

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603



October 8, 2002

0137609

Mr. A. A. Linero, P.E. Administrator
New Source Review Section
Bureau of Air Regulation
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

RECEIVED

OCT 10 2002

BUREAU OF AIR REGULATION

RE: FPL MANATEE EXPANSION PROJECT
EPA COMMENTS TO DRAFT PERMIT
PROJECT NO. 081001-006-AC (PSD-FL-328)

Attention: Ms. Teresa Heron

Dear Teresa:

This correspondence provides information requested by EPA Region IV regarding the technical feasibility of using the conventional SCR system during simple cycle operation by reducing the temperature of the exhaust gases. One method mentioned by EPA Region IV is to reduce the exhaust temperature using ambient air. This method is the only method currently used to reduce the exhaust gas temperature of combustion turbines (CTs) for the installation of "Hot SCR" systems on some simple cycle turbines.

The Manatee Unit 3 Project will be designed as a "4-on-1" combined cycle unit. Simple cycle operation for Units 3A through 3D would potentially occur during the first year of operation of the CTs. When the combined cycle unit is operational, simple cycle operation without operating the SCR system would potentially average 1,000/CT for the four CTs. This would only occur if the heat recovery steam generator (HRSG)/CT systems or steam turbine were not operational for an extended period. The SCR systems would be internal to the HRSG at a location where the temperature of the air stream was about 650 degrees Fahrenheit (°F). The HRSG would provide the necessary cooling of the CT exhaust gases to 650°F by extracting heat from the high-temperature CT exhaust gases (typically 1,100 to 1,200°F) and producing steam.

In the event simple cycle operation (i.e., exhaust through a simple cycle stack without going through the HRSG) is maintained, it would not be technically feasible to use the conventional SCR and still maintain normal combined cycle operation. While this may be theoretically possible, for the reasons summarized below such a design would not be technically feasible for the project:

- To use the SCR system in each HRSG, the exhaust gases would have to be cooled prior to the CT/HRSG transition, mixed, and uniformly distributed prior to the SCR system. This would require a large flue duct system that would not fit within any practical arrangement of a 4-on-1 combined cycle unit.
- The HRSG tubes would have to withstand 650°F while not producing steam (i.e., dry). This would require material upgrades that would affect overall performance in combined cycle mode. Moreover, the reason that simple cycle may be used would be because of some

malfunction of the HRSG. Such malfunctions (e.g., repair of tube leaks) would require work directly in the HRSG and, thus, operation in simple cycle could not occur. If only one CT/HRSG train was inoperable, Manatee Unit 3 could still be operated in combined cycle mode using three CT/HRSG trains. Finally, experience with the existing FPL combined cycle units (Martin Units 3 and 4 and Lauderdale Units 4 and 5) have demonstrated that the steam turbines rarely are shutdown for extended periods, making simple cycle operation very unlikely.

- Introducing cooled exhaust air through the SCR system and only a portion of the HRSG would not be feasible. Any cooled CT exhaust gases routed around the HRSG sections prior to the ammonia injection grid and into the SCR catalyst would have to flow parallel to the HRSG. The SCR catalyst is directional and it would not be possible to properly distribute exhaust gases in such a configuration.
- A temperature reduction of about 450°F in the CT exhaust temperature has not been demonstrated on any CT exhaust using an "F" Class turbine. The amount of cooling air would be about 25 percent of the CT exhaust flow and require large air injection fans. The large amount of air required would substantially increase the pressure drop for all systems. Finally, the SCR system itself would be larger to accommodate the large mass flow. In combined cycle mode, these factors would significantly affect the performance of the unit.

Please contact me if there are any questions.

Sincerely,

GOLDER ASSOCIATES INC.



Kennard F. Kosky, P.E.
Principal

KFK/nav

cc: K. H Simmons, Manager of New Capacity Projects

V. Galbraith
P:\Projects\2001\0137609 FPL Fort Myers-Martin-Manatee\4.1\LI00802b.doc

B. Owen
G. Kissel, SWD
G. Little, EPA
G. Benayahu, NPS

HOPPING GREEN & SAMS

PROFESSIONAL ASSOCIATION

ATTORNEYS AND COUNSELORS

123 SOUTH CALHOUN STREET

POST OFFICE BOX 6526

TALLAHASSEE, FLORIDA 32314

(850) 222-7500

FAX (850) 224-8551

www.hgss.com

JAMES S. ALVES
BRIAN H. BIBEAU
RICHARD S. BRIGHTMAN
DIANE W. CARR
KEVIN B. COVINGTON
T. SPENCER CROWLEY, III
BRIAN A. CRUMBAKER
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TIMOTHY G. SCHOENWALDER
DAN R. STENGLE
CHERYL G. STUART
JENNIFER A. TSCHETTER
VICTORIA L. WEBER

OF COUNSEL
ELIZABETH C. BOWMAN
REX D. WARE

Writer's Direct Dial No.
(850) 425-2320

September 27, 2002

Mr. A. A. Linero, P.E.
Bureau of Air Regulation
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

RECEIVED

SEP 27 2002

BUREAU OF AIR REGULATION

Re: Florida Power & Light Co., Manatee Unit 3
OGC Case No. 02-0317
PSD Permit No. PSD-FL-328
Project No. 0810010-006-AC

Dear Al:

Enclosed for your files is the original Proof of Publication from the Bradenton Herald for the above-referenced Public Notice of Intent to Issue PSD Permit for the FPL Manatee Power Plant, Unit 3 in Manatee County, Florida. The notice was published on September 19, 2002.

Please do not hesitate to call me if you have any questions concerning the above.

Sincerely,



Douglas S. Roberts

Encls.

cc: Teresa Heron (w/o attachments)
Ken Simmons (w/attachments)

G. Kessel, SWD
G. Campbell, HCEPC
P. Hissling, Manatee Co.
B. Owen, DEP
G. Kettle, EPA
G. Campbell, NPS

BRADENTON HERALD

www.bradenton.com
P.O. Box 921
Bradenton, FL 34206-0921
102 Manatee Avenue West
Bradenton, FL 34205-8894
941/748-0411 ext. 7065

Bradenton Herald
Published Daily
Bradenton, Manatee, Florida

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SEP 27 2002

BUREAU OF AIR REGULATION

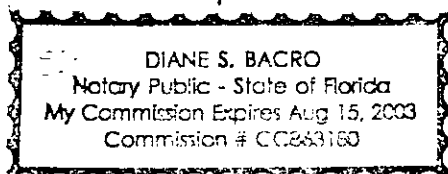
STATE OF FLORIDA COUNTY OF MANATEE;

Before the undersigned authority personally appeared Sandy Riley, who on oath says that she is a Legal Advertising Representative of the Bradenton Herald, a daily newspaper published at Bradenton in Manatee County, Florida; that the attached copy of the advertisement, being a Legal Advertisement in the matter of **PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT** in the Court, was published in said newspaper in the issues of, 9/19, '02

Affiant further says that the said publication is a newspaper published at Bradenton, in said Manatee County, Florida, and that the said newspaper has heretofore been continuously published in said Manatee County, Florida, each day and has been entered as second-class mail matter at the post office in Bradenton, in said Manatee County, Florida for a period of 1 year next preceding the first publication of the attached copy of advertisement; and affiant further says that 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 the said newspaper.


(Signature of Affiant)

Sworn to and subscribed before me this
19th Day of September 2002





SEAL & Notary Public

Personally Known ☒ OR Produced Identification _____
Type of Identification Produced _____

PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP
File No. PSD-FL-328
FP&L Manatee Power Plant Unit 3
Manatee County
The Department of Environmental Protection (Department) gives notice of its intent to issue a permit under the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality to Florida Power and Light Company. The permit is one of several authorizations needed to construct a nominal 1150-megawatt (MW) natural gas-fueled power project at the FP&L Manatee Power Plant at 19050 S.R. 62 in Parrish, Manatee County, Florida. A Best Available Control Technology (BACT) determination was required for sulfur dioxide (SO₂), particulate matter (PM/PM₁₀), nitrogen oxides (NO_x), sulfuric acid mist (SAM), volatile organic compounds (VOC), and carbon monoxide (CO) pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21. The applicant's name and address are Florida Power and Light Company, 700 Universe Boulevard, Juno Beach, Florida 33408.
FP&L proposes to construct a gas-fueled unit (Unit 3), consisting of four nominal 170-MW General Electric PG7241FA combustion turbine-electrical generators, four supplementally-fired heat recovery steam generators (HRSG), and a single large steam turbine-electrical generator. The units will run in the simple cycle mode for 3,390 hours per year during the first year of operation while construction continues on the steam cycle. The simple cycle operation of these units will be limited to 1,000 hours per year per unit after the first year. Additional equipment includes four 120-foot stacks, and four 80-foot bypass stacks, four natural gas fired heaters, and an aqueous ammonia storage tank. During simple cycle operation, NO_x emissions will be controlled by Dry Low Nox (DLN-2.6) combustors and must meet an emission limit of 9 parts per million by volume, dry, at 15 percent oxygen (ppmvd @15% O₂). During very limited (460 hours per year) periods of simple cycle power (steam) augmentation and peaking, NO_x emissions will be limited to 12 and 15 ppmvd @15% O₂. NO_x emissions during the predominant combined cycle operation mode will be further controlled by selective catalytic reduction (SCR) to achieve 2.5 ppmvd at 15% O₂.

Emissions for CO will be controlled to 8 ppmvd @15% O2 on a 24-hour block average. The 24-hour block averages may be adjusted for emissions of 12 ppmvd @15% O2 during limited periods of power augmentation.

Emissions of PM/PM10, SO2, sulfuric acid mist, volatile organic compounds, and hazardous air pollutants (HAP) will be controlled to very low levels by good combustion and use of inherently clean pipeline quality natural gas. Ammonia emissions (NH3) generated due to NOx control on the combined cycle unit will be limited to 5 ppmvd.

According to FP&L, the combined maximum emissions from the four combined cycle sets (including emissions from heaters) that comprise Unit 3 are summarized below. Some will be less because of the BACT determination.

POLLUTANT
PM/PM10
CO
NOx
VOC
SO2
Sulfuric Acid Mist

MAXIMUM POTENTIAL EMISSIONS

224
749
411
99
189
20.6

PSD SIGNIFICANT EMISSION RATE

25/15
100
40
40
40
7

According to the applicant, maximum predicted air quality impacts due to emissions from the FPL project are less than the applicable PSD Class II significant impact levels, with the exception of 24-Hour PM10. Therefore, multi-source modeling was required for 24-Hour PM10. The predicted impacts in the Chassahowitzka NWR are less than the applicable PSD Class I significant impact levels; therefore, multi-source Class I PSD increment modeling was not required. The maximum predicted PSD Class II 24-Hour PM10 increments consumed in the vicinity of FPL Manatee by all increment consuming sources (since 1975-77) in the area will be as follows:

Averaging Time
24-hour

Increment Consumed All Sources/FPL Project
(ug PM10/m3)

1477

Allowable Increment All Sources
(ug PM10/m3)

30

Percent Increment Consumed All Sources/FPL Project
(percent)

47/23

Based on the required analyses, the Department has reasonable assurance that the proposed project will not cause or significantly contribute to a violation of any ambient air quality standard or PSD increment.

The Department will issue the FINAL Permit, in accordance with the conditions of the DRAFT 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 30 (thirty) days from the date of publication of this Public Notice of Intent to Issue PSD 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 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. This PSD permitting action is being coordinated with a certification under the Power Plant Siting Act (Sections 403.501-519, F.S.). If a petition for an administrative hearing on the Department's intent to issue is filed by a substantially affected person, that hearing shall be consolidated with the certification hearing, as provided under Section 403.507(3).

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.

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 the 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 the petitioner wishes the agency to take with respect to the agency's proposed action.

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 the 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 the 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 a 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:

Department of Environmental Protection Bureau of Air Regulation

111 S. Magnolia Dr., Suite 4

Tallahassee, FL 32301

Ph. (850) 488-0114

Fax: 850/922-6979

Department of Environmental Protection Southwest District Office

3804 Coconut Palm Dr.

Tampa, FL 33619-8218

Ph. 813/744-6100

Fax: 813/744-6084

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 Manager, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information. The draft permit, technical evaluation and preliminary BACT determination can be accessed at www.dep.state.fl.us/air/permitting/construct.htm

9/19/02



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

AUG 23 2002

4APT-APB

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AUG 28 2002

Mr. A. A. Linero, P.E.
Florida Department of Environmental Protection
Mail Station 5500
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

BUREAU OF AIR REGULATION

Dear Mr. Linero:

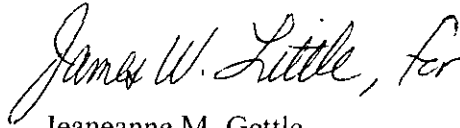
Thank you for sending the prevention of significant deterioration preliminary determination (PSD) and draft permit for a proposed modification of the Florida Power & Light Manatee generating station in Manatee County, Florida (Air Permit No. PSD-FL-328). The project involves addition of one combined cycle combustion turbine and associated heat recovery steam generators with supplemental duct firing.

Our only comment concerns the best available control technology evaluation for nitrogen oxides (NO_x) emissions when the combustion turbines are operating in simple cycle mode. The applicant's NO_x best available control technology (BACT) evaluation for simple cycle operation only took into account the option of high-temperature (hot) selective catalytic reduction (SCR) control. Likewise, the BACT determination by the Florida Department of Environmental Protection (FDEP) also appears to have taken only hot SCR into consideration for simple cycle operation. Another option is also theoretically possible as discussed below. We request that FDEP evaluate the technical feasibility of this option and, if technically feasible, the economics, environmental impacts, and energy use aspects of this option.

The other option takes advantage of the fact that a conventional SCR system (lower temperature SCR) will be in place to control NO_x emissions during combined cycle operation. Therefore, an additional option for simple cycle NO_x emissions control would be to reduce the temperature of the exhaust gases from a combustion turbine in simple cycle mode and route the reduced-temperature exhaust gases to the conventional SCR system. One method (although not the only method) for reducing temperature in such circumstances is to inject ambient air into the exhaust gases from a combustion turbine operating in simple cycle mode. If this option is technically feasible, evaluating the cost of the option should discount any costs that would otherwise be incurred for the conventional SCR system used to control combined cycle NO_x emissions.

If you have any questions regarding this letter, please call César Zapata at (404) 562-9139.

Sincerely,

A handwritten signature in cursive script that reads "James W. Little, for". The signature is written in dark ink and is positioned above the typed name.

Jeaneanne M. Gettle
Acting Chief
Air Permits Section

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603

RECEIVED



AUG 20 2002

August 19, 2002

0137609

BUREAU OF AIR REGULATION

Mr. C. H. Fancy, P.E., Chief
Bureau of Air Regulation
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

RE: FPL MANATEE EXPANSION PROJECT
Comments to Draft Permit
Project No. 0810010-006-AC (PSD-FL-328)

Attention: Mr. A.A. Linero, P.E. Manager of New Source Review Section

Dear Al:

On behalf of Mr. Paul Plotkin of Florida Power & Light Company, I am submitting comments to the July 24, 2002 draft Air Permit and Prevention of Significant Deterioration (PSD) Permit for the FPL Manatee Expansion Project. The comments to the draft permit have been included directly on an electronic version of the permit. The comments included suggested changes to permit conditions as well as specific comments related to the reasons for the suggested change. If some of these changes are acceptable to the Department, there will also be some minor changes to the Public Notice and BACT determination.

As we discussed on August 8, 2002, most of the comments are self-explanatory and provide clarifications of the draft permit. There are several areas, summarized below, where changes are required to allow the Project to meet both performance and environmental goals.

- Duct Firing – A limit on the hours of operation for duct firing (i.e., 2,880) will not provide the operational flexibility for the Project as was requested in the original permit application. An annual heat input limit based on the maximum permitted heat input to the duct burners (550 MMBtu/hr) and a hypothetical number of hours (2,880) at that heat input rate was originally requested. The maximum heat input to the duct burners provided a worst case emission rate for modeling and the number of hours enveloped the amount of duct firing based on heat input. With an annual heat input limit, the annual emissions proposed for the project will not change regardless of the number of hours of duct firing.
- CO Emission Limit for Combined Cycle Operation – Based on our discussions on August 8, a 24-hour block CO emission limit of 10 ppmvd corrected to 15 percent oxygen is proposed for all modes of operation. This proposed limit is slightly higher than that proposed by the Department in the draft permit for baseload operation and duct firing, but lower than that proposed for peak and power augmentation. This limit will provide the operational flexibility regardless of the mode of operation and will be much easier to track for compliance purposes. Having two separate 24-hour block average CO limits for different combined cycle modes will confound the determination of compliance. Also, the proposed limit is 40 to 50 percent

lower than that approved by the Department for recent projects licensed under Florida's Power Plant Siting Act.

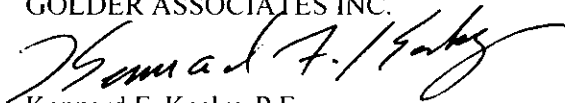
- Startup/Shutdown – Three specific conditions have been suggested to handle the unique startup conditions for a 4 on 1 project. The conditions are similar to those authorized for the Fort Myers and Sanford Repowering Projects. These suggested conditions would ensure reliability of equipment and minimize the periods of excess emissions. Information concerning the cold startup for the heat recovery steam generator was provided on August 8. Please find attached information as requested on August 8, concerning the cold startup of the steam turbine. The information provided demonstrates that the necessity of the suggested conditions.

Also, it is suggested that the appendices for 40 CFR Subpart Da and GG to the permit be the same for both the Manatee and Martin Expansion Projects. The appendices included with the Martin formed the basis of the suggested comments. Attached are the appendices including the suggested changes. Please note that if natural gas fired fuel gas heaters are constructed, they will be direct fired as included in the application and 40 CFR Part Dc would not apply. This appendix should be deleted.

Please contact either Mr. Simmons, the FPL application contact [phone (561) 691-2216], or myself if there are any questions. We will contact the Department in a few days to review our suggested draft permit changes.

Sincerely,

GOLDER ASSOCIATES INC.



Kennard F. Kosky, P.E.
Principal

KFK/arz

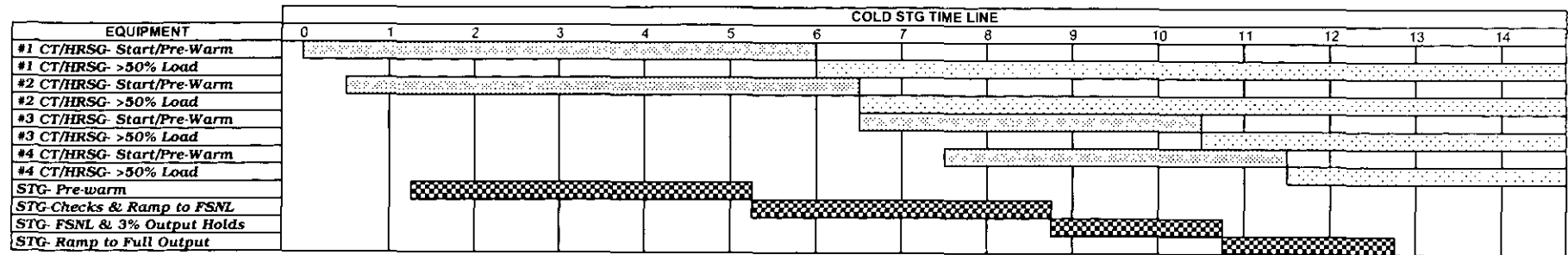
Enclosures

cc: Paul Plotkin, Plant General Manager Manatee Plant w/enclosures
K. H. Simmons, Manager of New Capacity Projects w/enclosures
Ms. Teresa Heron, DEP New Source Review Section w/enclosures

D. Balbraith
G:\Projects\2001\0137609 FPL Fort Myers-Martin-Manatee\4 Manatee\4.2\4.2.1 Sufficiency AUG1.081902.doc

B. Owen
J. Kissel, SWD
B. Worley, EPA
J. Bumpel, NPS

ESTIMATED START-UP TIMELINE FOR COLD STEAM TURBINE GENERATOR MARTIN and MANATEE EXPANSION PROJECTS



Notes:

Per Toshiba Extrapolated Start-Up Curve for the Forney Project (Similar STG)

STG requires 4 1/2 hour warmup prior to roll, 3 1/2 hours to FSNL, 2 hours of holds, and 2 hours to ramp to full output.

HRSG requires 90 minute ramp to hold pressure, 60 minute drum soak, and 60 minutes to ramp to full steam bypass operation.

PERMITTEE:

Florida Power and Light
19050 State Road 62 ~~700 Universe Boulevard~~
Parrish, Florida 34219

Authorized Representative:

Paul Plotkin, Plant General Manager

[Comment: An expiration date of December 2006 is requested, since the project is being licensed within Florida's site certification process.]

| |
|--|
| Facility Name: FPL Manatee Power Plant |
| Project No. 0810010-006-AC |
| Air Permit No. PSD-FL-328 |
| Facility ID No. 0810010 |
| SIC No. 4911 |
| Expires: December 31, 2006S |

PROJECT AND LOCATION

This permit authorizes the construction of a new 1,150 megawatt gas-fueled combined cycle project (Unit 3) consisting of four nominal 170-megawatt (MW) General Electric PG 7241FA (GE 7FA) combustion turbine-electrical generators, four supplementally-fired heat recovery steam generators (HRSGs) each equipped with a 495 MMBtu/hr (LHV) natural gas fired duct burners, a 470 MW steam electrical generator, and associated equipment to be located at the existing FPL Power Plant facility at 19050 State Road 62 in Parrish, Manatee County. UTM coordinates are: Zone 17; 367.25 km East; 3054.15 km North.

STATEMENT OF BASIS

This PSD air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), 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 52, Section 21 of the Code of Federal Regulations. Specifically, this permit is issued pursuant to the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality, Rule 62-212.400, F.A.C. The permittee is authorized to install the proposed equipment 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.

CONTENTS

Section I. General Information

Section II. Administrative Requirements

Section III. Emissions Units Specific Conditions

Section IV. Appendices

(DRAFT)

Howard L. Rhodes, Director
Division of Air Resources Management

(Date)

SECTION I. GENERAL INFORMATION (DRAFT)

FACILITY DESCRIPTION

The existing FPL Manatee Plant currently consists of two electrical generating units. Fossil fuel-fired steam electric generators, Unit No. 1 and Unit No. 2 (800 MW nominal, each), began operations in 1976 and 1977 respectively. The proposed new project is for the new electrical power Unit 3, which will generate a nominal 1,150 MW of electricity. The new Unit 3 will consist of four combined cycle gas turbines (680 MW, nominal total) and one steam turbine/electric generator (470 MW, nominal total) to create a "4 on 1" combined cycle unit (1,150 MW nominal). After completion of this project, the FPL Manatee Plant will have a nominal total generating capacity of 2,750 MW. [Comment: The use of "nominal" when discussion capacity is preferred as actual capacity varies based on operating conditions.]

NEW EMISSIONS UNITS

This permit authorizes construction and installation of the following new emissions units.

| ID | Emission Unit Description |
|-----|---|
| 006 | Combined Cycle Unit No. CC-3A consists of a natural gas-fueled General Electric Model PG7241FA (GE 7FA) combustion turbine-electrical generator with a nominal capacity of 170 MW, a 495 MM Btu/hr natural gas (LHV) fired heat recovery steam generator (HRSG), a single nominal 470 MW steam turbine with associated electric generator (all four units connected), a 120-foot stack and a 80-foot bypass stack. This unit will also operate on simple cycle mode. |
| 007 | Combined Cycle Unit No. CC-3B consists of a natural gas-fueled General Electric Model PG7241FA (GE 7FA) combustion turbine-electrical generator with a nominal capacity of 170 MW, a 495 MM Btu/hr natural gas (LHV) fired heat recovery steam generator (HRSG), a single nominal 470 MW steam turbine with associated electric generator (all four units connected), a 120-foot stack and a 80-foot bypass stack. This unit will also operate on simple cycle mode. |
| 008 | Combined Cycle Unit No. CC-3C consists of a natural gas-fueled General Electric Model PG7241FA (GE 7FA) combustion turbine-electrical generator with a nominal capacity of 170 MW, a 495 MM Btu/hr natural gas (LHV) fired heat recovery steam generator (HRSG), a single nominal 470 MW steam turbine with associated electric generator (all four units connected), a 120-foot stack and a 80-foot bypass stack. This unit will also operate on simple cycle mode. |
| 009 | Combined Cycle Unit No. CC-3D consists of a natural gas-fueled General Electric Model PG7241FA (GE 7FA) combustion turbine-electrical generator with a nominal capacity of 170 MW, a 495 MM Btu/hr natural gas (LHV) fired heat recovery steam generator (HRSG), a single nominal 470 MW steam turbine with associated electric generator (all four units connected), a 120-foot stack and a 80-foot bypass stack. This unit will also operate on simple cycle mode. |
| 010 | Other Emissions Units include four 24 MMBtu/hr (HHV) gas-fired fuel heaters and an aqueous ammonia storage tank. [Comment: The type of ammonia was not specified in the PSD application. Both aqueous and anhydrous ammonia could be used for the Project.] |

REGULATORY CLASSIFICATION

Title III: Based on present Title V permit, the existing facility is a major source of hazardous air pollutants (HAP). Emissions of HAPs from the proposed project (Unit 3) are less than the thresholds that require a case-by-case Maximum Achievable Control Technology (MACT) determination.

Title IV: The new gas turbines are subject to the acid rain provisions of the Clean Air Act.

Title V: Because potential emissions of at least one regulated pollutant exceed 100 tons per year, the facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C. Regulated pollutants include

SECTION I. GENERAL INFORMATION (DRAFT)

pollutants such as carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), and volatile organic compounds (VOC). A Title V Permit Revision will be required.

PSD: The project is located in an area designated as "attainment" or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. The facility is considered a "fossil fuel fired steam electric plant of more than 250 million BTU per hour of heat input", which is one of the 28 PSD source categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year. Therefore, the facility is classified as a major facility of air pollution with respect to Rule 62-212.400, F.A.C, the Prevention of Significant Deterioration (PSD) of Air Quality. The project requires a PSD permit.

NSPS: The new gas turbines are subject to the New Source Performance Standards of 40 CFR 60, Subpart GG. The heat recovery generators equipped with duct burner are subject to the New Source Performance Standards of 40 CFR 60, Subpart Da. ~~The gas fired fuel heaters are subject to the New Source Performance Standards of 40 CFR 60, Subpart Dc.~~ [Comment: Direct fired fuel gas heaters are not subject to Subpart Dc since these type units do not meet the definition of "steam generating unit in Section 60.41c (i.e., produces steam or heat water or any other heat transfer medium).]

NESHAP: No emission units are identified as being subject to a National Emissions Standards for Hazardous Air Pollutants (NESHAP).

SITING: The project is subject to Florida Electrical Power Plant Siting in accordance with Chapter 62-17 F.A.C., and Chapter 403, Part II, F.S.

PERMITTING AUTHORITY

All documents related to applications for permits to construct, operate or modify an emissions unit 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.

COMPLIANCE AUTHORITIES

All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Quality Division of the DEP Southwest District Office, 3804 Coconut Palm Dr, Tampa, Florida 33619-8218. Copies of all such documents shall be submitted to the Air Section of the Manatee County Environmental Management Department, 202 Sixth Avenue East, Bradenton, Florida 34208.

APPENDICES

The following Appendices are attached as part of this permit.

Appendix BD. Final BACT Determinations and Emissions Standards

Appendix GC. General Conditions

Appendix GG. NSPS Subpart GG Requirements for Gas Turbines

Appendix SC. Standard Conditions

Appendix XS. Continuous Monitor Systems Semi-Annual Report

RELEVANT DOCUMENTS

The documents listed below are not a part of this permit; however, they are specifically related to this permitting action and are on file with the Department.

- Permit application received on 02/22/02 and all related completeness correspondence (06/12/02 and 06/22/2002)

SECTION I. GENERAL INFORMATION (DRAFT)

- Draft permit package issued on 07/24/02
- Comments received from the public, the applicant, the EPA Region 4 Office, and the U.S. Fish and Wildlife Service.

SECTION II. ADMINISTRATIVE REQUIREMENTS (DRAFT)

1. General Conditions: The owner and operator are subject to, and shall operate under, the attached General Conditions listed in Appendix GC of this permit. General Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
2. 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 the Title 40, Parts 51, 52, 60, 72, 73, and 75 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.]
3. PSD Expiration: Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. [40 CFR 52.21(r)(2)]
4. Completion of Construction: The permit expiration date is December 31, 2006~~5~~. Physical construction shall be completed by September 30, 2005. The additional time provides for testing, submittal of results, and submittal of the Title V permit application to the Department. [Comment: See previous comment.]
5. Permit Expiration: For good cause, the permittee may request that this PSD air construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation at least sixty (60) days prior to the expiration of this permit. [Rules 62-4.070(4), 62-4.080, and 62-210.300(1), F.A.C.]
6. BACT Determination: In conjunction with an extension of the 18-month period to commence or continue construction or phasing of the project, ~~or an extension of the permit expiration date~~, the permittee may be required to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for the source. [Rule 62-212.400(6)(b), F.A.C. and 40 CFR ~~51.166(j)(4)~~ 52.21(j)(4)] [Comment: An extension of the permit expiration date does not trigger reconsideration of BACT based on state and federal rules.]
7. 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.]
8. Modifications: 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.]
9. Application for Title IV Permit: At least 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW, the permittee shall submit an application for a Title IV Acid Rain Permit to the Department's Bureau of Air Regulation in Tallahassee and a copy to the Region 4 Office of the U.S. Environmental Protection Agency in Atlanta, Georgia. [40 CFR 72]
10. Title V Permit: This permit authorizes construction 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

SECTION II. ADMINISTRATIVE REQUIREMENTS (DRAFT)

Department's Bureau of Air Regulation, and copies to each Compliance Authority.
[Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

Section III Part A. Combustion Turbines

This section of the permit addresses the following new emissions units.

Emissions Unit 006 through 009: Combined Cycle Gas Turbines No. CC-3A through CC-3D

Description: Emissions units 006, 007, 008, and 009 each consist of a General Electric Model PG7241(FA) gas turbine-electrical generator set, an automated gas turbine control system, an inlet air filtration system, an evaporative inlet air cooling system, a gas-fired heat recovery steam generator (HRSG), a bypass stack, a HRSG stack, and associated support equipment. In addition, the project also includes a single steam turbine-electrical generator that serves all four gas turbine/HRSG systems.

Fuel: The units are fired exclusively with natural gas.

Capacity: Each of the four gas turbine-electrical generator sets has a nominal generating capacity of 170 MW for gas firing. Exhaust from each gas turbine passes through a separate heat recovery steam generator (HRSG). Steam from each HRSG is delivered to the single steam turbine-electrical generator, which has a nominal capacity of 470 MW. The total nominal generating capacity of the "4 on 1" combined cycle unit is 1150 MW. At a compressor inlet air temperature of 59° F, each gas turbine heat input is approximately 1600 MMBtu (LHV) per hour.

Controls: The efficient combustion of pipeline-quality natural gas at high temperatures minimizes emissions of CO, PM/PM₁₀, SAM, SO₂, and VOC. NO_x emissions are reduced by Dry Low-NO_x (DLN) combustion technology (simple cycle mode). A selective catalytic reduction (SCR) system combined with Dry Low-NO_x (DLN) combustion technology further reduces NO_x emissions during combined cycle mode.

Continuous Monitors: Each gas turbine is equipped with continuous emissions monitoring system (CEMS) to measure and record CO and NO_x emissions as well as flue gas oxygen or carbon dioxide content.

Stack Parameters: For simple cycle operation each gas turbine has a bypass stack that is 80 feet tall and 22 feet diameter. For combined cycle operation, each heat recovery steam generator has a HRSG stack that is 120 feet tall stack and 19.0 feet diameter. When operating at 100% load and at an inlet temperature of 35° F, exhaust gases exit with an flow rate of approximately 1,004,150 (combined cycle mode) and 2,389, 462 (simple cycle mode) acfm at 202° F (combined cycle mode) and 1,116 (simple cycle mode)° F.

APPLICABLE STANDARDS AND REGULATIONS

1. **BACT Determinations:** The emissions standards specified for this unit represent Best Available Control Technology (BACT) determinations for carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM/PM₁₀), sulfuric acid mist (SAM), volatile organic compounds (VOCs) and sulfur dioxide (SO₂). See Appendix BD of this permit for a summary of the final BACT determinations. [Rule 62-212.400(BACT), F.A.C.]
2. **NSPS Subpart GG Requirements:** The Department determines that compliance with the BACT emissions performance and monitoring requirements also assures compliance with the New Source Performance Standards for Gas Turbines in 40 CFR 60, Subpart GG. For completeness, the applicable Subpart GG requirements are included in Appendix GG of this permit. [Rule 62-204.800 (7), F.A.C.]
3. **NSPS Subpart Da Requirements:** Each heat recovery steam generator equipped with a 495 mmBTU/hr natural gas fired Duct Burner (LHV) shall comply with all applicable provisions of 40CFR60, Subpart Da, Standards of Performance for Electric Utility Generating Units for Which Construction is Commenced After September 18, 1978, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The modification of

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

40CFR60, Subpart Da promulgated on September 3, 1998 also applies to this project. [Comment: Like the Subpart GG requirements, the Subpart Da requirements should be identified in an appendix and/or in the permit. Because some variances/waivers from a few Subpart Da requirements are needed, a new appendix should be developed or the issues addressed in the text of the permit.]

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

EQUIPMENT

4. Gas Turbine Units 3A throughout 3D: The permittee is authorized to install, tune, operate, and maintain ~~four~~ two new General Electric Model PG7241FA gas turbine-electrical generator sets each with a nominal capacity of 170 MW (EU 006, 007, 008 and 009). Each gas turbine shall include the Speedtronic™ automated gas turbine control system ~~and have dual fuel capability~~. Ancillary equipment includes an inlet air filtration system, an evaporative inlet air cooling system, and a bypass stack for simple cycle operation. ~~that is 80 feet tall and 22.0 feet in diameter~~. The gas turbines will utilize the "hot nozzle" DLN combustors, which require natural gas to be preheated to approximately 290° F before combustion to increase overall unit efficiency. Gas-fired fuel heaters (EU 010) will preheat the natural gas during simple cycle operation and during startup to combined cycle operation. For full combined cycle operation, feedwater heat exchangers will preheat the natural gas. [Application; Design] [Comments: Only natural gas will be fired. Stack parameters should not be included as a condition of the permit and to FPL's knowledge has not been included as specific conditions in previous permits. During design, the stack diameter and height may be changed to meet specific needs. The stack parameters provided in the application generally represent worst case dispersion conditions and if any changes occur, FPL would provide additional modeling if requested by the Department.]

5. Gas Turbine Controls:

- DLN Combustion Technology: The permittee shall tune, maintain and operate the General Electric DLN-2.6 combustion system to control NO_x emissions from each turbine. Prior to the initial emissions performance tests for each gas turbine, the DLN combustors and automated gas turbine control system shall be tuned to meet ~~the~~ reduce NO_x emissions ~~below~~ permitted levels. Thereafter, each system shall be maintained and tuned in accordance with the manufacturer's recommendations. [Design; Rule 62-212.400(BACT), F.A.C.] [Comment: The DLN-2.6 combustion system will be constructed and operated pursuant to GE specifications, which provide guaranteed emission levels for NO_x. FPL has no contractual basis to request GE to deviate from the contract in attempting to achieve lower NO_x levels than the contract. Moreover, any attempt to lower contract NO_x levels below the contract levels could affect emissions of other air pollutants (e.g., CO and VOC).]
- Selective Catalytic Reduction (SCR) System: The permittee shall install, tune, maintain and operate a SCR system to control NO_x emissions from each turbine during a combined cycle operation mode. The SCR system consists of an ammonia injection grid, catalyst, ~~aqueous~~ ammonia storage, monitoring and control system, electrical, piping and other auxiliary equipment. The SCR system shall be designed to reduce NO_x emissions and ammonia slip to meet ~~below~~ the permitted levels. *{Permitting Note: The ammonia tank will store anhydrous or aqueous ammonia. ~~having a concentration of less than 20 percent ammonia~~. In accordance with 40 CFR 60.130, it is not the storage of ammonia may be subject to the Chemical Accident Prevention Provisions of 40 CFR 68}* [Rule 62-212.400(BACT), F.A.C.] [Comments: Both aqueous and anhydrous ammonia may be used for the SCR system. The SCR system will be designed, constructed and operated to meet the emission levels specified in the permit for NO_x and ammonia slip. FPL will obtain contractual guarantees to meet these permitted emission levels. It is expected that the SCR manufacturer would include operating margin in the design. However, the term "below" as proposed in the draft permit must be removed since it is unknown what "below" means.]

6. Heat Recovery Steam Generators: The permittee is authorized to install, operate, and maintain four new heat recovery steam generators (HRSGs). Each HRSG shall be designed to recover heat energy from one of the four gas turbines (3A-3D) and deliver steam to the steam turbine electrical generator through a common manifold. ~~Each HRSG shall include an exhaust stack that is 120 feet tall and 19.0 feet in diameter. To minimize the number of cold startups to combined cycle operation, each HRSG system shall include a stack damper in the ductwork before the stack to reduce heat loss during shutdowns. Each~~

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

HRSG may be equipped with supplemental gas-fired duct burners having a maximum heat input rate of 495 MMBtu per hour (LHV). {Permitting Note: The four HRSGs deliver steam to a single steam turbine-electrical generator with a nominal capacity of 470 MW.} [Application; Design] [Comments: Stack parameters should not be included as a condition of the permit and to FPL's knowledge has not been included as specific conditions in previous permits. During design, the stack diameter and height may be changed to meet specific needs. For example, the land use approval from Manatee County would allow a stack height up to 150 feet and a higher stack may be beneficial to the overall design. The stack parameters provided in the application generally represent worst case dispersion conditions and if any changes occur, FPL would provide additional modeling if requested by the Department. Each HRSG will not be installed with a stack damper, since the Project is being designed as a baseload unit operated within the FPL system. As a result, the unit will be high on the dispatch order due to its efficiency and cycling the unit is not expected to occur. Manatee Unit 3, as a baseloaded unit, will not be cycled like smaller independent power units (e.g., 1 on 1 or 2 on 1 configurations) used to meet peak power sales. As a result, the period of cold startups will primarily be associated with maintenance or malfunctions that require rapid cool-down and often downtimes in excess of 48 hours. Stack dampers will not provide any benefit in reducing heat loss from the HRSG for these maintenance and repair periods.]

PERFORMANCE RESTRICTIONS

7. Gas Turbine Permitted Capacity: The maximum heat input rate to each gas turbine is ~~shall not exceed~~ 1600 MMBtu/hr ~~(normal conditions)~~ based on a compressor inlet air temperature of 59° F, the lower heating value (LHV) of natural gas, and 100% load. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, alternate methods of operation, and evaporative cooling. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial compliance testing. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. [Rule 62-210.200(PTE), F.A.C.] {Permitting Note: "The heat input limitations have been placed in the permit to identify the capacity of each emissions unit for purposes of confirming that emissions testing is conducted within 90-100 percent of the emissions unit's rated capacity (or to limit future operation to 100 percent of the test load), to establish appropriate limits and to aid in determining future rule applicability. Regular record keeping, except for 40 CFR Part 75, is not required for heat input. Instead, the owner or operator is expected to determine heat input whenever emission testing is required, to demonstrate at what percentage of rated capacity that the unit is tested.."} [Comment: The heat input is specific to the conditions noted and not "normal conditions" in the overall operation of the gas turbine. The permitting note should be added to clarify the use of heat input as permit condition. This is the same permitting note in the recent JEA Brandy Branch PSD Permit.]
8. HRSG Duct Burner Permitted Capacity: The maximum ~~total~~ heat input rate to the duct burners for each HRSG is ~~shall not exceed~~ 495 MMBTU/hr based on the lower heating value (LHV) of the natural gas. [Rule 62-210.200(PTE), F.A.C.] {Permitting Note: "The heat input limitations have been placed in the permit to identify the capacity of each emissions unit for purposes of confirming that emissions testing is conducted within 90-100 percent of the emissions unit's rated capacity (or to limit future operation to 100 percent of the test load), to establish appropriate limits and to aid in determining future rule applicability. Regular record keeping, except for 40 CFR Part 75, is not required for heat input. Instead, the owner or operator is expected to determine heat input whenever emission testing is required, to demonstrate at what percentage of rated capacity that the unit is tested.."} . [Comment: The permitting note should be added to clarify the use of heat input as permit condition.]
9. Methods of Operation: Subject to the restrictions and requirements of this permit, the gas turbines may operate under the following methods of operation.

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

- a. *Hours of Operation:* Subject to the operational restrictions of this permit, the gas turbines may operate throughout the year (8760 hours per year). Restrictions on individual methods of operation are specified below.
- b. *Authorized Fuels:* Each gas turbine shall fire natural gas as the primary fuel, which shall contain on average no more than ~~24.5~~ grains of sulfur per 100 standard cubic feet of natural gas. [Comment: The information submitted in the PSD permit application and subsequent completeness responses support the requested 2 grains sulfur per 100 standard cubic feet (gr/100 scf) of natural gas as a "maximum" value. The modeling analyses determined that at the requested maximum sulfur content the impacts are insignificant. In addition, the requested sulfur limit is much less than the FERC tariffs for sulfur of 10 grains/100 scf for FGT and Gulfstream. Moreover, the Project may obtain natural gas from two different natural gas pipelines (i.e., FGT or Gulfstream), where there may be some differences in the sulfur content in the natural gas do to suppliers or odorization.]
- c. *Combined Cycle Operation:* Each gas turbine/HRSG system may operate to produce direct, shaft-driven electrical power and deliver steam to the steam turbine-electrical generator to produce steam-generated electrical power as a four-on-one combined cycle unit subject to the restrictions of this permit. In accordance with the manufacturer's specifications, the SCR system shall be on line and functioning properly during combined cycle operation with the exception of startups, shutdowns or malfunctions as provided for in Specific Condition 15 or DLN tunig as provided for in Specific Condition 18. {*Permitting Note: Combined cycle as termed in this permit means the production of steam in the HRSG.*} [Comment: Inclusion of allowable excess emissions clarifies the intent of this condition. Also, if there is a steam turbine malfunction, steam could still be produced in the HRSG and diverted to the condenser. As an alternative, a specific condition similar to the Martin draft permit could be added.]
- d. *Combined Cycle Operation with Duct Firing:* When firing natural gas and operating in combined cycle mode, each gas turbine/HRSG system may fire natural gas in the duct burners to provide additional steam-generated electrical power. The heat input to the duct burners for all four ~~Each~~ HRSGs shall not exceed ~~operate the duct burners no more than~~ 5,702,400 MMBtu (LHV) ~~2880 hours~~ during any consecutive 12 months. [Comment: The PSD permit application requested an equivalent heat input limit for duct firing based on the maximum heat input 495 MMBtu/hr for 2,880 hours per year. Duct firing will be variable depending on power needs and limiting hours would not provide the flexibility required to provide incremental power from Unit 3. Moreover, providing incremental power through duct firing on Unit 3 would reduce requirements of operating other units in FPL's system with concomitant benefits in reducing emissions from older less efficient and higher emitting units.]
- e. *Simple Cycle Operation:* Each gas turbine may operate individually in simple cycle mode to produce only direct, shaft-driven electrical power subject to the following operational restrictions.
 - (1) Prior to demonstrating compliance in combined cycle mode, each gas turbine shall operate in simple cycle mode for no more than 3390 hours during any consecutive 12 months.
 - (2) After demonstrating initial compliance in combined cycle mode, the combined group of four gas turbines shall operate in simple cycle mode for no more than an average of 1000 hours per unit during any consecutive 12 months.
- f. *Inlet Fogging:* In accordance with the manufacturer's recommendations and appropriate ambient conditions, the evaporative cooling system may be operated to reduce the compressor inlet air temperature and provide additional direct, shaft-driven electrical power. This method of operation is commonly referred to as "fogging" and may be used in either simple cycle or combined cycle modes.
- g. *Power Augmentation:* When firing natural gas in either simple cycle or combined cycle modes, steam

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

may be injected into each gas turbine to generate additional direct, shaft-driven electrical power to respond to peak demands. Each gas turbine shall operate in this power augmentation mode no more than 400 hours during any consecutive 12 months.

- h. *Peaking*: When firing natural gas, each gas turbine may operate in a high-temperature peaking mode to generate additional direct, shaft-driven electrical power to respond to peak demands. During any consecutive 12 months, each gas turbine shall operate in this peaking mode for no more than 60 hours of simple cycle operation and no more than 400 hours of combined cycle operation. The gas turbines shall not operate simultaneously in peaking and power augmentation modes. In addition, total combined operation of power augmentation and peaking modes shall not exceed 400 hours during any consecutive 12 months per unit.

[Application; Rules 62-210.200(PTE) and 62-212.400(BACT), F.A.C.]

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

EMISSIONS STANDARDS

10. Emissions Standards: Emissions from each gas turbine shall not exceed the following standards.

| Pollutant | Fuel | Method of Operation | Block Averaging Period | ppmvd @ 15% O ₂ | Initial Test ¹ lb/hour |
|----------------------------------|------|--|--|----------------------------|-----------------------------------|
| CO ^a | Gas | Simple or Combined Cycle, Standard | 3-hr/24-hr | 7.4Test/8.0CEMS | 27.5 |
| | | Simple or Combined Cycle w/PA or PK | 24-hr | 10.02, CEMS | 45.0 |
| | | Combined Cycle w/DB, PA or PK | 3-hr/24-hr | 14.17.4 Test/810.0 CEMS | 71.537.5 |
| NO _x ^b | Gas | Simple Cycle, Standard | 3-hr/24-hr | 9.0, Test/CEMS | 58.7 |
| | | Simple Cycle w/PA | 34-hr | 12.0, CEMS | (76.2)(82.0) |
| | | Simple Cycle w/PK | 34-hr | 15.0, CEMS | (95.3)(101.0) |
| | | Combined Cycle SCRw /SCR , DB, PA or PK | 3-hr/24-hr | 2.5 Test/CEMS | 16.3/23.62 + |
| PM/PM ₁₀ ^c | Gas | Simple or Combined Cycle | Fuel Specifications Visible emissions shall not exceed 10% opacity for each 6-minute average as determined by EPA Method 9 observations | | |
| SAM/SO ₂ ^d | Gas | Simple and Combined Cycle | Fuel Specifications | | |
| VOC ^e | Gas | Simple or Combined Cycle, Standard | 3-hr | 1.3, Test | 2.8 |
| | | Combined Cycle, w/DB | 3-hr | 4.0, Test | 10.59.2 |
| Ammonia ^f | Gas | Combined Cycle, All Modes | 3-hr | 95.0, Test | NA |

¹ applicable for the initial compliance tests only; lb/hr values are at a turbine inlet of 59 degrees F and must be adjusted to actual testing conditions.

Note: "DB" means duct burning. "PA" means power augmentation. "PK" means peaking.

[Comments: The heading "Block" should be added to clarify the averaging period. As discussed at the August 8, 2002 meeting, the column for lb/hr is applicable for initial testing only. A footnote was added to indicate the lb/hr values were included for initial testing only and that these are at compressor inlet temperature of 59 degrees F and must be adjusted. The lb/hr values for some conditions were corrected to the ISO condition. The term "Standard" was deleted as it may cause confusion. For the 24-hour block for CO, a limit of 10 ppmvd corrected to 15% O₂ for all combined cycle operating modes is proposed. This is a slight increase in the Department's proposed limit of 8 ppmvd corrected to 15% O₂ but lower for PA and PK modes. The 14.1 ppmvd corrected to 15% O₂ reflects the maximum CO emissions with duct firing at 495 MMBtu/hr (LHV). An averaging period of 1-hour for NO_x emissions in PA or PK modes is inappropriate and as a minimum difficult if not impossible to track through using a CEM system. A 3-hour averaging time is appropriate and consistent with the Department's testing requirements. For VOCs, the 10.5 lb/hr is equivalent to 4.0 ppmvd corrected to 15% O₂ reflects the maximum CO with duct firing at 495 MMBtu/hr (LHV). An emission limit for ammonia slip of 9 ppmvd corrected to 15 percent oxygen is requested. The lower limit would unnecessarily require additional catalyst that is equivalent to that required for reducing NO_x emissions from 3.5 ppmvd corrected to 2.5 ppmvd corrected.]

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

- a. Compliance with the initial 3-hour CO standards ~~can~~ shall be demonstrated based on data collected by the required CEMS. Compliance may also be determined by EPA Method 10. Compliance with the 24-hr block CO standard shall be determined separately for simple cycle and combined cycle ~~each mode of~~ operation based on the hours of operation in each mode. *{Permitting Note: 24-hr compliance average may be based on as little as 1-hr of data up to 24-hr data}.* [Comment: Language added to clarify condition.]
- b. Compliance with the initial 3-hour NO_x standards ~~can~~ shall be demonstrated based on data collected by the required CEMS. Compliance may also be determined by EPA Method 7E or 20. NO_x mass emission rates are defined as oxides of nitrogen expressed as NO₂. Compliance with the 24-hour block NO_x standard shall be demonstrated based on data collected by the required CEMS. Compliance with the NO_x standard for simple cycle operation with peaking or power augmentation shall be demonstrated on ~~an~~ 3-hour ~~to~~ ~~hour~~ block average basis with CEMS data. CEMS data collected during simple cycle peaking or power augmentation shall be excluded from the data used to demonstrate compliance with the 24-hour standard for normal operation. *{Permitting Note: The "lb/hour" rates for simple cycle peaking or power augmentation are for informational purposes only.}* [Comment: The changes are proposed to clarify the compliance condition.]
- c. The fuel specifications established in Condition No. 9 of this section combined with the efficient combustion design and operation of each gas turbine represents the Best Available Control Technology (BACT) determination for PM/PM₁₀ emissions. Compliance with the fuel specifications, CO standards, and visible emissions standards shall serve as indicators of good combustion. *{Permitting Note: PM₁₀ emissions for gas firing are estimated at 9 lb/hour for simple cycle operation, 11 lb/hour for combined cycle operation, and 17 lb/hour for combined cycle operation with duct burning.}*

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

- d. The fuel sulfur specifications in Condition No. 9 of this section effectively limit the potential emissions of SAM and SO₂ from the gas turbines and represent the Best Available Control Technology (BACT) determination for these pollutants. Compliance with the fuel sulfur specifications shall be determined by the requirements in Condition No. 27 of this section.
{Permitting Note: SO₂ emissions for gas firing are estimated at 9.8 lb/hour for simple and combined cycle operation and 12.8 lb/hour for combined cycle operation with duct burning. SAM emissions are estimated to be less than 10% of the SO₂ emissions.} [Comment: The values in the permitting note are for 2 grains/100 scf of natural gas.]
- e. Compliance with the VOC standards shall be demonstrated by conducting tests in accordance with EPA Method 25A. Optionally, EPA Method 18 may also be performed to deduct emissions of methane and ethane. The emission standards are based on VOC measured as methane.
- f. Not Federally Enforceable. Compliance with the ammonia slip standard shall be demonstrated by conducting tests in accordance with EPA Method CTC-027.

[Rule 62-212.400(BACT), F.A.C.]

11. Duct Burners: Emissions from the duct burners are also subject to the provisions of Subpart Da of the New Source Performance Standards in 40 CFR 60. [Subpart Da, 40 CFR 60] Compliance with the combined cycle emission limit of 2.5 ppmvd corrected to 15 percent oxygen is more stringent than the NSPS limit of 1.6 lb/MW-hr. The use of natural gas with a sulfur content of 2 grains/100 scf will produce emission rates more stringent than the NSPS limits of 0.03 lb/MMBtu and 0.2 lb/MMBtu for PM and SO₂, respectively. Demonstrating compliance with the NO_x emission limit for combined cycle operation will demonstrate compliance with the NSPS emission limit. [Comment: The added language would clarify that meeting the BACT limit would meet the NSPS limit for Subpart Da.]

EXCESS EMISSIONS

12. Operating Procedures: The Best Available Control Technology (BACT) determinations established by this permit rely on "good operating practices" to reduce emissions. Therefore, all operators and supervisors shall be properly trained to operate and maintain the gas turbines, HRSGs, and pollution control systems in accordance with the guidelines and procedures established by each manufacturer. The training shall include good operating practices as well as methods of minimizing excess emissions. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]
13. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction, shall be prohibited. ~~All such preventable emissions shall be included in any compliance determinations based on CEMS data.~~ [Rule 62-210.700(4), F.A.C.] [Comment: The last sentence should be deleted since there is no criteria for making such determinations. Moreover, the Rule cited does not include the additional requirement of excluding the data from CEMS measurement.]
14. Alternate Visible Emissions Standard: Visible emissions due to startups, shutdowns, and malfunctions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods during a calendar day, which shall not exceed 20% opacity. [Rule 62-212.400(BACT), F.A.C.]
15. Excess Emissions Allowed: As specified in this condition, excess emissions resulting from startup, shutdown, and ~~documented~~ malfunctions are allowed provided ~~that operators employ the best operational practices to minimize emissions are adhered to the amount and duration of excess emissions during such incidents are minimized.~~ For each gas turbine/HRSG system, excess emissions resulting from startup, shutdown, or ~~documented~~ malfunctions ~~occurrences~~ shall in no case exceed two hours (120 minutes) in any 24-hour period except for the following specific cases unless authorized by the Department for longer

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periods. [Comment: The suggested wording is more consistent with Department's rule. In addition, the term "documented" has no associated criteria from which any meaningful determination can be made.]

- a. For *warm startup* of the steam turbine ~~to combined cycle operation~~, up to three hours of excess emissions are allowed. "*Warm startup*" is defined as a startup of the steam turbine ~~to combined cycle operation~~ following a shutdown lasting at least 24 hours.
- b. For *cold startup* of the steam turbine ~~to during combined cycle operation~~, ~~up to four hours of excess emissions shall not exceed 12 hours for all four combustion turbines are allowed.~~ "*Cold startup*" is defined as a startup of the steam turbine ~~to combined cycle operation~~ following a shutdown lasting at least 48 hours.
- c. For *cold startup* of the heat recovery steam generator (HRSG) during combined cycle operation, excess emissions shall not exceed 240 minutes hours for any combustion turbine/HRSG train. "*Cold startup*" of the HRSG is defined as when the High Pressure (HP) steam drum is below 450 pounds per square inch (gage) for at least a one-hour period.

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For days with *simple cycle operation*, excess emissions shall not exceed three hours in any 24-hour period due to all combined occurrences of startups, shutdowns, and malfunctions. For days with *combined cycle operation*, excess emissions shall not exceed 12 ~~four~~ hours in any 24-hour period due to all combined occurrences of startups, shutdowns, and malfunctions. For startup to combined cycle operation, ammonia injection shall begin as soon as operation of the gas turbine/HRSG system achieves the operating parameters specified by the manufacturer. As authorized by Rule 62-210.700(5), F.A.C., the above conditions allow excess emissions only for specifically defined periods of startup, shutdown, and documented malfunction of the gas turbines. [Design; Rules 62-212.400(BACT) and 62-210.700, F.A.C.] [Comment: FPL requests a condition similar to that approved for the Sanford and Fort Myers Repowering Projects. The steam turbine for Manatee Unit 3 is larger than that associated with these Projects and the sequencing of the initial CT/HRSG trains may take more than 4 hours to reach compliance with emission limits.]

16. Work Practice Standard and Load Restriction:

- *Simple Cycle Work Practice BACT:* Each unit will be operated according to manufacturer specifications and control systems. The CT control system is designed to ~~will~~ reach Mode 5Q (i.e. five burners plus quaternary pegs in operation) within 15 minutes following gas turbine ignition and crossfire. [Comment: The operation of simple cycle mode is regulated by the GE control system and regulation of the operating modes is not possible.]
- *Combined Cycle Work Practice BACT:* ~~A stack damper shall be installed on each ductwork before the stack to reduce heat loss during shutdowns.~~ A Best Operating Practice procedure for minimizing emissions during startup and shutdown shall be submitted to the Department within 60 days following ~~procurement of the HRSG~~ determination of initial compliance with emission limits when operating in combined cycle mode. [Comment: See comment to Specific Condition 6. FPL will provide a BOP after experience is gained in the operation of the unit. It would not be possible to provide a meaningful BOP based on design information alone. Work practice standards are not BACT as defined in the Department's rules.]
- *Low-Load Restriction:* Except for initial steam blows, startup and shutdown, and malfunctions, operation at loads where the DLN 2.6 system is not in pre-mix mode ~~below 50 percent~~ is prohibited. [Comment: Experience with the GE Frame 7FA turbines indicate that at loads below 50 percent (e.g., 45 percent), the NO_x emission limits guaranteed by GE can be achieved.]

17. Initial Steam Blows: Prior to completing the conversion from simple cycle to combined cycle operation, the permittee is authorized to operate each gas turbine at loads below 50% for the purpose of cleaning the HRSG piping system and piping connecting the HRSG to the steam turbine. Prior to conducting any steam blows, the permittee shall submit a proposed schedule. On the first day of conducting steam blows, the permittee shall notify the Compliance Authority that the process has begun. The permittee shall complete this process within reasonable time ~~90 days~~ of conducting the initial steam blow. During the steam blows, the following conditions apply:

- a. The permittee shall take all precautions to minimize the extent and duration of excess emissions.
- b. Each gas turbine shall fire only natural gas and each CEMS shall be on line and functioning ~~properly~~.

CO and NO_x emissions may exceed the BACT limits specified in this permit; however, NO_x emissions shall not exceed the NSPS Subpart GG limit of 110 ppmvd corrected to 15% oxygen based on a 24-hour block average. If the NSPS standard is exceeded, the permittee shall notify the Compliance Authority within one working day ~~24 hours~~ of the incident.

Within 30 days of completing the initial steam blows, the permittee shall submit a report to the Bureau of Air Regulation and the Compliance Authority summarizing the daily emissions resulting from each steam blow. This permit condition is only applicable if simple cycle operation begins prior to combined cycle

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operation and compliance tests for simple cycle operation have been performed. {Permitting Note: -It is estimated that steam blows will occur intermittently over a 30-day period for each gas turbine/HRSG system followed by a similar 60-day period of intermittent steam blows for the common piping system serving the four interconnected combined cycle units. It is not expected that steam blows would occur every day during these periods.} [Design; Rules 62-212.400(BACT) and 62-210.700(5), F.A.C.] [Comment: As described in the additional information supplied to the Department, the exact calendar period for steam blows cannot be determined. Steam blows are a necessary part of construction and should be limited to a specific duration. If simple cycle operation does not initially occur as part of the Project, the CEMs will not be operational and the required testing to assure the required accuracy and precision (i.e. RATA testing) will not have been performed.]

18. DLN Tuning: CEMS data collected during initial or other major DLN tuning sessions shall be excluded from the CEMS compliance demonstration provided the tuning session is performed in accordance with the manufacturer's specifications. A "major tuning session" would occur after completion of initial construction, a combustor change-out, a major repair or maintenance to a combustor, or other similar circumstances. Prior to performing any major tuning session, the permittee shall provide the Compliance Authority with an advance notice that details the activity and proposed tuning schedule. The notice may be by telephone, facsimile transmittal, or electronic mail. [Design; Rule 62-4.070(3), F.A.C.]

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EMISSIONS PERFORMANCE TESTING

19. Test Methods: Required tests shall be performed in accordance with the following reference methods.

| Method | Description of Method and Comments |
|------------------------|---|
| CTM-027 | Procedure for Collection and Analysis of Ammonia in Stationary Source {Notes: This is an EPA conditional test method. The minimum detection limit shall be 1 ppm.} |
| 5, 5B or 17 | Determination of Particulate Matter Emissions from Stationary Sources {Note: For gas firing, the minimum sampling time shall be two hours per run and the minimum sampling volume shall be 60 dscf per run.} [Comment: No PM testing is required by the permit.] |
| 7E | Determination of Nitrogen Oxide Emissions from Stationary Sources |
| 9 | Visual Determination of the Opacity of Emissions from Stationary Sources |
| 10 | Determination of Carbon Monoxide Emissions from Stationary Sources {Notes: The method shall be based on a continuous sampling train. The ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps.} |
| 18 | Measurement of Gaseous Organic Compound Emissions by Gas Chromatography {Note: EPA Method 18 may be used (optional) concurrently with EPA Method 25A to deduct emissions of methane and ethane from the measured VOC emissions.} |
| 20 | Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines |
| 25A | Determination of Volatile Organic Concentrations |

Except for Method CTM-027, the above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. Method CTM-027 is published on EPA's Technology Transfer Network Web Site at "<http://www.epa.gov/ttn/emc/ctm.html>". No other methods may be used for compliance testing unless prior written approval is received from the Department.

[Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

20. Initial Compliance Determinations: Each gas turbine shall be stack tested to demonstrate initial compliance with the emission standards for CO, NO_x, VOC, visible emissions, and ammonia slip. The tests shall be conducted within 60 days after achieving ~~at least 90% of the~~ maximum permitted capacity for each unit configuration (i.e., simple cycle an combined cycle operation), but not later than 180 days after the initial startup of each unit configuration. Each unit shall be tested under all operating scenarios as required in Specific Condition No. 10. CEMS data collected during the required Relative Accuracy Test Assessments (RATA) may be used to demonstrate compliance with the initial 3-hour CO and NO_x standards. ~~With appropriate flow measurements, CEMS data may also be used to demonstrate compliance with the CO and NO_x mass emissions standards.~~ CO and NO_x emissions recorded by the CEMS shall also be reported for each run during tests for visible emissions, VOC and ammonia slip. ~~The Department may require the permittee to conduct initial tests after the replacement or repair of any air pollution control equipment, such as the SCR catalyst, DLN combustors, etc. The units shall demonstrate initial compliance in accordance with the NSPS 40 CFR 60, Subpart GG and Da.~~
[Rule 62-297.310(7)(a)1., F.A.C.] [Comment: Deleting the phrase "at least 90% of the" would make the wording consistent with the NSPS requirements in Section 60.8 and the Department's previous permits. There will be no exhaust flow monitors required for the Project and the mass emissions can be determined using fuel measurements and "F"-Factors. The sentence related to additional testing should be deleted since the department has this authority if non-compliance is suspected. Moreover, there will be CEMs for NO_x and CO, which provide compliance data. Finally, the permit limits are much lower than the NSPS and a separate demonstration is unnecessary and the permit should control.]

21. Continuous Compliance: The permittee shall demonstrate continuous compliance with the CO and NO_x emissions standards based on data collected by the certified CEMS. Within 45 days of conducting any

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Relative Accuracy Test Assessments (RATA) on a CEMS, the permittee shall submit a report to the Compliance Authority summarizing results of the RATA. Compliance with the CO emission standards also serves as an indicator of efficient fuel combustion, which reduces emissions of particulate matter and volatile organic compounds. [Rule 62-212.400 (BACT), F.A.C.]

22. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), each gas turbine shall be tested to demonstrate compliance with the emission standards for visible emissions and ammonia slip. NO_x emissions recorded by the CEMS shall be reported for each ammonia slip test run. CO emissions recorded by the CEMS shall be reported for the visible emissions observation period. *{Permitting Note: After initial compliance with the VOC standards are demonstrated, annual compliance tests for VOC emissions are not required. Compliance with the continuously monitored CO standards shall indicate efficient combustion and low VOC emissions.}*
[Rules 62-212.400 (BACT) and 62-297.310(7)(a)4., F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

23. CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) to measure and record the emissions of CO and NO_x from each gas turbine in a manner sufficient to demonstrate continuous compliance with the CEMS emission standards of this section. Each monitoring system shall be installed and certified according to the deadlines of 40 CFR 75.4, ~~calibrated, and properly functioning prior to the initial performance tests and commencement of commercial operation.~~ [Comment: 40 CFR 75.4 states the CEMS shall be certified the earlier of 90 unit operating days or 180 calendar days after commercial operation. This criteria should be used as it will not be definitively known if the CEMS are 'properly functioning' until all certification tests have been successfully completed. Also, the 90 unit operating day period allows sufficient time for debugging of the unit and the CEMS before data is reported for the Acid Rain Program.]
- a. CO Monitors. Each CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10 in Appendix A of 40 CFR 60 and shall be based on a continuous sampling train. The CO monitor span values(s) shall ~~have multi-span capability with be set appropriately spans established~~ for the methods of operation (simple cycle and combined cycle gas firing, etc.). ~~{Permitting Note: The alternate standards for steam blows will require even higher span values.}~~ [Comment: PS 4A will likely be more appropriate than PS 4 due to expected CO emissions levels. A single range CO monitor may be able to record emissions consistent with the limits set in Specific Condition 10. See comments to Specific Condition 17.]
- b. NO_x Monitors. Each NO_x monitor shall be certified, operated and maintained pursuant to the applicable requirements of 40 CFR Part 75 ~~and shall be operated and maintained in accordance with the applicable requirements of 40 CFR Part 75, Subparts B and C.~~ Record keeping and reporting shall be conducted pursuant to 40 CFR Part 75, Subparts F and G. The RATA tests required for the NO_x monitor span values(s) shall be set according to 40 CFR Part 75, Appendix A. ~~performed using EPA Method 20 or 7E in Appendix A of 40 CFR 60. The NO_x monitor shall have multi-span capability with appropriate spans established for the methods of operation (simple cycle and combined cycle gas firing, etc.).~~ ~~{Permitting Note: The alternate standards for steam blows will require even higher span values.}~~ [Comment: A single range NO_x monitor may be able to record emissions consistent with the emissions limits set in Specific Condition 10. See comments to Specific Condition 17.]
- c. O₂ or CO₂ Monitors. The oxygen (O₂) content or carbon dioxide (CO₂) content of the flue gas shall also be monitored at the location where CO and/or NO_x are monitored to correct the measured

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emissions rates to 15% oxygen. If a CO₂ monitor is installed, the oxygen content of the flue gas shall be calculated by the CEMS using F-factors that are appropriate for the fuel fired. Each monitor shall be certified, operated and maintained pursuant to 40 CFR 75 as the "diluent" monitor of the "NO_x-diluent" system. ~~60, Appendix B, Performance Specification 3.~~ Quality assurance procedures shall conform to the requirements of 40 CFR 75~~60, Appendix A and B.F. and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The RATA tests required for the O₂ or CO₂ monitors shall be performed using EPA Method 3B, of Appendix A of 40 CFR 60.~~ [Comment: the O₂ or CO₂ monitor installed is known as the 'diluent' monitor included in the 'NO_x-diluent' monitoring system under 40 CFR 75. For consistency the NO_x and O₂/CO₂ monitors should be subject to the same regulatory routines, i.e. Part 75. Under Part 75, no separate RATA is required for the diluent monitor as the RATA results are reported for the NO_x-diluent system (rather than for the individual NO_x and O₂/CO₂ analyzers) in units of lb/MMBtu.]

- d. 1-Hour Block Averages. Hourly average values shall begin at the top of each hour. Each hourly average value shall be computed using at least one data point in each fifteen-minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. Notwithstanding this requirement, an hourly value shall be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour). If less than two such data points are available, the hourly average value is not valid. The permittee shall use all valid measurements or data points collected during an hour to calculate the hourly average values. For purposes of determining compliance with the CEMS standards, missing (or excluded) data shall not be included in the 1-hour block averages. -The CEMS shall be designed and operated to sample, analyze, and record data evenly spaced over an hour. If the CEMS measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load for each allowable fuel, and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEMS shall be expressed as ppmvd, corrected to 15% oxygen. The CEMS shall be used to demonstrate compliance with the CEMS emission standards for CO and NO_x as specified in this permit. Upon request by the Department, the CEMS emission rates shall be corrected to ISO conditions to demonstrate compliance with the applicable standards of 40 CFR 60.332. [Comment: missing or substituted data should not be included for compliance as is stated in (e) below.]
- e. 24-hour Block Averages: A 24-hour block shall begin at midnight of each operating day and shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of available valid hourly average emission rate values for the 24-hour block. For purposes of determining compliance with the 24-hour CEMS standards, missing (or excluded) data shall not be substituted. Instead the 24-hour block average shall be determined using the remaining hourly data in the 24-hour block. [Rule 62-212.400(BACT), F.A.C.] **{Note to FPL: Should the 3-hour block be included in a separate description? For example, are there 8 "3-hour block averages in a day or is it dependent on when the unit starts (e.g., a rolling 3-hour block).}**
- f. Data Exclusion. Each CEMS shall monitor and record emissions during all operations including all episodes of startup, shutdown, and malfunction, DLN Tuning and steam blows. CEMS emissions data recorded during such episodes may be excluded from the corresponding CEMS compliance demonstration subject to the provisions of Specific Conditions Nos. 15, 18 and 19 of this section. ~~All periods of data excluded shall be consecutive for each such episode. The permittee shall minimize the duration of data excluded for such episodes to the extent practicable. Data recorded during such~~

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~~episodes shall not be excluded if the episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented. Best operational practices shall be used to minimize hourly emissions that occur during such episodes. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented, shall be prohibited.~~[Comment: Periods of startup shutdown or malfunction would not likely to be all consecutive. This sentence should be deleted. The remaining language in the second paragraph is redundant to previous conditions.]

- g. *Availability.* Monitor availability for the CEMS shall meet the performance specifications of 40 CFR Part 75 ~~be 95% or greater in any calendar quarter.~~ The report required in Appendix XS of this permit shall be used to provide information on ~~demonstrate~~ monitor availability. In the event 95% monitor availability required by 40 CFR Part 75 is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving monitor 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. ~~Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.~~[Comment: Any requirements for monitor availability should be consistent with the requirements in 40 CFR Part 75.]

~~{~~Permitting Note: Compliance with these requirements will ensure compliance with the other applicable CEM system requirements such as: NSPS Subpart Da and GG; Rule 62-297.520, F.A.C.; 40 CFR 60.7(a)(5) and 40 CFR 60.13; 40 CFR Part 51, Appendix P; 40 CFR 60, Appendix B - Performance Specifications; and 40 CFR 60, Appendix F - Quality Assurance Procedures.~~}~~ [Comment: The permitting note should be a permit condition, since compliance with Subparts GG and Da are important.]

[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

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24. Ammonia Monitoring Requirements: In accordance with the manufacturer's specifications, the permittee shall install, calibrate, maintain and operate an ammonia flow meter to measure and record the ammonia injection rate to the SCR system. The permittee shall document the general range of ammonia flow rates required to meet permitted emissions levels over the range of load conditions allowed by this permit by comparing NO_x emissions recorded by the CEM system with ammonia flow rates recorded using the ammonia flow meter. During NO_x monitor downtimes or malfunctions, the permittee shall operate at the ammonia flow rate that is consistent with the documented flow rate for the combustion turbine load. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

RECORDS, REPORTS AND NOTIFICATION

25. Monitoring of Capacity: ~~To demonstrate compliance with the permitted capacity requirements,~~ The permittee shall monitor and record the operating rate of each combined cycle gas turbine/HRSG duct burner system on a daily average basis, considering the number of hours of operation during each day (including the times of startup, shutdown and malfunction). Such monitoring shall be made using a monitoring component of the CEM system required above, or by monitoring daily rates of consumption and heat content of each allowable fuel in accordance with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.] [Comment: See comments to Specific Conditions 7 and 8.]
26. Monthly Operations Summary: By the fifth calendar day of each month, the permittee shall record the following in a written or electronic log for each gas turbine for the previous month of operation: consumption of each fuel, the hours of operation, the hours of power augmentation, the hours of peaking, the hours of duct firing, and the updated 12-month rolling totals for each. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department. The fuel consumption shall be monitored in accordance with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]
27. Fuel Sulfur Records: The permittee shall demonstrate compliance with the fuel sulfur specification of this permit by maintaining records of the sulfur content of the natural gas pursuant to 40 CFR Part 75. ~~being supplied based on the vendor's analysis for each month of operation.~~ Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D3246-81 (or more recent versions) in conjunction with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-4.160(15), F.A.C.] [Comment: Reports of sulfur content should follow 40 CFR Part 75 and more frequent reports are unnecessary.]
28. Excess Emissions Notification: If a CEMS reports emissions in excess of an emissions standard ~~or the permittee observes visible emissions in excess of a standard~~, the permittee shall notify the Compliance Authority within one working day of occurrence. Allowable excess emissions for startups and shutdowns, as described in Specific Condition 15 do not have to be reported under this condition. The notification shall include a preliminary report of: the nature, extent, and duration of the emissions; the probable cause of the emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. [Comment: The VE standard requires a trained observer and such reporting is not possible. Moreover, Manatee Unit 3 will exclusively use natural gas and such reporting is unnecessary. Notification of allowable excess emission should be excluded from the notification. Such allowable excess emissions are reported in the quarterly report.]
29. Semiannual NSPS Excess Emissions Report: Within 30 days following the end of each calendar quarter, the permittee shall submit a report to the Compliance Authority summarizing emissions in excess of an NSPS standard. In accordance with 40 CFR 60.7(d), the permittee shall submit the NSPS excess emissions report identified as Figure 1 and summarized in Appendix XS. For purposes of reporting emissions in excess of NSPS Subpart GG, excess emissions from the gas turbine are defined as: any CEMS hourly average value exceeding the NSPS NO_x emission standard identified in Appendix GG; and

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any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds the NSPS standard identified in Appendix GG. For purposes of reporting emissions in excess of NSPS Subpart Da, excess emissions from duct firing are defined as: NO_x or PM emissions in excess of the NSPS standards except during periods of startup, shutdown, or malfunction; and SO₂ emissions in excess of the NSPS standards except during startup or shutdown. [40 CFR 60.7]

30. Quarterly Excess Emission Report: Within 30 days following the end of each quarter, the permittee shall submit a report to the Compliance Authority summarizing periods of excess emissions. The information shall be summarized for simple cycle startups, "hot" combined cycle startups, "warm" combined cycle startups, "cold" combined cycle startups, shutdowns from simple cycle, shutdowns from combined cycle, malfunctions, and major tuning sessions. In addition, the report shall summarize the CEMS systems monitor availability for the previous quarter. [Rules 62-4.130, 62-204.800, 62-210.700(6), F.A.C.; and 40 CFR 60.7]
31. Data Exclusion Reports. A summary report of the duration of data excluded from each compliance average calculation, and all instances of missing data from monitor downtime, shall be reported quarterly to each Compliance Authority. This report shall be consolidated with the report required pursuant to 40 CFR 60.7. Data shall be summarized for each type of incident including ~~steam turbine cold start, gas turbine cold start, gas turbine hot~~ start ups, shutdowns and malfunctions. [Comment: The deleted phrases better clarify the intent of the condition. Also, the terminology can be confusing since there are no criteria specified in the permit.]

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

Section III Part B. Gas Heaters

This section of the permit addresses the following emissions units.

| ID | Emission Unit Description |
|-----|--|
| 010 | Four gas-fired fuel heaters, 24MMBtu/hour each |

APPLICABLE REQUIREMENTS

32. ~~NSPS Requirements:~~ The gas-fired fuel heaters are subject to the New Source Performance Standards for Small Industrial Commercial Institutional Steam Generating Units specified in Subpart Dc of 40 CFR 60. The units are subject to the record keeping and reporting requirements of this regulation. Rule 62-204.800(7), F.A.C.; 40 CFR 60, Subpart Dc][Comment: Subpart Dc does not apply to direct fired gas heaters.]

EQUIPMENT

33. Gas-Fired Fuel Heaters: The permittee is authorized to install four new 24 MMBtu per hour (LHV) fuel heaters. *{Permitting Note: The gas-fired fuel heaters heat the natural gas prior to firing in the "hot nozzle" dry low NOx combustors to increase cycle efficiency. The fuel heaters operate continuously during simple cycle operation and for startup to combined cycle operation. Once combined cycle operation is established, the fuel heaters are shut down and a small heat exchanger in the HRSG exhaust is used to preheat the natural gas prior to combustion in the gas turbines.}* [Application; Design]

PERFORMANCE REQUIREMENTS

34. Permitted Capacity: Based on the lower heating value (LHV) of natural gas, each gas-fired fuel heater shall not exceed 24 MMBtu per hour. [Application; Rule 62-210.200(PTE), F.A.C.]
35. Authorized Fuel: Each fuel heater shall fire only natural gas, which shall contain no more than 2.0 grains of sulfur per 100 standard cubic feet of natural gas. [Application; Rule 62-210.200(PTE), F.A.C.]

EMISSIONS STANDARDS

36. Visible Emissions: Visible emissions from each gas-fired fuel heater shall not exceed 10% opacity (6-minute block average) except for ~~10one~~ 6-minute block averages during a calendar day, which shall not exceed 20% opacity due to startups, shutdowns or malfunctions. [Rule 62-296.320(4)(b)1, F.A.C.][Comment: This condition is consistent with that for the CTs and allows some provisions for excess emissions.]

TESTING, RECORDS, AND REPORTING

37. Fuel Consumption: Equipment shall be installed and maintained to monitor the consumption of natural gas for each fuel heater. The monitoring system shall be capable of totaling the daily natural gas consumption. Natural gas consumption shall be reported in the Annual Operating Report. [40 CFR 60, Subpart Dc; Rule 62-210.370(2), F.A.C.]
38. Fuel Sulfur: Compliance with the fuel sulfur limit for natural gas shall be demonstrated by keeping reports of the sulfur content required in Section III. Part A. ~~obtained from the vendor indicating the average sulfur content of the natural gas being supplied from the pipeline for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D3246-81 or more recent versions.~~ [Rule 62-4.070(3), F.A.C.][Comment: The fuel heaters will use the same natural gas as the combustion turbines and any sulfur monitoring condition specific to the fuel heaters is unnecessary.]
39. Visible Emissions Tests: To determine compliance with the visible emissions standard, the permittee shall conduct testing in accordance with EPA Method 9. Initial compliance tests shall be conducted within 60

SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

days of initial startup. Annual tests shall be conducted during each federal fiscal year if the hours of operation exceed 400 hours within the annual period. The permittee shall notify the Compliance Authority of scheduled tests at least 15 days in advance. Test results shall be submitted to the Compliance Authority within 45 days of conducting the tests. [40 CFR 60, Appendix A; Rules 62-204.800(7), 62-297.310(7)(a)9, 62-297.310(8)(c), F.A.C.][Comment: Annual compliance tests are unnecessary for these small fuel gas heaters that exclusively fire natural gas.]

SECTION IV. APPENDIX Da
NSPS SUBPART Da REQUIREMENTS FOR DUCT BURNERS

Except as provided below, the duct burners in the heat recovery steam generators (HRSGs) are subject to the applicable requirements of Subpart A (General Provisions) and Subpart Da (Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978) established as New Source Performance Standards in 40 CFR 60 and adopted by reference in Rule 62-204.800(7)(b), F.A.C. The specific federal requirements are not listed, but can be obtained from the Department upon request. [Some of the NSPS requirements are being waived, so this notation is appropriate.]

NSPS GENERAL PROVISIONS

The emissions units are subject to the applicable General Provisions of the New Source Performance Standards including 40 CFR 60.7 (Notification and Record Keeping), 40 CFR 60.8 (Performance Tests), 40 CFR 60.11 (Compliance with Standards and Maintenance Requirements), 40 CFR 60.12 (Circumvention), 40 CFR 60.13 (Monitoring Requirements), and 40 CFR 60.19 (General Notification and Reporting Requirements), except as provided below. [Some of the NSPS requirements are being waived, so this notation is appropriate.]

NSPS SUBPART Da REQUIREMENTS

The duct burners in the heat recovery steam generators (HRSGs) shall comply with the following federal requirements of 40 CFR 60, Subpart Da, except as provided below:

- § 60.40a Applicability and designation of affected facility.
- § 60.41a Definitions.
- § 60.42a Standard for particulate matter.
- § 60.43a Standard for sulfur dioxide.
- § 60.44a Standard for nitrogen oxides.
- § 60.46a Compliance provisions.
- § 60.47a Emission monitoring.
- § 60.48a Compliance determination procedures and methods.
- § 60.49a Reporting requirements.

Permitting Notes: [These provisions should be regular conditions of the permit rather than permitting notes.]

- The duct burners have a heat input greater than 250 MMBtu per hour and are subject to NSPS Subpart Da.
- Particulate matter emissions are limited to 0.03 lb/million Btu heat input derived from the combustion of gaseous fuel. The exclusive firing of natural gas with a sulfur content not to exceed, on average, 2 grains per 100 standard cubic feet of gas ~~is expected to~~ will result in particulate matter emissions of less than 0.008 lb/MMBtu. Initial performance testing and monitoring under 40 CFR 60.46a, 60.47a, and 60.48a are not required to demonstrate compliance with the applicable particulate matter limit. [Without this or similar language, an initial performance test using EPA Method 19 would be required. As established in the BACT determination and PSD permit, stack testing for particulate matter is unnecessary.]]
- Sulfur dioxide emissions are limited to 0.20 lb/million Btu heat input based on 100 percent of the potential combustion concentration (zero percent reduction). The exclusive firing of natural gas with a sulfur content not to exceed, on average, 2 grains per 100 standard cubic feet of gas will ~~is expected to~~ result in sulfur dioxide emissions of less than 0.005 lb/MMBtu. Initial performance testing and monitoring under 40 CFR 60.46a, 60.47a, and 60.48 are not required to demonstrate compliance with the applicable sulfur dioxide limit. [Without this or similar language, an initial performance test using EPA Method 19 would be required. As established in the BACT determination and PSD permit, stack testing for sulfur dioxide is unnecessary.]

(1)

- Nitrogen oxide emissions are limited to 1.6 pounds per megawatt-hour (MWhr) (gross energy output) as provided under § 60.46a(k)(1). Compliance with the emissions limit is determined by the three-run average (nominal 1-hour runs) for the initial performance test under 40 CFR 60.46a(k) ~~and subsequent performance tests~~. The combined gas turbine and duct burner emissions are limited to 2.5 parts per million (ppm) under BACT (equivalent to 0.1 lb/MW-hr), which is much lower than the NSPS standard. ~~readily comply with this standard~~. Compliance with the BACT limit of 2.5 ppm, determined using a continuous emissions monitoring system, will ensure compliance with the NSPS

SECTION IV. APPENDIX Da

NSPS SUBPART Da REQUIREMENTS FOR DUCT BURNERS

limit of 1.6 lb/MWhr and no subsequent stack tests are required. [Future stack testing, beyond the initial performance test, should not be necessary with the very low 2.5 ppm limit that applies to these units.]

SECTION IV. APPENDIX Dc
NSPS SUBPART Dc REQUIREMENTS FOR GAS-FIRED FUEL HEATERS

The following emissions units are subject to the applicable requirements of Subpart A (General Provisions) and Subpart Dc (Small Industrial Commercial Institutional Steam Generating Units) established as New Source Performance Standards in 40 CFR 60 and adopted by reference in Rule 62-204.800(7)(b), F.A.C. The specific federal requirements are not listed, but can be obtained from the Department upon request.

| ID | Emission Unit Description |
|-----|-----------------------------|
| 013 | Four gas-fired fuel heaters |

NSPS GENERAL PROVISIONS

The emissions units are subject to the applicable General Provisions of the New Source Performance Standards including 40 CFR 60.7 (Notification and Record Keeping), 40 CFR 60.8 (Performance Tests), 40 CFR 60.11 (Compliance with Standards and Maintenance Requirements), 40 CFR 60.12 (Circumvention), 40 CFR 60.13 (Monitoring Requirements), and 40 CFR 60.19 (General Notification and Reporting Requirements).

NSPS SUBPART Dc REQUIREMENTS

The gas-fired fuel heaters shall comply with the following federal requirements of 40 CFR 60, Subpart Dc.

~~§ 60.40e Applicability and delegation of authority.~~

~~§ 60.41e Definitions.~~

~~§ 60.42e Standard for sulfur dioxide.~~

~~§ 60.43e Standard for particulate matter.~~

~~§ 60.44e Compliance and performance test methods and procedures for sulfur dioxide.~~

~~§ 60.45e Compliance and performance test methods and procedures for particulate matter.~~

~~§ 60.46e Emission monitoring for sulfur dioxide~~

~~§ 60.47e Emission monitoring for particulate matter.~~

~~§ 60.48e Reporting and record keeping requirements.~~

Permitting Notes:

~~□ NSPS Subpart Dc defines steam generating unit to mean, "... a device that combusts any fuel and produces steam or heats water or any other heat transfer medium." Because the fuel heaters have a heat input of 22 MMBtu per hour each and heat natural gas prior to combustion in the gas turbines, the units are subject to NSPS Subpart Dc.~~

~~□ Because the fuel heaters fire only natural gas, these units are subject only to notification, record keeping, and reporting requirements. The Department believes that the specific conditions of the permit are sufficient to demonstrate compliance with NSPS Subpart Dc.~~

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SECTION IV. APPENDIX GC

GENERAL CONDITIONS

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New Combined Cycle Unit 3

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~~New Combined Cycle Unit 8~~

~~Project No. 0850001-010-AC~~
~~Permit No. PSD-FL-327~~

SECTION IV. APPENDIX GG

NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES

Except as provided below, the following emissions units are subject to the applicable requirements of Subpart A (General Provisions) and Subpart GG (Stationary Gas Turbines) established as New Source Performance Standards in 40 CFR 60 and adopted by reference in Rule 62-204.800(7)(b), F.A.C. The specific federal requirements are not listed, but can be obtained from the Department upon request. [Some of the NSPS requirements are being waived, so this notation is appropriate.]

| ID | Emission Unit Description |
|-----|---|
| 011 | Unit 8A Gas Turbine (170 MW) with Heat Recovery Steam Generator |
| 012 | Unit 8B Gas Turbine (170 MW) with Heat Recovery Steam Generator |
| 017 | Unit 8C Gas Turbine (170 MW) with Heat Recovery Steam Generator |
| 018 | Unit 8D Gas Turbine (170 MW) with Heat Recovery Steam Generator |

NSPS GENERAL PROVISIONS

The emissions units are subject to the applicable General Provisions of the New Source Performance Standards including 40 CFR 60.7 (Notification and Record Keeping), 40 CFR 60.8 (Performance Tests), 40 CFR 60.11 (Compliance with Standards and Maintenance Requirements), 40 CFR 60.12 (Circumvention), 40 CFR 60.13 (Monitoring Requirements), and 40 CFR 60.19 (General Notification and Reporting Requirements), except as provided below. [Some of the NSPS requirements are being waived, so this notation is appropriate.]

NSPS SUBPART GG REQUIREMENTS

The gas turbines shall comply with the following federal requirements, except as provided below.

- § 60.330 Applicability and designation of affected facility.
- § 60.331 Definitions.
- § 60.332 Standard for Nitrogen Oxides.
- § 60.333 Standard for Sulfur Dioxide.
- § 60.334 Monitoring of Operations.
- § 60.335 Test Methods and Procedures.

Permitting Notes:

- *Based on the manufacturer's data and compressor inlet conditions of 59° F and 60% relative humidity, the heat rate for gas firing is 9250 Btu/KW-h at peak load and for oil firing is 9960 Btu/KW-h at peak load. This results in "Y" values of 9.8 for gas firing and 10.5 for oil firing. The equivalent NSPS NOx emission standards are 110/403 ppmvd at 15% oxygen for gas/oil firing. The emissions standards of the PSD permit are more stringent than this requirement. When firing natural gas, the "F" value (NOx allowance for fuel bound nitrogen shall be assumed to be 0. See EPA's March 12, 1993 determination regarding the use of NOx CEMS. [This notation should be deleted or the determination should be attached.]*
- *The gas turbine is limited to firing any fuel that contains sulfur in excess of 0.8 percent by weight.*
- *The requirement to monitor the nitrogen content of natural gas fired (Martin only) and fuel oil is waived. A NOx CEMS complying with the requirements of 40 CFR Part 75 shall be used to demonstrate compliance with the NOx limits of this permit. This is consistent with the custom fuel monitoring policy and guidance from EPA Region 4. [This note will clarify the certification requirements for the CEM and prevent any potential conflicts between Parts 60 and 75 monitoring certification requirements.]*
- *The permit contains a custom monitoring schedule for determining the sulfur content of fuels that is sufficient to demonstrate compliance with the NSPS limit. It is consistent with the custom fuel monitoring policy and guidance from EPA Region 4.*

- *The permittee shall apply for an Acid Rain permit within the deadlines specified in 40 CFR 72.30.*

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NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES

- The permittee shall submit a monitoring plan, certified by signature of the Designated Representative, that commits to the use of natural gas (sulfur content less than 2 gr/100 scf)) ~~(Martin only; and fuel oil)~~ for the CT's.
- Each unit shall be monitored for SO₂ emissions using methods consistent with the requirements of 40 CFR 75 and certified by the USEPA.

~~(Martin only) The following monitoring schedule for No. 2 or superior grade fuel oil shall be followed: For all bulk shipments of No. 2 or superior grade fuel oil received at the Martin Power Plant, an analysis which reports the sulfur content of the fuel shall be provided by the fuel vendor. The analysis shall also specify the methods by which the analyses were conducted and shall comply with the requirements of 40 CFR 60.335(d).~~

~~[This custom fuel monitoring schedule has previously been approved by EPA and DEP, is included in the current PSD permit for the two existing Martin combustion turbines, and would be appropriate for the new Martin and Manatee units as well.]~~

- Emissions in excess of the NSPS standard for nitrogen oxides shall be determined on 1-hour basis. The continuous compliance demonstration by NO_x CEM system data shall substitute for the NSPS requirements regarding the water-to-fuel ratio. NO_x CEM system data shall be used to determine "excess emissions" for purposes of 40 CFR 60.7 subject to the conditions of the permit. ~~As required by EPA's March 12, 1993 determination, the NO_x monitor shall meet the applicable requirements of 40 CFR 60.13, Appendix B and Appendix F for certifying, maintaining, operating and assuring the quality of the system; shall be capable of calculating NO_x emissions concentrations corrected to 15% oxygen; shall have no less than 95% monitor availability in any given calendar quarter; and shall provide a minimum of four data points for each hour and calculate an hourly average. The requirements for the CEM systems specified by the specific conditions of this permit satisfy these requirements.~~ [The monitor should meet 40 CFR Part 75, rather than Part 60, requirements. The 95 percent monitor availability requirement is not established under NSPS, but is included in the permit as a BACT requirement.]
- Emissions in excess of the NSPS standard for sulfur dioxide shall be determined on a daily basis. However, the frequency specified in the custom fuel monitoring schedule is sufficient to demonstrate compliance with the with the NSPS limit. It is consistent with the custom fuel monitoring policy and guidance from EPA Region 4.
- The permittee is required to submit a semiannual report of emission in excess of the NSPS standards as required by 40 CFR 60.7, Subpart A, General Provisions.
- The Department may request that NO_x emission data also be presented in terms of the NSPS standard (NO_x at 15 percent O₂ and ISO standard ambient conditions, volume percent). The permittee is not required to have the NO_x monitor continuously correct NO_x emissions concentrations to ISO conditions. However, the permittee shall keep records of the data needed to make the correction, and shall make the correction when required by the Department or Administrator. This is consistent with guidance from EPA Region 4.
- The permittee is allowed to conduct initial performance tests at a single load because the permit requires demonstration of continuous compliance with the NO_x BACT standards. This is consistent with guidance from EPA Region 4. ~~(Martin only) Initial performance tests on the two existing combustion turbines have already been completed and no additional stack testing is required.~~
- The permittee is allowed to make the initial compliance demonstration for NO_x emissions using certified CEM system data, provided that compliance is based on a minimum of three test runs representing a total of at least three hours of data, and that the CEMS be calibrated in accordance with the procedure in section 6.2.3 of Method 20 following each run. Alternatively, initial compliance may be demonstrated using data collected during the initial relative accuracy test audit (RATA) performed pursuant to 40 CFR Part 75 ~~on the NO_x monitor~~. The span value specified in 40 CFR Part 75 ~~the permit~~ shall be used instead of that specified in the NSPS requirements. ~~Flow rate data~~ Data shall be obtained to calculate mass emission rates. These initial compliance demonstration requirements are consistent with guidance from EPA Region 4. The span value is changed pursuant to Department authority and is consistent with guidance from EPA Region 4.

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SECTION IV. APPENDIX GG

NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES

- *The permit specifies sulfur testing methods and allows the permittee to follow the requirements of 40 CFR 75 Appendix D to determine the sulfur content. These requirements allow different methods than provided by the NSPS requirements, but are equally stringent and will ensure compliance with this rule.*
- *The fuel analysis requirements of the permit meet or exceed the NSPS requirements and ensure compliance.*

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SECTION IV. APPENDIX SC
STANDARD CONDITIONS

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New Combined Cycle Unit 3

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Permit No. PSD-FL-328

FPL Martin Power Plant
New Combined Cycle Unit 8

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