Scott

Florida Power
A Progress Energy Company

Brian Powers
Plant Manager
Suwannee Plant

August 9, 2002

RECEIVED
AUG 15 2002
BUREAU OF AIR REGULATION

Mr. Clair H. Fancy, P.E.
Chief
Bureau of Air Regulation
Division of Air Resource Management
Florida Department of Environmental Protection
2600 Blairstone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy: Project No.: 1210003-003-AV
1210003-004-AC

Re: Amendment to Construction and Title V Permits for Units P-1, P-2, and P-3 at Florida Power Corporation's Suwannee River Facility

Pursuant to discussions with Mr. Bruce Mitchell of your staff, Florida Power is requesting that air construction permits for combustion turbine generating Units P-1, P-2, and P-3 at its Suwannee River facility be amended to remove conditions limiting particulate emissions that have no basis in rule.

When construction permits AC 61-11862,-11863, -11864 were originally issued in November 1978, a particulate emission limit was included in specific condition 11 of each permit. The emission limiting standard had no basis in applicable federal or Florida air rules. In addition, the limitation on particulate matter emissions was more restrictive than the August 11, 1978 Best Available Control Technology (BACT) Order signed by the Assistant Secretary. The BACT Order included specific emission limits for NO_x, SO_2, and VE only. The limits for NO_x and SO_2 were consistent with the federally proposed new source limits for combustion turbines and the VE limit was consistent with the General Visible Emissions Limit found in the Florida air rules. For PM, VOC, and CO the BACT Order specifically stated that "no limit" was to be applied. When EPA issued the associated PSD permit (PSD-FL-014) on July 9, 1979, the PSD permit included limits for NO_x and SO_2 consistent with the proposed federal air rule. It is important to note the federal PSD permit only included specific testing requirements for NO_x and SO_2 while the state construction permit and the subsequent air operation permits only included specific testing requirements for NO_x, SO_2, and VE. Since the particulate emission limit in the above-referenced construction permits has no basis in rule, Florida Power requests that it be deleted from the permits.

4037 River Road
Live Oak, FL 32060

P>(386) 330-5402

The requirement to conduct particulate emissions testing on Units P-1, P-2, and P-3 (Emission Units -004, -005, -006) first appeared in the Title V permit (1210003-001-AV) issued January 1, 2000. It is our understanding that the reason for the particulate emissions testing requirement was the particulate emissions limit that had been inappropriately included in the permit some 22 years earlier. Therefore, Florida Power requests the removal of the particulate emissions limit for these units and the associated particulate testing requirements from the Title V permit as well. The conditions that should be deleted are Specific Conditions B.12, B.30, B.39(b)-(e), B.40(a)5., and B.42. We also request that Table 2-1 and any other portions of the permit be amended to remove particulate emission testing requirements.

We ask that the changes to the subject construction permits and Title V permits be processed in parallel. We appreciate the cooperation that you and the members of your Division have provided regarding this issue. If you have any questions, please contact Mike Kennedy at (727) 826-4334.

Sincerely,

Brian V. Powers
Suwannee Plant Manager
Responsible Official

MK/mh

cc: Mr. Al Linero, DEP
Mr. Scott Sheplak, DEP
Mr. Bruce Mitchell, DEP
Mr. Mike Harley, HEAT

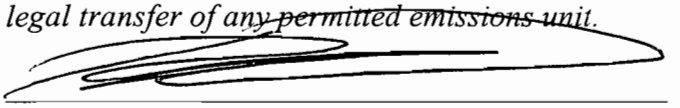
4037 River Road
Live Oak, FL 32060

P>(386) 330-5402

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:
   Brian V. Powers
2. Owner/Authorized Representative or Responsible Official Mailing Address:
   Organization/Firm: Florida Power Corporation
   Street Address: P.O. Box 14042
   City: St. Petersburg State: FL Zip Code: 33733
3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
   Telephone: (386) 330-5402 Fax: (727) 820-5342
4. Owner/Authorized Representative or Responsible Official Statement:

   I, the undersigned, am the owner or authorized representative(check here [ ], if so) or the responsible official (check here [X], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

   Signature 8/9/02 Date

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: **Michael Dennis Harley**
   Registration Number: **FL-40144**
2. Professional Engineer Mailing Address:
   Organization/Firm:
   Street Address: **P. O. Box 6028**
   City: **Tallahassee** State: **FL** Zip Code: **32314-6028**
3. Professional Engineer Telephone Numbers:
   Telephone: **(850) 878 - 1898** Fax: **(850) 878 - 4380**

4. Professional Engineer Statement:

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

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

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

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

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

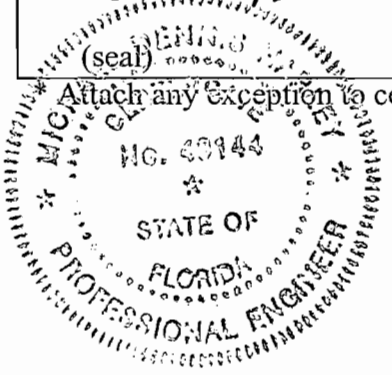
If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such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

Michael Dennis Hardy — 08-14-02

Signature PE # FL 40144 — Date

(seal)

* Attach any exception to certification statement.



State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee

To: _____ Loctn.: _____

To: _____ Loctn.: _____

To: _____ Loctn.: _____

From: _____ Date: _____

TO : Joseph W. Landers, Jr.

FROM: J. P. 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

BACT Determination by Florida Department of Environmental Regulation:

Nitrogen Dioxide: 75 ppm by volume at 15 percent oxygen

The proposed standard would be EPA's proposed New Source Performance Standard. NO_x emissions from gas turbines, therefore, would be limited according to the following equation:

$$STD = (.0075\ E) + F$$

Where:

STD = allowable NO_x emission (percent by volume at 15 percent oxygen)

E = efficiency adjustment factor: $\frac{14.4 \text{ kilojoules/watt·hr}}{\text{Actual ISO heat rate}}$

F = fuel-bound nitrogen allowance:

Fuel-Bound Nitrogen percent by weight (N)	F (NO_x - percent by volume)
(N) less than 0.015 percent	0
(N) between 0.015 and 0.1 percent	0.04 (N)
(N) between 0.1 and 0.25 percent	0.004 + 0.0067 (N-0.1)
(N) greater than 0.25 percent	0.005

During performance tests to determine compliance with the proposed standard, measured NO_x emission at 15 percent oxygen would be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_x = (NO_{x_{obs}}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19\ (H_{obs} - 0.00633)}$$

Where:

NO_x = Emissions of NO_x at 15 percent oxygen and ISO standard ambient conditions.

$NO_{x_{obs}}$ = Measured NO_x emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P_{obs} = Measured combustor inlet absolute pressure.

H_{obs} = Specific humidity of ambient air.

e = Transcendental constant (2.718)

Sulfur Dioxide: 95 ppm by volume corrected to 15 percent oxygen in a dry basis. or
0.5% Sulfur by weight in fuel.

Hydrocarbons: None

Carbon Monoxide: None

Particulates: None

Opacity: Less than 20%

Justification of DER Determination:

Nitrogen Dioxide

The proposed standard was selected after carefully examining the recommendations of the study group and the SSIES document for EPA's proposed standard. The SSIES document showed test data on 8 simple cycle peaking gas turbines. Of these, only 6 were fired with distillate fuel. Tests for controlled emissions were available for 4 of these 6 turbines. Test results showed a range in emission of 55 to 80 ppmv (after EPA's proposed upward correction for turbine efficiencies above 25%). Although three of these four turbines had emissions below or at the 60 ppmv level, the EPA's 75 ppmv standard was preferred because it allowed for the uncertain validity of the limited test data available.

SO_2

The only available and economically feasible technique for sulfur dioxide emission control is low sulfur oil. Other techniques for tail gas cleanup cost two to three times as much as the turbine itself.

In selecting the 0.5% S fuel by weight as the standard, the availability of this fuel and the relative economic advantage of its use were considered.

The lower 0.3% S by weight proposed by two members of the study group would result in an increase in fuel cost of 1.8% or about $53,500/unit per year - a conservative estimate. Increases in ambient air concentrations expected to result from the operation of the turbines do not justify the need for the more stringent standard and increased cost of production.

HC, CO, Particulates:

The SSEIS document shows insignificant impact on ambient air from the limited gas turbines emissions.

Opacity:

The proposed standard is consistent with the SSEIS document and agrees with the recommendation of two of the three members of the group proposing an opacity standard.

Details of Analysis May be Obtained by Contacting:

Victoria Martinez
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32301

Recommendation from: Bureau of Air Quality Management

by: J P Subramani
J. P. Subramani

DATE: August 11, 1978

Approved by: Victoria Johnson for
J. W. Landers, Jr.
Secretary

DATE: August 16, 1978

Florida Power
A Progress Energy Company

RECEIVED
AUG 05 2002
BUREAU OF AIR REGULATION

July 30, 2002

Mr. Clair H. Fancy, P.E.
Chief
Bureau of Air Regulation
Division of Air Resource Management
Florida Department of Environmental Protection
2600 Blairstone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: Amendment to Construction and Title V Permits for Units P-1, P-2, and P-3 at Florida Power Corporation's Suwannee River Facility

Pursuant to discussions with Mr. Bruce Mitchell of your staff, Florida Power is requesting that air construction permits for combustion turbine generating Units P-1, P-2, and P-3 at its Suwannee River facility be amended to remove conditions limiting particulate emissions that have no basis in rule.

When construction permits AC 61-11862,-11863, -11864 were originally issued in November 1978, a particulate emission limit was included in specific condition 10 of each permit. The emission limiting standard had no basis in applicable federal or Florida air rules. In addition, the limitation on particulate matter emissions was more restrictive than the August 11, 1978 Best Available Control Technology (BACT) Order signed by the Assistant Secretary. The BACT Order included specific emission limits for NO_x, SO_2, and VE only. The limits for NO_x and SO_2 were consistent with the federally proposed new source limits for combustion turbines and the VE limit was consistent with the General Visible Emissions Limit found in the Florida air rules. For PM, VOC, and CO the BACT Order specifically stated that "no limit" was to be applied. When EPA issued the associated PSD permit (PSD-FL-014) on July 9, 1979, the PSD permit included limits for NO_x and SO_2 consistent with the proposed federal air rule. It is important to note the federal PSD permit only included specific testing requirements for NO_x and SO_2 while the state construction permit and the subsequent air operation permits only included specific testing requirements for NO_x, SO_2, and VE. Since specific condition 10 of the above-referenced construction permits has no basis in rule, Florida Power requests that it be deleted from the permits.

The requirement to conduct particulate emissions testing on Units P-1, P-2, and P-3 (Emission Units -004, -005, -006) first appeared in the Title V permit (1210003-001-AV) issued January 1, 2000. It is our understanding that the reason for the particulate emissions testing requirement was the particulate emissions limit that had been inappropriately included in the permit some 22 years earlier. Therefore, Florida Power requests the removal of the particulate emissions limit for these units and the associated particulate testing requirements from the Title V permit as well. The conditions that should be deleted are Specific Conditions B.12, B.30, B.39(b)-(e), B.40(a)5., and B.42. We also request that Table 2-1 and any other portions of the permit be amended to remove particulate emission testing requirements.

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Sincerely,

Brian V. Powers
Suwannee Plant Manager
Responsible Official

MK/mh

cc: Mr. Al Linero, DEP
Mr. Scott Sheplak, DEP
Mr. Bruce Mitchell, DEP
Mr. Mike Harley, HEAT

8-5-02
02:16
left Mike Kennedy a v-m-m; and, where is the R.E. seal, which is required for ACs.
Raleigh NC E
919/362-3337

3:54
Mike Kennedy D F&C
RO + P.E. Seal +
resubmittal of app.

8-5-02
02:17
Did not find a P.E. seal in Clair's package.

SUWANNEE
COMBUSTION TURBINES
June 20, 2002

History

- **Construction permits were issued in 1978.**
- **Permits included:**
- **PSD-FL-014 & PSD-FL-014(A).**
- **AC 61-11862, -11863, & -11864.**
- **Turbines commenced commercial operation October/November 1980.**

Configuration

- **Each of the three units consists of a generator driven by two CTs.**
- **It is possible to decouple one CT & still drive the generator if a CT is down.**
- **Each CT is an aero derivative unit mfg. by Turbo Power & Marine**
- **Each CT has its own stub stack.**
- **The base of each stack is open to the atmosphere.**
- **The open base admits air to cool the 1225°F exhaust gas.**
- **Each stub stack is also equipped with silencers which create a flow disturbance.** Can't get isokinetic sampling.

Operational

- **Maximum generating output of each CT:**
  - **About 63 MW.**
- **Permit limits each CT to:**
  - **Capacity – 739 MBtu/hr fuel (LHV) @ 59°F.**
  - **Fuel Input – 37,910 lbs/hr No. 2 distillate.**
  - **Hours of Operation – 1500 hrs/year.**
- **NO_x emission control:**
  - **Water Injection.**
- **SO_2 emission control:**
  - **Fuel sulfur.**
- **PM Control:**
  - **Fuel quality.**
  - **Scheduled preventative maintenance.**

Emission Limits

- NO_x:
  - 75 ppmv @ 15% O_2 – Oil.
  - 68 ppmv @ 15% O_2 – Gas.
- PM:
  - 38 lbs/hr (~28.5 TPY).
- VE:
  - 20% Opacity.
- SO_2:
  - 0.0095% by volume @ 15% O_2 (379 lbs/hr).
  - Fuel 0.5% S by weight.

Required Test Methods

- NOx, SO2, and O2:
  - EPA Method 20
- Fuel Sulfur:
  - ASTM Fuel Analysis Methods
- Particulate:
  - EPA Method 5
- Visible Emissions:
  - EPA Method 9

Origin of PM Limitation

- BACT for PSD FL-014 was completed & signed – ca 8/78.
- BACT recommended – "no standard" for PM, CO, VOC – pp. 4 - 6.
- The federally issued PSD permit PSD FL-014 included limits & testing requirements for NOx & SO2 only.
- Construction permits AC 61-11862, 11863, & 11864 were prepared – ca 11/78.
- Condition 10 included emission limits for NOx, SO2, & VE.
- Condition 5 required NOx & SO2 testing using EPA Method 20.
- Condition 6 required EPA Method 9 visible emissions evaluation.
- PM limit first appeared in Condition 11 of 11/78 permit.
- Neither the original construction permit nor subsequent operation permits included a requirement to test for PM.
- It is obvious that there was never any intent to require a direct measurement of PM.
- The presence of a VE and a PM limitation with only a VE test requirement leads to two possibilities:

- The PM limit may have been included for informational purposes only.
- The VE limitation may have been considered a surrogate for PM at the specified level.

- Even if the permit engineer considered VE to be a surrogate for PM – the basis for exceeding the scope of the order remains a mystery.
- The rules contain no basis for the PM.
- The requirement to directly measure PM first appeared in the original Title V Permit.

General PM Testing Criteria

- In order to obtain valid PM test results:
  - Test location – 2 dia. downstream & ½ dia. upstream of a disturbance (minimum).
  - Sample collection needs to be at same rate as stack gas flow (isokinetic).
  - Ports need to be sufficient in diameter to accommodate probe with attached pitot tube.
  - Sample should be free of dilution or contamination from outside sources.
  - Each run should be of sufficient duration to collect ~20 mg of sample.

Physical Constraints

- Stub stack design does not lend itself to PM testing or modification for PM testing.
- Stack is open to the atmosphere at the bottom for cooling of stack walls.
- Fresh air entering open base:
  - Source of outside PM that can contaminate the sample.
  - Creates a flow disturbance which interferes with velocity measurements & isokinetic sampling.
- Configuration of open stack base, turbine exhaust, & bottom of silencers is such that a satisfactory isokinetic sampling location cannot be obtained.
- Distance between stack exit & top of silencers is not sufficient to meet PM sampling criteria.
- Existing sample ports are suitable for EPA Method 20 NO_x testing but not suitable for EPA Method 5 PM testing due to size & location.
- Considering the age of the source, the required test frequency & the potential costs – extension of the stack is not economically feasible.

Method Constraints

- The very low PM concentrations resulting from the large gas volume in comparison to PM mass would require long sample runs (hours) to collect ~20 mg of sample.
- Long sample runs & low PM concentrations increase the potential for error with manual isokinetic procedures.
- The low pollutant concentrations along with high flows & temperatures require special preparations & equipment just for this test.
- The potential for outside contamination of the gas stream adds to the problem.

Minimizing PM Emissions During Normal Operation

- Generation efficiency is currently maximized & the formation of PM is minimized by:
  - A program of scheduled preventative equipment maintenance that includes cleaning equipment & reconditioning combustion cans.
  - The use of fuel that is low sulfur & ash.
- The stack has never been washed out or cleaned yet it appears clean — free of soot & residue.

AP-42 Position On PM From CTs

- AP-42 states, "3.1.3.3 Particulate Matter - ... PM are typically nondetectable with natural gas firing and marginally detectable with conventional sampling systems with distillate oil firing because of the low ash content."

PM Requirements & Other CTs

- Turbines at DeBary were only required to test for PM once at the time of start up & allowed to observe visible emissions after that.
- The permit for the turbines for the DeSoto project does not require PM testing. Instead, the permit states that visible emissions are a surrogate for PM.

PM Test Frequency

- **Permit appears to require a PM test if a CT operates more than 400 hours per year on oil.**
- **The Rule 62-297(7) requirement to test if more that 400 hours per year of oil is burned was intended to apply to units that would be subject to an annual test requirement (specifically large utility boilers) due to a source specific PM emission limiting standard in the rule or PM emissions of more than 100 TPY.**
- **Since each CT is not subject to a source specific PM emission limiting standard in the rule and PM emissions are limited to less than 28.5 TPY – pursuant to Rule 62-297(7) the PM test frequency should by not greater than once each renewal period (~5 years) – if at all.**

Visible Emissions Evaluation

- **The duration of the of the EPA Method 9 visible emissions observations specified in Table 2-1 needs to be reduced from one hour to 30 minutes pursuant to the requirements of Rule 62-297(4).**
- **Each CT is limited to PM emissions of not more than 28.5 TPY which is far below the 100 TPY threshold where EPA Method 9 observations of one hour or more are required.**

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: _____ Locin.: _____
To: _____ Locin.: _____
To: _____ Locin.: _____
From: _____ Date: _____

ST. JOHNS RIVER
RECEIVED
AUG 28 1978
SUB DISTRICT - JAX

RECEIVED
JAN 29 1997
BUREAU OF
AIR REGULATION

TO : Joseph W. Landers, Jr.

FROM: J. P. 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

H6 - Rev 7/76

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 Kappelmann	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 NO_2 80 ppm SO_2 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.

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

Pollutant	Fuel	Typical	Most Stringent
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.

BACT Determination by Florida Department of Environmental Regulation:

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

The proposed standard would be EPA's proposed New Source Performance Standard. NO_x emissions from gas turbines, therefore, would be limited according to the following equation:

$$STD = (.0075\ E) + F$$

Where:

STD = allowable NO_x emission (percent by volume at 15 percent oxygen)

E = efficiency adjustment factor: $\frac{14.4 \text{ kilojoules/watt-hr}}{\text{Actual ISO heat rate}}$

F = fuel-bound nitrogen allowance:

Fuel-Bound Nitrogen percent by weight (N)	F (NO_x - percent by volume)
(N) less than 0.015 percent	0
(N) between 0.015 and 0.1 percent	0.04 (N)
(N) between 0.1 and 0.25 percent	0.004 + 0.0067 (N-0.1)
(N) greater than 0.25 percent	0.005

During performance tests to determine compliance with the proposed standard, measured NO_x emission at 15 percent oxygen would be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_x = (NO_{x_{obs}}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19\ (H_{obs} - 0.00633)}$$

Where:

NO_x = Emissions of NO_x at 15 percent oxygen and ISO standard ambient conditions.

$NO_{x_{obs}}$ = Measured NO_x emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P_{obs} = Measured combustor inlet absolute pressure.

H_{obs} = Specific humidity of ambient air.

e = Transcendental constant (2.718)

Sulfur Dioxide: 95 ppm by volume corrected to 15 percent oxygen in a dry basis, or 0.5% Sulfur by weight in fuel

Hydrocarbons: None

Carbon Monoxide: None

Particulates: None

Opacity: Less than 20%

Justification of DER Determination:

Nitrogen Dioxide

The proposed standard was selected after carefully examining the recommendations of the study group and the SSIES document for EPA's proposed standard. The SSIES document showed test data on 8 simple cycle peaking gas turbines. Of these, only 6 were fired with distillate fuel. Tests for controlled emissions were available for 4 of these 6 turbines. Test results showed a range in emission of 55 to 80 ppmv (after EPA's proposed upward correction for turbine efficiencies above 25%). Although three of these four turbines had emissions below or at the 60 ppmv level, the EPA's 75 ppmv standard was preferred because it allowed for the uncertain validity of the limited test data available.

SO_2

The only available and economically feasible technique for sulfur dioxide emission control is low sulfur oil. Other techniques for tail gas cleanup cost two to three times as much as the turbine itself.

In selecting the 0.5% S fuel by weight as the standard, the availability of this fuel and the relative economic advantage of its use were considered.

The lower 0.3% S by weight proposed by two members of the study group would result in an increase in fuel cost of 1.8% or about $53,500/unit per year - a conservative estimate. Increases in ambient air concentrations expected to result from the operation of the turbines do not justify the need for the more stringent standard and increased cost of production.

HC, CO, Particulates:

The SSEIS document shows insignificant impact on ambient air from the limited gas turbines emissions of these pollutnats.

Opacity:

The proposed standard is consistent with the SSEIS document and agrees with the recommendation of two of the three members of the group proposing an opacity standard.

Details of Analysis May be Obtained by Contacting:

Victoria Martinez
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32301

Recommendation from: Bureau of Air Quality Management

by: JPSubramani
J. P. Subramani

DATE: August 11, 1978

Approved by: Victoria Johnson for
J. W. Landers, Jr.
Secretary

DATE: August 16, 1978

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 NOx (con't. on reverse side) within sixty 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.

(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.

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 SO_2 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.

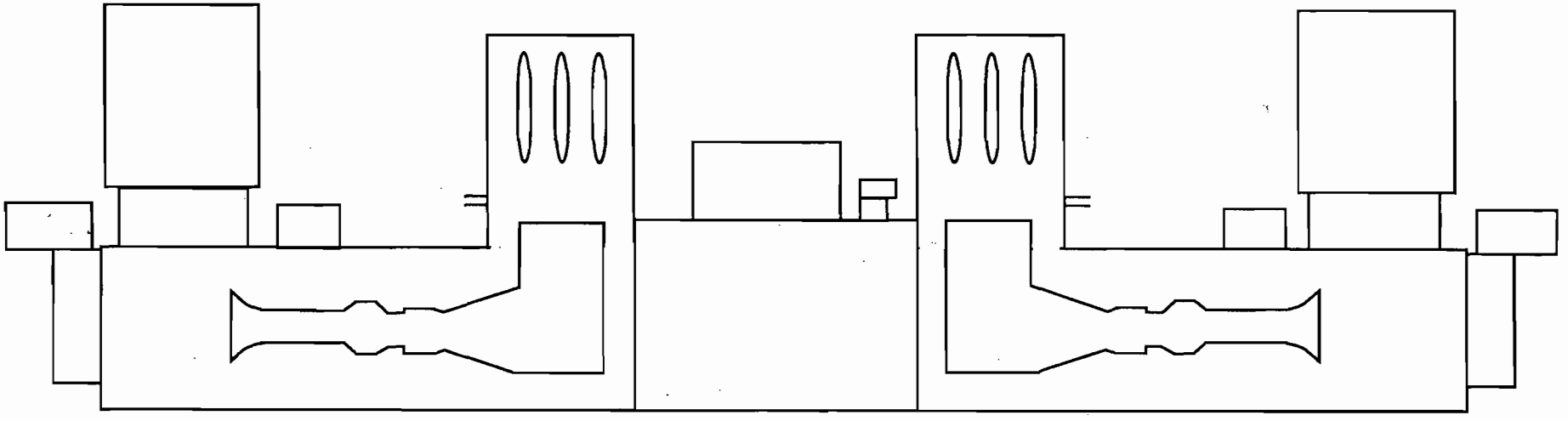
Sulfur Dioxide - 95 ppm by volume corrected to 15 percent oxygen on a dry basis; or, 0.5 percent sulfur by weight in fuel, but the maximum allowed emission rate is not to exceed 379 lbs/hr SO_2 under any condition.

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.

Suwannee Combustion Turbine P-2



General Plan View

Florida Power Corporation

June 19, 2002

Prepared by

HEAT

Department of
Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

DARM-PER-10

SUBJECT: Guidance on Incorporation of Existing Permit Conditions Into Title V Permits

DATE: March 1, 2000

Rule 62-210.200, F.A.C., defines an applicable requirement, in part, as "any term or condition of any preconstruction permits issued pursuant to 40 CFR 52.21, Chapter 62-212, F.A.C., or Chapter 17-2.17 (repealed), F.A.C." Those rules describe actions taken under the Title I provisions of preconstruction review. Conditions in the "air" section of certifications issued under the Power Plant Siting Act are issued under preconstruction review provisions and need to be included in Title V permits in the same manner as conditions from air construction permits. An air construction permit constitutes the composite of any permit issued under preconstruction review and any revision or reissuance of the permit that has subsequently been made.

Not all sources have been issued air construction permits. Some permits that have been issued under preconstruction review contain conditions that are obsolete and may also contain conditions that did not result from proper application of the statutory or rule authority for issuing air construction permits.

It is in the best interest of the Department and the regulated sources to issue Title V permits that adhere to the procedures in Chapter 62-213, F.A.C., and that result in permits that clearly reflect the conditions that sources shall comply with. To accomplish this, the following procedures apply.

Permitting authorities at the Division, Districts and Local Programs should, during the processing of Title V permit applications, scrutinize each condition in air construction permits for obsolete or outdated requirements and not include such conditions in Title V permits. Applicants are encouraged to help the Department identify such conditions. (For example, a condition in an air construction permit that required a one-time compliance test in 1990 is obsolete). Likewise, permitting authorities need to ensure that each statement in the permit is grammatically correct and easy to understand. Conditions from air construction permits need not be verbatim, provided their meaning is not changed. Obviously, conditions in a permit that cite a rule requirement should not be repeated in the permit as a result of their being written into the air construction permit in slightly different language. Redundancy should be avoided and the precise rule language should be used, if applicable. The Title V Section has prepared standardized conditions

for most of the federal and state rules. The use of the same language for a given rule requirement will improve our permits.

Permittees are entitled to request changes in permit conditions at any time. This means that changes may be requested before Title V permit applications are received, concurrently with Title V permit applications or after Title V permit applications are received. Changes or deletion of certain conditions, such as the obsolete conditions previously discussed, can be requested as part of the Title V application and corrected during the Title V permitting process.

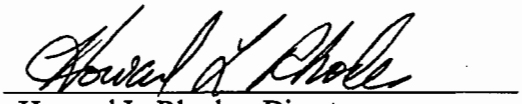
If a condition in an air construction permit results from application of a rule or any of the requirements listed in the Department's guidance, "Use of Permit Application Data in Air Permits", such condition must be included in the Title V permit. To change conditions in an air construction permit other than those that are obsolete or outdated, the source owner must request a change in the air construction permit. If the air construction permit has expired the Department will issue a new permit. If the air construction permit has not expired the Department may revise the permit. Such request should be submitted on a separate application form from the Title V permit application. This is necessitated because requested changes in air construction permits are subject to the 90-day clock and may be granted by default. Title V applications are not subject to the 90-day clock. Fees pursuant to Chapter 62-4, F.A.C., apply. Conditions or emissions limiting standards in permits that result from application of Department rules include those conditions or emissions limiting standards that are explicit. They also include any conditions from the application of the BACT or LAER processes and any conditions requested or agreed upon by the applicant to avoid any otherwise applicable requirement or to minimize public concern about the source. Since all conditions in an air construction permit are, by definition in Chapter 62-213, F.A.C., applicable requirements, it is not appropriate to exclude such conditions from the Title V permits unless they are obsolete or outdated. This does not preclude an applicant from requesting that the air construction permits or certifications be revised, if appropriate. Changes will be made only if the applicant clearly makes the case that the new conditions will not result in improper application of the rules and will not result in revising conditions that were requested or accepted to avoid otherwise applicable requirements or that were included in the permit to avoid public concern. Changes that are requested for air construction permits need to be processed against the 90-day clock.

The Title V permits for sources that do not have air construction permits or Florida Power Plant Site Certifications and have only operation permits should include all of the pertinent conditions of the air operation permits. Permitting authorities should use the Title V process to eliminate any obsolete conditions and to work with applicants to reflect conditions in the Title V permits that are based upon proper application of the Department's rules, except that any conditions in a federally enforceable state operating permit (FESOP) issued pursuant to Rule 62-210.300(2)(b), F.A.C., shall be incorporated into Title V permits, unless such condition is obsolete or outdated. Emission limiting standards in existing operating permits should not be changed without careful screening to evaluate the impact of the change. (For example, a source with only an air operation

permit whose fuel sulfur content is limited to 1% sulfur may argue that there was no rule that required the 1% limit. However, if the limit is deleted or changed to 2%, the deletion or change could result in emissions increases that result in a significant increase in SO2.) Thus, extreme care must be used in making changes to emission limiting standards even though the source has only an operation permit.

Conditions in air operation permits for sources with air construction permits or site certifications should be carefully scrutinized by the permitting authorities as described in the preceding paragraph. Except for air operation permits issued pursuant to Rule 62-210.300(2)(b), F.A.C., those conditions in air operation permits that are extraneous to the conditions that were in the construction permits or site certifications may be reviewed and corrected in the Title V permit to reflect proper application of the Department's rules. Air operation permit conditions that are included in existing operation permits need to be included in the Title V permit, if they reflect proper application of the Department's rules, even though they may not be in the air construction permit. All conditions in a federally enforceable air operation permit (FESOP) shall be included in Title V permits unless obsolete or outdated.

Any changes that cannot be made during the processing of Title V permits, as discussed above, should be submitted to the permitting authority that issued the air construction permit or site certification. Requests submitted to the Tallahassee office will be evaluated and processed by BAR staff or reassigned in consultation with the Local Air Program Administrators and District Air Program Administrators.



Howard L. Rhodes, Director
Division of Air Resources Management

Sheraton
West Palm Beach
HOTEL
ITT Sheraton

- EPA had PSD permit requirements as early as 1974
- EPA regs. @ 40 CFR 52.21 were amended on 6/19/78 in response to 1977 CAAA; they were retroactive to 3/1/78.
- EPA regs. were amended on 8/7/80 in response to Alabama Power
- We received technical & admin. review delegation from EPA 10/27/80; therefore, anything ~~~~ that occurred before 10/27/80 is between EPA and the source.
- We adopted our PSD rules in 1981, but they were not approved by EPA (into the SIP) until 12/22/83 (effective date)

In Dec.

Conclusion: Any action subject to PSD on or after 10/27/80 should have been reviewed by the state.

630 CLEARWATER PARK ROAD, WEST PALM BEACH, FL 33401
PHONE: (407) 833-1234 FAX: (407) 833-1255