



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MAR 13 1984

3/19 Bill

REF: 4AW-AM

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MAR 16 1984

BACM

Mr. C. H. Fancy, Deputy Chief
Bureau of Air Quality Management
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

RE: PSD-FL-014 Florida Power Corporation Suwannee River Peaking
Units

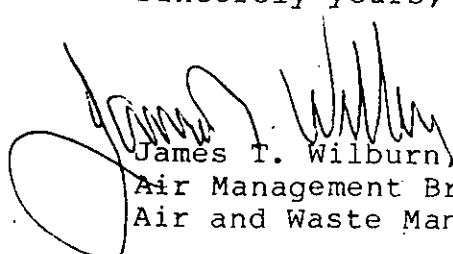
Dear Mr. Fancy:

We have reviewed Mr. G. W. Schaefer's letter to you dated February 9, 1984, requesting to modify Condition 3(b) of their PSD permit. Since these units are subject to New Source Performance Standards for Stationary Gas Turbines, it is not possible to delete the monitoring requirements of 40 CFR 60.334 contained within the permit. However, the frequency of determination of the sulfur content and nitrogen content of the fuels may be adjusted in accordance with the provisions of 40 CFR 60.334(b)(1) and (2).

These provisions state that: (1) if the turbine is supplied from a bulk storage tank, values shall be determined on each occasion that fuel is transferred to the storage tank from any other source; and (2) if the turbine is supplied its fuel without intermediate bulk storage, the values shall be determined and recorded daily. However, custom schedules may be submitted for approval by the Administrator for use in complying with the fuel monitoring requirement of the above referenced provisions.

If you have any questions regarding the use of such a schedule or the documentation required to verify the validity of the schedule, please do not hesitate to contact Jesse Baskerville, Acting Chief, Air Engineering Section at 404/881-4901.

Sincerely yours,


James T. Wilburn, Chief
Air Management Branch
Air and Waste Management Division

MAY 22 1980

RECEIVED
MAY 27 1980

REF: 4AH-AF

Office of the Secretary

Mr. Gus Schaefer
 Florida Power Corporation
 3201 Thirty-fourth Street South
 P. O. Box 14042
 St. Petersburg, FL 33733

Re: PSD-FL-014

Dear Mr. Schaefer:

This is in response to your April 16, 1980 letter requesting that PSD condition 3(b), for Florida Power Corporation's Suwannee River Peaking Units, be amended.

It has been determined by this Division that based upon the figures presented in your recent submittal, which will become an amendment to your application, condition 3(b) as stated in the Final Determination dated July 9, 1979 is hereby deleted and the following amendment should be inserted in its place to read:

The applicant shall record weekly, the sulfur content, nitrogen content, and lower heating value of the fuel being fired in the gas turbine.

This letter should be attached and made a part of your current PSD Conditions for Approval of Florida Power Corporation's proposed Suwannee River Peaking Units, and will become effective on the date of this letter.

If you have any questions concerning this matter, please contact Bill Wagner of my staff at 404/881-4552.

Sincerely yours,

131
 Tommie A. Gibbs
 Chief
 Air Facilities Branch

cc: FL DER
 TRW

see back



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

4.17

JUN 24 1981

OFFICE OF ENFORCEMENT

Mr. Amasjit S. Gill
General Electric - Gas Turbine Division
One River Road
Schenectady, New York 12345

Dear Mr. Gill:

This is to respond to your letter of May 19, 1981, requesting a determination of the applicability of NSPS and PSD to stationary gas turbines converting from middle distillates to natural gas.

The information presented in your letter indicated that NO_x and SO₂ emissions will decrease after the conversion to natural gas and hydrocarbons, CO and particulate emissions will either remain the same or decrease. As you correctly pointed out in your letter, the NSPS would only apply if there is an increase in emissions of a pollutant to which the standard applies. The NSPS for gas turbines applies only to NO_x and SO₂ emissions. Since the conversion from middle distillate fuel to natural gas for the turbines in question will cause a decrease in NO_x and SO₂ emissions, it is not considered a modification as defined in 40 CFR 60.14(a). The turbines however, could be subject to the NSPS if the conversion falls under the definition of reconstruction (See 40 CFR 60.15).

PSD review would apply to a proposed modification at an existing major stationary source if it would cause a significant net increase in actual emissions of any regulated pollutant. In the case of the gas turbine conversions outlined in your letter, PSD applicability is determined by evaluating any change in emissions rates caused by the conversions. The data contained in your letter indicate that the emission rates after the conversion will either remain constant or decrease. Actual emissions could increase only if there is an increase in the production rate or hours of operation, both of which are specifically exempt from PSD review. (See 40 CFR 52.21(b)(2)(iii)(f)). Therefore, since there will not be any increase in emission rates or any creditable increases in actual emissions, the conversion of the gas turbines will not be subject to PSD review.

If you have any questions concerning this determination
please contact Janet Farella of my staff at 202-755-2564.

Sincerely yours,

A handwritten signature in black ink, appearing to read "E. E. Reich". The signature is fluid and cursive, with the first name "E. E." being more prominent than the last name "Reich".

Edward E. Reich, Director
Division of Stationary
Source Enforcement

cc: Peter Wyckoff
Mike Trutna

PSD-FL-0014
EPC SUWANNEE
LIVE OAK

Final Determination

Review of a Proposed Air Pollution Source Pursuant to Environmental
Protection Agency Rules for the Prevention of Significant Deterioration (PSD)

40 CFR 52.21

Suwannee River Power Plant

Four Gas Turbine Peaking Units

Florida Power Corporation, St. Petersburg, Florida

U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30308

I. Introduction

The Florida Power Corporation has applied to the U.S. Environmental Protection Agency to construct four 63 megawatt oil-fired gas turbine peaking units at its Suwannee River Power Plant located in Suwannee County midway between the towns of Live Oak and Madison and on U.S. 90. The proposed construction is subject to review under 40 CFR 52.21, Regulations for the Prevention of Significant Deterioration (PSD). Under these regulations, a modification to a source of air pollution in any one of 28 specified categories which will increase the emission potential of that source by more than 100 tons per year of any pollutant, is subject to review for each of those pollutants. One of these categories is fossil fuel-fired steam electric plants of more than 250 million BTU per hour heat input, of which the Suwannee Plant is one.

Paragraph (r) of the PSD regulations requires, in part, that EPA issue a Preliminary Determination whether the source should be approved, approved with conditions, or disapproved. On April 27, 1979, EPA made a Preliminary Determination that the proposed source could be approved with conditions. The Preliminary Determination was advertized for public comment in three local newspapers and placed on display at the Suwannee County Courthouse. The only comment received was from the applicant, regarding the restriction on yearly hours of operations.

After verbal discussion with Mr. W. W. Vierday, EPA determined that the applicant had further reviewed this condition and no longer objected to it. However, Mr. Vierday requested that the log required by Condition 6 be a monthly log (rather than hourly or daily) since the new units would be equipped with integrating meters measuring both hours of operation and fuel usage. This request has been granted, and Condition 6 is modified accordingly. All other conditions remain the same as those in the Preliminary Determination. It is the decision of EPA that the source should be approved with conditions. The conditions are included to insure that the applicant complies with emission control techniques and emission limits which are a part of the application. The conditions of approval follow on the next page.

Conditions for Florida Power Corporation's Proposed Suwannee
Park Peaking Units (Gas Turbines)

As required pursuant to 40 CFR 52.21(d)(2)(ii), a review was conducted to determine if the proposed peaking units would apply the best available control technology. Based on this review, it was determined that the applicant (Florida Power Corporation) must meet emission limits and other requirements as specified by the U.S. Environmental Protection Agency's Standard of Performance for Stationary Gas Turbines proposed on October 3, 1977 (40 CFR 60, Subpart GG).

Condition I. Standards for Nitrogen Oxides

On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, the applicant shall not cause to be discharged into the atmosphere

(1) From any gas turbine with a heat rate at peak load of less than or equal to 14.4 kilojoules per watt hour, based on the lower heating value of the fuel fired, any gases which contain nitrogen oxides in excess of:

$$STD = 0.0075 \frac{14.4}{Y} + F$$

where:

STD = allowable NO_x emission (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at peak load (kilojoules per watt hour).

F = NO_x emission allowance for fuel-bound nitrogen as defined in part (3) of this paragraph.

(2) F shall be defined according to the nitrogen content of the fuel as follows:

Fuel-bound nitrogen (percent by weight)	F (NO _x by volume)
N < 0.015	0
0.015 < N < 0.1	0.04(N)
0.1 < N < 0.25	0.004 + 0.0067(N - 0.1)
N > 0.25	0.005

where:

N = the nitrogen content of the fuel (percent by weight).

Condition 2. Standard for Sulfur Dioxide

(a) On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, the applicant shall not cause to be discharged into the atmosphere from any stationary gas turbine any gases which contain sulfur dioxide in excess of a 0.015 percent by volume at 15 percent oxygen and on a dry basis.

(b) The sulfur content of the fuel fired by the gas turbine may be used to determine compliance with paragraph (a) of this section. Under such circumstances, on and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, the applicant shall not burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight.

Condition 3. Monitoring of Operations

(a) If water injection is used to control NO_x emissions, the applicant shall install and operate a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine. This system shall be accurate to within \pm 5.0 percent and shall be approved by the Administrator.

(b) The applicant shall record daily the sulfur content, nitrogen content, and lower heating value of the fuel being fired in the gas turbine.

(c) For the purpose of reports required under 40 CFR 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) Nitrogen oxides. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with 40 CFR 60.332 by the performance test required in 40 CFR 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under 40 CFR 60.335(a).

(2) Sulfur dioxide. Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.

Condition 4. Stack Testing

(a) Within sixty (60) days after achieving the maximum production rate at which the source will be operated, but no later than 180 days after initial startup, the applicant shall conduct or cause to be conducted, performance test(s) and furnish the Administrator with a written report of the results of such performance test(s). The results of the performance test(s) shall be submitted to the Administrator within thirty (30) days of the completion of said testing.

(b) Nitrogen oxide and sulfur dioxide performance tests shall be conducted and data reduced in accordance with methods and procedures approved by the Administrator.

(c) The applicant shall provide the Administrator thirty (30) days prior notice of the date of the performance test(s) to afford the opportunity to have an observer present.

(d) All required continuous monitoring systems shall be installed, calibrated, and operating when the performance test(s) are conducted.

(e) The applicant shall provide performance test reports which comply with criteria more fully described in 40 CFR 60, Appendix A.

Condition 5. NO_x Emission Control System

The applicant must submit technical data to the Administrator within ten (10) working days after it becomes available pertaining to the selected NO_x emissions control system. These data would include, but not be limited to, a copy of the formal bid from the successful bidder, guaranteed efficiency or emission rate, and major design parameters such as water/fuel ratio. If "dry" control techniques are to be used, to control NO_x emissions, the applicant must submit test data and other appropriate information for existing similarly sized gas turbines (i.e., approximately 63 MW) to show that dry control techniques are capable of achieving emission limits given in Condition 1 above. The Administrator, upon review of these data, may revoke or modify this application if evaluation of these data is different from data in the application in such a way that it would cause the control system to be inadequate to meet the emission limits specified above.

Condition 6. The turbines shall not operate more than 1500 hours per year. A log shall be kept at the plant, showing hours of operation and the amount of fuel used. This log will be available for inspection at the plant at any time.

II. Background

On March 21, 1978, Florida Power Corporation submitted a letter and attachments to EPA to apply under the PSD regulations to construct four combustion turbines at the Suwannee Power Plant. On August 5, 1978, further information was submitted which completed the application. The proposed construction is subject to EPA Regulations for the Prevention of Significant Air Quality Deterioration promulgated on June 19, 1978.

III. Review Requirements

The pollutants for which potential emissions are greater than 100 tons per year, and therefore subject to review, are sulfur dioxide, nitrogen oxides and carbon monoxide. Review of control technology and ambient impacts is required.

Certain portions of the PSD review may not be required if the proposed modification is subject to EPA's interpretative ruling, or if the source is a nonprofit health or education institution, or if the source has previously received approval under PSD and is only relocating. None of these exemptions applies in this case.

Other exemptions can apply to control technology review and ambient impact review. For control technology review, if allowable emissions of any pollutant are less than 50 tons per year, 1000 pounds per day and 100 pounds per hour, or if a modification is made to an existing facility and the emissions are offset by reductions elsewhere, review may not be required. None of these exemptions applies.

For ambient impact review and monitoring requirements, other exemptions are provided for. In addition to the allowable emission threshold, there are exemptions for temporary sources and for sources whose net emissions, after considering decreases, do not increase. None of these exemptions apply to the proposed turbines.

The one exemption which does apply is for air quality monitoring. Since a complete application was submitted before August 7, 1978, no preconstruction monitoring is required.

A. Control Technology Review

The applicant is required to install best available control technology (BACT) for each pollutant, taking into account energy, environmental and economic impacts and other costs. EPA concludes that the systems proposed by the applicant represents BACT for SO₂ and nitrogen oxides. There is currently no applicable technology for reduction of carbon monoxide beyond what is accomplished in the combustion chamber.

L. Sulfur Dioxide

The applicant has proposed to burn 0.5% sulfur distillate fuel oil. At the time the application was submitted, EPA had proposed a revision to the New Source Performance Standards (40 CFR 60) for stationary gas turbines. Part of this revision includes a requirement for burning no fuel which contains sulfur in excess of 0.8 percent by weight. This requirement is considered BACT, and is included as a condition of approval.

2. Nitrogen Oxides

The applicant has proposed to limit nitrogen oxide emissions to 75 ppm (adjusted for heat rate and fuel-bound nitrogen) by water injection. At the time the application was submitted, EPA had proposed a revision to the New Source Performance Standards (40 CFR 60) for stationary gas turbines. Part of this revision includes a requirement to limit nitrogen oxide emissions to 75 ppm. This requirement represents BACT and is included as a condition of approval.

B. Applicability of NSPS

As of this date, EPA has proposed revisions to the New Source Performance Standards for stationary gas turbines. Any future promulgation which applies to stationary gas turbines and is more stringent than any condition of approval, will supercede the conditions of approval.

C. Impact Review

The PSD regulations require the following air quality impacts to be assessed by the applicant:

- 1) National Ambient Air Quality Standards (NAAQS)
- 2) PSD increments
- 3) Visibility, soils and vegetation
- 4) Impacts due to growth caused by proposed source

All of these impacts were assessed by the applicant. Air quality modelling showed no violations of the NAAQS with all sources in the area of the Suwannee in operation. Likewise, the PSD increment analysis showed no violations with the four turbines operating at maximum load.

The maximum predicted ambient concentrations with the proposed turbines in operation are presented in the following table:

Scenario	Concentrations (ug/m ³)		
	Sulfur Dioxide		
	Annual Average	24-Hour Maximum	3-Hour Maximum
Maximum Predicted 1981 Concentration in vicinity of Suwannee River Plant	10	184	851
State of Florida Standards	60	260	1300
Federal Secondary Standards	--	--	1300
Federal Primary Standards	80	365	--

The maximum consumption of the Class II PSD increments caused by proposed turbines are presented in the following table:

<u>Increment</u>	<u>Pollutant</u>
Annual	10%
24-Hour	11%
3-Hour	10%

Impacts on visibility, soils and vegetation and on air quality due to growth were judged to be minimal.

The closest Class I area is Okefenokee National Wildlife Refuge in Georgia, about 75 KM to the east-northeast from the plant site.

The maximum consumption of the Class I PSD increments caused by the proposed turbines are presented in the following table:

<u>Increment</u>	<u>Pollutant</u>
Annual	10%
24-Hour	40%
3-Hour	56%

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CONSTRUCTION PERMIT PROVISOS

AIR POLLUTION SOURCES

Permit No. AC61-11864

Date: Nov. 28, 1978
Revised: Feb. 5, 1979

- (X) 1. Construction of this installation shall be completed by November 1, 1980. Application for Permit to Operate to be submitted by February 1, 1981.
- (X) 2. This construction permit expires on May 1, 1981 following an initial period of operation for appropriate testing to determine compliance with the Rules of the Florida Department of Environmental Regulation Commission.
- (X) 3. All applicable rules of the Department including design discharge limitations specified in the application shall be adhered to. The permit holder may also need to comply with county, municipal, federal, or other state regulations prior to construction.
- (X) 4. The applicant shall continue the retention of the engineer of record for the inspection of the construction of this project. Upon completion the engineer shall inspect for conformity to construction permit applications and associated documents. A report of such inspection shall be submitted by the engineer to the Department of Environmental Regulation for consideration toward the issuance of an operation permit.
- (X) 5. This peaking unit shall be tested* for SO₂ and NO_x (via continued on reverse side) within 60 days after it is placed in operation. These test results are required prior to our issuance of an operation permit and shall be submitted in duplicate to the Florida Department of Environmental Regulation, Gainesville Branch Office, 825 N.W. 23rd Ave., Suite G, Gainesville, FL 32601
-
- * Fuel Analysis May be Submitted for Required Sulfur Dioxide Emission Test.
- (X) 6. The operation of this installation shall be observed for visible emissions in accordance with Method 9-Visible Determination of the Opacity of Emissions from Stationary Sources (36FR24895; Federal Register, December 23, 1971). The observation results are required prior to our issuance of an operation permit, and shall be submitted in duplicate to the Department of Environmental Regulation ~~District Office~~ Branch Office, 825 N.W. 23rd Ave., Suite G, Gainesville, FL 32601
- (X) 7. Satisfactory ladders, platforms, and other safety devices shall be provided/available as well as necessary ports to facilitate the carrying out of an adequate sampling program.
- (X) 8. There shall be no discharges of liquid effluents or contaminated runoff from the plant site.
- (X) 9. All fugitive dust generated at this site shall be adequately controlled.

() 10. This permit is associated with a Development of Regional Impact (D.R.I.). It does not waive any other permits that may be required from this or any other State, Federal, or local agency.

(X) 11. The emission limiting standards required by the FDER "BACT" determination are as follows:

Nitrogen Dioxide - 75 ppm by volume at 15 percent oxygen on a dry basis

and corrected in accordance with the Federal Register Vol. 42, No. 191 - Monday, October 3, 1977, paragraph 60.332.

Sulfur Dioxide - 95 ppm by volume corrected to 15 percent oxygen on a dry basis; or, 0.5 percent sulfur by weight in fuel, but the maximum allowed emission rate is not to exceed 379 lbs/hr SO₂ under any condition.

Opacity - less than 20 percent

(X) 12. Particulate Matter - maximum allowed emission rate is 38 lbs/hr.

(X) 5. (cont'd) in accordance with Reference Method 20 specified in the Federal Register Vol. 42, No. 191 - Monday, October 3, 1977, paragraph 60.335.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CONSTRUCTION PERMIT PROVISOS

AIR POLLUTION SOURCES

Permit No. AC61-11864

Date: 11/28/78

- (X) 1. Construction of this installation shall be completed by November 1, 1980. Application for Permit to Operate to be submitted by February 1, 1981.
- (X) 2. This construction permit expires on May 1, 1981 following an initial period of operation for appropriate testing to determine compliance with the Rules of the Florida Department of Environmental Regulation Commission.
- (X) 3. All applicable rules of the Department including design discharge limitations specified in the application shall be adhered to. The permit holder may also need to comply with county, municipal, federal, or other state regulations prior to construction.
- (X) 4. The applicant shall continue the retention of the engineer of record for the inspection of the construction of this project. Upon completion the engineer shall inspect for conformity to construction permit applications and associated documents. A report of such inspection shall be submitted by the engineer to the Department of Environmental Regulation for consideration toward the issuance of an operation permit.
- (X) 5. This unit shall be tested* for SO₂ and NO_x (con't. on reverse within sixty days side) after it is placed in operation. These test results are required prior to our issuance of an operation permit and shall be submitted in duplicate to the Florida Department of Environmental Regulation Gainesville Branch Office, 825 N.W. 23rd Ave., Suite G, Gainesville, FL 32601
- * Fuel Analysis May be Submitted for Required Sulfur Dioxide Emission Test.
- (X) 6. The operation of this installation shall be observed for visible emissions in accordance with Method 9-Visible Determination of the Opacity of Emissions from Stationary Sources (36FR24895; Federal Register, December 23, 1971). The observation results are required prior to our issuance of an operation permit, and shall be submitted in duplicate to the Department of Environmental Regulation District Office, Branch Office, 825 N.W. 23rd Ave., Suite G, Gainesville, FL 32601
- (X) 7. Satisfactory ladders, platforms, and other safety devices shall be provided/available as well as necessary ports to facilitate the carrying out of an adequate sampling program.
- (X) 8. There shall be no discharges of liquid effluents or contaminated runoff from the plant site.
- (X) 9. All fugitive dust generated at this site shall be adequately controlled.

(X) 10. The emission limiting standards (based on a maximum total process input rate of 37,910 lb/hr of distillate fuel oil) required by the FDER BACT determination are as follows:

Nitrogen Dioxide - 75 ppm by volume at 15 percent oxygen on a dry basis

Sulfur Dioxide - 95 ppm by volume corrected to 15 percent oxygen on a dry basis; or, 0.5 percent sulfur by weight in fuel

Opacity - less than 20 percent

(X) 11. Maximum allowed emission rate for sulfur dioxide is 379 lbs/hr and for particulate matter is 38 lbs/hr.

(X) 5. (con't.) in accordance with Reference Method 20 specified in the Federal Register Vol. 42, No. 191 - Monday, October 3, 1977, paragraph 60.335.

file in #1

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION
INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee	
To: _____	Locn.: _____
To: _____	Locn.: _____
To: _____	Locn.: _____
From: _____	Date: _____

ST. JOHNS RIVER

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AUG 28 1978
REGISTERED
SUD DISTRICT - JAX

JAN 29 1997

BUREAU OF
AIR REGULATION

TO : Joseph W. Landers, Jr.

FROM: J. P. Subramani *J. Subramani*

DATE: August 11, 1978

SUBJ: BACT Application for Four Florida Power Corporation
Gas Turbines, Suwannee River Plant Site,
Suwannee County

Facility: Four 63,000 KW gas turbine electric generating units to be located at Florida Power Corporation's Suwannee River Plant. The units, scheduled for commercial operation in October 1980, will be known as Suwannee River Peaking Units 1 through 4.

At a peak power level of 63,000 KW, each unit will burn approximately 37,910 pounds of distillate fuel per minute which constitutes a heat input rate of 739 million BTU/hr.

BACT Determination Requested by the Applicant

Nitrogen Dioxide: 75 ppm by volume
Sulfur Dioxide: 95 ppm by volume
Opacity: Less than 20%

Date Receipt of a Complete BACT Application:

May 12, 1978

Date of Publication in the Florida Administrative Weekly:

June 23, 1978

Date of Publication in a Newspaper of General Circulation:

June 30, 1978 - Florida Times Union

Mr. Joseph W. Landers, Jr.
 August 11, 1978
 Page Two

Study Group Members:

Steve Smallwood, Bureau of Air Quality Management, DER
 Albert Townsend, South Florida District, DER
 Robert Kapplemann, City of Jacksonville,
 Department of Health
 Frank Darabi, St. John River Subdistrict, DER
 Victoria Martinez, BACT Coordinator, DER

Study Group Recommendations:

	*Albert Townsend	Robert Kapplemann	Steve Smallwood	Frank Darabi
Ash Content of Fuel		.01%		Low
Particulates				.08 lb/BTU
NO ₂	Wet Method	50 ppmv-water or steam to fuel ratio of about 1.4	±75 ppmv with EPA's upward corrections for efficiency and fuel bound nitrogen	75 ppmv
SO ₂	Low Sulfur Oil	±.3% S Oil	±100 ppmv	.3% S Fuel
Opacity		10% except for start-up	±20%	20%
HC				
CO				
Noise				Minimized at property line.

*Albert Townsend felt the data provided by the applicant was insufficient to establish specific emission limits.

**Steve Smallwood considered 60 ppmv NO₂ 80 ppm SO₂ and 10% opacity to be a reasonable alternative. However, he felt sufficient information was not provided by the applicant to analyze the economic impact of this alternative.

Mr. Joseph W. Landers, Jr.
August 11, 1978
Page Three

Other State and Local Emission Standard Applicable to Gas Turbines*:

<u>Pollutant</u>	<u>Fuel</u>	<u>Typical</u>	<u>Most Stringent</u>
NO _x	Gas	(75 ppm @ 15% O ₂) 0.3 lb NO _x /MMBTU	(42 ppm @ 15% O ₂) 125 ppm @ 3% O ₂)
	Oil	(75 ppm @ 15% O ₂) 0.3 lb NO _x /MMBTU	(75 ppm @ 15% O ₂) 0.3 lb NO _x /MMBTU
SO ₂	Oil	187 ppm 1% Sulfur by Weight (1 lb SO ₂ /MMBTU)	56 ppm 0.3% Sulfur by Weight (0.3 lb SO ₂ /MMBTU)
CO	All	None	None
Visible Emissions	All	20%	0%

*From the EPA's SSEIS document, EPA/450/2-77-017a

EPA's Proposed New Source Performance Standards for Gas Turbines:

The proposed standards were published in the Federal Register October 3, 1977 and are expected to be promulgated January, 1979, as follows:

Nitrogen Dioxide: 75 ppm by volume at 15 percent oxygen on a dry basis.

The standard would include an adjustment factor (see attachment) for gas turbine with thermal efficiencies greater than 25 percent, and also an adjustment factor (see attachment) for turbines burning fuels with fuel bound nitrogen content greater than 0.15 percent by weight. Each factor would result in a larger number. Measured NO_x levels would be adjusted to the International Standards Organization (ISO) reference conditions of 15°C and 60% R.H., 101.3 kilopascals pressure.

Sulfur Dioxide: 150 ppm by volume corrected to 15 percent oxygen, or
0.8% Sulfur by weight in fuel.