/liter
$v_1$	= liquid volume of sample fraction 1 (ml)	=	774.0	ml
$v_2$	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
$m_{MDL}$	= minimum detectable NH <sub>3</sub> (mg)	=	0.0460	mg

6. Total NH3 value used in emission calculations (mg)

$$m_n = \text{MAXIMUM} [m_{nb} \text{ or } < m_{MDL}]$$

Where:

$m_{nb}$	= total NH <sub>3</sub> collected, corrected for blank (mg)	=	<0.0037	mg
$m_{MDL}$	= minimum detectable NH <sub>3</sub> (mg)	=	0.0460	mg
$m_n$	= total NH <sub>3</sub> value used in emission calculations (mg)	=	<0.0460	mg

7. Collection QC check (% mass collected in second fraction)

$$EFF = 100 \times \frac{K_{NH_3} \times S_{NH_4-2} \times \frac{v_2}{1000}}{m_{NH_3}}$$

Where:

$K_{NH_3}$	= conversion factor to convert mass NH <sub>4</sub> <sup>+</sup> to mass NH <sub>3</sub>	=	0.944	
$S_{NH_4-2}$	= ammonium concentration of sample fraction 2 (mg/liter)	=	0.0000	mg/liter
$v_2$	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
$m_{NH_3}$	= total NH <sub>3</sub> collected in sample (mg)	=	<0.0037	mg
1000	= conversion factor (ml/liter)	=	1000	ml/liter
100	= conversion factor	=	100	%
EFF	= Collection QC check (% mass collected in second fraction)	=	0.00	%

**CTM-027  
 NH<sub>3</sub> Sample Calculations**

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

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1. NH<sub>3</sub> concentration (lb/dscf)

$$C_{sd} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right)$$

Where:

$m_n$	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	= <0.0460	mg
$V_{mstd}$	= volume metered, standard (dscf)	= 39.7518	dscf
$2.205 \times 10^{-3}$	= conversion factor (lb/g)	= 2.205E-03	lb/g
1000	= conversion factor (mg/g)	= 1,000	mg/g

$C_{sd}$	= NH <sub>3</sub> concentration (lb/dscf)	= <2.5533E-09	lb/dscf
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2. NH<sub>3</sub> concentration (ppmdv)

$$C_{sd} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{0.850}{1000} \right) \left( \frac{10^6}{MW} \right)$$

Where:

$m_n$	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	= <0.0460	mg
$V_{mstd}$	= volume metered, standard (dscf)	= 39.7518	dscf
MW	= molecular weight of NH <sub>3</sub> (g/g-mole)	= 17.030	g/g-mole
0.850	= conversion factor (dscf/g-mole)	= 0.850	dscf/g-mole
1000	= conversion factor (mg/g)	= 1,000	mg/g
$10^6$	= conversion factor (ppm)	= $10^6$	ppm

$C_{sd}$	= NH <sub>3</sub> concentration (ppmdv)	= <0.0578	ppmdv
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3. NH<sub>3</sub> concentration (ppmwv)

$$C_w = C_{sd} \left( 1 - \frac{B_w}{100} \right)$$

Where:

$C_{sd}$	= NH <sub>3</sub> concentration (ppmdv)	= <0.0578	ppmdv
$B_w$	= actual water vapor in gas (% v/v)	= 10.3481	% v/v
100	= conversion factor (%)	= 100	%

$C_w$	= NH <sub>3</sub> concentration (ppmwv)	= <0.0518	ppmwv
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4. NH<sub>3</sub> concentration (mg/dscm)

$$C_{sd} = \left( \frac{m_n}{V_{mstd}} \right) (35.31)$$

Where:

$m_n$	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	=	<0.0460	mg
$V_{mstd}$	= volume metered, standard (dscf)	=	39.7518	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
$C_{sd}$	= NH <sub>3</sub> concentration (mg/dscm)	=	<0.0409	mg/dscm

5. NH<sub>3</sub> concentration (mg/Nm<sup>3</sup> dry)

$$C_{sd} = \left( \frac{m_n}{V_{mstd}} \right) (35.31) \left( \frac{68 + 460}{32 + 460} \right)$$

Where:

$m_n$	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	=	<0.0460	mg
$V_{mstd}$	= volume metered, standard (dscf)	=	39.7518	dscf
35.31	= conversion factor (dscf/dscm)	=	35.31	dscf/dscm
68	= standard temperature (°F)	=	68	°F
32	= normal temperature (°F)	=	32	°F
460	= °F to °R conversion constant	=	460	
$C_{sd}$	= NH <sub>3</sub> concentration (mg/Nm <sup>3</sup> dry)	=	<0.0439	mg/Nm <sup>3</sup> dry

6. NH<sub>3</sub> concentration corrected to x% O<sub>2</sub> (ppmdv example)

$$C_{sdx} = C_{sd} \left( \frac{20.9 - x}{20.9 - O_2} \right)$$

Where:

$C_{sd}$	= NH <sub>3</sub> concentration (ppmdv)	=	<0.0578	ppmdv
x	= oxygen content of corrected gas (%)	=	3.0	%
O <sub>2</sub>	= proportion of oxygen in the gas stream by volume (%)	=	3.3	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
$C_{sdx}$	= NH <sub>3</sub> concentration corrected to x%O <sub>2</sub> (ppmdv)	=	<0.0588	ppmdv @ x%O <sub>2</sub>

7. NH<sub>3</sub> concentration corrected to y% CO<sub>2</sub> (ppmdv example)

$$C_{sdy} = C_{sd} \left( \frac{y}{CO_2} \right)$$

Where:

$C_{sd}$	= NH <sub>3</sub> concentration (ppmdv)	=	<0.0578	ppmdv
y	= carbon dioxide content of corrected gas (%)	=	12.0	%
CO <sub>2</sub>	= proportion of carbon dioxide in the gas stream by volume (%)	=	14.6	%
$C_{sdy}$	= NH <sub>3</sub> concentration corrected to y%CO <sub>2</sub> (ppmdv)	=	<0.0475	ppmdv @ y%CO <sub>2</sub>

8. NH<sub>3</sub> concentration at actual gas conditions (lb/acf example)

$$C_a = C_{std} \left( \frac{Q_{std}}{Q_a} \right)$$

Where:

$C_{std}$	= NH <sub>3</sub> concentration (lb/dscf)	= <2.5533E-09	lb/dscf
$Q_{std}$	= volumetric flow rate at standard conditions, dry basis (dscfm)	= 626,931	dscfm
$Q_a$	= volumetric flow rate at actual conditions (acfm)	= 1,622,493	acfm
$C_a$	= NH <sub>3</sub> concentration at actual gas conditions (lb/acf)	= <9.8660E-10	lb/acf

9. NH<sub>3</sub> rate (lb/hr)

$$E_{lb/hr} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right) (Q_{std})(60)$$

Where:

$m_n$	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	= <0.0460	mg
$V_{mstd}$	= volume metered, standard (dscf)	= 39.7518	dscf
$2.205 \times 10^{-3}$	= conversion factor (lb/g)	= 2.205E-03	lb/g
1000	= conversion factor (mg/g)	= 1,000	mg/g
$Q_{std}$	= volumetric flow rate at standard conditions, dry basis (dscfm)	= 626,931	dscfm
60	= conversion factor (min/hr)	= 60	min/hr
$E_{lb/hr}$	= NH <sub>3</sub> rate (lb/hr)	= <0.0960	lb/hr

10. NH<sub>3</sub> rate (kg/hr)

$$E_{kg/hr} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{Q_{std}}{10^6} \right) (60)$$

Where:

$m_n$	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	= <0.0460	mg
$V_{mstd}$	= volume metered, standard (dscf)	= 39.7518	dscf
$Q_{std}$	= volumetric flow rate at standard conditions, dry basis (dscfm)	= 626,931	dscfm
60	= conversion factor (min/hr)	= 60	min/hr
$10^6$	= conversion factor (mg/kg)	= $10^6$	g/kg
$E_{kg/hr}$	= NH <sub>3</sub> rate (kg/hr)	= <0.0436	kg/hr

11. NH<sub>3</sub> rate (Ton/yr)

$$E_{T/yr} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right) (Q_{std})(60) \left( \frac{Cap}{2000} \right)$$

Where:

$m_n$	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	= <0.0460	mg
$V_{mstd}$	= volume metered, standard (dscf)	= 39.7518	dscf
$2.205 \times 10^{-3}$	= conversion factor (lb/g)	= 2.205E-03	lb/g
1000	= conversion factor (mg/g)	= 1,000	mg/g
$Q_{std}$	= volumetric flow rate at standard conditions, dry basis (dscfm)	= 626,931	dscfm
60	= conversion factor (min/hr)	= 60	min/hr
Cap	= capacity factor for process (hours operated/year)	= 8,760	hours/yr
2000	= conversion factor (lb/Ton)	= 2,000	lb/Ton
$E_{T/yr}$	= NH <sub>3</sub> rate (Ton/yr)	= <0.4207	Ton/yr

12. NH<sub>3</sub> rate - F<sub>d</sub>-based (lb/MMBtu)

$$E_{Fd} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right) (F_d) \left( \frac{20.9}{20.9 - O_2} \right)$$

Where:

m <sub>n</sub>	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	=	<0.0460	mg
V <sub>mstd</sub>	= volume metered, standard (dscf)	=	39.7518	dscf
2.205 x 10 <sup>-3</sup>	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
F <sub>d</sub>	= ratio of gas volume to heat content of fuel (dscf/MMBtu)	=	9,621	dscf/MMBtu
O <sub>2</sub>	= proportion of oxygen in the gas stream by volume (%)	=	3.3	%
20.9	= oxygen content of ambient air (%)	=	20.9	%

E <sub>Fd</sub>	= NH <sub>3</sub> rate (lb/MMBtu)	=	<2.9171E-05	lb/MMBtu
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13. NH<sub>3</sub> rate - F<sub>c</sub>-based (lb/MMBtu)

$$E_{Fc} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right) (F_c) \left( \frac{100}{CO_2} \right)$$

Where:

m <sub>n</sub>	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	=	<0.0460	mg
V <sub>mstd</sub>	= volume metered, standard (dscf)	=	39.7518	dscf
2.205 x 10 <sup>-3</sup>	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
F <sub>c</sub>	= ratio of gas volume to heat content of fuel (dscf/MMBtu)	=		dscf/MMBtu
CO <sub>2</sub>	= proportion of oxygen in the gas stream by volume (%)	=	14.6	%
100	= conversion factor	=	100	

E <sub>Fc</sub>	= NH <sub>3</sub> rate (lb/MMBtu)	=	N/A	lb/MMBtu
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14. NH<sub>3</sub> rate - Heat Input-based (lb/MMBtu)

$$E_{Hi} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right) \left( \frac{Q_{std}(60)}{H_i} \right)$$

Where:

m <sub>n</sub>	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	=	<0.0460	mg
V <sub>mstd</sub>	= volume metered, standard (dscf)	=	39.7518	dscf
2.205 x 10 <sup>-3</sup>	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
Q <sub>std</sub>	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	626,931	dscfm
60	= conversion factor (min/hr)	=	60	min/hr
H <sub>i</sub>	= actual heat input (MMBtu/hr)	=		MMBtu/hr

E <sub>Hi</sub>	= NH <sub>3</sub> rate (lb/MMBtu)	=	N/A	lb/MMBtu
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15. NH<sub>3</sub> rate - Production-based (lb/unit)

$$E_{RP} = \left( \frac{m_n}{V_{mstd}} \right) (2.205 \times 10^{-3}) \left( \frac{Q_{std} \times 60}{1000 \times R_p} \right)$$

Where:

$m_n$	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	=	<0.0460	mg
$V_{mstd}$	= volume metered, standard (dscf)	=	39.7518	dscf
$2.205 \times 10^{-3}$	= conversion factor (lb/g)	=	2.205E-03	lb/g
$Q_{std}$	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	626,931	dscfm
60	= conversion factor (min/hr)	=	60	min/hr
1000	= conversion factor (mg/g)	=	1000	mg/g
$R_p$	= production rate (units/hr)	=		units/hour
$E_{RP}$	= NH <sub>3</sub> rate - production based(lb/xxxx)	=	N/A	lb/unit

16. NH<sub>3</sub> rate - Production-based (kg/unit)

$$E_{RP} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{Q_{std} \times 60}{10^6 \times R_p} \right)$$

Where:

$m_n$	= total NH <sub>3</sub> collected, corrected for applicable blank (mg)	=	<0.0460	mg
$V_{mstd}$	= volume metered, standard (dscf)	=	39.7518	dscf
$10^6$	= conversion factor (mg/kg)	=	1,000,000	mg/kg
$Q_{std}$	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	626,931	dscfm
60	= conversion factor (min/hr)	=	60	min/hr
$R_p$	= production rate (units/hr)	=		units/hour
$E_{RP}$	= NH <sub>3</sub> rate - production based(lb/xxxx)	=	N/A	kg/unit

**USEPA Method 8  
 SO3 Analyte Calculations**

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

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1. Sulfate to SO3 conversion factor

$$K_a = \frac{MW_a}{n \times MW_{ion}}$$

Where:

MW <sub>a</sub>	= molecular weight of SO3 (mg/mg-mole)	=	80.058	mg/mg-mole
MW <sub>ion</sub>	= molecular weight of Sulfate ion (mg/mg-mole)	=	96.057	mg/mg-mole
n	= molar ratio of Sulfate to SO3	=	1.0	mole SO4--/mole SO
K <sub>a</sub>	= conversion factor to convert mass SO4-- to mass SO3	=	0.833	

2. Total SO3 collected (mg)

$$m_a = K_a \times \frac{(S_{i-1}v_1 + S_{i-2}v_2)}{1000}$$

Where:

K <sub>a</sub>	= conversion factor to convert mass SO4-- to mass SO3	=	0.833	
S <sub>i-1</sub>	= Sulfate concentration of sample fraction 1 (mg/liter)	=	124.7500	mg/liter
v <sub>1</sub>	= liquid volume of sample fraction 1 (ml)	=	122.0	ml
S <sub>i-2</sub>	= Sulfate concentration of sample fraction 2 (mg/liter)	=	0.0000	mg/liter
v <sub>2</sub>	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
m <sub>a</sub>	= total SO3 collected in sample (mg)	=	12.6778,	mg

Note: Non-detects are treated as zero in summations.

**DEFINITION**

Fraction 1 = entire sample except last impinger containing applicable absorbing reagent.  
 Fraction 2 = last impinger containing applicable absorbing reagent, analyzed separately to evaluate collection efficiency.  
 If entire sample is analyzed as a single fraction, then data is included as Fraction 1 (Fraction 2 = 0).

3. Allowable blank subtraction (mg)

$$m_b = K_a \times B_i \times \frac{(v_1 + v_2)}{1000}$$

$$m_b = 0 \text{ if } B_i < MDL$$

4. Total SO3 collected, corrected for blank (mg)

$$m_{nb} = m_a - m_b$$

Where:

$m_a$	= total SO3 collected in sample (mg)	=	12.6778	mg
$m_b$	= allowable blank subtraction (mg)	=	0.0000	mg
$m_{nb}$	= total SO3 collected, corrected for blank (mg)	=	12.6778	mg

5. Minimum detectable SO3 (mg)

$$m_{MDL} = K_a \times MDL \times \frac{(v_1 + v_2)}{1000}$$

Where:

$K_a$	= conversion factor to convert mass SO4-- to mass SO3	=	0.833	
MDL	= minimum detectable Sulfate concentration	=	0.281	mg/liter
$v_1$	= liquid volume of sample fraction 1 (ml)	=	122.0	ml
$v_2$	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
1000	= conversion factor (ml/liter)	=	1000	ml/liter
$m_{MDL}$	= minimum detectable SO3 (mg)	=	0.0286	mg

6. Total SO3 value used in emission calculations (mg)

$$m_n = \text{MAXIMUM} [m_{nb} \text{ or } < m_{MDL}]$$

Where:

$m_{nb}$	= total SO3 collected, corrected for blank (mg)	=	12.6778	mg
$m_{MDL}$	= minimum detectable SO3 (mg)	=	0.0286	mg
$m_n$	= total SO3 value used in emission calculations (mg)	=	12.6778	mg

7. Collection QC check (% mass collected in second fraction)

$$EFF = 100 \times \frac{K_a \times S_{i-2} \times \frac{v_2}{1000}}{m_a}$$

Where:

$K_a$	= conversion factor to convert mass SO4-- to mass SO3	=	0.833	
$S_{i-2}$	= Sulfate concentration of sample fraction 2 (mg/liter)	=	0.0000	mg/liter
$v_2$	= liquid volume of sample fraction 2 (ml)	=	0.0	ml
$m_a$	= total SO3 collected in sample (mg)	=	12.6778	mg
1000	= conversion factor (ml/liter)	=	1000	ml/liter
100	= conversion factor	=	100	%
EFF	= Collection QC check (% mass collected in second fraction)	=	0.00	%

**USEPA Method 8  
 SO3 Sample Calculations**

Sample data taken from Run 1

Note: The tables presenting the results are generated electronically from raw data. It may not be possible to exactly duplicate these results using a calculator. The reference method data, results, and all calculations are carried to sixteen decimal places throughout. The final table is formatted to an appropriate number of significant figures.

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1. SO3 concentration (lb/dscf)

$$C_{sd} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right)$$

Where:

$m_n$	= total SO3 collected, corrected for applicable blank (mg)	=	126.0000	mg
$V_{mstd}$	= volume metered, standard (dscf)	=	24.0000	dscf
$2.205 \times 10^{-3}$	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
$C_{sd}$	= SO3 concentration (lb/dscf)	=	1.1576E-05	lb/dscf

2. SO3 concentration (ppmdv)

$$C_{sd} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{0.850}{1000} \right) \left( \frac{10^6}{MW} \right)$$

Where:

$m_n$	= total SO3 collected, corrected for applicable blank (mg)	=	126.0000	mg
$V_{mstd}$	= volume metered, standard (dscf)	=	24.0000	dscf
MW	= molecular weight of SO3 (g/g-mole)	=	80.058	g/g-mole
0.850	= conversion factor (dscf/g-mole)	=	0.850	dscf/g-mole
1000	= conversion factor (mg/g)	=	1,000	mg/g
$10^6$	= conversion factor (ppm)	=	$10^6$	ppm
$C_{sd}$	= SO3 concentration (ppmdv)	=	0.0059	ppmdv

3. SO3 concentration (ppmwv)

$$C_w = C_{sd} \left( 1 - \frac{B_w}{100} \right)$$

Where:

$C_{sd}$	= SO3 concentration (ppmdv)	=	0.0059	ppmdv
$B_w$	= actual water vapor in gas (% v/v)	=	9.1895	% v/v
100	= conversion factor (%)	=	100	%
$C_w$	= SO3 concentration (ppmwv)	=	0.0054	ppmwv

4. SO3 concentration (mg/dscm)

$$C_{sd} = \left( \frac{m_n}{V_{mstd}} \right) (35.31)$$

Where:

$m_n$	= total SO3 collected, corrected for applicable blank (mg)	= 126.0000	mg
$V_{mstd}$	= volume metered, standard (dscf)	= 24.0000	dscf
35.31	= conversion factor (dscf/dscm)	= 35.31	dscf/dscm
$C_{sd}$	= SO3 concentration (mg/dscm)	= 185.3775	mg/dscm

5. SO3 concentration (mg/Nm3 dry)

$$C_{sd} = \left( \frac{m_n}{V_{mstd}} \right) (35.31) \left( \frac{68 + 460}{32 + 460} \right)$$

Where:

$m_n$	= total SO3 collected, corrected for applicable blank (mg)	= 126.0000	mg
$V_{mstd}$	= volume metered, standard (dscf)	= 24.0000	dscf
35.31	= conversion factor (dscf/dscm)	= 35.31	dscf/dscm
68	= standard temperature (°F)	= 68	°F
32	= normal temperature (°F)	= 32	°F
460	= °F to °R conversion constant	= 460	
$C_{sd}$	= SO3 concentration (mg/Nm3 dry)	= 198.9417	mg/Nm <sup>3</sup> dry

6. SO3 concentration corrected to x% O2 (ppmdv example)

$$C_{sd,x} = C_{sd} \left( \frac{20.9 - x}{20.9 - O_2} \right)$$

Where:

$C_{sd}$	= SO3 concentration (ppmdv)	= 0.0059	ppmdv
x	= oxygen content of corrected gas (%)	= 3.0	%
$O_2$	= proportion of oxygen in the gas stream by volume (%)	= 3.4	%
20.9	= oxygen content of ambient air (%)	= 20.9	%
$C_{sd,x}$	= SO3 concentration corrected to x% O2 (ppmdv)	= 0.0058	ppmdv @ x%O <sub>2</sub>

7. SO3 concentration corrected to y% CO2 (ppmdv example)

$$C_{sd,y} = C_{sd} \left( \frac{y}{CO_2} \right)$$

Where:

$C_{sd}$	= SO3 concentration (ppmdv)	= 0.0059	ppmdv
y	= carbon dioxide content of corrected gas (%)	= 12.0	%
$CO_2$	= proportion of carbon dioxide in the gas stream by volume (%)	= 8.8	%
$C_{sd,y}$	= SO3 concentration corrected to y% CO2 (ppmdv)	= 0.0081	ppmdv @ y%CO <sub>2</sub>



8. SO3 concentration at actual gas conditions (lb/acf example)

$$C_a = C_{sd} \left( \frac{Q_{std}}{Q_a} \right)$$

Where:

$C_{sd}$	= SO3 concentration (lb/dscf)	= 1.1576E-05	lb/dscf
$Q_{std}$	= volumetric flow rate at standard conditions, dry basis (dscfm)	= 109,477	dscfm
$Q_a$	= volumetric flow rate at actual conditions (acfm)	= 236,938	acfm
$C_a$	= SO3 concentration at actual gas conditions (lb/acf)	= 5.3488E-06	lb/acf

9. SO3 rate (lb/hr)

$$E_{lb/hr} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right) (Q_{std})(60)$$

Where:

$m_n$	= total SO3 collected, corrected for applicable blank (mg)	= 126.0000	mg
$V_{mstd}$	= volume metered, standard (dscf)	= 24.0000	dscf
$2.205 \times 10^{-3}$	= conversion factor (lb/g)	= 2.205E-03	lb/g
1000	= conversion factor (mg/g)	= 1,000	mg/g
$Q_{std}$	= volumetric flow rate at standard conditions, dry basis (dscfm)	= 109,477	dscfm
60	= conversion factor (min/hr)	= 60	min/hr
$E_{lb/hr}$	= SO3 rate (lb/hr)	= 76.0397	lb/hr

10. SO3 rate (kg/hr)

$$E_{kg/hr} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{(Q_{std})(60)}{10^6} \right)$$

Where:

$m_n$	= total SO3 collected, corrected for applicable blank (mg)	= 126.0000	mg
$V_{mstd}$	= volume metered, standard (dscf)	= 24.0000	dscf
$Q_{std}$	= volumetric flow rate at standard conditions, dry basis (dscfm)	= 109,477	dscfm
60	= conversion factor (min/hr)	= 60	min/hr
$10^6$	= conversion factor (mg/kg)	= $10^6$	g/kg
$E_{kg/hr}$	= SO3 rate (kg/hr)	= 325331.4648	kg/hr

11. SO3 rate (Ton/yr)

$$E_{T/yr} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right) (Q_{std})(60) \left( \frac{Cap}{2000} \right)$$

Where:

$m_n$	= total SO3 collected, corrected for applicable blank (mg)	= 126.0000	mg
$V_{mstd}$	= volume metered, standard (dscf)	= 24.0000	dscf
$2.205 \times 10^{-3}$	= conversion factor (lb/g)	= 2.205E-03	lb/g
1000	= conversion factor (mg/g)	= 1,000	mg/g
$Q_{std}$	= volumetric flow rate at standard conditions, dry basis (dscfm)	= 109,477	dscfm
60	= conversion factor (min/hr)	= 60	min/hr
Cap	= capacity factor for process (hours operated/year)	= 8,760	hours/yr
2000	= conversion factor (lb/Ton)	= 2,000	lb/Ton
$E_{T/yr}$	= SO3 rate (Ton/yr)	= 333.0540	Ton/yr

12. SO3 rate - Fd-based (lb/MMBtu)

$$E_{Fd} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right) (F_d) \left( \frac{20.9}{20.9 - O_2} \right)$$

Where:

$m_n$	= total SO3 collected, corrected for applicable blank (mg)	=	126.0000	mg
$V_{mstd}$	= volume metered, standard (dscf)	=	74.3801	dscf
$2.205 \times 10^{-3}$	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
$F_d$	= ratio of gas volume to heat content of fuel (dscf/MMBtu)	=	-	dscf/MMBtu
$O_2$	= proportion of oxygen in the gas stream by volume (%)	=	9.8	%
20.9	= oxygen content of ambient air (%)	=	20.9	%
$E_{Fd}$	= SO3 rate (lb/MMBtu)	=	N/A	lb/MMBtu

13. SO3 rate - Fc-based (lb/MMBtu)

$$E_{Fc} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right) (F_c) \left( \frac{100}{CO_2} \right)$$

Where:

$m_n$	= total SO3 collected, corrected for applicable blank (mg)	=	126.0000	mg
$V_{mstd}$	= volume metered, standard (dscf)	=	74.3801	dscf
$2.205 \times 10^{-3}$	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
$F_c$	= ratio of gas volume to heat content of fuel (dscf/MMBtu)	=	-	dscf/MMBtu
$CO_2$	= proportion of oxygen in the gas stream by volume (%)	=	8.8	%
100	= conversion factor	=	100	
$E_{Fc}$	= SO3 rate (lb/MMBtu)	=	N/A	lb/MMBtu

14. SO3 rate - Heat Input-based (lb/MMBtu)

$$E_{Hi} = \left( \frac{m_n}{V_{mstd}} \right) \left( \frac{2.205 \times 10^{-3}}{1000} \right) \left( \frac{Q_{std}}{H_i} \right) (60)$$

Where:

$m_n$	= total SO3 collected, corrected for applicable blank (mg)	=	126.0000	mg
$V_{mstd}$	= volume metered, standard (dscf)	=	74.3801	dscf
$2.205 \times 10^{-3}$	= conversion factor (lb/g)	=	2.205E-03	lb/g
1000	= conversion factor (mg/g)	=	1,000	mg/g
$Q_{std}$	= volumetric flow rate at standard conditions, dry basis (dscfm)	=	109,477	dscfm
60	= conversion factor (min/hr)	=	60	min/hr
$H_i$	= actual heat input (MMBtu/hr)	=	-	MMBtu/hr
$E_{Hi}$	= SO3 rate (lb/MMBtu)	=	N/A	lb/MMBtu

Florida Department of  
Environmental Protection

Memorandum

TO: Joseph Kahn  
THRU: Trina Vielhauer *TV*  
Jeff Koerner *JK*  
FROM: Syed Arif *Syed Arif 2/26*  
DATE: February 26, 2007  
SUBJECT: JEA, St. Johns River Power Park (SJRPP) Facility  
DEP File No. 0310045-017-AC

Attached for your approval and signature is the permit modification for JEA's SJRPP facility located in Jacksonville, Duval County.

The applicant, JEA, submitted a complete minor source application on December 11, 2006, to the Department for installation of selective catalytic reduction (SCR) in Boilers Nos. 1 and 2 to decrease nitrogen oxides (NO<sub>x</sub>) emissions in compliance with EPA's Clean Air Interstate Rule. The addition of SCR will have the co-benefits of reducing emissions of mercury to meet EPA's Clean Air Mercury Rule.

While the addition of SCR will substantially decrease emissions of NO<sub>x</sub>, there is the potential for collateral increases in emissions of sulfuric acid mist (SAM) and particulate matter (PM). Potential increases in SAM emissions will be minimized through the injection of ammonia to react with sulfur trioxide (SO<sub>3</sub>) prior to the electrostatic precipitator (ESP). The potential increase in PM from the reaction of ammonia and SO<sub>3</sub> will be collected in the ESP and flue gas desulfurization system. There will be no emissions increase over the PSD significant emission rates from the installation of SCR. There are no other planned changes in Units 1 and 2.

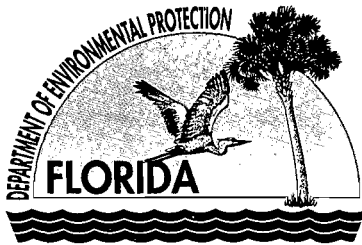
An air quality impact analysis was not required. No increase in ambient impacts due to the proposed permit modification is expected. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards.

The Public Notice was published on February 6, 2007 in the Florida Times-Union. No comments were received from the applicant, the public, EPA Region IV, or the National Park Service. Comments were submitted by the Duval County Local Program resulting in minor changes as described in the final determination.

We recommend your approval and signature.

JK/sa

Attachments



# Florida Department of Environmental Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Charlie Crist  
Governor

Jeff Kottkamp  
Lt. Governor

Michael W. Sole  
Secretary

## PERMITTEE

JEA - St. Johns River Power Park  
21 West Church Street  
Jacksonville, Florida 32202

*Authorized Representative:*  
Mr. Michael J. Brost, Vice President  
Electric System

Permit No.:	0310045-017-AC
Facility ID No.:	0310045
Project:	Installation of Selective Catalytic Reduction
Expires:	June 30, 2009

## PROJECT AND LOCATION

This permit authorizes the installation of Selective Catalytic Reduction (SCR) systems and ammonia injection systems on existing Boilers 1 and 2 at the St. Johns River Power Park. The St. Johns River Power Park is an existing electrical generating plant (SIC No. 4911) located at 11201 New Berlin Road in Jacksonville, Duval County, Florida. The UTM coordinates are: Zone 17; 446.9 km E; 3359.15 km N.

## STATEMENT OF BASIS


Installation of the ammonia injection system is required to ensure that the SCR project will not result in an increase of sulfuric acid mist emissions above the PSD-significant emission rate of 7 tons per year. The applicant elects to install the SCR systems to provide full flexibility in implementing the federal cap and trade program for nitrogen oxides under the Clean Air Interstate Rule (CAIR). Because CAIR affords a regulated facility the flexibility to evaluate market conditions to determine whether it will install controls, operate existing controls, or purchase allowances generated by other plants, the Department of Environmental Protection (Department) does not require the installation of this equipment nor its operation. This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Part 60 of the Code of Federal Regulations (CFR). The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department.

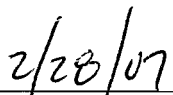
## APPENDICES

The following appendices are attached as a part of this permit.

Appendix GC. Construction Permit General Conditions

Executed in Tallahassee, Florida

  
\_\_\_\_\_  
Joseph Kahn, Director  
Division of Air Resource Management

  
\_\_\_\_\_  
(Date)

# **FINAL DETERMINATION**

**JEA**

**St. Johns River Power Park**

**DEP File No. 0310045-017-AC**

An Intent to Issue Air Construction Permit Modification for JEA, St. Johns River Power Park, located at 11201 New Berlin Road, Jacksonville, Duval County, Florida, was distributed on February 1, 2007. The Public Notice of Intent to Issue Air Construction Permit Modification was published in the Florida Times-Union on February 6, 2007. Copies of the draft construction permit were available for public inspection at the Department offices in Jacksonville and Tallahassee.

No comments were received from the applicant, the public, EPA Region IV, or the National Park Service.

Comments were submitted by the Duval County Local Program and dealt with administrative changes in the permit. Based on their comments, the compliance authority in the permit will reflect Environmental Quality Division (Duval County Local Program) instead of Northeast District. Additionally an error in rule citations will be corrected in the Technical Evaluation and Preliminary Determination, page 7, section II.B. as suggested by the Duval County Local Program. These changes are minor in nature.

The final action of the Department is to issue the Air Construction Permit Modification with the changes noted above.

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**NOTICE OF FINAL AIR CONSTRUCTION PERMIT MODIFICATION**

In the Matter of an  
Application for Permit Modification

Mr. Michael J. Brost  
JEA – St. Johns River Power Park  
21 West Church Street  
Jacksonville, Florida 32202

Permit: 0310045-017-AC

Enclosed is the FINAL Air Construction Permit Modification which authorizes the installation of Selective Catalytic Reduction systems and ammonia injection systems on existing Boilers 1 and 2 at St. Johns River Power Park in Jacksonville, Duval County. This permit is issued pursuant to Chapter 403, Florida Statutes (F.S.) and Chapters 62-4 through 297 Florida Administrative Code (F.A.C) and Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this order is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.



Trina L. Vielhauer, Chief  
Bureau of Air Regulation

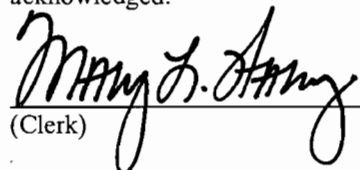
**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL AIR CONSTRUCTION PERMIT MODIFICATION (including the FINAL permit) and all copies were sent electronically (with Received Receipt) before the close of business on 3/1/07 to the person(s) listed:

Michael J. Brost, JEA ([brosmj@jea.com](mailto:brosmj@jea.com))  
John Worley, JEA ([worlja@jea.com](mailto:worlja@jea.com))  
Gregg Worley, EPA ([worley.gregg@epa.gov](mailto:worley.gregg@epa.gov))  
Dee Morse, NPS ([dee\\_morse@nps.gov](mailto:dee_morse@nps.gov))  
Chris Kirts, DEP-NED ([christopher.kirts@dep.state.fl.us](mailto:christopher.kirts@dep.state.fl.us))  
Richard Robinson, ERMD/EQD/AQB ([robinson@coj.net](mailto:robinson@coj.net))  
Michael Halpin, OSC ([michael.halpin@dep.state.fl.us](mailto:michael.halpin@dep.state.fl.us))  
Ken Kosky, Golder Associates, Inc. ([kkosky@golder.com](mailto:kkosky@golder.com))

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

  
(Clerk) 3/1/07  
(Date)

## Harvey, Mary

---

**From:** Arif, Syed  
**Sent:** Thursday, March 01, 2007 12:21 PM  
**To:** Harvey, Mary  
**Subject:** JEA Permit  
**Attachments:** sjrppfd.doc; sjrppfnot.doc; sjrppgc.doc; sjrpppermit.doc

Mary,

Attached is the JEA Final Permit documents.

*Syed Arif, P.E*  
*Permit Engineer*  
*Division of Air Resources Management*  
*Department of Environmental Protection*  
*(850) 921-9528 or SC 291-9528*

## SECTION 1. GENERAL INFORMATION

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### FACILITY DESCRIPTION

The Jacksonville Electric Authority operates an existing electrical generating plant at the St. Johns River Power Park (SJRPP). This plant includes Boilers 1 and 2 (Emissions Units 016 and 017), which are fossil fuel-fired steam generators fired with pulverized coal and a blend of petroleum coke and coal. Each boiler has a nominal nameplate rating of 679.6 megawatts (electric). Emissions from each boiler are currently controlled with an electrostatic precipitator (ESP), a limestone scrubber and low-NOx burners.

### PROJECT DESCRIPTION

This permit authorizes the installation of Selective Catalytic Reduction (SCR) systems on Boilers 1 and 2. The permittee elects to install these controls as part of its plan to comply with the Clean Air Interstate Rule (Rule 62-296.470(CAIR), F.A.C.) and the Clean Air Mercury Rule (Rule 62-296.480(CAMR), F.A.C.). When operating, the SCR systems will decrease nitrogen oxides (NOx) emissions from Boilers 1 and 2, which will allow the plant to meet the annual and ozone season NOx CAIR allocations.

Installation of the SCR systems will result in collateral increases in emissions of sulfuric acid mist (SAM) and particulate matter (PM/PM<sub>10</sub>). The potential increase of SAM emissions is a result of the oxidation of sulfur dioxide (SO<sub>2</sub>) to sulfur trioxide (SO<sub>3</sub>) that is emitted as SAM after the flue gas desulfurization (FGD) system. The permit requires the installation of additional ammonia injection systems on Boilers 1 and 2 to reduce SAM emissions. Ammonia will be injected downstream of the SCR reactor and upstream of the existing electrostatic precipitator (ESP). The ammonia reacts with SO<sub>3</sub> to form salts (e.g., ammonium sulfate), which will be collected in the ESP. With the additional ammonia injection systems, there will be no PSD-significant emissions increases due to the installation of SCR systems on Boilers 1 and 2. There are no other planned changes in Boilers 1 and 2.

The applicant elects to install the SCR systems to provide full flexibility in implementing the federal cap and trade program for NOx under CAIR. Because CAIR affords a regulated facility the flexibility to evaluate market conditions to determine whether it will install controls, operate existing controls, or purchase allowances generated by other plants, the Department does not require the installation of this equipment nor its operation.

### REGULATORY CLASSIFICATION

Title III: The existing facility is a major source of hazardous air pollutants (HAPs).

Title IV: The existing facility operates units subject to the acid rain provisions of the Clean Air Act.

Title V: The existing facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.

PSD: The existing facility is a PSD-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The existing facility operates units subject to the New Source Performance Standards of 40 CFR 60.

### RELEVANT DOCUMENTS

The permit request and additional information received to make it complete are not a part of this permit; however, the information is listed in the technical evaluation which is issued concurrently with this permit.



## SECTION 2. ADMINISTRATIVE REQUIREMENTS

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1. Permitting Authority: All documents related to applications for permits regarding construction and operation shall be submitted to the Department's Bureau of Air Regulation at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. Copies of all such documents shall also be sent to the Department's Northeast District Office and the Environmental Resource Management Department, Environmental Quality Division, Air Quality Branch (ERMD/EQD/AQB) of Duval County.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to Environmental Resource Management Department, Environmental Quality Division, 117 West Duval Street, Suite 225, Jacksonville, FL 32202.
3. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 F.S.; Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 F.A.C.; and Title 40, Part 60 CFR, adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
4. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
5. Modifications: The permittee shall notify the Compliance Authority upon commencement of construction. No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
6. Title V Permit: This permit authorizes modification of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]
7. Source Obligation: At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by increasing its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction has not yet commenced on the source or modification. [Rule 62-212.400(12)(c), F.A.C.]

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

The specific conditions listed in this section apply to the following emission units:

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
016	SJRPP Boiler No. 1
017	SJRPP Boiler No. 2

SJRPP Boilers 1 and 2 are fossil fuel-fired steam generators, each with a nominal nameplate rating of 679.6 MW. Authorized fuels include pulverized coal, petroleum coke/coal blends, new 2 distillate oil (startup and low-load operation) and “on-specification” used oil. The maximum heat input to each unit is 6144 MMBtu/hour. Each unit is a dry bottom, wall-fired boiler with the following controls: an electrostatic precipitator (ESP) to control PM/PM<sub>10</sub>, a wet limestone FGD unit to control SO<sub>2</sub>, low-NO<sub>x</sub> burners and low excess-air firing to control NO<sub>x</sub>, and good combustion to control carbon monoxide (CO). Each boiler exhausts through a separate stack that is 640 feet above grade. SJRPP Boiler 1 began commercial operation in December of 1986. SJRPP Boiler 2 began commercial operation in March of 1988.

#### PREVIOUS APPLICABLE REQUIREMENTS

1. **Permit Determination:** This permit authorizes the installation of SCR and ammonia injection systems for Boilers 1 and 2. Unless otherwise specified, these conditions are in addition to all existing applicable permit conditions and regulatory requirements. The permittee shall continue to comply with the conditions of the original permit PSD-FL-010 (as modified), which includes restrictions and standards regarding capacities, production, operation, fuels, emissions, monitoring, record keeping, reporting, etc. for these units. The facility remains subject to all of the requirements specified in the current Title V Permit No. 0310045-016-AV. [Rule 62-4.070(3), F.A.C.]

#### AUTHORIZED WORK

2. **SCR Systems:** The permittee is authorized to construct, tune, operate and maintain new SCR systems for SJRPP Boilers 1 and 2 to reduce emissions of NO<sub>x</sub> as described in the application. In general, the SCR systems will include the following equipment: ammonia storage; ammonia flow control unit (AFCU); ammonia injection grid (AIG); vanadium pentoxide catalyst; an SCR reactor chamber; an SCR bypass system; and other ancillary equipment. [Application; Rules 62-296.470(CAIR) and 62-210.200(PTE), F.A.C.]
3. **Ammonia Injection Systems:** The permittee shall construct, tune, operate and maintain new ammonia injection systems on SJRPP Boilers 1 and 2 to mitigate the formation of SAM due to the increased oxidation of SO<sub>2</sub> to SO<sub>3</sub> across the new SCR reactors. Ammonia will be injected downstream of the SCR reactor and upstream of the existing ESP. The control system regulating the amount of ammonia injected to control SAM will be integrated into the plant digital control system. The ammonia will react with SO<sub>3</sub> to form salts (e.g., ammonium sulfate), which will be collected in the ESP. With the additional ammonia injection systems, there will be no PSD-significant emissions increases due to the installation of SCR systems on Boilers 1 and 2. The proposed equipment includes storage tanks, piping, injectors, a control system and other ancillary equipment. The ammonia injection systems shall be operable when the SCR system is initially available for service. [Application; and Rule 62-212.400(12), F.A.C.]
4. **Circumvention:** No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. Operation of the SCR is not required by this permit. As necessary, the permittee shall operate the ammonia injection system for SAM emissions control to ensure the project does not result in a PSD-significant emissions increase (7 tons/year) of sulfuric acid mist emissions above baseline actual emissions (1317 tons/year). [Rules 62-210.650 and 62-212.400(12), F.A.C.]

## SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

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### PERFORMANCE REQUIREMENTS

5. Annual PM/PM<sub>10</sub> and SAM Emissions Projections: For this project, the permittee projected that actual annual emissions due to the project would not exceed the PM/PM<sub>10</sub> annual emissions (322 + 14 = 336 tons/year); and would not exceed the SAM annual emissions (1317 + 6 = 1323 tons/year). The permittee shall demonstrate this by compiling and submitting the reports required by this permit. For the purposes of this reporting, all PM emissions are considered to be PM<sub>10</sub> emissions. [Application; and Rules 62-212.300 and 62-210.370, F.A.C.]
6. Ammonia Injection for SAM Emissions Control: On an annual basis, the permittee must demonstrate that SAM emissions as a result of this project do not exceed 1323 tons per year. The permittee shall install and operate the ammonia injection system at a frequency and injection rate for SAM control to satisfy this requirement. An automated control system will be used to adjust the ammonia flow rate for the given set of operating conditions based on the most recent performance test results. [Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]
7. Ammonia Slip: Ammonia slip measured at the stack downstream of all emission control systems shall not exceed 5 parts per million by volume (ppmv). Annual testing of ammonia shall be conducted and corrective measures taken if measured values exceed 2 ppmv. [Design; and Rule 62-4.070(3), F.A.C.]

### EMISSIONS PERFORMANCE TESTING

8. Initial Performance Tests – Ammonia Injection for SAM Emissions Control: Within 90 days of completing construction of both Boilers 1 and 2 SCR systems, the permittee shall conduct a series of initial performance tests on either Boiler 1 or 2 to determine the SAM emissions rate under a variety of operating scenarios that documents the impact of ammonia injection on reducing SAM emissions and results in the development of correlation/curves between injection rates, operating conditions and emissions.
  - a. For each set of operating conditions being evaluated, the permittee shall conduct at least a 1-hour test run to determine SAM emissions. At least nine such test runs shall be conducted to evaluate the effect of SAM emissions on such parameters as the SO<sub>2</sub> emission rate prior to the SCR catalyst (and FGD system), the unit load, the flue gas flow rate, the ammonia injection rate and the current catalyst oxidation rate.
  - b. Tests shall be conducted under a variety of fuel blends and load rates that are representative of the actual operating conditions intended for Boilers 1 and 2. Sufficient tests shall be conducted to establish the SAM emissions rates for the following scenarios: bypass of the SCR reactor, SCR reactor in service without ammonia injection, and SCR reactor in service under varying operating conditions and levels of ammonia injection.
  - c. At least 15 days prior to initiating the performance tests, the permittee shall submit a test notification, preliminary test schedule and test protocol to the Bureau of Air Regulation and the Compliance Authority.
  - d. Within 45 days following the last test run conducted, the permittee shall provide a report summarizing the emissions tests and results. All SAM emissions test data shall be provided with this report.
  - e. Within 45 days following the submittal of the emissions test report and no later than 90 days following the last test run conducted, the permittee shall submit a project report summarizing the following: identify each set of operating conditions evaluated, identify each operating parameter evaluated, identify the relative influence of each operating parameter, describe how the automated control system will adjust the ammonia injection rate based on the selected parameters, identify the frequency with which operational parameters will be reevaluated and adjusted within the automated control system, provide the algorithm used for the automated control system or a series of related performance curves, and provide details for calculating and estimating the SAM emissions rate based on the level of

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

ammonia injection and operating conditions. The test results shall be used to adjust the ammonia injection control system and estimate SAM emissions.

[Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]

9. **Annual Tests – Ammonia Injection for SAM Emissions Control:** During each federal fiscal year, the permittee shall conduct performance tests to determine the SAM emission rates and adjust the ammonia injection rates as necessary. At least six representative 1-hour test runs shall be conducted on either Boiler 1 or 2. Annual performance tests shall be alternated between the boilers such that testing is conducted on a boiler at least twice during each 5-year period. Within 45 days following the last test run conducted, the permittee shall provide a report summarizing the emissions tests conducted, the results of the tests, the catalyst oxidation rate, how the automated control system was adjusted, and the updated algorithm used for the automated control system or the updated series of related performance curves. [Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]
10. **Test Notification:** The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. [Rule 62-297.310(7)(a)9, F.A.C.]
11. **Test Methods:** Required tests shall be performed in accordance with the following reference methods:

EPA Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
5B	Determination of PM/PM <sub>10</sub> Emissions
8	Determination of Sulfuric Acid Mist Emissions
19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates (Optional F-factor method may be used to determine flow rate and gas analysis to calculate mass emissions in lieu of Methods 1-4.)

Compliance with the ammonia slip limit shall be determined using EPA conditional test method (CTM-027), EPA method 320, or other methods approved by the Department. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

#### NOTIFICATIONS, RECORDS AND REPORTS

12. **Test Reports:** The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Rule 62-297.310, F.A.C. For each sulfuric acid mist test run, the report shall also indicate the ammonia injection rate for SAM emissions control, unit load, unit heat input rate, and total secondary power input to the electrostatic precipitator. [Rule 62-297.310(8), F.A.C.]
13. **Operational Data:** For each unit, the permittee shall continuously monitor and record the ammonia injection rate for SAM emissions control and the hours of SCR bypass. [Rule 62-4.070(3), F.A.C.]
14. **Annual PM/PM<sub>10</sub> and SAM Emissions Reports:** In accordance with Rule 62-212.300(1)(e), F.A.C., the permittee shall comply with the following monitoring, reporting and recordkeeping provisions:
  - a. The permittee shall monitor the PM/PM<sub>10</sub> and SAM emissions using the most reliable information available. On a calendar year basis, the permittee shall calculate and maintain a record of the annual emissions (tons per year) for a period of 5 years after completing construction on each unit's control system. Emissions shall be computed in accordance with Rule 62-210.370, F.A.C.
  - b. Within 60 days after each calendar year following completion of construction on each new control system, the permittee shall report to the Compliance Authority the annual emissions for each unit for the preceding calendar year. The report shall contain the following:
    - a. Name, address and telephone number of the owner or operator of the major stationary source;

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

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- b. Annual emissions as calculated pursuant to subparagraph 62-212.300(1)(e)1., F.A.C.;
  - c. If the emissions differ from the preconstruction projection, an explanation as to why there is a difference; and
  - d. Any other information that the owner or operator wishes to include in the report.
- c. The information required to be documented and maintained shall be submitted to the Compliance Authority, where it will be available for review to the general public.

[Rule 62-212.300(1)(e), F.A.C.]

15. PM/PM<sub>10</sub> and SAM Emissions Computation and Reporting: The permittee shall compute PM/PM<sub>10</sub> and SAM emissions in accordance with the following requirements.

- a. For each year of reporting required, emissions shall be computed based on the controlled and uncontrolled emissions factors determined during the required annual emissions test. The owner or operator shall not compute emissions by converting an emission factor to pounds per hour and then multiplying by hours of operation, unless the owner or operator demonstrates that such computation is the most accurate method available.
- b. With appropriate supporting test data, multiple emission factors may be used as necessary to account for variations in emission rate associated with variations in the emissions unit's operating rate or operating conditions during the period over which emissions are computed.
- c. The permittee shall compute emissions by multiplying the appropriate controlled or uncontrolled emission factor by the annual heat input rate for the period over which the emissions are computed. The uncontrolled emissions factor shall be used if the minimum ammonia injection rate established for the latest test is not met.
- d. The permittee shall retain a copy of all records used to compute emissions pursuant to this rule for a period of five years from the date on which such emissions information is submitted to the Department or Compliance Authority for any regulatory purpose.

[Rule 62-210.370, F.A.C.]

APPENDIX GC  
GENERAL PERMIT CONDITIONS [F.A.C. 62-4-160]

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- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), F.S. the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
- a. Have access to and copy any records that must be kept under the conditions of the permit;
  - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
  - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.
- Reasonable time may depend on the nature of the concern being investigated.

APPENDIX GC  
GENERAL PERMIT CONDITIONS [F.A.C. 62-4-160]

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- G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
- a. a description of and cause of non-compliance; and
  - b. the period of non-compliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.
- The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.
- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by sections 403.73 and 403.111, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
- G.10 The permittee agrees to comply with changes in Department rules and F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Rules 62-4.120, F.A.C. as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- ( ) Determination of Best Available Control Technology (BACT)
  - ( ) Determination of Prevention of Significant Deterioration (PSD)
  - ( ) Compliance with New Source Performance Standards (NSPS)
- G.14 The permittee shall comply with the following:
- a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
  - c. Records of monitoring information shall include:
    - the date, exact place, and time of sampling or measurements;
    - the person responsible for performing the sampling or measurements;

## APPENDIX GC

### GENERAL PERMIT CONDITIONS [F.A.C. 62-4-160]

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- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law, which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.



## Adams, Patty

---

**From:** Harvey, Mary  
**Sent:** Thursday, March 01, 2007 3:58 PM  
**To:** Adams, Patty; Arif, Syed  
**Subject:** FW: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

---

**From:** Halpin, Mike  
**Sent:** Thursday, March 01, 2007 3:48 PM  
**To:** Harvey, Mary  
**Subject:** Read: FW: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

Your message

**To:** Halpin, Mike  
**Subject:** FW: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL  
**Sent:** 3/1/2007 3:45 PM

was read on 3/1/2007 3:48 PM.

## Adams, Patty

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**From:** Harvey, Mary  
**Sent:** Thursday, March 01, 2007 3:57 PM  
**To:** Adams, Patty; Arif, Syed  
**Subject:** FW: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

---

**From:** Robinson, Richard [<mailto:ROBINSON@coj.net>]  
**Sent:** Thursday, March 01, 2007 3:51 PM  
**To:** Harvey, Mary  
**Subject:** Read: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

Your message

**To:** [ROBINSON@coj.net](mailto:ROBINSON@coj.net)  
**Subject:**

was read on 3/1/2007 3:51 PM.

## Adams, Patty

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**From:** Harvey, Mary  
**Sent:** Thursday, March 01, 2007 3:38 PM  
**To:** Adams, Patty; Arif, Syed  
**Subject:** FW: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

---

**From:** Brost, Mike J. - VP, Electric Systems [<mailto:Brosmj@jea.com>]  
**Sent:** Thursday, March 01, 2007 3:30 PM  
**To:** Harvey, Mary  
**Subject:** Read: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

Your message

To: [Brosmj@jea.com](mailto:Brosmj@jea.com)  
Subject:

was read on 3/1/2007 3:30 PM.

**Adams, Patty**

---

**From:** Harvey, Mary  
**Sent:** Thursday, March 01, 2007 3:42 PM  
**To:** Adams, Patty; Arif, Syed  
**Subject:** FW: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

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**From:** Worley, Jay A. - Supt BM Lab & Environment Comp [mailto:WorlJA@jea.com]  
**Sent:** Thursday, March 01, 2007 3:28 PM  
**To:** Harvey, Mary  
**Cc:** Arif, Syed; Adams, Patty; kkosky@golder.com; robinson@coj.net; michael.halpin@dep.state.fl.us; Kirts, Christopher; dee\_morse@nps.gov; Brost, Mike J. - VP, Electric Systems; Gibson, Victoria  
**Subject:** RE: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

Ms. Harvey, Please note that this email with attachments has been received. Thanks, Jay Worley

---

**From:** Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]  
**Sent:** Thursday, March 01, 2007 3:19 PM  
**To:** Brost, Mike J. - VP, Electric Systems; Worley, Jay A. - Supt BM Lab & Environment Comp; dee\_morse@nps.gov; Kirts, Christopher; robinson@coj.net; michael.halpin@dep.state.fl.us; kkosky@golder.com  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: <http://www.adobe.com/products/acrobat/readstep.html>.

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Thank you,

DEP, Bureau of Air Regulation

3/2/2007

## Adams, Patty

---

**From:** Harvey, Mary  
**Sent:** Thursday, March 01, 2007 3:38 PM  
**To:** Adams, Patty; Arif, Syed  
**Subject:** FW: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

-----Original Message-----

From: Dee\_Morse@nps.gov [mailto:Dee\_Morse@nps.gov]  
Sent: Thursday, March 01, 2007 3:36 PM  
To: Harvey, Mary  
Subject: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

Return Receipt

Your JEA - St. Johns River Power Park - Facility ID  
document: #0310045-017-AC-FINAL

was Dee Morse/DENVER/NPS  
received  
by:

at: 03/01/2007 01:35:40 PM

**Adams, Patty**

---

**From:** Worley, Jay A. - Supt BM Lab & Environment Comp [WorlJA@jea.com]  
**Sent:** Thursday, March 01, 2007 3:28 PM  
**To:** Harvey, Mary  
**Cc:** Arif, Syed; Adams, Patty; kkosky@golder.com; robinson@coj.net; michael.halpin@dep.state.fl.us; Kirts, Christopher; dee\_morse@nps.gov; Brost, Mike J. - VP, Electric Systems; Gibson, Victoria  
**Subject:** RE: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

Ms. Harvey, Please note that this email with attachments has been received. Thanks, Jay Worley

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**From:** Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]  
**Sent:** Thursday, March 01, 2007 3:19 PM  
**To:** Brost, Mike J. - VP, Electric Systems; Worley, Jay A. - Supt BM Lab & Environment Comp; dee\_morse@nps.gov; Kirts, Christopher; robinson@coj.net; michael.halpin@dep.state.fl.us; kkosky@golder.com  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

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Thank you,

DEP, Bureau of Air Regulation

**Adams, Patty**

---

**From:** Harvey, Mary  
**Sent:** Thursday, March 01, 2007 3:19 PM  
**To:** 'brosmj@jea.com'; 'worlja@jea.com'; 'dee\_morse@nps.gov'; Kirts, Christopher; 'robinson@coj.net'; 'michael.halpin@dep.state.fl.us'; 'kkosky@golder.com'  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL  
**Attachments:** 0310045.017.AC.F\_pdf.zip

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Thank you,

DEP, Bureau of Air Regulation

**Adams, Patty**

---

**From:** Harvey, Mary  
**Sent:** Thursday, March 01, 2007 3:32 PM  
**To:** 'worley.gregg@epa.gov'  
**Cc:** Arif, Syed; Adams, Patty  
**Subject:** FW: JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL  
**Attachments:** Signed Documents for Facility #0310045-017-AC-FINAL.pdf; sjrppfd (2) - Facility #0310045-017-AC-FINAL.PDF; sjrppfnot - Facility #0310045-017-AC - FINAL.PDF; sjrppgc - Facility #0310045-017-AC-FINAL.PDF; sjrpppermit (2) - Facility #0310045-017-AC-FINAL.PDF

---

**From:** Harvey, Mary  
**Sent:** Thursday, March 01, 2007 3:19 PM  
**To:** 'brosmj@jea.com'; 'worlja@jea.com'; 'dee\_morse@nps.gov'; Kirts, Christopher; 'robinson@coj.net'; 'michael.halpin@dep.state.fl.us'; 'kkosky@golder.com'  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** JEA - St. Johns River Power Park - Facility ID #0310045-017-AC-FINAL

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Thank you,

DEP, Bureau of Air Regulation



RECEIVED

FEB 15 2007

BUREAU OF AIR REGULATION



February 12, 2007

Ms. Trina L. Vielhauer, Chief Bureau of Air Regulation  
Bureau of Air Regulation  
Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, FL 32399

Attention: Mr. Jeffery F. Koerner, P.E., Administrator

RE: DEP File No. 0310045-017-AC  
St. Johns River Power Park (SJRPP) Facility, Duval County  
Public Notice – Proof of Publication  
Install Selective Catalytic Reduction (SCR)

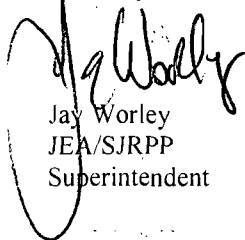
Dear Mr. Koerner:

The copy of the Draft Air Construction Permit Modification for the SJRPP Facility was submitted to Mr. Michael Brost on February 1, 2007. Included in this submittal was the Technical Evaluation and Preliminary Determination, the Department's Intent to Issue Air Construction Permit Modification and the "Public Notice of Intent to Issue Air Construction Permit Modification."

The "Public Notice" was published in the City of Jacksonville's Time Union on February 6, 2007. Please find enclosed the proof of publication for this notice.

Please contact me at (904) 665-8729 if you have any questions or require any additional information regarding the proof of publication.

Sincerely,



Jay Worley  
JEA/SJRPP  
Superintendent

Enclosure

cc: M. Brost, JEA

THE FLORIDA TIMES-UNION  
Jacksonville, FL  
Affidavit of Publication

Florida Times-Union

J.E.A./ ENVIRONMENTAL SERVICES  
21 W. CHURCH ST. T-8  
JACKSONVILLE, FL 32202

REFERENCE: F0334984  
11129254

State of Florida  
County of Duval

Before the undersigned authority personally appeared Sharon Walker who on oath says she is a Legal Advertising Representative of The Florida Times-Union, a daily newspaper published in Jacksonville in Duval County, Florida; that the attached copy of advertisement is a legal ad published in The Florida Times-Union. Affiant further says that The Florida Times-Union is a newspaper published in Jacksonville, in Duval County, Florida, and that the newspaper has heretofore been continuously published in Duval County, Florida each day, has been entered as second class mail matter at the post office in Jacksonville, in Duval County, Florida for a period of one year preceding the first publication of the attached copy of advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission, or refund for the purpose of securing this advertisement for publication in said newspaper.

PUBLISHED ON: 2/06 **RECEIVED**

FEB 15 2007

FILED ON: 2/06 **BUREAU OF AIR REGULATION**

Name: Sharon Walker Title: Legal Advertising Representative  
In testimony whereof, I have hereunto set my hand and affixed  
Seal, the day and year aforesaid.

NOTARY:

**TWILLA SHIPP**  
MY COMMISSION # DDS: 36833  
EXPIRES: May 13, 2010  
FL Notary District Assoc. Co.

**PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DEP File No. 0310045-017-AC

JEA  
St. Johns River Power Park  
Duval County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to St. Johns River Power Park (SJRP), an electric utility steam generating facility, located in Jacksonville, Florida. The applicant's name and address is JEA, 21 West Church Street, Jacksonville, Florida 32202. SJRP is located at 11201 New Berlin Road, Jacksonville, Duval County.

The applicant, JEA, submitted a complete application on December 11, 2006 to the Department for installation of selective catalytic reduction in Boilers Nos. 1 and 2 to decrease nitrogen oxides (NOx) emissions in compliance with EPA's Clean Air Interstate Rule. The addition of SCR will have the co-benefits of reducing emissions of mercury to meet EPA's Clean Air Mercury Rule.

While the addition of SCR will substantially decrease emissions of NOx, there is the potential for collateral increases in emissions of sulfuric acid mist (SAM) and particulate matter (PM). Potential increases in SAM emissions will be minimized through the injection of ammonia to react with sulfur trioxide (SO3) prior to the electrostatic precipitator (ESP). The potential increase in PM from the reaction of ammonia and SO3 will be collected in the ESP and flue gas desulfurization system. There will be no emissions increase over the PSD significant emission rates from the installation of SCR. There are no other planned changes in Units 1 and 2.

An air quality impact analysis was not required. No increase in ambient impacts due to the proposed permit modification is expected. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards.

The Department will issue the Final Air Construction Permit Modification in accordance with the conditions of the Draft Air Construction Permit Modification unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The permitting authority has determined that an Air Construction Permit Modification is required.

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department of 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only of the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection  
Bureau of Air Regulation  
Suite 4, 111 S. Magnolia Drive  
Tallahassee, Florida, 32301  
Telephone: 850/488-0114  
Fax: 850/922-6979

Dept. of Environmental Protection  
Northeast District  
7825 Boy Meadows Way, Suite 200B  
Jacksonville, Florida 32256-7590  
Telephone: 904/807-3300  
Fax: 904/448-4362

Environmental Resource Management  
Department  
117 West Duval Street, Suite 225  
Jacksonville, Florida 32202  
Telephone: 904/630-4900  
Fax: 904/630-3638

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, Air Permitting North Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

# Memorandum

# Florida Department of Environmental Protection

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TO: Trina L. Vielhauer

THRU: Jeff Koerner *[Signature]*

FROM: Syed Arif *[Signature]* 1118

DATE: January 18, 2007

SUBJECT: JEA, St. Johns River Power Park (SJRPP) Facility  
0310045-017-AC

---

Attached is the Public Notice package for a modification at JEA's SJRPP facility located in Jacksonville, Duval County.

The applicant, JEA, submitted a complete minor source application on December 11, 2006 to the Department for installation of selective catalytic reduction in Boilers Nos. 1 and 2 to decrease nitrogen oxides (NO<sub>x</sub>) emissions in compliance with EPA's Clean Air Interstate Rule. The addition of SCR will have the co-benefits of reducing emissions of mercury to meet EPA's Clean Air Mercury Rule.

While the addition of SCR will substantially decrease emissions of NO<sub>x</sub>, there is the potential for collateral increases in emissions of sulfuric acid mist (SAM) and particulate matter (PM). Potential increases in SAM emissions will be minimized through the injection of ammonia to react with sulfur trioxide (SO<sub>3</sub>) prior to the electrostatic precipitator (ESP). The potential increase in PM from the reaction of ammonia and SO<sub>3</sub> will be collected in the ESP and flue gas desulfurization system. There will be no emissions increase over the PSD significant emission rates from the installation of SCR. There are no other planned changes in Units 1 and 2.

An air quality impact analysis was not required. No increase in ambient impacts due to the proposed permit modification is expected. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards.

I recommend your approval and signature.

Attachments

/sa



Florida Department of  
Environmental Protection  
Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Charlie Crist  
Governor

Jeff Kottkamp  
Lt. Governor

Michael W. Sole  
Secretary

P.E. Certification Statement

**Permittee:**

JEA  
St. Johns River Power Park (SJRPP) Facility

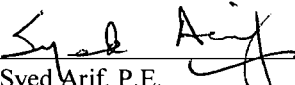
**DEP File No. 0310045-017-AC**

**Project type:** The applicant, JEA, submitted a minor source application to the Department for installation of selective catalytic reduction in Boilers Nos. 1 and 2 to decrease nitrogen oxides (NO<sub>x</sub>) emissions in compliance with EPA's Clean Air Interstate Rule. The addition of SCR will have the co-benefits of reducing emissions of mercury to meet EPA's Clean Air Mercury Rule.

While the addition of SCR will substantially decrease emissions of NO<sub>x</sub>, there is the potential for collateral increases in emissions of sulfuric acid mist (SAM) and particulate matter (PM). Potential increases in SAM emissions will be minimized through the injection of ammonia to react with sulfur trioxide (SO<sub>3</sub>) prior to the electrostatic precipitator (ESP). The potential increase in PM from the reaction of ammonia and SO<sub>3</sub> will be collected in the ESP and flue gas desulfurization system. There will be no emissions increase over the PSD significant emission rates from the installation of SCR. There are no other planned changes in Units 1 and 2.

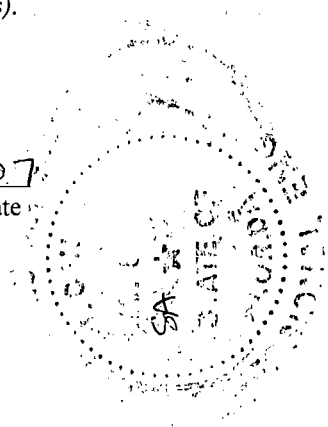
An air quality impact analysis was not required because the project does not result in a significant increase in emissions. No increase in ambient impacts due to the proposed permit modification is expected. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The applicant's name and address is JEA, 21 West Church Street, Jacksonville, Florida 32202. The facility's name and address is SJRPP, 11201 New Berlin Road, Jacksonville, Florida 32226.

*I HEREBY CERTIFY that the engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, meteorological and geological features).*

  
Syed Arif, P.E.  
Registration Number: 51861

2/1/07  
Date

Department of Environmental Protection  
Bureau of Air Regulation  
111 South Magnolia Drive, Suite 4  
Tallahassee, Florida 32301  
Phone (850) 488-0114  
Fax (850) 922-6979





# Florida Department of Environmental Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Charlie Crist  
Governor

Jeff Kottkamp  
Lt. Governor

Michael W. Sole  
Secretary

February 1, 2007

ELECTRONIC MAIL - RECEIVED RECEIPT REQUESTED

Mr. Michael J. Brost, Vice President  
Electric System  
JEA  
21 West Church Street  
Jacksonville, Florida 32202

Re: DEP File No. 0310045-017-AC  
St. Johns River Power Park (SJRPP) Facility, Duval County  
Installation of Selective Catalytic Reduction

Dear Mr. Brost:

Enclosed is one copy of the Draft Air Construction Permit Modification for the SJRPP Facility, located at 11201 New Berlin Road, Jacksonville, Duval County. The Technical Evaluation and Preliminary Determination, the Department's Intent to Issue Air Construction Permit Modification and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION" are also included.

The "PUBLIC NOTICE" must be published one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Jeff Koerner, P.E., Permitting Administrator, North Section at the above letterhead address. If you have any other questions, please contact Mr. Syed Arif at 850/921-9528.

Sincerely,

Trina L. Vielhauer, Chief,  
Bureau of Air Regulation

TLV/jk/sa

Enclosures

In the Matter of an  
Application for Permit by:

Mr. Michael J. Brost, Vice President  
Electric System  
JEA  
21 West Church Street  
Jacksonville, Florida 32202

DEP File No. 0310045-017-AC  
St. Johns River Power Park  
Installation of Selective Catalytic Reduction  
Duval County

### **INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION**

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification (copy of DRAFT Permit attached) for the proposed project, detailed in the application specified above and the attached Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, JEA, submitted a complete application on December 11, 2006 to the Department for installation of selective catalytic reduction in Boilers Nos. 1 and 2 to decrease nitrogen oxides emissions in compliance with EPA's Clean Air Interstate Rule. St. Johns River Power Park is located at 11201 New Berlin Road, Jacksonville, Duval County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined an air construction permit modification is required for the proposed work.

The Department intends to issue this Air Construction Permit Modification based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION." The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the Final Air Construction Permit Modification in accordance with the conditions of the attached Draft Air Construction Permit Modification unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the Draft Air Construction Permit Modification, the permitting authority shall issue a Revised Draft Air Construction Permit Modification and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

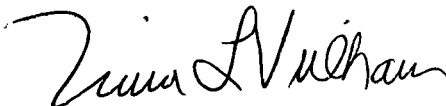
A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.



Trina L. Vielhauer, Chief  
Bureau of Air Regulation





**PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DEP File No. 0310045-017-AC  
JEA  
St. Johns River Power Park  
Duval County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to St. Johns River Power Park (SJRPP), an electric utility steam generating facility, located in Jacksonville, Florida. The applicant's name and address is JEA, 21 West Church Street, Jacksonville, Florida 32202. SJRPP is located at 11201 New Berlin Road, Jacksonville, Duval County.

The applicant, JEA, submitted a complete application on December 11, 2006 to the Department for installation of selective catalytic reduction in Boilers Nos. 1 and 2 to decrease nitrogen oxides (NOx) emissions in compliance with EPA's Clean Air Interstate Rule. The addition of SCR will have the co-benefits of reducing emissions of mercury to meet EPA's Clean Air Mercury Rule.

While the addition of SCR will substantially decrease emissions of NOx, there is the potential for collateral increases in emissions of sulfuric acid mist (SAM) and particulate matter (PM). Potential increases in SAM emissions will be minimized through the injection of ammonia to react with sulfur trioxide (SO<sub>3</sub>) prior to the electrostatic precipitator (ESP). The potential increase in PM from the reaction of ammonia and SO<sub>3</sub> will be collected in the ESP and flue gas desulfurization system. There will be no emissions increase over the PSD significant emission rates from the installation of SCR. There are no other planned changes in Units 1 and 2.

An air quality impact analysis was not required. No increase in ambient impacts due to the proposed permit modification is expected. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards.

The Department will issue the Final Air Construction Permit Modification in accordance with the conditions of the Draft Air Construction Permit Modification unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The permitting authority has determined that an Air Construction Permit Modification is required.

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under

**NOTICE TO BE PUBLISHED IN THE NEWSPAPER**

section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

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Dept. of Environmental Protection  
Bureau of Air Regulation  
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Jacksonville, Florida 32256-7590  
Telephone: 904/807-3300  
Fax: 904/448-4362

Environmental Resource Management  
Department  
117 West Duval Street, Suite 225  
Jacksonville, Florida 32202  
Telephone: 904/630-4900  
Fax: 904/630-3638

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, Air Permitting North Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

**NOTICE TO BE PUBLISHED IN THE NEWSPAPER**

TECHNICAL EVALUATION  
AND  
PRELIMINARY DETERMINATION

JEA

St. Johns River Power Park  
Boilers Nos. 1 and 2  
Duval County, Florida

DEP File Number  
0310045-017-AC

Florida Department of Environmental Protection  
Division of Air Resource Management  
Bureau of Air Regulation

January 18, 2007

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## I. APPLICATION INFORMATION

### A. Applicant

JEA  
21 West Church Street  
Jacksonville, Florida 32202

Authorized Representative: Mr. Michael J. Brost, Vice President Electric System

### B. Facility Location

The applicant's facility, St. Johns River Power Park, is located at 11201 New Berlin Road, Jacksonville, Duval County, Florida. Latitude and Longitude are 30° 21' 52" North and 81° 37' 25" West respectively. UTM coordinates of the site are: Zone 17, 446.9 km E and 3359.15 km N. This location is approximately 60 km from the nearest Class I area, the Okefenokee Wilderness Area.

Facility Identification Code (SIC): Major Group No. 49, Industry Group No. 4911.

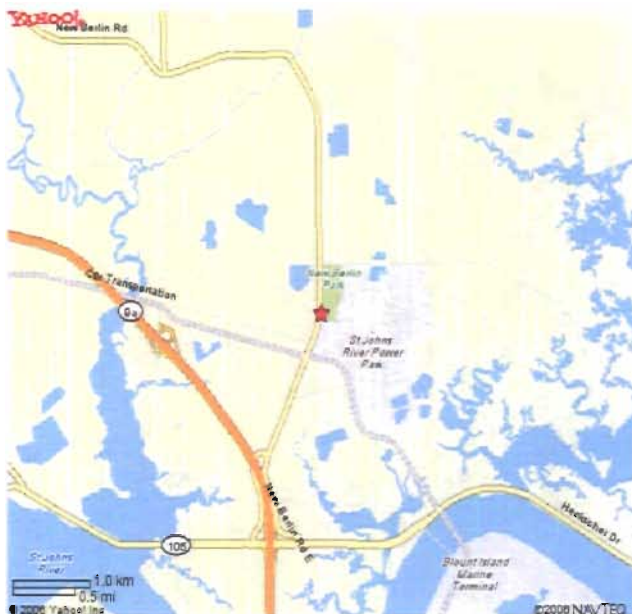


Figure 1- Location of Facility



Figure 2 – Regional Location

### C. Regulatory Classification

Because potential emissions of at least one regulated pollutant exceed 100 tons per year, the existing facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), particulate matter (PM/PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOC).

The existing facility is major source of hazardous air pollutants (HAPs).

The facility operates emissions units subject to the acid rain provisions of the Clean Air Act.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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The facility is considered a “fossil fuel fired steam electric plant of more than 250 million BTU per hour of heat input”. This kind of facility is one of the 28 source categories with the lower applicability threshold of 100 tons per year with respect to the Rule 62-210.200, Prevention of Significant Deterioration of Air Quality (PSD). Potential emissions of at least one regulated pollutant exceed 100 tons per year. Therefore, the facility is classified as a PSD-major source.

Units 1 and 2 were certified pursuant to Electrical Power Plant Siting in accordance with Chapter 62-17, F.A.C. and Chapter 403, Part II, F.S.

### D. Modification Request

St. Johns River Power Park (SJRPP) submitted an application for a minor source air construction permit to install selective catalytic reduction (SCR) in Boilers Nos. 1 and 2 (Units 1 and 2) in order to comply with the requirements of EPA’s Clean Air Interstate Rule (CAIR) as implemented by the Department in Rule 62-296.470, F.A.C. The addition of SCR will have the co-benefits of reducing emissions of mercury to meet EPA’s Clean Air Mercury Rule (CAMR) implemented by the Department in Rule 62-296.480, F.A.C.

The primary purpose of the project will be to decrease nitrogen oxides (NO<sub>x</sub>) emissions from Units 1 and 2 to meet the annual and ozone season NO<sub>x</sub> CAIR allocations. While the addition of SCR will substantially decrease emissions of NO<sub>x</sub>, there is the potential for collateral increases in emissions of sulfuric acid mist (SAM) and particulate matter (PM). The potential increase of SAM emissions is a result of the oxidation of sulfur dioxide (SO<sub>2</sub>) to sulfur trioxide (SO<sub>3</sub>) that is emitted as SAM after the flue gas desulfurization (FGD) system. Potential increases in SAM emissions will be minimized through the injection of ammonia to react with SO<sub>3</sub> prior to the electrostatic precipitator (ESP). The reactants, primarily ammonium sulfate, will be collected in the ESP. The potential increase in PM from the reaction of ammonia and SO<sub>3</sub> will be collected in the ESP and FGD system. There will be no emissions increase over the PSD significant emission rates from the installation of SCR. There are no other planned changes in Units 1 and 2.

### E. Reviewing and Process Schedule

10-17-06: Date of Receipt of Application  
11-15-06: DEP’s 1<sup>st</sup> Completeness Request  
12-11-06: Applicant’s response to DEP’s 1<sup>st</sup> Completeness Request. Application complete.

### F. Project Description

SCR is a process that uses catalyst to promote the conversion of NO<sub>x</sub> to nitrogen and water in the flue gas. The conversion occurs between the boiler economizer and the air heaters in a specially designed ductwork section called the SCR Reactor, which contains the catalyst. Ammonia vapor mixed with dilution air is injected into the flue gas upstream of the catalyst and is thoroughly mixed with the flue gas prior to the catalyst. As the flue gas passes over the catalyst, the nitrogen monoxide and nitrogen dioxide combine with the ammonia to form nitrogen and water.

Each unit will have two SCR reactors. Each SCR reactor will consist of a steel reactor box designed to support the SCR catalyst modules and to properly distribute flue gas through the catalyst layers. Flue gas flow will be vertically downward through the catalyst. Flue gas ductwork will be provided from the economizer outlet to the air heater inlet including a SCR bypass duct and associated dampers. Bypass dampers are installed primarily for startup and maintenance. The SCR inlet duct will include a large particle ash (LPA) screen, static flue gas mixer, and ammonia injection grid. Ash hoppers will be located below the inlet diverter damper and LPA screen.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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The new SCR system will be designed for operation over load ranges of 50 percent of full load (approximately 300 MW) and higher. The minimum temperature required for injected ammonia vapor to react with the NO<sub>x</sub> in the SCR reactor is approximately 630°F. The minimum temperature corresponds to the lowest expected temperature at low load. Ammonia is introduced in the SCR as a mixture of anhydrous ammonia and air. Anhydrous ammonia will be delivered to the site by tank truck and unloaded into one of two bulk storage tanks. In addition, provisions for delivery by rail will be provided. Liquid anhydrous ammonia will be transferred from the storage tanks to ammonia vaporizers. After vaporization, the ammonia gas will be mixed with ambient air and distributed into the flue gas through the ammonia injection grids (AIG) located upstream of the reactor. The air/ammonia vapor mixture is distributed across the entire duct cross section using the ammonia injection grid (AIG). The AIG consists of a series of stacked layers of parallel pipes, each with nozzles that inject the mixture into a particular section of the SCR reactor inlet duct. The pipes will extend the entire width of the ductwork and contain a sufficient number of nozzles with orifices sized for the particular ammonia distribution requirement. If necessary, as determined by the physical flow model test of the SCR reactor and associated ductwork, a static mixer may be required upstream of the AIG to help reduce the stratification of temperature and chemical composition of the flue gas flow out of the economizers.

The catalyst used for NO<sub>x</sub> reduction primarily consists of a vanadium and titanium mixture. Titanium dioxide is used as the base material that disperses and supports vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) which is the active catalyst material. V<sub>2</sub>O<sub>5</sub> is widely used in the SCR industry due to its resistance to sulfur poisoning. The vanadium content controls the reactivity of the catalyst, but also catalyzes the oxidation of SO<sub>2</sub> to SO<sub>3</sub>. For moderate to high sulfur coal applications, it is necessary to minimize the vanadium content to reduce SO<sub>2</sub> oxidation. Additionally, the vanadium already present in the petcoke fuel will deposit on the catalyst, potentially increasing the oxidation of SO<sub>2</sub> to SO<sub>3</sub>. Tungsten oxide also provides thermal and mechanical stability to the catalyst. The concentrations of vanadium pentoxide, titanium dioxide and tungsten oxide will be customized to meet the specific requirements for Units 1 and 2 SCR system installations.

Each SCR reactor will include soot blowers and sonic horns to keep the catalyst free of fly ash buildup. Provisions for catalyst loading into the reactors will be included. The SCR reactors will be designed for three initial layers of catalyst and a spare level for future additional layer of catalyst. To minimize potential catalyst poisoning, the units will be equipped with limestone addition in the combustion process. Limestone will be fed on to the coal conveyor when transporting fuel to the silos. A limestone system to receive, store and feed limestone to the coal conveyors will be provided.

An additional ammonia injection grid will be designed and located within the duct work leading to the ESP. The system will be designed to remove up to 90 percent of the SAM after the air heater. The ammonia injection system will be controlled by proprietary software from PECO-FGC, Inc. The control system regulating the amount of ammonia injected to control SAM will be integrated into the plant digital control system (DCS). The design of the injection grids, including the locations and sizes of the nozzles regulating the amount of ammonia, was performed using the computerized modeling of the ductwork leading to the ESP. The amount of ammonia injected through the injection grid into the flue gas conditioning system will be regulated based on load and SO<sub>2</sub> content of flue gas. A control algorithm will regulate the system within the DCS to remove up to 90 percent of SAM from the flue gas. On an annual basis, the permittee will demonstrate that SAM emissions as a result of this project do not exceed the baseline annual emissions (1317 tons/year) by the PSD significant emission rate (7 tons/year or more). The permittee shall install and operate the ammonia injection system at a frequency and injection rate for SAM control to satisfy this requirement. An automated control system will be used to adjust the ammonia flow rate for the given set of operating conditions based on the most recent performance test results.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Ammonia slip after the ESP is expected to be 2 parts per million or less. Annual testing of ammonia slip will be conducted and corrective measures taken if this target level is exceeded.

Figure 3 below is a diagram of a typical SCR installation in a power plant. This configuration is known as dusty or hot side SCR meaning it is placed before the electrostatic precipitator.

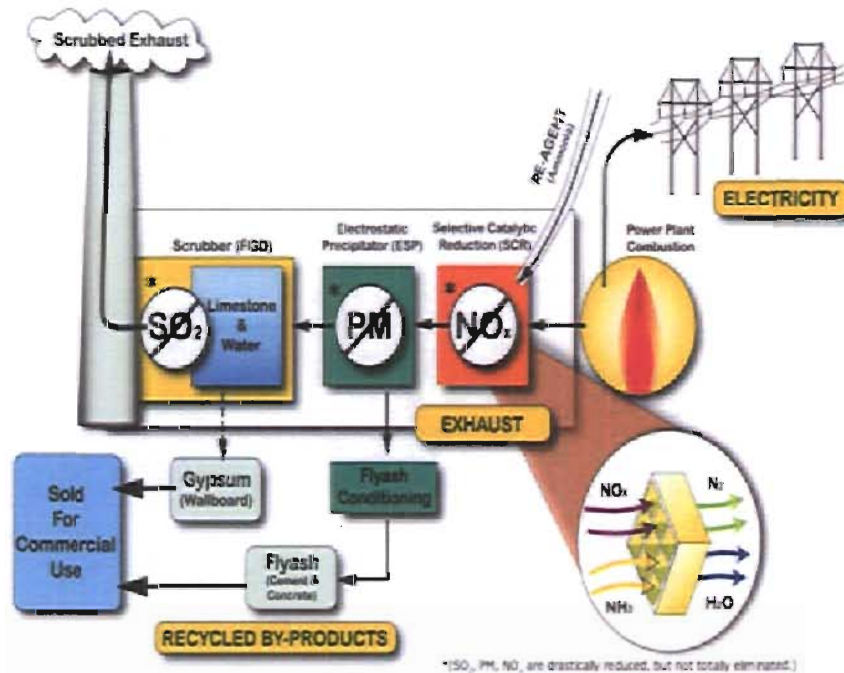


Figure 3. Diagram of a typical SCR Installation

### G. Project Emissions

Presented in Table 1 is the heat input reported in the Annual Operating Report (AOR) for the period 2001 through 2005. This table also presents the capacity factor for Units 1 and 2, as well as the average for both units during the period 2001 through 2005. During the period 2001 through 2005, the average capacity factor based on heat input for Units 1 and 2 ranged from 79.4 percent in 2005 to 89.8 percent in 2002. The average capacity factors for the years 2005, 2004, 2003, 2002, and 2001 were 79.4, 84.5, 88.1, 89.8 and 89.0 percent, respectively. The average two-year capacity factors based on heat input were 81.9, 86.3, 88.9, and 89.4 percent for the periods 2005-2004, 2004-2003, 2003-2002, and 2002-2001, respectively. The average 5-year capacity factor was 86.2 percent.

Table 2 presents the annual emissions reported in the AORs for the years 2001 through 2005 for PM and SAM. Table 3 presents the average calendar year emissions for each consecutive 2-year period from 2001 through 2005 based on the average calendar year emissions in Table 2. The annual average emissions for each consecutive 2-year period are consistent with the definition of baseline actual emissions for fossil fuel fired steam electric generating units. The highest two consecutive 2-year emissions for the period 2001-2002 are proposed as the basis for future comparisons. This 2-year period also has the highest heat input.

**TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

**TABLE 1 – OPERATING HISTORY**

Year	Heat Input (MMBtu/hr)			Capacity Factor		
	Unit 1	Unit 2	Total	Unit 1	Unit 2	Average
2005	40,576,121	44,879,935	85,456,056	75.4	83.4	79.4
2004	51,559,458	39,381,272	90,940,730	95.8	73.2	84.5
2003	46,416,440	48,376,056	94,792,496	86.2	89.9	88.1
2002	51,497,802	45,166,544	96,664,346	95.7	83.9	89.8
2001	46,245,091	49,554,215	95,799,306	85.9	92.1	89.0

**TABLE 2 – PAST ACTUAL EMISSIONS**

Year	Pollutant	Unit 1 (tons)	Unit 2 (tons)	Total (tons)
2005	PM	34.5	71.8	106.3
	SAM	273.9	327.6	601.5
2004	PM	170.5	132.2	302.7
	SAM	705.6	538.9	1244.5
2003	PM	70.5	74.8	145.3
	SAM	635.2	662.0	1297.2
2002	PM	170.3	155.9	326.2
	SAM	704.8	618.1	1322.9
2001	PM	154.1	163.2	317.3
	SAM	632.9	678.2	1311.1

**TABLE 3 – PAST ACTUAL EMISSIONS, 2-YEAR AVERAGES**

Pollutant	2005-2004 (tons)	2004-2003 (tons)	2003-2002 (tons)	2002-2001 (tons)
PM	204.5	224	235.8	321.8
SAM	923.0	1270.9	1310.1	1317.0

The Department will require the applicant to maintain and submit to the Department on an annual basis for a period of five years from the date the SCR systems are initially operated, information demonstrating in accordance with Rule 62-212.300(1)(e), F.A.C., that the installation of SCR did not result in significant emissions increases of PM (322 + 14 = 336 tons per year) and SAM (1317 + 6 = 1323 tons per year) when compared with the baseline actual emissions for the period 2001-2002.

**II. RULE APPLICABILITY**

**A. Prevention of Significant Deterioration**

New Source Review under PSD regulations is not applicable to the proposed project as the net increase in emissions due to this modification is less than the PSD significant emission rates (15 TPY for PM<sub>10</sub> and 7 TPY for SAM) listed in Rule 62-210.200, Florida Administrative Code (F.A.C.). The net increase in emissions is determined based on the difference between the projected future actual emissions and the baseline actual emissions.



## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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### **B. Federal and State Emission Standards**

The proposed project is subject to the applicable provisions of Chapter 403, Florida Statutes, Chapters 62-4, 62-210, 62-212 and 62-296, Florida Administrative Code (F.A.C.). The facility is located in an area designated attainment or maintenance for all criteria pollutants in accordance with F.A.C. Rule 62-275.400.

The emission units are regulated under Acid Rain, Phase II and Phase I; NSPS – 40 CFR 60 Subpart Da, Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978, adopted and incorporated by reference in Rule 62.204-800, F.A.C.

### **III. AIR QUALITY ANALYSIS**

According to the application and our review, the proposed project will not require an air quality analysis.

### **IV. CONCLUSION**

Based on the foregoing technical evaluation of the application and information submitted by JEA/SJRPP, the Department has made a preliminary determination that the proposed project will comply with all applicable federal and state air pollution regulations.

# DRAFT PERMIT

## PERMITTEE

JEA - St. Johns River Power Park  
21 West Church Street  
Jacksonville, Florida 32202

### *Authorized Representative:*

Mr. Michael J. Brost, Vice President  
Electric System

Permit No.:	0310045-017-AC
Facility ID No.:	0310045
Project:	Installation of Selective Catalytic Reduction
Expires:	June 30, 2009

## PROJECT AND LOCATION

This permit authorizes the installation of Selective Catalytic Reduction (SCR) systems and ammonia injection systems on existing Boilers 1 and 2 at the St. Johns River Power Park. The St. Johns River Power Park is an existing electrical generating plant (SIC No. 4911) located at 11201 New Berlin Road in Jacksonville, Duval County, Florida. The UTM coordinates are: Zone 17; 446.9 km E; 3359.15 km N.

## STATEMENT OF BASIS

Installation of the ammonia injection system is required to ensure that the SCR project will not result in an increase of sulfuric acid mist emissions above the PSD-significant emission rate of 7 tons per year. The applicant elects to install the SCR systems to provide full flexibility in implementing the federal cap and trade program for nitrogen oxides under the Clean Air Interstate Rule (CAIR). Because CAIR affords a regulated facility the flexibility to evaluate market conditions to determine whether it will install controls, operate existing controls, or purchase allowances generated by other plants, the Department does not require the installation of this equipment nor its operation. This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Part 60 of the Code of Federal Regulations. The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

## APPENDICES

The following appendices are attached as a part of this permit.

Appendix GC. Construction Permit General Conditions

Executed in Tallahassee, Florida

\_\_\_\_\_  
Joseph Kahn, Director  
Division of Air Resource Management

\_\_\_\_\_  
(Date)

## SECTION 1. GENERAL INFORMATION

### FACILITY DESCRIPTION

The Jacksonville Electric Authority operates an existing electrical generating plant at the St. Johns River Power Park (SJRPP). This plant includes Boilers 1 and 2 (Emissions Units 016 and 017), which are fossil fuel-fired steam generators fired with pulverized coal and a blend of petroleum coke and coal. Each boiler has a nominal nameplate rating of 679.6 megawatts (electric). Emissions from each boiler are currently controlled with an electrostatic precipitator (ESP), a limestone scrubber and low-NOx burners.

### PROJECT DESCRIPTION

This permit authorizes the installation of Selective Catalytic Reduction (SCR) systems on Boilers 1 and 2. The permittee elects to install these controls as part of its plan to comply with the Clean Air Interstate Rule (Rule 62-296.470(CAIR), F.A.C.) and the Clean Air Mercury Rule (Rule 62-296.480(CAMR), F.A.C.). When operating, the SCR systems will decrease nitrogen oxides (NOx) emissions from Boilers 1 and 2, which will allow the plant to meet the annual and ozone season NOx CAIR allocations.

Installation of the SCR systems will result in collateral increases in emissions of sulfuric acid mist (SAM) and particulate matter (PM/PM<sub>10</sub>). The potential increase of SAM emissions is a result of the oxidation of sulfur dioxide (SO<sub>2</sub>) to sulfur trioxide (SO<sub>3</sub>) that is emitted as SAM after the flue gas desulfurization (FGD) system. The permit requires the installation of additional ammonia injection systems on Boilers 1 and 2 to reduce SAM emissions. Ammonia will be injected downstream of the SCR reactor and upstream of the existing electrostatic precipitator (ESP). The ammonia reacts with SO<sub>3</sub> to form salts (e.g., ammonium sulfate), which will be collected in the ESP. With the additional ammonia injection systems, there will be no PSD-significant emissions increases due to the installation of SCR systems on Boilers 1 and 2. There are no other planned changes in Boilers 1 and 2.

The applicant elects to install the SCR systems to provide full flexibility in implementing the federal cap and trade program for nitrogen oxides under the Clean Air Interstate Rule (CAIR). Because CAIR affords a regulated facility the flexibility to evaluate market conditions to determine whether it will install controls, operate existing controls, or purchase allowances generated by other plants, the Department does not require the installation of this equipment nor its operation.

### REGULATORY CLASSIFICATION

Title III: The existing facility is a major source of hazardous air pollutants (HAPs).

Title IV: The existing facility operates units subject to the acid rain provisions of the Clean Air Act.

Title V: The existing facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.

PSD: The existing facility is a PSD-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The existing facility operates units subject to the New Source Performance Standards of 40 CFR 60.

### RELEVANT DOCUMENTS

The permit request and additional information received to make it complete are not a part of this permit; however, the information is listed in the technical evaluation which is issued concurrently with this permit.

## SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: All documents related to applications for permits regarding construction and operation shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. Copies of all such documents shall also be sent to the Department's Northeast District Office and the Environmental Resource Management Department, Environmental Quality Division, Air Quality Branch (ERMD/EQD/AQB) of Duval County.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to Northeast District Office.
3. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.); and Title 40, Part 60 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
4. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
5. Modifications: The permittee shall notify the Compliance Authority upon commencement of construction. No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
6. Title V Permit: This permit authorizes modification of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]
7. Source Obligation: At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by increasing its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction has not yet commenced on the source or modification. [Rule 62-212.400(12)(c), F.A.C.]

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

The specific conditions listed in this section apply to the following emission units:

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
016	SJRPP Boiler No. 1
017	SJRPP Boiler No. 2

SJRPP Boilers 1 and 2 are fossil fuel-fired steam generators, each with a nominal nameplate rating of 679.6 MW. Authorized fuels include pulverized coal, petroleum coke/coal blends, new 2 distillate oil (startup and low-load operation) and "on-specification" used oil. The maximum heat input to each unit is 6144 MMBtu/hour. Each unit is a dry bottom, wall-fired boiler with the following controls: an electrostatic precipitator (ESP) to control particulate matter (PM/PM<sub>10</sub>), a wet limestone flue gas desulfurization (FGD) unit to control sulfur dioxide (SO<sub>2</sub>), low-NO<sub>x</sub> burners and low excess-air firing to control nitrogen oxides (NO<sub>x</sub>), and good combustion to control carbon monoxide (CO). Each boiler exhausts through a separate stack that is 640 feet above grade. SJRPP Boiler 1 began commercial operation in December of 1986. SJRPP Boiler 2 began commercial operation in March of 1988.

#### PREVIOUS APPLICABLE REQUIREMENTS

1. Permit Determination: This permit authorizes the installation of SCR and ammonia injection systems for Boilers 1 and 2. Unless otherwise specified, these conditions are in addition to all existing applicable permit conditions and regulatory requirements. [The permittee shall continue to comply with the conditions of the original permit PSD-FL-010 (as modified), which includes restrictions and standards regarding capacities, production, operation, fuels, emissions, monitoring, record keeping, reporting, etc. for these units. The facility remains subject to all of the requirements specified in the current Title V Operation Permit (No. 0310045-016-AM). [Rule 62-4.070(3), F.A.C.]

#### AUTHORIZED WORK

2. SCR Systems: The permittee is authorized to construct, tune, operate and maintain new SCR systems for SJRPP Boilers 1 and 2 to reduce emissions of nitrogen oxides (NO<sub>x</sub>) as described in the application. In general, the SCR systems will include the following equipment: ammonia storage; ammonia flow control unit (AFCU); ammonia injection grid (AIG); vanadium pentoxide catalyst; an SCR reactor chamber; an SCR bypass system; and other ancillary equipment. [Application; Rules 62-296.470(CAIR) and 62-210.200(PTE), F.A.C.]
3. Ammonia Injection Systems: The permittee shall construct, tune, operate and maintain new ammonia injection systems on SJRPP Boilers 1 and 2 to mitigate the formation of sulfuric acid mist (SAM) due to the increased oxidation of SO<sub>2</sub> to SO<sub>3</sub> across the new SCR reactors. Ammonia will be injected downstream of the SCR reactor and upstream of the existing electrostatic precipitator (ESP). The control system regulating the amount of ammonia injected to control SAM will be integrated into the plant digital control system. The ammonia will react with SO<sub>3</sub> to form salts (e.g., ammonium sulfate), which will be collected in the ESP. With the additional ammonia injection systems, there will be no PSD-significant emissions increases due to the installation of SCR systems on Boilers 1 and 2. The proposed equipment includes storage tanks, piping, injectors, a control system and other ancillary equipment. The ammonia injection systems shall be operable when the SCR system is initially available for service. [Application; and Rule 62-212.400(12), F.A.C.]
4. Circumvention: No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. Operation of the SCR is not required by this permit. As necessary, the permittee shall operate the ammonia injection system for SAM emissions control to ensure the project does not result in a PSD-significant emissions increase (7

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

tons/year) of sulfuric acid mist emissions above baseline actual emissions (1317 tons/year). [Rules 62-210.650 and 62-212.400(12), F.A.C.]

#### PERFORMANCE REQUIREMENTS

5. Annual PM/PM<sub>10</sub> and SAM Emissions Projections: For this project, the permittee projected that actual annual emissions due to the project would not exceed the PM/PM<sub>10</sub> annual emissions (322 + 14 = 336 tons/year); and would not exceed the SAM annual emissions (1317 + 6 = 1323 tons/year). The permittee shall demonstrate this by compiling and submitting the reports required by this permit. For the purposes of this reporting, all PM emissions are considered to be PM<sub>10</sub> emissions. [Application; and Rules 62-212.300 and 62-210.370, F.A.C.]
6. Ammonia Injection for SAM Emissions Control: On an annual basis, the permittee must demonstrate that SAM emissions as a result of this project do not exceed 1323 tons per year. The permittee shall install and operate the ammonia injection system at a frequency and injection rate for SAM control to satisfy this requirement. An automated control system will be used to adjust the ammonia flow rate for the given set of operating conditions based on the most recent performance test results. [Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]
7. Ammonia Slip: Ammonia slip measured at the stack downstream of all emission control systems shall not exceed 5 parts per million by volume (ppmv). Annual testing of ammonia shall be conducted and corrective measures taken if measured values exceed 2 ppmv. [Design; and Rule 62-4.070(3), F.A.C.]

#### EMISSIONS PERFORMANCE TESTING

8. Initial Performance Tests – Ammonia Injection for SAM Emissions Control: Within 90 days of completing construction of both Boilers 1 and 2 SCR systems, the permittee shall conduct a series of initial performance tests on either Boiler 1, or 2 to determine the SAM emissions rate under a variety of operating scenarios that documents the impact of ammonia injection on reducing SAM emissions and results in the development of correlation/curves between injection rates, operating conditions and emissions.
  - a. For each set of operating conditions being evaluated, the permittee shall conduct at least a 1-hour test run to determine SAM emissions. At least nine such test runs shall be conducted to evaluate the effect of SAM emissions on such parameters as the SO<sub>2</sub> emission rate prior to the SCR catalyst (and FGD system), the unit load, the flue gas flow rate, the ammonia injection rate and the current catalyst oxidation rate.
  - b. Tests shall be conducted under a variety of fuel blends and load rates that are representative of the actual operating conditions intended for Boilers 1 and 2. Sufficient tests shall be conducted to establish the SAM emissions rates for the following scenarios: bypass of the SCR reactor, SCR reactor in service without ammonia injection, and SCR reactor in service under varying operating conditions and levels of ammonia injection.
  - c. At least 15 days prior to initiating the performance tests, the permittee shall submit a test notification, preliminary test schedule and test protocol to the Bureau of Air Regulation and the Compliance Authority.
  - d. Within 45 days following the last test run conducted, the permittee shall provide a report summarizing the emissions tests and results. All SAM emissions test data shall be provided with this report.
  - e. Within 45 days following the submittal of the emissions test report and no later than 90 days following the last test run conducted, the permittee shall submit a project report summarizing the following: identify each set of operating conditions evaluated, identify each operating parameter evaluated, identify the relative influence of each operating parameter, describe how the automated control system will adjust the ammonia injection rate based on the selected parameters, identify the frequency with

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

which operational parameters will be reevaluated and adjusted within the automated control system, provide the algorithm used for the automated control system or a series of related performance curves, and provide details for calculating and estimating the SAM emissions rate based on the level of ammonia injection and operating conditions. The test results shall be used to adjust the ammonia injection control system and estimate SAM emissions.

[Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]

9. **Annual Tests – Ammonia Injection for SAM Emissions Control:** During each federal fiscal year, the permittee shall conduct performance tests to determine the SAM emission rates and adjust the ammonia injection rates as necessary. At least six representative 1-hour test runs shall be conducted on either Boiler 1 or 2. Annual performance tests shall be alternated between the boilers such that testing is conducted on a boiler at least twice during each 5-year period. Within 45 days following the last test run conducted, the permittee shall provide a report summarizing the emissions tests conducted, the results of the tests, the catalyst oxidation rate, how the automated control system was adjusted, and the updated algorithm used for the automated control system or the updated series of related performance curves. [Rules 62-4.070(3) and 62-212.300(1)(e), F.A.C.]
10. **Test Notification:** The permittee shall notify the Compliance Authority in writing at least 15 days prior to any required tests. [Rule 62-297.310(7)(a)9, F.A.C.]
11. **Test Methods:** Required tests shall be performed in accordance with the following reference methods:

EPA Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
5B	Determination of PM/PM <sub>10</sub> Emissions
8	Determination of Sulfuric Acid Mist Emissions
19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates (Optional F-factor method may be used to determine flow rate and gas analysis to calculate mass emissions in lieu of Methods 1-4.)

Compliance with the ammonia slip limit shall be determined using EPA conditional test method (CTM-027), EPA method 320, or other methods approved by the Department. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

#### NOTIFICATIONS, RECORDS AND REPORTS

12. **Test Reports:** The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Rule 62-297.310, F.A.C. For each sulfuric acid mist test run, the report shall also indicate the ammonia injection rate for SAM emissions control, unit load, unit heat input rate, and total secondary power input to the electrostatic precipitator. [Rule 62-297.310(8), F.A.C.]
13. **Operational Data:** For each unit, the permittee shall continuously monitor and record the ammonia injection rate for SAM emissions control and the hours of SCR bypass. [Rule 62-4.070(3), F.A.C.]
14. **Annual PM/PM<sub>10</sub> and SAM Emissions Reports:** In accordance with Rule 62-212.300(1)(e), F.A.C., the permittee shall comply with the following monitoring, reporting and recordkeeping provisions:
- The permittee shall monitor the PM/PM<sub>10</sub> and SAM emissions using the most reliable information available. On a calendar year basis, the permittee shall calculate and maintain a record of the annual emissions (tons per year) for a period of 5 years after completing construction on each unit's control system. Emissions shall be computed in accordance with Rule 62-210.370, F.A.C.

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

- b. Within 60 days after each calendar year following completion of construction on each new control system, the permittee shall report to the Compliance Authority the annual emissions for each unit for the preceding calendar year. The report shall contain the following:
  - a. Name, address and telephone number of the owner or operator of the major stationary source;
  - b. Annual emissions as calculated pursuant to subparagraph 62-212.300(1)(e)1., F.A.C.;
  - c. If the emissions differ from the preconstruction projection, an explanation as to why there is a difference; and
  - d. Any other information that the owner or operator wishes to include in the report.
- c. The information required to be documented and maintained shall be submitted to the Compliance Authority, where it will be available for review to the general public.

[Rule 62-212.300(1)(e), F.A.C.]

15. PM/PM<sub>10</sub> and SAM Emissions Computation and Reporting: The permittee shall compute PM/PM<sub>10</sub> and SAM emissions in accordance with the following requirements.
  - a. For each year of reporting required, emissions shall be computed based on the controlled and uncontrolled emissions factors determined during the required annual emissions test. The owner or operator shall not compute emissions by converting an emission factor to pounds per hour and then multiplying by hours of operation, unless the owner or operator demonstrates that such computation is the most accurate method available.
  - b. With appropriate supporting test data, multiple emission factors may be used as necessary to account for variations in emission rate associated with variations in the emissions unit's operating rate or operating conditions during the period over which emissions are computed.
  - c. The permittee shall compute emissions by multiplying the appropriate controlled or uncontrolled emission factor by the annual heat input rate for the period over which the emissions are computed. The uncontrolled emissions factor shall be used if the minimum ammonia injection rate established for the latest test is not met.
  - d. The permittee shall retain a copy of all records used to compute emissions pursuant to this rule for a period of five years from the date on which such emissions information is submitted to the Department of Compliance Authority for any regulatory purpose.

[Rule 62-210.370, F.A.C.]



APPENDIX GC  
GENERAL PERMIT CONDITIONS [F.A.C. 62-4-160]

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- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to sections 403.161, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), F.S. the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
- a. Have access to and copy any records that must be kept under the conditions of the permit;
  - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
  - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.
- Reasonable time may depend on the nature of the concern being investigated.

APPENDIX GC  
GENERAL PERMIT CONDITIONS [F.A.C. 62-4-160]

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- G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
- a. a description of and cause of non-compliance; and
  - b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.
- The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.
- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by sections 403.73 and 403.111, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of civil Procedure and appropriate evidentiary rules.
- G.10 The permittee agrees to comply with changes in Department rules and F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Rules 62-4.120, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- Determination of Best Available Control Technology (BACT)
  - Determination of Prevention of Significant Deterioration (PSD)
  - Compliance with New Source Performance Standards (NSPS)
- G.14 The permittee shall comply with the following:
- a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
  - c. Records of monitoring information shall include:
    - the date, exact place, and time of sampling or measurements;
    - the person responsible for performing the sampling or measurements;

**APPENDIX GC**  
**GENERAL PERMIT CONDITIONS [F.A.C. 62-4-160]**

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- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law, which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

**Adams, Patty**

---

**From:** Harvey, Mary  
**Sent:** Friday, February 02, 2007 9:29 AM  
**To:** Adams, Patty  
**Subject:** FW: Electric - JEA - Facility #0310045-017-AC-DRAFT

---

**From:** Worley, Jay A. - Supt BM Lab & Environment Comp [mailto:WorlJA@jea.com]  
**Sent:** Friday, February 02, 2007 7:53 AM  
**To:** Harvey, Mary  
**Cc:** Brost, Mike J. - VP, Electric Systems; Worley, Jay A. - Supt BM Lab & Environment Comp  
**Subject:** RE: Electric - JEA - Facility #0310045-017-AC-DRAFT

Ms. Harvey, Pursuant to your request, the email and attached documents have been received. Please do not hesitate to contact me at (904) 591-2595 if you require any additional information.  
Thanks, Jay

---

**From:** Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]  
**Sent:** Thursday, February 01, 2007 3:50 PM  
**To:** Brost, Mike J. - VP, Electric Systems; Worley, Jay A. - Supt BM Lab & Environment Comp; worley.gregg@epa.gov; Dee\_Morse@nps.gov; Kirts, Christopher; robinson@coj.net; Halpin, Mike; kkosky@golder.com  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** Electric - JEA - Facility #0310045-017-AC-DRAFT

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: <http://www.adobe.com/products/acrobat/readstep.html>.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

DEP, Bureau of Air Regulation

**Adams, Patty**

---

**From:** Harvey, Mary  
**Sent:** Friday, February 02, 2007 9:31 AM  
**To:** Adams, Patty; Arif, Syed  
**Subject:** FW: Electric - JEA - Facility #0310045-017-AC-DRAFT

---

**From:** Brost, Mike J. - VP, Electric Systems [mailto:Brosmj@jea.com]  
**Sent:** Thursday, February 01, 2007 4:44 PM  
**To:** Harvey, Mary  
**Subject:** RE: Electric - JEA - Facility #0310045-017-AC-DRAFT

Received. Mike Brost

---

**From:** Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]  
**Sent:** Thursday, February 01, 2007 3:50 PM  
**To:** Brost, Mike J. - VP, Electric Systems; Worley, Jay A. - Supt BM Lab & Environment Comp; worley.gregg@epa.gov; Dee\_Morse@nps.gov; Kirts, Christopher; robinson@coj.net; Halpin, Mike; kkosky@golder.com  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** Electric - JEA - Facility #0310045-017-AC-DRAFT

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: <http://www.adobe.com/products/acrobat/readstep.html>.

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Thank you,

DEP, Bureau of Air Regulation

**Adams, Patty**

---

**From:** Harvey, Mary  
**Sent:** Friday, February 02, 2007 9:31 AM  
**To:** Adams, Patty  
**Subject:** FW: Electric - JEA - Facility #0310045-017-AC-DRAFT

---

**From:** Robinson, Richard [<mailto:ROBINSON@coj.net>]  
**Sent:** Thursday, February 01, 2007 4:22 PM  
**To:** Harvey, Mary  
**Subject:** Read: Electric - JEA - Facility #0310045-017-AC-DRAFT

Your message

To: [ROBINSON@coj.net](mailto:ROBINSON@coj.net)  
Subject:

was read on 2/1/2007 4:22 PM.

## Adams, Patty

---

**From:** Harvey, Mary  
**Sent:** Friday, February 02, 2007 9:31 AM  
**To:** Adams, Patty; Arif, Syed  
**Subject:** FW: Electric - JEA - Facility #0310045-017-AC-DRAFT

---

**From:** Halpin, Mike  
**Sent:** Thursday, February 01, 2007 4:15 PM  
**To:** Harvey, Mary  
**Subject:** Read: Electric - JEA - Facility #0310045-017-AC-DRAFT

Your message

**To:** 'brosmj@jea.com'; 'worlja@jea.com'; 'worley.gregg@epa.gov'; 'Dee\_Morse@nps.gov'; Kirts, Christopher; 'robinson@coj.net'; Halpin, Mike; 'kkosky@golder.com'  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** Electric - JEA - Facility #0310045-017-AC-DRAFT  
**Sent:** 2/1/2007 3:50 PM

was read on 2/1/2007 4:15 PM.

## Adams, Patty

---

**From:** Harvey, Mary  
**Sent:** Friday, February 02, 2007 9:32 AM  
**To:** Adams, Patty  
**Subject:** FW: Electric - JEA - Facility #0310045-017-AC-DRAFT

-----Original Message-----

**From:** Dee\_Morse@nps.gov [mailto:Dee\_Morse@nps.gov]  
**Sent:** Thursday, February 01, 2007 4:06 PM  
**To:** Harvey, Mary  
**Subject:** Electric - JEA - Facility #0310045-017-AC-DRAFT

Return Receipt

Your Electric - JEA - Facility #0310045-017-AC-DRAFT  
document:

was Dee Morse/DENVER/NPS  
received  
by:

at: 02/01/2007 02:05:46 PM



**Adams, Patty**

---

**From:** Harvey, Mary  
**Sent:** Thursday, February 01, 2007 3:50 PM  
**To:** 'brosmj@jea.com'; 'worlja@jea.com'; 'worley.gregg@epa.gov'; 'Dee\_Morse@nps.gov'; Kirts, Christopher; 'robinson@coj.net'; Halpin, Mike; 'kkosky@golder.com'  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** Electric - JEA - FAcility #0310045-017-AC-DRAFT  
**Attachments:** 0310045.017.AC.D\_pdf.zip

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: <http://www.adobe.com/products/acrobat/readstep.html>.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

DEP, Bureau of Air Regulation

## Adams, Patty

---

**From:** Harvey, Mary  
**Sent:** Tuesday, February 06, 2007 11:22 AM  
**To:** Adams, Patty  
**Subject:** FW: Electric - JEA - Facility #0310045-017-AC-DRAFT

---

**From:** Kirts, Christopher  
**Sent:** Tuesday, February 06, 2007 11:14 AM  
**To:** Harvey, Mary  
**Subject:** Read: Electric - JEA - Facility #0310045-017-AC-DRAFT

Your message

**To:** 'brosmj@jea.com'; 'worlja@jea.com'; 'worley.gregg@epa.gov'; 'Dee\_Morse@nps.gov'; Kirts, Christopher; 'robinson@coj.net'; Halpin, Mike; 'kkosky@golder.com'  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** Electric - JEA - Facility #0310045-017-AC-DRAFT  
**Sent:** 2/1/2007 3:50 PM

was read on 2/6/2007 11:14 AM.

**Adams, Patty**

---

**From:** Adams, Patty  
**Sent:** Monday, December 18, 2006 4:33 PM  
**To:** Kirts, Christopher; 'Robinson, Richard'; 'worley.gregg@epa.gov'  
**Cc:** Arif, Syed  
**Subject:** SJRPP SCR Installation Units 1 and 2  
**Attachments:** SJRPP 12-4-06 letter.pdf

Attached is a response received by DEP from SJRPP for the above referenced project.

RECEIVED

DEC 11 2006

BUREAU OF AIR REGULATION



December 4, 2006

Ms. Trina L. Vielhauer, Chief Bureau of Air Regulation  
Bureau of Air Regulation  
Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, FL 32399

Attention: Mr. Syed Arif, P.E., Administrator

RE: Northside Generating Station/St. Johns River Power Park (SJRPP)  
DEP File No. 0310045-017-AC  
Selective Catalytic Reduction (SCR) Installation in SJRPP Units 1 and 2

Dear Mr. Arif:

This correspondence provides the information requested in the Department's November 15, 2006 letter regarding the installation of SCRs on SJRPP Units 1 and 2. Presented below is the information requested.

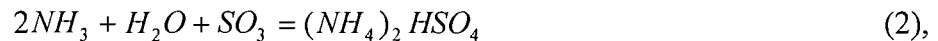
1. Please provide material balance calculations for ammonia injection that will remove 90 percent of the sulfuric acid mist emissions (SAM) after the air heater. The calculations should provide the ammonia injection amount required in pounds per hour and gallons per minute to ensure that SAM emissions do not increase more than 7 tons per year above the baseline SAM emissions. These calculations should be based on when the units are operating as base load units and when operating at 50 percent load. If any actual test data is available for a similar type operation, please provide that to the Department. Also, indicate if any ammonia slip will be taking place due to ammonia injection.

Additional Information: The SJRPP Unit's 1 and 2 SCRs will include an ammonia injection system that will be controlled by proprietary software from PECO-FGC, Incorporated. The control system regulating the amount of ammonia injected to control SAM will be integrated into the plant digital control system (DCS). The design of the injection grids, including the locations and sizes of the nozzles regulating the amount of ammonia, was performed using computerized modeling of the ductwork leading to the ESP. The amount of ammonia injected through the injection grid into the flue gas conditioning system will be regulated based on load and sulfur dioxide (SO<sub>2</sub>) content of flue gas. A portion of the SO<sub>2</sub> will further oxidize in the SCR system to sulfur trioxide (SO<sub>3</sub>), which ultimately forms SAM after the FGD system. A control algorithm will regulate the system within the DCS to remove up to 90 percent of SAM from the flue gas.

When ammonia is introduced to the flue gas stream, it reacts with the SO<sub>3</sub> to produce two primary chemical reactions:



and



The reaction of ammonia and  $SO_3$  produces ammonium sulfate (Equation 1) and ammonium bisulfate (Equation 2). In order to control  $SO_3$  and maximize the amount of particulate formed that is easily collected in the electrostatic precipitators (ESPs), the amount of  $NH_3$  injected is maintained at a ratio of less than 2-1 to produce ammonium bi-sulfate, which reduces ammonia slip and produces an agglomerating particle which is easily collected. The ammonia slip is reduced by regulating the amount of ammonia and the design of the injection grid. Ammonia slip after the ESP is expected to be 2 ppm or less. Non-reacted ammonia entering the wet FGD system will be absorbed in the limestone slurry since ammonia gas is soluble in water. The actual ammonia slip exiting the stack would be 10 percent or less of the ammonia slip entering the FGD system.

When the SCRs and ammonia injection systems are installed, testing will be performed to demonstrate the effectiveness of the ammonia injection system to control SAM. The ammonia injection control system will have outputs that will be monitored and recorded in the plant's DCS. The required performance test data and the information in the DCS will demonstrate that SAM will not increase with the installation of SCR.

There are no stack tests available on a similar system since each system is individually designed based on the requirements. However, ammonia injection is a recognized method for  $SO_3$  removal. In addition, as discussed previously, the design of the system is based on computer modeling of the injection system and included a control system to minimize  $SO_3$  emissions which ultimately are emitted as SAM.

Table RAI-1 presents a worst-case emission calculation for SAM emissions using ammonia injection. The calculations are based on a procedure developed by Southern Company that accounts for conversions and reductions on SAM emissions along the path of the exhaust gases.  $SO_2$  is oxidized in the combustion process and SCR. The air heater, ammonia injection/ESP and FGD system will remove SAM. This procedure was supported by tests data taken by SJRPP at various points during the design of the SCR Project. The calculation shows that using a 90% reduction from ammonia injection along with worst-case SAM generation by the SCR, projected future emissions minus the baseline actual emissions can be kept below the PSD significant emission rate for SAM of 7 tons/year. The actual ammonia injection rate will be based on the load and sulfur content of the fuel and regulated by the DCS.

2. Table 2-2 in the application indicates that SAM emissions for 2001 through 2004 were based on the average SAM emission from stack tests during the period of 1997 through 2000. SAM emissions for 2005 were based on stack test performed in 2005. Why was the stack test data for SAM emissions for 2001 through 2004 not used? If the stack tests for SAM emissions were not performed during that time period, provide the reasons to the Department as to why the stack tests were not performed.

Additional Information: The emissions of SAM for 2001 through 2004 were based on an average of tests conducted from 1997 through 2000. These tests were conducted to meet the requirements of PSD-FL-010(B) dated October 14, 1996 that authorized the co-firing of up to 20 percent petroleum coke with coal. During the compliance demonstration period for this permit, a total of 18 tests were conducted on both Units 1 and 2. The SAM emissions in these 18 tests ranged from about 0.052

lb/MMBtu to 0.006 lb/MMBtu, and averaged 0.0274 lb/MMBtu. These tests demonstrated that SJRPP complied with the specific conditions of the co-firing authorization and compliance tests for SAM emissions were no longer required. Since there was considerable variability during the tests, the average of the 18 tests was used to estimate SAM emissions for the period 2001 through 2004. In 2005, SJRPP Units 1 and 2 were authorized to co-fire up to 30 percent of petroleum coke with coal (DEP File No. 0310045-014-AC; PSD-FL-010). As a result of this authorization, testing for SAM was resumed. The tests conducted in 2005 were within the range of previous SAM. SJRPP will continue to perform SAM testing as noted above to demonstrate that SAM emissions will not trigger PSD review by increasing future actual SAM emissions by 7 tons/year over the baseline actual emissions.

If there are any further questions please contact Mr. Jay Worley at (904) 591-2595 or our environmental consultant Mr. Kennard Kosky at (352) 336-5600. The Department's expeditious review of this information is appreciated.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Brost". The signature is fluid and cursive, with a large initial "M" and a stylized "B".

Michael J. Brost  
JEA  
Vice President, Electric Services

Enclosures

cc: Mike Halpin, P.E., Siting Coordination Office  
Jay Worley, JEA / SJRPP  
Ken Kosky, P.E., Golder Associates

Table RA1-1. Calculation of Sulfuric Acid Mist (SAM) Emissions for the SJRPP SCR Project using Ammonia Injection

Category	Units	NH <sub>3</sub> Injection	Units	Mass (lb/hr) at Maximum Heat Input (6,144 MMBtu/hr)
Coal Sulfur Content	%	3.2		
Coal Heat Content	Btu/lb	12,500		
Uncontrolled SO <sub>2</sub> Emissions <sup>a</sup>	lb/MMBtu	5.12	lb/hr	31,457.3
Combustion Factor <sup>b</sup>		0.025		
SAM from Combustion	lb/MMBtu	0.196	lb/hr	1,204.2
SCR Factor <sup>c</sup>		0.025		
SAM produced by SCR	lb/MMBtu	0.193	lb/hr	1,184.6
SAM Leaving SCR <sup>d</sup>	lb/MMBtu	0.389		
Air Heater Factor <sup>e</sup>		1.000		
SAM Leaving Air Heater	lb/MMBtu	0.389	lb/hr	2,388.8
NH <sub>3</sub> Injection and ESP <sup>f</sup>		0.100		
SAM Leaving ESP	lb/MMBtu	0.039	lb/hr	238.9
FGD System Factor <sup>g</sup>		0.470		
SAM Leaving FGD	lb/MMBtu	0.018	lb/hr	112.3
Baseline Heat Input (Table 2-1 of Application)	MMBtu/year	96,231,826		
Baseline SAM Emissions (Table 2-3 of Application)	tons/year	1,316.9		
Projected Actual SAM Emissions	lb/MMBtu	0.018		
	ppm (est.)	4.148		
	MMBtu	96,231,826		
	tons/year	879.251		
Difference: Projectd Actual - Baseline Actual	tons/year	-437.649		
SAM Reduction by Ammonia Injection <sup>h</sup>	lb/hr	2,149.908		
Ammonia Amount based on 1:1 Ratio <sup>i</sup>	lb/hr	372.943		

Note: All calculations based on SAM (molecular weight = 98), although SO<sub>3</sub> is the primary pollutant being removed.

<sup>a</sup> assumes 100 percent of sulfur converted to SO<sub>2</sub> for the purpose of calculating the amount of SAM produced; actual SO<sub>2</sub> emissions are typically 95 percent of the total sulfur due to SAM formed and sulfur containing particles.

<sup>b</sup> SJRPP test data; 2.3% average for full load increased to 2.5%.

<sup>c</sup> 2.5 percent SO<sub>3</sub> produced from SO<sub>2</sub> oxidation; worst-case vendor guarantee.

<sup>d</sup> Excess ammonia slip will scavenge SAM. This is included in the ammonia injection and ESP removal.

<sup>e</sup> No removal assumed. 15% recommended in Table 4-1 (0.85 factor) for high/medium sulfur eastern bituminous (Southern Company, 2005)

<sup>f</sup> 0.10 for 90% removal with ammonia injection.

<sup>g</sup> 0.47 representative of 53 percent removal in FGD system which is supported by SJRPP tests and Southern Company, 2005.

<sup>h</sup> SAM leaving air heater minus SAM leaving ESP.

<sup>i</sup> Adjusted based on molecular weights of SAM (98) and ammonia (17).



Jeb Bush  
Governor

# Department of Environmental Protection

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Colleen M. Castille  
Secretary

November 15, 2006

ELECTRONIC MAIL - RECEIVED RECEIPT REQUESTED

Mr. Michael J. Brost,  
Vice President Electric System  
JEA  
21 West Church Street  
Jacksonville, Florida 32202

Re: DEP File No. 0310045-017-AC  
SCR Installation in Units 1 and 2  
St. Johns River Power Park

Dear Mr. Brost:

The Department has received an air construction permit application on October 17, 2006, to install selective catalytic reduction (SCR) in Units 1 and 2 at the St. Johns River Power Park in Duval County. The installation of SCR is required by the Department rules implementing EPA's Clean Air Interstate Rule (CAIR). Based on our initial review of the proposed project, we have determined that additional information is needed in order to continue processing this application package. Please submit the information requested below to the Department's Bureau of Air Regulation:

1. Please provide material balance calculations for ammonia injection that will remove 90 percent of the sulfuric acid mist emissions (SAM) after the air heater. The calculations should provide the ammonia injection amount required in pounds per hour and gallons per minute to ensure that SAM emissions do not increase more than 7 tons per year above the baseline SAM emissions. These calculations should be based on when the units are operating as base load units and when operating at 50 percent load. If any actual test data is available for a similar type operation, please provide that to the Department. Also, indicate if any ammonia slip will be taking place due to ammonia injection.
2. Table 2-2 in the application indicates that SAM emissions for 2001 through 2004 were based on the average SAM emission from stack tests during the period of 1997 through 2000. SAM emissions for 2005 were based on stack test performed in 2005. Why was the stack test data for SAM emissions for 2001 through 2004 not used? If the stack tests for SAM emissions were not performed during that time period, provide the reasons to the Department as to why the stack tests were not performed.

*"More Protection, Less Process"*

*Printed on recycled paper.*

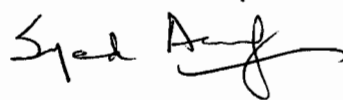


The Department will resume processing this application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. A new certification statement by the authorized representative or responsible official must accompany any material changes to the application. Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days.

Please note that in accordance with Rule 62-4.055(1), "The applicant shall have **ninety days** after the Department mails a timely request for additional information to submit that information to the Department..... Failure of an applicant to provide the timely requested information by the applicable date **shall** result in denial of the application."

I will be happy to meet and discuss the details with you and your staff. If you have any questions, I can be reached at 850/921-9528.

Sincerely,



Syed Arif, P.E.  
Bureau of Air regulation

/sa

cc: Gregg Worley, EPA ([worley.gregg@epa.gov](mailto:worley.gregg@epa.gov))  
Chris Kirts, DEP-NED ([christopher.kirts@dep.state.fl.us](mailto:christopher.kirts@dep.state.fl.us))  
Richard Robinson, ERM/AQB ([robinson@coj.net](mailto:robinson@coj.net))  
John Worley, SJRPP ([worlja@jea.com](mailto:worlja@jea.com))  
Ken Kosky, P.E., Golder Associates ([kkosky@golder.com](mailto:kkosky@golder.com))

## Adams, Patty

---

**From:** Harvey, Mary  
**Sent:** Wednesday, November 15, 2006 8:40 AM  
**To:** Arif, Syed; Adams, Patty  
**Subject:** FW: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

---

**From:** Worley, Jay A. - Supt BM Lab & Environment Comp [<mailto:WorlJA@jea.com>]  
**Sent:** Wednesday, November 15, 2006 7:42 AM  
**To:** Harvey, Mary  
**Subject:** Read: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

Your message

To: [WorlJA@jea.com](mailto:WorlJA@jea.com)  
Subject:

was read on 11/15/2006 7:42 AM.

**Adams, Patty**

---

**From:** Harvey, Mary  
**Sent:** Wednesday, November 15, 2006 8:42 AM  
**To:** Adams, Patty; Arif, Syed  
**Subject:** FW: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

---

**From:** Brost, Mike J. - VP, Electric Systems [mailto:BrosMJ@jea.com]  
**Sent:** Tuesday, November 14, 2006 3:13 PM  
**To:** Harvey, Mary  
**Subject:** RE: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

---

**From:** Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]  
**Sent:** Tuesday, November 14, 2006 2:02 PM  
**To:** worley.gregg@epa.gov; Kirts, Christopher; robinson@coj.net; Worley, Jay A. - Supt BM Lab & Environment Comp; kkosky@golder.com; Brost, Mike J. - VP, Electric Systems  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

---

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: <http://www.adobe.com/products/acrobat/readstep.html>.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

DEP, Bureau of Air Regulation

**Adams, Patty**

---

**From:** Harvey, Mary  
**Sent:** Tuesday, November 14, 2006 3:10 PM  
**To:** Arif, Syed; Adams, Patty  
**Subject:** FW: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

---

**From:** Robinson, Richard [mailto:ROBINSON@coj.net]  
**Sent:** Tuesday, November 14, 2006 2:37 PM  
**To:** Harvey, Mary  
**Subject:** RE: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

I received the subject RAI letter that was attached to the e-mail below. Thanks!

Richard L. Robinson, P.E.  
Environmental Engineering Manager  
Air Quality Branch  
Environmental Quality Division  
City of Jacksonville, Florida  
117 West Duval Street, Suite 225  
Jacksonville, FL 32202

Phone: (904) 630-4900  
Fax: (904) 630-3638  
E-Mail: robinson@coj.net

---

**From:** Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]  
**Sent:** Tuesday, November 14, 2006 2:02 PM  
**To:** worley.gregg@epa.gov; Kirts, Christopher; Robinson, Richard; worlja@jea.com; kkosky@golder.com; brosmj@jea.com  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

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Thank you,

11/15/2006

## Adams, Patty

---

**From:** Harvey, Mary  
**Sent:** Tuesday, November 14, 2006 3:30 PM  
**To:** Arif, Syed; Adams, Patty  
**Subject:** FW: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

---

**From:** Kirts, Christopher  
**Sent:** Tuesday, November 14, 2006 3:15 PM  
**To:** Harvey, Mary  
**Subject:** Read: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

Your message

**To:** 'worley.gregg@epa.gov'; Kirts, Christopher; 'robinson@coj.net'; 'worlja@jea.com'; 'kkosky@golder.com'; 'brosmj@jea.com'  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** LTR/Mr. Michael J. Brost - DEP #0310045-017-AC  
**Sent:** 11/14/2006 2:02 PM

was read on 11/14/2006 3:15 PM.

**Adams, Patty**

---

**From:** Harvey, Mary  
**Sent:** Tuesday, November 14, 2006 3:10 PM  
**To:** Arif, Syed; Adams, Patty  
**Subject:** FW: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

---

**From:** Robinson, Richard [mailto:ROBINSON@coj.net]  
**Sent:** Tuesday, November 14, 2006 2:37 PM  
**To:** Harvey, Mary  
**Subject:** RE: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

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Environmental Engineering Manager  
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Environmental Quality Division  
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117 West Duval Street, Suite 225  
Jacksonville, FL 32202

Phone: (904) 630-4900  
Fax: (904) 630-3638  
E-Mail: robinson@coj.net

---

**From:** Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]  
**Sent:** Tuesday, November 14, 2006 2:02 PM  
**To:** worley.gregg@epa.gov; Kirts, Christopher; Robinson, Richard; worlja@jea.com; kkosky@golder.com; brosmj@jea.com  
**Cc:** Arif, Syed; Adams, Patty; Gibson, Victoria  
**Subject:** LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

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The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,  
12/6/2006

## Adams, Patty

---

**From:** Harvey, Mary  
**Sent:** Wednesday, November 15, 2006 8:40 AM  
**To:** Arif, Syed; Adams, Patty  
**Subject:** FW: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC



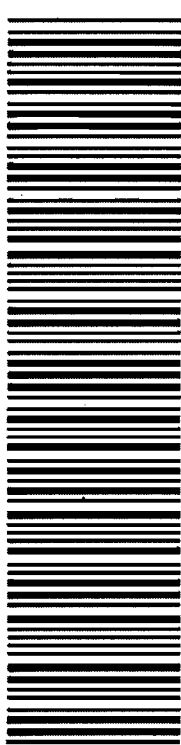
---

**From:** Worley, Jay A. - Supt BM Lab & Environment Comp [<mailto:WorlJA@jea.com>]  
**Sent:** Wednesday, November 15, 2006 7:42 AM  
**To:** Harvey, Mary  
**Subject:** Read: LTR/Mr. Michael J. Brost - DEP #0310045-017-AC

Your message

To: [WorlJA@jea.com](mailto:WorlJA@jea.com)  
Subject:

was read on 11/15/2006 7:42 AM.

		<b>2ND</b>		Pieces: <b>1/1</b>	
FM: DEP AIR RESOURCE MGMT P. Adams DIRECTOR OFFICE STE 23 111 S MAGNOLIADR TALLAHASSEE, FL 32301 UNITED STATES Phone: 850-921-9505 CITY OF JACKSONVILLE MR. RON ROBERSON 117 W. DUVAL ST., SUITE 225 ENV. RESOURCES MGT. DEPT. JACKSONVILLE, FL 32202 UNITED STATES		ORIGIN: TLH Sender's ref: 37550201000 A7 AY235 POSTCODE: <b>32202</b>		TEL: 904/630-4900	
Description: 0310045-017-AC application		Weight: Letter Date: 2006-11-09	DHL standard terms and conditions apply.		
		<b>JAXY 7D</b> <b>FSC</b>			
(2L)JUS32202		<b>13MO</b> Day			
		WAYBILL: 18677895250 (Non-Negotiable)			

▲ PEEL HERE PEEL HERE ▲

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<b>SENDER'S RECEIPT</b> Waybill #: 18677895250		Rate Estimate: 3.52 Protection: Not Required Description: 0310045-017-AC application
To(Company): City of Jacksonville Env. Resources Mgt. Dept. 117 W. Duval St., Suite 225 Jacksonville, FL 32202 UNITED STATES		Weight (lbs.): Letter Dimensions: 0 x 0 x 0
Attention To: Mr. Ron Roberson Phone#: 904/630-4900		Ship Ref: 37550201000 A7 AY235 Service Level: 2nd Day (2nd business day by 5 PM)
Sent By: P. Adams Phone#: 850-921-9505		Special Svc: Date Printed: 11/9/2006 Bill Shipment To: Sender Bill To Acct: 778941286


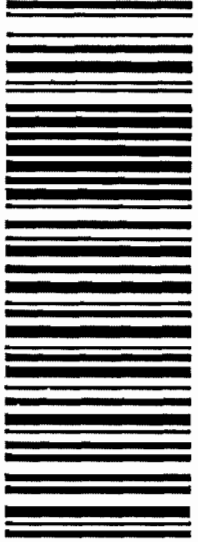

DHL Signature (optional) \_\_\_\_\_ Route \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

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		<b>2ND</b>		Pieces: <b>1/1</b>
<b>FM: DEP AIR RESOURCE MGMT</b> P. Adams DIRECTOR OFFICE STE 23 111 S MAGNOLIA DR TALLAHASSEE, FL 32301 UNITED STATES Phone: 850-921-9505 <b>To: DEP NORTHEAST DISTRICT OFFICE</b> MR. CHRIS KIRTS 7825 BAYMEADOWS WAY AIR SECTION, SUITE 200B JACKSONVILLE, FL 32256 UNITED STATES		<b>ORIGIII:</b> TLH Sender's ref 37550201000 A7 AY235 <b>POSTCODE:</b> <b>32256</b>		TEL: 904-807-3235
Description: 0010087-025-AC application 0310045-017-AC applica Weight: 1 lbs for 1 pcs Date: 2006-11-09 DHL standard terms and conditions apply.		<b>13MIO</b> Day		
		<b>ASHX 7D</b> <b>FSC</b>		
		<b>WAYBILL: 18678343456</b> (Non-Negotiable)		



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**DO NOT PHOTOCOPY**

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**SENDER'S RECEIPT**

Waybill #: 18678343456  
 To(Company):  
 DEP Northeast District Office  
 Air Section, Suite 200B  
 7825 Baymeadows Way  
 Jacksonville, FL 32256  
 UNITED STATES  
 Attention To: Mr. Chris Kirts  
 Phone#: 904-807-3235  
 Sent By: P. Adams  
 Phone#: 850-921-9505

Rate Estimate: 3.52  
 Protection: Not Required  
 Description: 0010087-025-AC application  
 0310045-017-AC applica  
 Weight (lbs.): 1  
 Dimensions: 0 x 0 x 0  
 Ship Ref: 37550201000 A7 AY235  
 Service Level: 2nd Day (2nd  
 business day by 5 PM)  
 Special Svc:  
 Date Printed: 11/9/2006  
 Bill Shipment To: Sender  
 Bill To Acct: 778941286

DHL Signature (optional) \_\_\_\_\_ Route \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

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RECEIVED

OCT 17 2006

BUREAU OF AIR REGULATION



October 12, 2006

Ms. Trina L. Vielhauer, Chief Bureau of Air Regulation  
Bureau of Air Regulation  
Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, FL 32399

Attention: Mr. Jeffery F. Koerner, P.E., Administrator

RE: Northside Generating Station/St. Johns River Power Park (SJRP)  
Title V Permit 0310045-008-AV; PSD-FL-10  
Request to Install Selective Catalytic Reduction (SCR)

Dear Mr. Koerner:

0310045-017-AC

SJRP is requesting approval for the installation of SCR for Units 1 and 2 to meet the requirements of the Department's implementation of the Clean Air Interstate Rule (CAIR). The installation of SCR to meet the requirements of CAIR will substantially reduce the emissions of  $\text{NO}_x$  from these units. As an artifact of installing SCR, the SCR catalyst will potentially oxidize additional  $\text{SO}_2$  to  $\text{SO}_3$ . Some of the  $\text{SO}_3$  when traveling through the flue gas desulfurization (FGD) will be removed due to the alkaline nature of the limestone slurry.  $\text{SO}_3$  leaving the FGD system will be converted to sulfuric acid mist (SAM) due to the saturated conditions of the FGD and temperature. The additional  $\text{SO}_3$  formed by the SCR catalyst will be controlled using ammonia injection between the air heater and electrostatic precipitator (ESP) in each unit. The  $\text{SO}_3$  and ammonia will form ammonium sulfate that will be collected in the ESP as particulate matter. The amount of PM will also not increase. Therefore, no increase in annual emissions of SAM from SJRP will occur as a result of the addition of the SCR systems.

SJRP desires to initiate some construction activities in December 2006. The Department's expeditious review of the application is appreciated. Please call Jay Worley at (904) 665-8729 or our environmental consultant Ken Kosky at (352) 336-5600 if there are any questions.

Sincerely,

Michael J. Brost  
JEA  
Vice President, Electric Systems

Enclosures

cc: Hamilton Owen, P.E., Siting Coordination Office  
Jay Worley, JEA/SJRP  
Ken Kosky, Golder Associates

0310045-017-AC

**RECEIVED**

OCT 17 2006

BUREAU OF AIR REGULATION

**APPLICATION FOR MINOR SOURCE  
AIR CONSTRUCTION PERMIT FOR THE ADDITION  
FOR SELECTIVE CATALYTIC REDUCTION  
AT 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**

**October 2006**

**043-7580-0200**

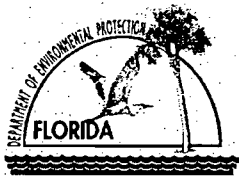
**DISTRIBUTION:**

**4 Copies - FDEP**

**2 Copies - SJRPP**

**2 Copies - Golder Associates Inc.**

**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 at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air permit. Also 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
- Where the applicant proposes to establish, revise, or renew a plantwide applicability limit (PAL).

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

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

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

#### Application Contact

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

#### Application Processing Information (DEP Use)

1. Date of Receipt of Application: <b>10/12/06</b>	3. PSD Number (if applicable):
2. Project Number(s): <b>0310045-017-AC</b>	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 construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

#### **Air Operation Permit**

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

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

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

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

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

### Application Comment


An air construction permit application is being requested to install selective catalytic reduction (SCR) to reduce emissions of NO<sub>x</sub> as required by FDEP Rules implementing EPA's Clean Air Interstate Rule (CAIR). 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. See Part II.



**APPLICATION INFORMATION**

**Owner/Authorized Representative Statement**

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

1. Owner/Authorized Representative Name :
<b>Michael J. Brost, V.P., Electric System</b>
2. Owner/Authorized Representative Mailing Address...
Organization/Firm: <b>JEA</b>
Street Address: <b>21 West Church Street</b>
City: <b>Jacksonville</b> State: <b>FL</b> Zip Code: <b>32202</b>
3. Owner/Authorized Representative Telephone Numbers...
Telephone: <b>(904) 665-6537</b> ext. Fax: ( ) -
4. Owner/Authorized Representative Email Address: <b>brosmj@jea.com</b>
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>10-13-06</u> Date



# APPLICATION INFORMATION

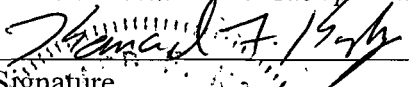
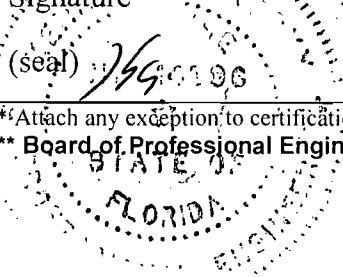
## Application Responsible Official Certification

Complete if applying for an initial/revise/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: <b>Kennard F. Kosky</b> Registration Number: <b>14996</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Golder Associates Inc.**</b> Street Address: <b>6241 NW 23<sup>rd</sup> Street, Suite 500</b> City: <b>Gainesville</b> State: <b>FL</b> Zip Code: <b>32653</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(352) 336-5600</b> ext. <b>516</b> Fax: <b>(352) 336-6603</b>
4. Professional Engineer Email Address: <b>kkosky@golder.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit, addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input 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>  <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">               _____              Signature         </div> <div style="text-align: center;">             10/10/06              _____              Date         </div> </div> <div style="text-align: center; margin-top: 10px;">               (seal) 14996         </div>

\*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) <b>446.90</b> North (km) <b>3359.15</b>		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) <b>30/21/52</b> Longitude (DD/MM/SS) <b>81/37/25</b>	
3. Governmental Facility Code: <b>0</b>	4. Facility Status Code: <b>A</b>	5. Facility Major Group SIC Code: <b>49</b>	6. Facility SIC(s): <b>4911</b>
7. Facility Comment : <b>The facility includes the JEA Northside Generating Station and SJRPP.</b>			

**Facility Contact**

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

**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 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 checked="" 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:  <b>SJRPP Units 1 and 2 are subject to 40 CFR Part 60 Subpart Da</b>	





**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)
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**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

**Additional Requirements Comment**

<b>See Part II.</b>
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## 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: <b>A</b>	5. Commence Construction Date:	6. Initial Startup Date: <b>12/86</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>	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:

Existing low NO<sub>x</sub> Burners (LNB), Electrostatic Precipitators (ESP) and Flue Gas Desulfurization (FGD).  
Proposed: selective catalytic reduction with ammonia injection.

2. Control Device or Method Code(s): 025, 010, 039, and 139, 032



**EMISSIONS UNIT INFORMATION**Section [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: <b>NA</b>		2. Emission Point Type Code: <b>V</b>	
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:  <b>There are no changes in the emission point information as a result of this application.</b>			

**EMISSIONS UNIT INFORMATION**

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

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

**Segment Description and Rate: Segment 1 of 2**

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
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). Sulfur content based on 1.2% sulfur coal and 6% sulfur petroleum coke. Maximum rates are for each unit. NOTE: SCC code for petroleum coke is 10100801.		

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

1. Segment Description (Process/Fuel Type): Coal		
2. Source Classification Code (SCC): 10100202		3. SCC Units: tons
4. Maximum Hourly Rate: 245.7	5. Maximum Annual Rate: 2,152,857.4	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: Variable	8. Maximum % Ash: 9	9. Million Btu per SCC Unit: 25
10. Segment Comment: Maximum rates are for each unit.		



**EMISSIONS UNIT INFORMATION**

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

**POLLUTANT DETAIL INFORMATION**

Page [1] of [2]  
 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: <b>PM</b>		2. Total Percent Efficiency of Control: <b>99+%</b>	
3. Potential Emissions: <b>184.32 lb/hour      321.7 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to      tons/year			
6. Emission Factor: <b>0.03 lb/MMBtu</b>  Reference: <b>Permit 0310045-011-AV. Condition D6</b>			7. Emissions Method Code: <b>0</b>
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>Potential Emissions = 0.03 lb/MMBtu x 6,144 MMBtu/hr = 184.32</b>			
11. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on actual emissions for 2002-2001. See Part II</b>			



**EMISSIONS UNIT INFORMATION**

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

**POLLUTANT DETAIL INFORMATION**

Page [1] of [2]  
 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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.03 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>184.32 lb/hour      321.7 tons/year</b>
5. Method of Compliance: <b>EPA Method 5B; 40 CFR 52.21(b)21(v) and (b)33; See Part II</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>No increase in representative actual annual emissions plus the PSD significant emission rate will occur as a result of the addition of SCR.</b>	

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

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

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

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

**EMISSIONS UNIT INFORMATION**

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

**POLLUTANT DETAIL INFORMATION**

Page [2] of [2]  
 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: <b>SAM</b>		2. Total Percent Efficiency of Control: <b>30+%</b>	
3. Potential Emissions: lb/hour <b>1,316.9</b> tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to      tons/year			
6. Emission Factor:  Reference:		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From:      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:			
11. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Annual emissions based on actual emissions for 2002-2001. See Part II</b>			

**EMISSIONS UNIT INFORMATION**

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

**POLLUTANT DETAIL INFORMATION**

Page [2] of [2]  
 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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>1,316.9 tons/yr</b>	4. Equivalent Allowable Emissions: lb/hour <b>1,316.9 tons/year</b>
5. Method of Compliance: <b>Annual Operating Reports; See Part II</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>No increase in representative actual annual emissions plus the PSD significant emission rate will occur as a result of the addition of SCR.</b>	

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

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

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

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

**EMISSIONS UNIT INFORMATION**

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

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

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

**EMISSIONS UNIT INFORMATION**Section [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 the addition of SCR systems.	

**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 <u>6/20/2003</u>
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>6/20/2003</u>
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>6/20/2003</u>
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____  <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____  <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____  <input checked="" type="checkbox"/> Not Applicable  Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute <input checked="" type="checkbox"/> Attached, Document ID: <u>Part II</u> <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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## 1.0 INTRODUCTION

St. Johns River Power Park (SJRPP) is seeking authorization from the Florida Department of Environmental Protection (FDEP) to install selective catalytic reduction (SCR) in Units 1 and 2 to meet the requirements of EPA's Clean Air Interstate Rule (CAIR) as implemented by FDEP in Rule 62-296.470 Florida Administrative Code (F.A.C.). In addition, the addition of SCR will have the co-benefits of reducing emissions of mercury to meet EPA's Clean Air Mercury Rule (CAMR) implemented by FDEP in Rule 62-296.480 F.A.C. The primary purpose of the project will be to decrease nitrogen oxides ( $\text{NO}_x$ ) emissions from Units 1 and 2 to meet the annual and ozone season  $\text{NO}_x$  CAIR allocations. While the addition of SCR will substantially decrease emissions of  $\text{NO}_x$ , there is the potential for collateral increases in emissions of sulfuric acid mist (SAM) and particulate matter (PM). The potential increase of SAM emissions is a result of the oxidation of sulfur dioxide ( $\text{SO}_2$ ) to sulfur trioxide ( $\text{SO}_3$ ) that is emitted as SAM after the flue gas desulfurization (FGD) system. Potential increases in SAM emissions will be minimized through the injection of ammonia to react with  $\text{SO}_3$  prior to the electrostatic precipitator (ESP). The reactants, primarily ammonium sulfate, will be collected in the ESP. The potential increase in PM from the reaction of ammonia and  $\text{SO}_3$  will be collected in the ESP and FGD system. There will be no emissions over the PSD significant emission rates from the installation of SCR. There are no other planned changes in Units 1 and 2.

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 install SCR on Units 1 and 2. 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).

## 2.0 PROJECT DESCRIPTION

Selective Catalytic Reduction (SCR) System will be designed for operation over load ranges of 50 percent of full load (approximately 300 MW) and higher. The minimum temperature required for the injected ammonia vapor to react with the  $\text{NO}_x$  in the SCR reactor is approximately 630 degrees Fahrenheit ( $^{\circ}\text{F}$ ) and will be finalized in accordance with catalyst manufacturer's recommendations. The minimum temperature corresponds to the lowest expected temperature at low load.

Selective Catalytic Reduction is a process that uses catalyst to promote the conversion of nitrogen oxides ( $\text{NO}_x$ ) to nitrogen and water in the flue gas. This conversion occurs between the boiler economizer and the air heaters in a specially designed ductwork section, called the SCR Reactor that contains the catalyst. Ammonia vapor, mixed with dilution air, is injected into the flue gas upstream of the catalyst and is thoroughly mixed with the flue gas prior to its admittance to the catalyst. As the flue gas passes over the catalyst, the nitrogen monoxide ( $\text{NO}$ ) and nitrogen dioxide ( $\text{NO}_2$ ) combine with the ammonia ( $\text{NH}_3$ ) to form nitrogen ( $\text{N}_2$ ) and water ( $\text{H}_2\text{O}$ ).

Each unit will have two SCR reactors. Each SCR reactor will consist of a steel reactor box designed to support the SCR catalyst modules and to properly distribute flue gas through the catalyst layers. Flue gas flow will be vertically downward through the catalyst. Flue gas ductwork will be provided from the economizer outlet to the air heater inlet including an SCR bypass duct and associated dampers. The SCR inlet duct will include a large particle ash (LPA) screen, static flue gas mixer, and ammonia injection grid. Ash hoppers will be located below the inlet diverter damper and LPA screen.

Figure 2-1 presents a schematic diagram of the SCR system showing the inlet duct from the economizer, the ammonia injection grid and SCR catalyst. Bypass dampers are installed primarily for startup and maintenance. A photograph of the existing SJRPP boilers showing the air heaters and ESP is shown in Figure 2-2. The physical appearance of the SCR systems is illustrated in Figures 2-3 and 2-4.

Ammonia is introduced in the SCR as a mixture of anhydrous ammonia and air. The air/ammonia vapor mixture is produced in ammonia vaporization equipment and supplied to the ammonia injection grid header. The air/ammonia vapor mixture is distributed across the entire duct cross section using the ammonia injection grid (AIG). The AIG consists of a series of stacked layers of parallel pipes, each with nozzles that inject the mixture into a particular section of the SCR reactor inlet duct. The

pipes will extend the entire width of the ductwork and contain a sufficient number of nozzles with orifices sized for the particular ammonia distribution requirement. If necessary, as determined by the physical flow model test of the SCR reactor and associated ductwork, a static mixer may be required upstream of the ammonia injection grid to help reduce the stratification of temperature and chemical composition of the flue gas flow out of the economizers.

Anhydrous ammonia will be delivered to the site by tank truck and unloaded into one of two bulk storage tanks. In addition, provisions for delivery by rail will be provided. Liquid anhydrous ammonia will be transferred from the storage tanks to ammonia vaporizers. After vaporization, the ammonia gas will be mixed with ambient air and distributed into the flue gas through ammonia injection grids located upstream of the reactor.

The catalyst used for  $\text{NO}_x$  reduction primarily consists of a vanadium and titanium mixture. However, the final catalyst composition can consist of many active metals and support materials. Titanium dioxide ( $\text{TiO}_2$ ) is used as the base material that disperses and supports vanadium pentoxide ( $\text{V}_2\text{O}_5$ ), which is the active catalyst material. Vanadium pentoxide is widely used in the SCR industry due to its resistance to sulfur poisoning. The vanadium content controls the reactivity of the catalyst, but also catalyzes the oxidation of  $\text{SO}_2$  to  $\text{SO}_3$ . For moderate to high sulfur coal applications, it is necessary to minimize the vanadium content to reduce  $\text{SO}_2$  oxidation. Additionally, the vanadium already present in the petcoke fuel will deposit on the catalyst, potentially increasing the oxidation of  $\text{SO}_2$  to  $\text{SO}_3$ . Tungsten oxide also provides thermal and mechanical stability to the catalyst. The concentrations of vanadium pentoxide, titanium dioxide, and tungsten oxide will be customized to meet the specific requirements for Units 1 and 2 SCR system installations. The catalyst will be made up of several catalyst modules that will be loaded into the SCR reactor.

Each SCR reactor will include soot blowers and sonic horns to keep the catalyst free of fly ash buildup. Provisions for catalyst loading into the reactors will be included. The SCR reactors will be designed for three initial layers of catalyst and a spare level for a future additional layer of catalyst.

The high level of arsenic combined with the relatively low amount of calcium in the domestic coal could result in the potential for gaseous arsenic to poison the catalyst. To minimize potential catalyst poisoning, the units will be equipped with limestone addition in the combustion process. Limestone will be fed on to the coal conveyor when transporting fuel to the silos. A limestone system to receive, store, and feed limestone to the coal conveyors will be provided.

The conceptual SCR system characteristics are listed below:

- Baseline NO<sub>x</sub> Loading: 0.40 lb/MMBtu
- Target NO<sub>x</sub> Emissions: 0.06 lb/MMBtu
- Ammonia Slip: 2 ppmvd at 3% O<sub>2</sub>
- SO<sub>2</sub> to SO<sub>3</sub> Conversion: 2.5%
- Catalyst Type: High Dust
- Catalyst Configuration: Vertical
- Number of Reactors Per Unit: 2
- Number of Initial Catalyst Layers (Per Reactor): 3
- Number of Spare Layers (Per Reactor): 1
- Modules Per Layer (Per Reactor): 14 x 6
- Reactor Dimensions (Inside x Inside) 46' 10" x 40' 3"
- Full Load Gas Flow: 3,292,190 acfm
- Superficial Velocity Through Catalyst: 15 to 20 ft/sec
- Pressure Drop Through Box and Ductwork: 10.0 inches (w.c.)
- Ammonia Consumption @ Design Conditions: 839 lb/hr
- Reagent Storage Required: 2 x 77,100 gallons

An ammonia inject grid will be designed and located within the duct work leading to the ESP. The system will be designed to remove up to 90 percent of the SAM after the air heater.

### 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. Because there is a physical change with the addition of SCR and the pollution control exemption in the PSD rules have been vacated, the project is a potential 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

comparison is made based on the projected future actual emissions and the baseline actual emissions. The baseline actual emissions for a fossil fuel fired steam electric generating unit are the emissions over a consecutive 24-month period, 5 years immediately preceding the date that a complete application is submitted. The use of different consecutive 24-month periods for each pollutant are allowed. For an existing facility 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. The net emissions increase is determined using the baseline-to-projected actual test. In this comparison, if the projected actual emissions minus the baseline actual emissions equal or exceed the PSD significant emission rates, then PSD review would apply.

Presented in Table 2-1 is the heat input reported in the Annual Operating Report (AOR) for the period 2001 through 2005. 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 2001 through 2005. These data demonstrate the consistent operation of Units 1 and 2. During the period 2001 through 2005 the average capacity factor based on heat input for Units 1 and 2 ranged from 79.4 percent in 2005 to 89.8 percent in 2002. The average capacity factors for the years 2005, 2004, 2003, 2002, and 2001 were 79.4, 84.5, 88.1, 89.8 and 89.0 percent, respectively. The average two-year capacity factors based on heat input were 81.9, 86.3 88.9, and 89.4 percent for the periods 2005-2004, 2004-2003, 2003-2002, and 2002-2001, respectively. The average 5-year capacity factor was 86.2 percent.

Table 2-2 presents the annual emissions reported in the AORs for the years 2001 through 2005 for PM and SAM. Table 2-3 presents the average calendar year emissions for each consecutive 2-year period from 2001 through 2005 based on the average calendar year emissions in Table 2-2. The use of calendar year dates from the AOR is representative of historic normal operation. The annual average emissions for each consecutive 2-year period are consistent with the definition of baseline actual emissions for fossil fuel fired steam electric generating units. The 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 2-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.

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.



The proposed conditions for the installation of the SCR system with ammonia control for SAM emissions are presented below:

**SCR Systems:** The permittee shall construct, tune, operate, and maintain a new SCR system for Units 1 and 2, to reduce emissions of nitrogen oxides ( $\text{NO}_x$ ) as described in the application and the SCR shall be operated as necessary to comply with CAIR at JEA's discretion.

**Ammonia Injection System:** The permittee shall construct and operate a new ammonia injection system on Units 1 and 2 to mitigate the potential impacts of  $\text{SO}_3$  formation resulting from the operation of the SCR control systems. The design criteria shall ensure that sulfuric acid mist emissions do not increase above the sulfuric acid mist emissions baseline. [Design]

The applicant shall maintain and submit to the Department on an annual basis for a period of five years from the date the SCR systems are initially operated, information demonstrating in accordance with 62-212.300(1)(e) F.A.C. that the installation of SCR did not result in emission increases of particulate matter and sulfuric acid mist. The future emissions shall be compared with the baseline actual emissions for the period 2002-2001 as reported in the Annual Operating Reports using EPA Method 5b for PM and Method 8A (controlled condensate) for SAM.

**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
2005	40,576,121	44,879,935	85,456,056	75.39%	83.39%	79.39%
2004	51,559,458	39,381,272	90,940,730	95.80%	73.17%	84.48%
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%

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**

<b>Year</b>	<b>Pollutant</b>	<b>Unit 1 (tons)</b>	<b>Unit 2 (tons)</b>	<b>Total (tons)</b>
<b>2005</b>	PM	34.5	71.8	106.3
	SAM	273.9	327.6	601.5
<b>2004</b>	PM	170.5	132.2	302.7
	SAM	705.6	538.9	1,244.5
<b>2003</b>	PM	70.5	74.8	145.3
	SAM	635.2	662.0	1,297.3
<b>2002</b>	PM	170.3	155.9	326.2
	SAM	704.8	618.1	1,322.9
<b>2001</b>	PM	154.1	163.2	317.3
	SAM	632.9	678.2	1,311.0

Note: Data from Annual Operating Reports, except for SAM emissions.  
 SAM emissions for 2001 through 2004 based on the average SAM emission from stack tests when co-firing petroleum coke with coal during the period of 1997 through 2000. SAM emissions for 2005 based on stack test performed in 2005.

TABLE 2-3  
SJRP ANNUAL AVERAGE EMISSIONS  
FOR EACH CONSECUTIVE TWO YEAR PERIOD, 2001-2005

Pollutant	2005-2004 (tons)	2003-2002 (tons)	2003-2002 (tons)	2002-2001 (tons)
PM	204.5	224.0	235.8	321.7
SAM	923.0	1,270.9	1,310.1	1,316.9

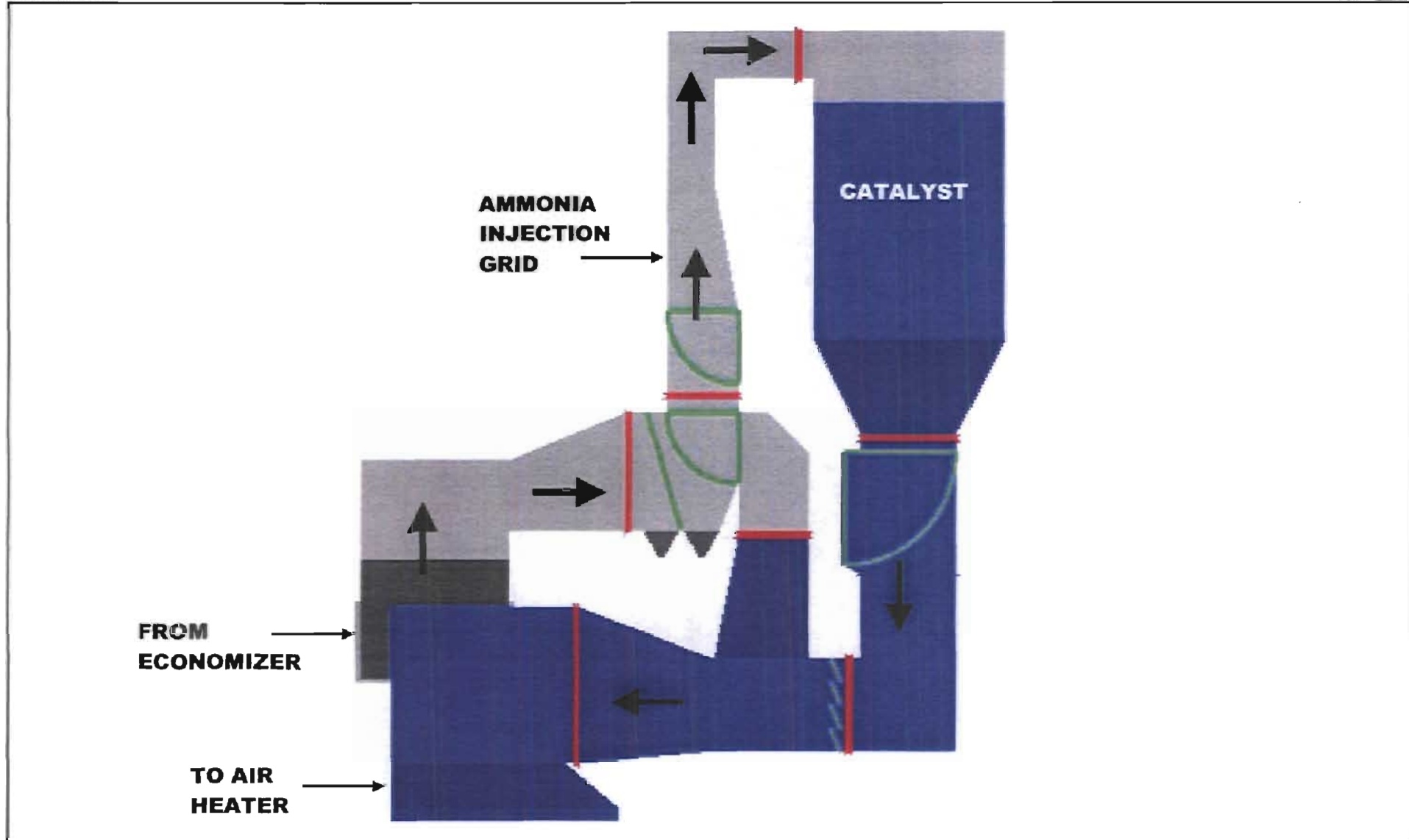


Figure 2-1  
Schematic of SJRPP Units 1 and 2 SCR Systems

0637580/4.2/Figure 2-1.doc

Source: SJRPP, 2006.





Figure 2-2  
Existing SJRPP Boilers – East View

0637580/4.2/Figure 2-2.doc

Source: SJRPP, 2006.



Figure 2-3  
Simulation of SCR System for SJRPP- East View  
0637580/4.2/Figure 2-3.doc

Source: SJRPPr, 2006.

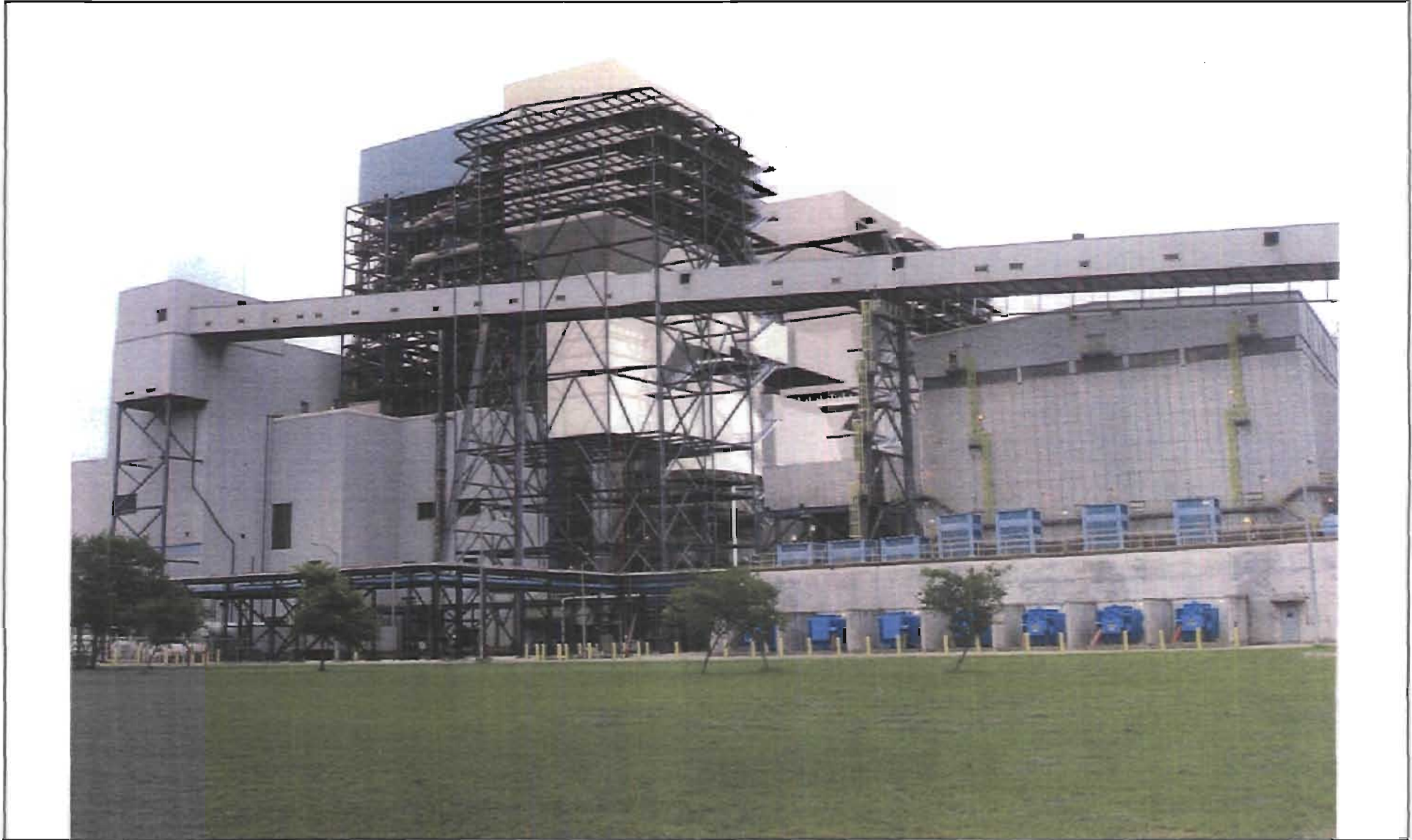


Figure 2-4  
Simulation of SCR System for SJRPP-- West View  
0637580/4.2/Figure 2-4.doc

Source: SJRPP, 2006.



**PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DEP File No. 0310045-017-AC

JEA  
St. Johns River Power Park  
Duval County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to St. Johns River Power Park (SJRPP), an electric utility steam generating facility, located in Jacksonville, Florida. The applicant's name and address is JEA, 21 West Church Street, Jacksonville, Florida 32202. SJRPP is located at 11201 New Berlin Road, Jacksonville, Duval County.

The applicant, JEA, submitted a complete application on December 11, 2006 to the Department for installation of selective catalytic reduction in Boilers Nos. 1 and 2 to decrease nitrogen oxides (NOx) emissions in compliance with EPA's Clean Air Interstate Rule. The addition of SCR will have the co-benefits of reducing emissions of mercury to meet EPA's Clean Air Mercury Rule.

While the addition of SCR will substantially decrease emissions of NOx, there is the potential for collateral increases in emissions of sulfuric acid mist (SAM) and particulate matter (PM). Potential increases in SAM emissions will be minimized through the injection of ammonia to react with sulfur trioxide (SO3) prior to the electrostatic precipitator (ESP). The potential increase in PM from the reaction of ammonia and SO3 will be collected in the ESP and flue gas desulfurization system. There will be no emissions increase over the PSD significant emission rates from the installation of SCR. There are no other planned changes in Units 1 and 2.

An air quality impact analysis was not required. No increase in ambient impacts due to the proposed permit modification is expected. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards.

The Department will issue the Final Air Construction Permit Modification in accordance with the conditions of the Draft Air Construction Permit Modification unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The permitting authority has determined that an Air Construction Permit Modification is required.

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection  
Bureau of Air Regulation  
Suite 4, 111 S. Magnolia Drive  
Tallahassee, Florida, 32301  
Telephone: 850/488-0114  
Fax: 850/922-6979

Dept. of Environmental Protection  
Northeast District  
7825 Baymeadows Way, Suite 200B  
Jacksonville, Florida 32256-7590  
Telephone: 904/807-3300  
Fax: 904/448-4362

Environmental Resource Management  
Department  
117 West Duval Street, Suite 225  
Jacksonville, Florida 32202  
Telephone: 904/630-4900  
Fax: 904/630-3638

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, Air Permitting North Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

THE FLORIDA TIMES-UNION  
Jacksonville, FL  
Affidavit of Publication

Florida Times-Union

J.E.A./ ENVIRONMENTAL SERVICES  
21 W. CHURCH ST. T-8  
JACKSONVILLE, FL 32202

REFERENCE: F0334984  
11129254

State of Florida  
County of Duval

Before the undersigned authority personally appeared Sharon Walker who on oath says she is a Legal Advertising Representative of The Florida Times-Union, a daily newspaper published in Jacksonville in Duval County, Florida; that the attached copy of advertisement is a legal ad published in The Florida Times-Union. Affiant further says that The Florida Times-Union is a newspaper published in Jacksonville, in Duval County, Florida, and that the newspaper has heretofore been continuously published in Duval County, Florida each day, has been entered as second class mail matter at the post office in Jacksonville, in Duval County, Florida for a period of one year proceeding the first publication of the attached copy of advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission, or refund for the purpose of securing this advertisement for publication in said newspaper.

PUBLISHED ON: 2/06

RECEIVED

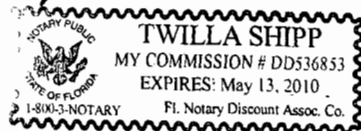
FEB 15 2007

FILED ON: 2/06

BUREAU OF AIR REGULATION

Name: Sharon Walker Title: Legal Advertising Representative  
In testimony whereof, I have hereunto set my hand and affixed  
Seal, the day and year aforesaid.

NOTARY:





# Florida Department of Environmental Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Charlie Crist  
Governor

Jeff Kottkamp  
Lt. Governor

Michael W. Sole  
Secretary

January 30, 2009

Mr. Jim Dickenson  
Managing Director and CEO  
JEA  
21 West Church Street, Tower 8  
Jacksonville, FL 32202

Dear Mr. Dickenson:

Thank you for your continued assistance in obtaining mercury data and your letter dated January 22, 2009. We look forward to working with you to obtain the mercury CEMS data during the startup of the St. Johns River Power Park SCR units. I will be sure that Al Linero continues to work with Ms. Mann on this issue.

I appreciate that running the SCR units is currently the most cost effective option for compliance with CAIR. In light of the costs that are associated with non-attainment designations, operation of these controls to help maintain Jacksonville/Duval County's attainment status and avoid non-attainment costs/consequences is also very important. If you have any questions or comments, please contact me at (850) 488-0114 or by e-mail at [Joseph.Kahn@dep.state.fl.us](mailto:Joseph.Kahn@dep.state.fl.us).

Sincerely,

A handwritten signature in black ink, appearing to read 'Joseph Kahn'.

Joseph Kahn, Director  
Division of Air Resource Management

JK/tlv/al

CC: Armando Olivera, President FP&L  
Trina Vielhauer, DARM.