

# INTEROFFICE MEMORANDUM

**Date:** 06-Jun-2000 01:05pm

**From:** Rich\_Piper  
Rich\_Piper@fpl.com

**Dept:**

**Tel No:**

**To:** Jeff.Koerner

( Jeff.Koerner@dep.state.fl.us )

**Subject:** Martin Modeling

Jeff,

I spoke with Steve Marks at Golder today regarding the revised stack dimensions. He's rerun the model and the impacts are much the same as before. He's been trying to reach Cleve Holladay, but as of this morning had been unsuccessful.

I'm sure they'll hook up within a day or so and resolve this.

I received your revised permit and am in the process of reviewing. Will be in touch as soon as I can...hopefully tomorrow if things go the way I want them to.

I really appreciate all the fine work you've done on this.

Regards....

- Rich

**Golder Associates Inc.**

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



**RECEIVED**

JUN 06 2000 9937614A

BUREAU OF AIR REGULATION

June 5, 2000

Jeffery F. Koerner, P.E., Administrator  
New Source Review Section  
Florida Department of Environmental Protection  
111 South Magnolia Dr., Suite 4  
Tallahassee, Florida 32301

RE: Environmental Protection Agency (EPA) Comments  
DEP File No. 0850001-001-AC (PSD-FL-286)  
Two Simple Cycle, 170 MW Combustion Turbines in Martin County

Dear Jeff:

This correspondence provides the additional information requested by the Department concerning EPA Region IV's comments on the FPL's Martin Peaking Project. The primary comment that the Department requested information on was related to formaldehyde emissions (i.e., paragraph 1. of the EPA letter). The information requested follows:

1. EPA Comment - We suggest you verify the emission rate used by Golder Associates to estimate potential formaldehyde emissions. The emission factor cited by Golder is only one-fifth of the emission factor cited for formaldehyde from natural gas turbines in the recently revised section 3.1 of AP-42. Additionally, the emission factor used by Golder (cited as "Golder Associates, 2000") is not included in the reference section of the application. A complete reference for this emission factor should be provided by Golder along with an explanation for why this emission factor is more appropriate than the emission factor from AP-42.

Additional Information - Golder Associates has reviewed the emission factor originally used to estimate formaldehyde in light of the latest AP-42 emission factor recently published as well as the EPA Gas Turbine Data Base used to develop the latest AP-42 emission factors.

The original emission factor used by Golder Associates in the application was from the Electric Power Research Institute (EPRI) sponsored Electric Utility Trace Substances Synthesis Report. This report was submitted to EPA as part of the requirements of the 1990 Clean Air Act Amendments to study potentially toxic air pollutants from utility sources. Since there was a lack of data available for formaldehyde for large turbines, Golder Associates used the EPRI data. This data is the most technically accurate and complete data available on emissions from utility sources. The emission factor used for the Martin Peaking Units was 34 lb/10<sup>12</sup> Btu. It

should be recognized that there is still limited data on formaldehyde emissions from large (i.e., > 100 MW) gas turbines.

The recent EPA emission factor suggests formaldehyde emissions from gas turbines of 780 lb/10<sup>12</sup> Btu when firing natural gas at loads greater than 80 percent and 230 lb/10<sup>12</sup> Btu when firing distillate oil. The EPA suggested emission factor for all loads is 3,100 lb/10<sup>12</sup> Btu. Since the FPL Martin Peaking Units will fire primarily natural gas, with limited oil firing, the worst case annual emissions would be from natural gas firing. Using the EPA AP-42 emission factor the estimated emissions are 2.35 tons/year/turbine (based on 3,390 hours/year, ISO turbine inlet and 1,776 mmBtu/hr – HHV). Using the EPA suggested emission factor for all loads would produce a calculated emission of 9.3 tons/year/turbine or 18.6 tons/year for the project. Golder Associates believes the emission factors are not appropriate for the General Electric Frame 7FA combustion turbine based on several factors. First, and most importantly, the data used to develop the AP-42 emission factors is not representative of the General Electric Frame 7FA combustion turbine. Second, a review of the data of the pertinent information in the EPA database that relates to the characteristics clearly suggests a much lower emission factor for formaldehyde. Some of the important aspects of the EPA Gas Turbine Database related to formaldehyde emission are as follows.

- The formaldehyde emissions are from small (< 30 MW) gas turbines. The available data is from an average capacity of about 28 MW. More importantly, the median capacity, or the turbine size where an equal number of turbines are above and below that size, is about 15 MW. Data from only 8 large turbines (>30 MW) is included in the EPA database, with a maximum size of 88 MW.
- In contrast to the AP-42 emission factors for formaldehyde which are based on averages, the median values are substantially lower. For all loads, the median formaldehyde emissions are about 320 lb/10<sup>12</sup> Btu; for turbine loads greater than 50 percent the median emissions are about 110 lb/10<sup>12</sup> Btu. Being a factor of 8 to 10 times lower than the average factor clearly points to the great range in the emissions of formaldehyde and how the individual turbine combustion characteristics can influence the results.
- There is a strong relationship between formaldehyde and CO emissions, as noted by EPA in the support document and, and as observed in the data. Gas turbines with higher CO emissions had higher observed formaldehyde emissions. An evaluation of the coincident CO and formaldehyde data indicates that formaldehyde emissions were 150 lb/10<sup>12</sup> Btu when the CO emissions were 0.02 lb/mmBtu or less. The CO emission for the GE Frame 7FA is guaranteed to be 9 ppmvd or less at all purposed operating loads, which is equivalent to 0.016 lb/mmBtu.

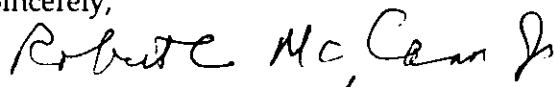
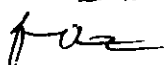
There are no confirmed test data of formaldehyde emissions from a GE Frame 7FA. Golder Associates has been made aware of data obtained in the mid-1990s on an early version of the Frame 7FA with Dry Low-NO<sub>x</sub> combustors. The test reported about 260 lb formaldehyde/10<sup>12</sup> Btu. While this data cannot be verified or relied on as

an emission factor, the formaldehyde emissions were within the median of all turbine data and within the formaldehyde for turbines with CO emissions equal to or less than 0.02 lb/mmBtu.

A review and evaluation of the EPA data base suggest that formaldehyde emissions from the GE Frame 7FA will be much less than the average AP-42 emission factors and most likely in the range of 150 to 300 lb/10<sup>12</sup> Btu. Golder Associates concludes that for the purposes of conservatively estimating formaldehyde emissions, an emission factor of 340 lb/10<sup>12</sup> Btu are appropriate for the Martin Peaking Units. This is 10 times higher than originally estimated for the project. The total formaldehyde emissions are estimated to be 1.02 tons/year/turbine or 2 tons per year for the project (based on 3,390 hour/year, ISO turbine inlet and 1,776 mmBtu/hr – HHV).

Golder Associates appreciates this opportunity to provide this information to the Department. Please call me if there are any questions.

Sincerely,

  
Kennard F. Kosky, P.E.   
Principal

KFK/pac

cc: Rich Piper, FPL

P:\Projects\99\9937\9937614a\01\#02ltr.doc

cc: File  
SED  
EPA  
NPS  
B. OVEN, PPS

FPL ENVIRONMENTAL SERVICES DEPARTMENT  
PO BOX 14000  
JUNO BEACH, FL 33408

DATE: June 2, 2000

SEND TO:  
NAME: Jeff Koerner

COMPANY: DEP

FAX NUMBER: 850 922 6979

BUREAU OF AIR REGULATION

JUN 02 2000

RECEIVED

FROM: RICHARD PIPER  
FPL ENVIRONMENTAL SERVICES  
PHONE: (561) 691-7058  
FAX: (561) 691-7070  
rich\_piper@fpl.com

NUMBER OF PAGES INCLUDING FAX COVER: 4

MESSAGE: Jeff -

Attached is a letter to FPLE from GE regarding  
formaldehyde emissions from 7FA combustion turbines.  
Golder will also send you a letter within a day or two.  
Have a great weekend!

-Rich

05/31/00 16:48 FAX 518 385 5128

COMMERCIAL OPERATIONS

002

**GE Power Generation**

doc. GE\_Formaldehyde\_Emissions

Power Systems Department  
1 River Road  
Schenectady, NY 12346  
Building 2, Room 506  
(518) 385-4698 (Tel)  
(518) 385-3725 (Fax)

May 30, 2000

Mr. Robert Burgess

FPL Energy  
Power Generation - New Plant Design Group  
700 Universe Blvd - PO Box 14000  
Juno Beach, FL 33408-0420

*- FPL Martin*

Subject: Formaldehyde Emissions

Dear Bob:

Unfortunately, at this time, GE cannot provide guarantees for formaldehyde emission rates because presently there are insufficient data to provide a guaranteed value. This is true since the quality of past data (those used to develop the emission factors) is often poor. For instance, early formaldehyde testing was prone to contamination, especially if measured per EPA Method SW-846 0011. Background contamination in a specific sample train is often present. In some cases, the background levels were greater than the field-test gross results. Most test companies have adopted CARB Method 430 which is less prone to contamination (but is not isokinetic).

Since no GE controlled field data is available, current practice for estimating formaldehyde emissions from gas turbines has often been to refer to U.S. EPA database AP-42. The AP-42 database contains emission factors for many hazardous air pollutants. EPA has concluded that only formaldehyde is of concern for combustion turbines. The database includes an emission factor for formaldehyde on a pound per MMBtu of fuel consumed basis. The factors are based on a survey of the available published emissions data from gas turbines of various models and manufacturers.

Our review of the EPA published database indicates that the data does not represent the state of the art turbine combustion performance. All units tested in the database have either water or steam injection for NOx control and are not representative of today's dry low NOx (DLN) combustion systems. Today's DLN systems are different because they have premixed air and fuel prior to ignition at higher combustion temperatures. By premixing, there is a better uniformity of combustion conditions which minimizes the potential for quenches that can lead to aldehyde emissions. The potential for quenching is enhanced by alternative NOx control technologies such as steam and water injection. Compared to diluent injected units, DLN has displayed exemplary emissions performance including CO levels below those achievable with the predecessor generation with water or steam injection for NOx control.

GE data indicates that CO and UHC correlate well and as CO decreases so do UHCs. Based on field data to date on the 7241FA with the 2.6 combustion system, the formaldehyde levels are expected to be lower than those reported in the EPA database.

05/31/00 16:47 FAX 518 386 5128

COMMERCIAL OPERATIONS

003

Mr. Robert Burgess  
Page 2

May 30, 2000

GE has reviewed the database and commented that the emissions factor for formaldehyde of  $2.4E-3$  lb/MMBtu ( $3.4$  lb/10<sup>6</sup> scf) assigned initially in AP-42 was artificially high. This was due to outliers-- data points that were two orders of magnitude above the mean of the remaining data. Removing these points resulted in an average emission factor of approximately  $7.1E-4$  lb/MMBtu, which is currently EPA's published AP-42 value for combustion turbines firing natural gas.

The American Petroleum Institute (API) published an emission factor of  $3.1 \times 10^{-4}$  lb/MMBtu for gas-fired turbines (*Air Toxics Emission Factors for Combustion Sources Using Petroleum-Based Fuels*, Publication Number 348, API, August 1998). This emission factor is rated below average (may be derived from only one or two tests or downgraded because of observed deficiency in methodology).

In general, the formaldehyde measurements taken in the field are below field blanks. The use of CARB 430 has generally been the agreed upon measurement method. A measure of field blank levels is required as part of the measurement method which is often a significant fraction of the measured value due to high ambient background levels and/or contamination of absorbents. If background levels are greater than 20% of the stack level, a multiple of 5X of the background level is used instead of the measured data point for the source test.

The best detection limit for formaldehyde by CARB Method 430 (using standard sampling and analytical values) is 4-5 ppbv ( $5 \mu\text{g/dscm}$ ). As published, CARB Method 430 requires a reporting limit equal to five times the detection limit (20-25 ppbv,  $25 \mu\text{g/dscm}$ ) if the gross test result is close to the detection limit. This is based on laboratory DL of  $0.5 \mu\text{g/sample}$  and a 20-liter test volume.

We cannot comment on the development of this methodology except to say it appears the repeatability of the results using CARB 430 is very sensitive to background levels and/or contamination of the absorbent. This repeatability issue is one GE hopes to examine at tests planned to measure formaldehyde in the field on two GE 7241 FA turbines firing natural gas. The design of the test calls for two CARB 430 tests to be performed simultaneously on two stacks of units operating concurrently on the identical fuel supply. The design of this experiment is to eliminate fuel and ambient effects while statistically looking at test to test variations.

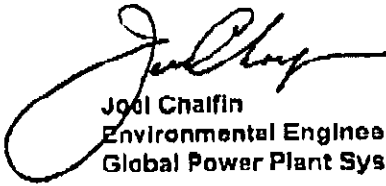
Results of these tests will likely not be available for three months or more. We would hope that until accurate methods and data are available to properly develop Maximum Achievable Control Technologies (MACT) standards, that EPA would hold off on publishing standards which may require unwarranted and costly controls.

Mr. Robert Burgess  
Page 3

May 30, 2000

We trust that the preceding provides technical information which will enable you to reach appropriate design decisions regarding your new generation development projects. If you have any questions, please don't hesitate to contact me at 518-385-4898.

Regards,



Joel Chalfin  
Environmental Engineering  
Global Power Plant Systems Department



Stephen J. Anchukaitis  
Commercial Manager  
GE Power Systems

cc: a. unero  
m. Halpin  
T. Nelson

> FYI only.



# INTEROFFICE MEMORANDUM

**Date:** 31-May-2000 05:13pm  
**From:** Rich\_Piper  
Rich\_Piper@fpl.com  
**Dept:**  
**Tel No:**

**To:** Jeff.Koerner ( Jeff.Koerner@dep.state.fl.us )

**Subject:** Annual Gas Usage

Jeff,

Pursuant to your request this morning, FPL proposes an annual limit of  $5,902.59 \times 10^6$  scf / year per CT at Martin for the peaking units. This value is based upon the following:

Hourly heat input rate of 1776 mmBtu / hour (HHV @ 59 degrees F)

3390, hours per year x 1776 mmBtu / hour = 6,020,640 mmBtu / year

$(6,020,640 \text{ mmBtu / year}) / 1020 \text{ btu / scf} = 5,902.59 \times 10^6 \text{ btu / year}$

Please let me know if you have any questions.

Regards....

- Rich

# INTEROFFICE MEMORANDUM

**Date:** 31-May-2000 01:11pm  
**From:** Rich\_Piper  
Rich\_Piper@fpl.com  
**Dept:**  
**Tel No:**

**To:** Jeff.Koerner ( Jeff.Koerner@dep.state.fl.us )  
**Subject:** FP&L Martin - Peak Firing---100.1120

Jeff,

The note below from GE should address the control question re: peaking operation.

- Rich

----- Forwarded by Rich Piper on 05/31/2000 12:16 PM

John Gnecco  
05/24/2000 10:51 AM

**To:** Rich Piper@FPL, ken\_kosky@golder.com  
**cc:** Bob Burgess@FPL, Bob Lippman@FPL, Michael B Rojas@FPL,  
dalleryrl@bv.com, PMR Peakers@FPL

**Subject:** FP&L Martin - Peak Firing---100.1120

Ken,

The attached email is from GE in response to the FDEP preliminary response to item 7.

Please let me know if we need anymore information.

Thanks,  
John

----- Forwarded by John Gnecco on 05/24/2000 10:49 AM

edward.nejman@ps.ge.com on 05/24/2000 10:07:06 AM

**To:** John\_Gnecco@fpl.com  
**cc:** robert.clayton@ps.ge.com, marc.lindenmuth@ps.ge.com,  
robert.dsouza@ps.ge.com

**Subject:** FP&L Martin - Peak Firing

John, the following is in response to your request for information on the control system for peak Operation.

During peak load operation, the control system modulates fuel stroke reference to control exhaust temperature to the peak load reference exhaust temperature curve. This is identical to the base load exhaust temperature control functionality.

The actual turbine exhaust temperature along with compressor discharge pressure and temperature are used to generate the combustion reference temperature. The combustion reference temperature is used in the DLN control mode for switching the fuel split scheduling. During the transfer from base to peak load, the combustion system will remain in pre-mix steady state mode and the combustion reference temperature will increase due to the higher load. The combustion reference temperature will remain in pre-mix steady state mode and the combustion reference temperature will increase due to the higher load. The combustion reference temperature will adjust the fuel split as required to account for peak load operation.

Please let us know if this answers your question satisfactorily

Ed.

# INTEROFFICE MEMORANDUM

**Date:** 31-May-2000 11:04am  
**From:** Rich\_Piper  
Rich\_Piper@fpl.com  
**Dept:**  
**Tel No:**

**To:** Jeff.Koerner ( Jeff.Koerner@dep.state.fl.us )

**Subject:** GE Data Sheets - Peaking

Jeff,

Attached are the GE data sheets for peaking operation for both gas and distillate. For some reason, one is in Excel and the other is in Word. Please let me know if you have any questions.

...and thanks for your time and assistance in reviewing the draft permit this morning.

Regards....

- Rich

(See attached file: Dist\_HHV35.xls) (See attached file: FPL MARTIN PLANT Peak gas 35 dry.doc)

FPL MARTIN PLANT Distillate Fuel  
LOAD RANGE AT 35 DEGF AND 20% REL.HUMIDITY

ESTIMATED PERFORMANCE PG7241(FA)

Load Condition		BASE	75%	50%	25%
Ambient Temp.	Deg F.	35	35	35	35
Fuel Type		Liquid	Liquid	Liquid	Liquid
Fuel LHV	Btu/lb	18,387	18,387	18,387	18,387
Fuel LHV	Btu/lb	19,490	19,490	19,490	19,490
Fuel Temperature	Deg F	60	60	60	60
Liquid Fuel H/C Ratio		1.78	1.78	1.78	1.78
Output	kW	190,500.00	142,900.00	95,200.00	47,600.00
Heat Rate (LHV)	Btu/kWh	9,945.00	10,550.00	12,500.00	18,860.00
Heat Cons. (LHV) X 106	Btu/h	1,894.50	1,507.60	1,190.00	793
Heat Rate (HHV)	Btu/kWh	10,541.70	11,183.00	13,250.00	17,659.60
Heat Cons. (HHV) X 106	Btu/h	2,008.17	1,598.08	1,281.40	840.58
Auxiliary Power	kW	1,390.00	1,390.00	1,390.00	1,390.00
Output Net	kW	189,110.00	141,510.00	93,810.00	46,210.00
Heat Rate (LHV) Net	Btu/kWh	10,020	10,650	12,690	17,160
Heat Rate (HHV) Net	Btu/kWh	10,619	11,293	13,448	18,190
Exhaust Flow X 103	lb/h	3,862.00	3,024.00	2,487.00	2,290.00
Exhaust Temp.	Deg F.	1,074.00	1,121.00	1,168.00	982.00
Exhaust Heat (LHV) X 106	Btu/h	1,042.60	868.70	752.40	568.40
Exhaust Heat (HHV) X 106	Btu/h	1,105.16	920.82	797.54	602.50
Water Flow	lb/h	130,930.00	94,620.00	68,770.00	29,780.00

EMISSIONS

NOx	ppmvd @ 15% O2	42.00	42.00	42.00	42.00
NOx AS NO2	lb/h	334	263	206	135
CO	ppmvd	20	24	35	289
CO	lb/h	68	65	77	586
UHC	ppmw	7	7	7	25
UHC	lb/h	15	12	10	32
VOC	ppmw	3.5	3.5	3.5	12.5
VOC	lb/h	7.5	6	5	16
SO2	ppmw	11	12	11	8
SO2	lb/h	98	78	61	41
SO3	ppmw	1	<1.0	1	1
SO3	lb/h	6	5	5	3
Sulfur Mist	lb/h	10	8	6	4
Particulates	lb/h	17	17	17	17

EXHAUST ANALYSIS % VOL.

Argon	0.86	0.88	0.87	0.81
Nitrogen	71.79	72.1	72.73	74.91
Oxygen	11.19	11.22	11.76	14.5;
Carbon Dioxide	5.56	5.6	5.35	3.8;
Water	10.6	10.23	9.29	5.74

SITE CONDITIONS

Elevation	ft.	45
Site Pressure	pais	14.68
Inlet Loss	In Water	3
Exhaust Loss	In Water	5.5
Relative Humidity	%	20
Application	7FH2 Hydrogen-Cooled Generator	
Combustion System	9/42 DLN Combustor	

Emission information based on GE recommended measurement methods.

NOx emissions are corrected to 15% O2 without heat rate correction and are not corrected to ISO reference condition per 40CFR 60.335(c)(1).

NOx levels shown will be controlled by algorithms within the SPEEDTRONIC control system.

Liquid Fuel is Assumed to have 0.015% Fuel-Bound Nitrogen, or less.

FBN Amounts Greater Than 0.015% Will Add to the Reported NOx Value.HHV adjustment factor assumed is 6%

Sulfur Emissions Based On 0.05 WT% Sulfur Content in the Fuel.

Date	5/31	# of pages	1
From	RICH PIPER		
Co.			
Phone #	561 691 7058		
Fax #	7070		
Post-it® Fax Note	7671		
To	JEFF KOERNER		
Co./Dept.	FDEP		
Phone #			
Fax #	850 922 6979		

**FPL MARTIN PLANT Peak Firing**  
**ESTIMATED PERFORMANCE PG7241(FA)**

Load Condition		PEAK
Ambient Temp.	Deg F.	35.
Output	kW	190,300.
Heat Rate (LHV)	Btu/kWh	9,080.
Heat Cons. (LHV) X 10 <sup>6</sup>	Btu/h	1,727.9
Auxiliary Power	kW	560
Output Net	kW	189,740.
Heat Rate (LHV) Net	Btu/kWh	9,110.
Exhaust Flow X 10 <sup>3</sup>	lb/h	3713.
Exhaust Temp.	Deg F.	1109.
Exhaust Heat (LHV) X 10 <sup>6</sup>	Btu/h	1015.9

**EMISSIONS**

NO <sub>x</sub>	ppmvd @ 15% O <sub>2</sub>	15.
NO <sub>x</sub> AS NO <sub>2</sub>	lb/h	105.
CO	ppmvd	9.
CO	lb/h	30.
UHC	ppmvw	7.
UHC	lb/h	15.
VOC	ppmvw	1.4
VOC	lb/h	3.
Particulates	lb/h	9.0

**EXHAUST ANALYSIS** % VOL.

Argon	0.89
Nitrogen	75.00
Oxygen	12.39
Carbon Dioxide	3.98
Water	7.74

**SITE CONDITIONS**

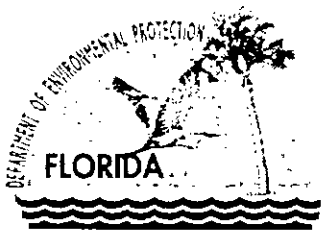
Elevation	ft.	45.0
Site Pressure	psia	14.68
Inlet Loss	in Water	3.0
Exhaust Loss	in Water	5.5
Relative Humidity	%	20
Fuel Type		Cust Gas
Fuel LHV	Btu/lb	20835 @ 290 °F
Application		7FH2 Hydrogen-Cooled Generator
Combustion System		9/42 DLN Combustor

Emission information based on GE recommended measurement methods. NO<sub>x</sub> emissions are corrected to 15% O<sub>2</sub> without heat rate correction and are not corrected to ISO reference condition per 40CFR 60.335(c)(1). NO<sub>x</sub> levels shown will be controlled by

algorithms within the SPEEDTRONIC control system.

Sulfur Emissions Based On 0.0002 WT% Sulfur Content in the Fuel.

IPS- 90973      version code- 2 . 0 . 1   Opt: 9   72411298  
HENRYCO      01/28/2000 19:49 FPL MARTIN PLANT Peak gas 95 dry.dat



# Department of Environmental Protection

Jeb Bush  
Governor

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

David B. Struhs  
Secretary

May 24, 2000

CERTIFIED MAIL – Return Receipt Requested

Rich Piper  
Repowering Licensing Manager  
Florida Power & Light Company  
P.O. Box 14000  
Juno Beach, FL 33408

Re: FPL Martin Plant  
PSD Permit No. PSD-FL-286

Dear Mr. Piper:

I have reviewed your comments on the Draft Permit delivered to me on May 16, 2000. As we discussed earlier, some of the requested changes related to modified stack dimensions, permitted capacity and the additional peak firing method of operation could require the publishing of a new or revised Public Notice. Before the Department can agree to the requested changes, the following additional supporting information is requested.

1. FPL states that the stack dimensions have been revised from 22 feet in diameter and 60 feet tall to 18 feet in diameter and 80 feet tall. FPL believes that the higher stack and smaller diameter should result in decreased ground level impacts.

Response: For each fuel and method of operation, provide updated pages of the application indicating stack height, stack diameter, exhaust temperature, percent water vapor, volumetric flow rates in acfm and dscfm, and exit velocities. Please evaluate the new scenario, demonstrate that the revised project will have no significant ambient impacts, and coordinate this effort with the Department's project meteorologist, Cleve Holladay.

2. FPL requests the following changes to the permitted capacity: a maximum net power output of 190 MW for natural gas firing; a heat input rate of 2008 mmBtu/hour for distillate oil firing; and a maximum heat input of 1918 mmBTU per hour with a corresponding net power output of 182 MW for operation with power augmentation or peaking.

Response: The manufacturer's data does not indicate a net output of 190 MW for normal gas firing. The Department has information from General Electric on the Model 7241(FA) that indicates a lower heat input rate for oil firing. Data submitted for steam augmentation and peak firing indicates 180 MW and 179 MW, respectively. Please provide data from General Electric that supports each request. A revised "Estimated Performance" data sheet from General Electric for the Model PG7241(FA) would be sufficient. Data must include the LHV and HHV (BTU/lbm) of oil, the heat input rates based on the HHV and LHV of oil (mmBTU per hour), fuel mass flow rates (lb per hour), an inlet temperature of 35° F at 20% RH, net output in MW, exhaust mass flow rate (lb/hr), emissions characteristics, and be specific for each fuel type and method of operation.

3. FPL requests the addition of "peak firing" as an authorized method of operation limited to 60 hours per year with a corresponding reduction in power augmentation to offset any increase in emissions. FPL requests NOx limits of 15.0 ppmvd and 105 lb/hour based on a 3-hour average for peak firing mode.

Response: FPL has described "peak firing" as a non-standard method of operation for the Model PG7241(FA), which requires specialized programming of the automated gas turbine control system by General Electric. The Department will consider 60 hours per year of "peaking" due to the very limited request. Please provide a general description of the changes to the automated gas turbine control system, the adjusted temperatures, and the method for reestablishing normal gas-firing operation. If acceptable, the Department proposes to offset the emission increases by reducing power augmentation (steam injection) from 500 hours to 400 hours during any consecutive 12 months.

"More Protection, Less Process"

Printed on recycled paper.



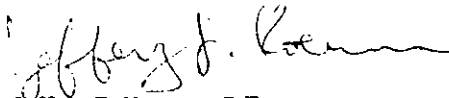
4. FPL requests that annual combined heat input for both units (gas and oil operation) based on ISO conditions be used as a surrogate for operating hours, in order to provide additional operating flexibility.

Response: Revising the condition to limit the combined heat input of both gas turbines would require a new cost analysis for both a hot SCR system and an oxidation catalyst and may result in new BACT determinations. It may also require permitting in accordance with the an "air emissions bubble" as defined by Rule 62-212.710, F.A.C. The Department believes the Draft Permit accurately reflects the request made in the application. We would consider a request for equivalent limits on fuel consumption on a per unit basis. Please specify the natural gas and distillate oil consumption limits based on 59° F and 60% RH and include supporting information for the heat input, LHV, HHV, and fuel density. If acceptable, the Department would require the installation of gas and oil fuel flow monitors with at least monthly record keeping to demonstrate compliance with the rolling 12-month fuel consumption limits.

The Department believes that the above requested changes could be considered substantial with regard to the previously Intent to Issue Draft Permit package. For further consideration of these changes, please provide the additional supporting information requested. Other requested changes are not considered substantial and are addressed in the Attachment A provided with this letter. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Material changes to the application should also be accompanied by a new certification statement by the authorized representative or responsible official.

If there are any questions, please contact the project engineer, Jeff Koerner, at 850/850/414-7268. Questions regarding the air quality analysis should be directed to Cleve Holladay, meteorologist, at 850/921-8986.

Sincerely,



Jeffery F. Koerner, P.E.  
New Source Review Section

AAL/jfk

Enclosure

cc: Mr. John M. Lindsay, FPL  
Mr. Richard G. Piper, FPL  
Ken Kosky, Golder Associates  
Mr. Buck Oven, PPSO  
Mr. Isidore Goldman, SED  
Mr. Gregg Worley, EPA  
Mr. John Bunyak, NPS

Attachment

## ATTACHMENT A

Note: These responses follow the same format provided in FPL's comments.

1. The new peaking units' designations will be 8A and 8B, and not 5A and 5B, as indicated in the draft.

Response: Designations will be revised.

2. Page 6 of 14 – Emission Unit Description: FPL has changed the stack dimensions to 80' tall x 18' diameter. The higher stack and smaller diameter should result in decreased ground level impacts. Also, the heat input rate for distillate oil should be 2008 mmBtu/hour, and not 1965.

Response: Additional information requested.

3. Page 7 of 14, Condition 4 - Permitted Capacity: We have suggested language clarifying the heat input limits on power augmentation or peak firing modes, and corrected the btu content of distillate oil.

Response: Additional information requested.

4. Page 7 of 14, Condition 5 – Simple Cycle Operation: The draft language disallowing netting is not supported by the Department's or EPA's rules. FPL has no current plans to convert these units to combined cycle mode; but if that were to occur, the existing state and federal rules should apply, regarding baseline emissions and netting.

Response: The Department proposes to revise the condition as follows.

5. *Simple Cycle Operation Only: Each combustion turbine shall operate only in simple cycle mode. This restriction is based on the permittee's request, which formed the basis of the CO and NOx BACT determinations and resulted in the emission standards specified in this permit. Specifically, the CO and NOx BACT determinations eliminated several control alternatives based on technical considerations due to the elevated temperatures of the exhaust gas as well as costs related to operation as peaking units. Any request to convert these units to combined cycle operation or increase the allowable hours of operation shall be accompanied by a revised CO and NOx BACT analysis and the approval of the Department through a permit modification in accordance with Chapters 62-210 and 62-212, F.A.C. Note: The results of this analysis may validate the initial BACT determination or result in the submittal of a full PSD permit application, new control equipment, and new emissions standards. [Rules 62-210.300, 62-212.400, and 62-212.400(2)(g), F.A.C.]*

5. Page 7 of 14, Condition 6 – Power Augmentation and Peak Firing Modes: The draft permit did not contain the requested peak firing operating mode. FPL requests that this mode be made a part of the PSD permit, and suggests that a combination of the two alternate operating modes be permitted; a maximum of 500 hours / year of power augmentation mode is requested, including 60 hours of peak mode operation; each hour of peak operation would decrease the power augmentation balance hours by 1.25 hours. This approach would result in no increase in the TPY emissions from this mode of operation.

Response: Additional information requested.

6. Page 8 of 14, Condition 8 – Hours of Operation and Fuel Usage: FPL requests that annual heat input for both gas and oil operation be used as a surrogate for operating hours, in order to provide additional operating flexibility. We have proposed annual limits based on ISO conditions.

Response: Additional information requested.

7. Page 8 of 14, Condition 10 – Automated Control System: The control system which FPL uses comes directly from GE. Some changes are requested to better describe what actually happens.

Response: According to information provided by GE, the control system monitors the median exhaust temperature in order to calculate the combustion "reference" temperature. The combustion reference temperature is important because it establishes a set point at which the control system advances from one stage to the next in order to achieve lean premix firing. The Department recognizes that FPL will not design the automated gas control system. Additional information is requested regarding changes to the control system necessary for "peaking".

8. Page 9 of 14, Condition 12 – DLN Combustion Technology Installation: FPL requests that the term "tuning" be removed, since the term "maintenance" covers this activity. Language is requested that more accurately describes the relationship between CO and NOx formation.

Response: The Department disagrees and will retain the term "tuning" in this condition. In general, CO and NOx emissions are inversely proportional, however, data provided by General Electric for the dry low-NOx 2.6 combustors

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indicates that both CO and NOx emissions are less than 9.0 ppmvd @ 15% O2 between 50% and 100% of base load. This suggests that the relationship between CO and NOx for DLN units is not as strong as with conventional units.

9. Page 9 of 14, Condition 13(b) – Gas Firing With Power Augmentation or Peak Firing: FPL requests that peak firing capability be reinserted into the permit in order to allow for this type of operation.

Response: Additional information requested.

10. Page 9 of 14, Condition 14(b) – Gas Firing With Power Augmentation or Peak Firing: FPL requests that NOx limits of 15.0 ppmvd and 105 lb. / hour be used on a 3-hour average for peak firing mode.

Response: Additional information requested.

11. Page 10 of 14, Condition 14 (end) – FPL requests the word “or” be inserted to clarify that either EPA Method 7E or Method 20 is allowed for compliance.

Response: EPA Method 7E may be used to satisfy the annual compliance test, but EPA Method 20 is required for the initial test in accordance with 40 CFR 60, Subpart GG.

12. Page 10 of 14, Condition 15 (b) – FPL requests an opacity limit of 10% for both oil and natural gas. This is consistent with recent DEP permits for 7FA technology.

Response: General Electric now guarantees a visible emissions limit for gas firing of 5% opacity.

13. Page 10 of 14, Condition 17 – FPL requests that the excess emissions language in the permit should be reflective of DEP rule 62-210.700(4). Power augmentation is not appropriate to include, and further, the inclusion of data in the 3-hour averages is inappropriate because this data is already required to be reported in a per-occurrence basis in the quarterly excess emissions report.

Response: The Department disagrees. For the excess emissions rule to apply, the unit must operate for at least three hours during power augmentation and the average NOx emissions would have to exceed the standard. The only way the excess emissions could be allowed is if there was a malfunction during this period. The Department believes it is inappropriate to continue operation with power augmentation if there has been a malfunction. Furthermore, emissions that are prohibited must be included within the compliance averaging periods. In addition, any excess emissions must also be reported in the quarter excess emissions report. Rule 62-210.700(6), F.A.C. authorizes the Department to, “... adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest.” Because power augmentation is not part of the normal operation of this unit, the Department believes this condition is appropriate.

14. Page 11 of 14, Condition 18(c) – FPL requests that this condition be deleted. Rule 62-210.700(1) and (5) does not impose a limit on opacity values, other than to minimize them.

Response: Again, Rule 62-210.700(6), F.A.C. authorizes the Department to, “... adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest.” There are only two pollutants for which the compliance status is readily known: NOx emissions by continuous monitor and visible emissions by certified observer. The compliance statuses for other pollutants are determined by conducting emissions performance tests or keeping appropriate fuel records. Generally, stack tests are not valid for periods of startup, shutdown, or malfunction, so the compliance status is unknown and the excess emissions rule would not apply. For this reason, the Department has specified an appropriate level of excess visible emissions due to startup and shutdown as a part of this permit. The Department believes that a modern gas turbine with visible emissions of 20% or greater suggests operational or equipment problems. For other incidents when a unit exceeds the visible emissions standard due to startup, shutdown, or malfunction, a compliance review would be made on a case-by-case basis by the Compliance Authorities. Attached for your information is a recent memorandum outlining EPA’s concerns regarding “automatic exemptions”.

15. Page 11 of 14, Condition 21 – Initial Tests Required: FPL requests that language be inserted to clarify the corrections to test data required by NSPS as opposed to those required by BACT limits.

Response: The Department proposes the following revision:

21. *Initial Tests Required: Initial performance tests to demonstrate compliance with each emission standard for normal gas firing, gas firing with power augmentation, gas firing with peaking (if permitted), and backup distillate oil firing shall be conducted within 60 days after achieving the maximum production rate, but not later than 180*

ATTACHMENT A

days after initial operation of each emissions unit. Initial performance tests shall be conducted for CO, NOx, VOC and visible emissions. Tests for CO, NOx, and VOC shall be conducted concurrently. NOx performance tests shall be conducted in accordance with the requirements of 40 CFR 60, NSPS Subpart GG, and For the initial performance tests, emissions data shall be presented in units of the BACT standards as well as the ~~also converted into~~ units specified in of the NSPS Subpart GG emissions standard. [Rule 62-297.310(7)(a)1., F.A.C.; 40 CFR 60.335]

16. Page 12 of 14, Condition 22 – Annual Performance Tests: FPL requests that a trigger level of 200 hours of distillate oil operation per year is appropriate and consistent with the Department’s rules (reference 62-297-310.(7)(a) 8) which uses a 400 hour threshold for visible emission testing. And, the CEM will be operating during oil operation which will provide the Department quality-assured data for any oil operating hours.

Response: The Department reviewed the quantity of emissions generated by the alternate methods of operation and proposes the following revisions to (a) and (b) of Specific Condition No. 22:

- (a) For each combustion turbine that fires distillate oil for less than 200 hours during the previous federal fiscal year, the annual performance tests when firing distillate oil for the current federal fiscal year of operation are not required.
- (b) For each combustion turbine that operates with power augmentation for less than 200 hours during the previous federal fiscal year, the annual performance tests when operating with power augmentation for the current federal fiscal year of operation are not required.

Note: The Department will consider similar language for peak firing after review of the additional information.

17. Page 12 of 14, Condition 24 – Tests After Substantial Modification: FPL requests this condition be deleted. “Substantial modification” is not defined in DEP’s rules; however “modification” is, and specifically exempts routine replacement of component parts such as dry low NOx combustors.

Response: The Department disagrees. Replacing a major piece of equipment as well as a critical component of the pollution control system requires verification that the modified or repaired unit is in compliance with the emissions standards specified in the permit. This condition is standard language for all recent combustion turbine projects.

18. Page 13 of 14, Condition 25(c) – FPL requests this condition be deleted. Condition 25(b) has been thoroughly reviewed by the utility industry and painstakingly negotiated. No basis exists in the Department’s rule to require this condition.

Response: The Department disagrees. The applicant has specifically requested an alternate operating method with the purpose of providing a boost in power production beyond the standard capabilities of the combustion turbine for the given ambient conditions. The Department’s language seeks to ensure that the emissions performance testing is conducted during conditions similar to actual operation when utilizing these methods. The Department is willing to consider alternative language from FPL that would that satisfies this requirement.

19. Condition 26 – NOx CEMs: The language is suggested in order to make the Martin permit consistent with those issued by the Department for Fort Myers and Sanford.

Response: It is the permittee’s responsibility to ensure compliance with all federal monitoring requirements. The Department has no authority to waive or substitute such requirements. The word “and” will be retained.

20. Condition 26(c) – Data Reporting: The term “block average” is not defined, and it presents a number of problems. FPL requests that the word “block” be removed in order to provide some clarity.

Response: The Department is considering this revision.

21. Condition 26(e) – Power Augmentation Mode: There is no basis in the Department’s rules to require the cessation of operation in power augmentation should a CEM fail during this mode. The acid rain rules require a high level of CEM availability anyway (>95%), so this condition is superfluous.

Response: The Department disagrees. The permit includes allowances for limited alternate operating methods that may result in emission levels higher than the BACT standard determined for normal operation. Restricting alternate methods of operation to only those periods when the CEMS is operating properly provides the reasonable assurance necessary to approve these methods. As you indicated in your comments, the CEMS availability will be greater than

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95% so there is little likelihood that this condition will create any real problems. However, it would prevent a situation in which the CEMS only malfunctions during power augmentation (or perhaps peak firing).

22. Condition 28(c) – Alternate Monitoring Plan: FPL requests the addition of one phrase which clarifies that Specific Condition 27 will be satisfied by the alternate monitoring plan.

Response: The “Alternate Monitoring Plan” listed in Specific Condition No. 28 would satisfy the monitoring requirements of 40 CFR 60, Subpart GG not Specific Condition No. 27.

23. Condition 29 – Monthly Operation Summary: This would be a new requirement for any of FPL’s facilities. The facility is already subject to a quarterly excess emissions report which could be adapted to include this information.

Response: This condition only requires the recording of the hours of operation and fuel consumption for each unit. The information must be recorded in order to demonstrate compliance with the limits on hours of operation, fuel usage, and permitted capacity. The condition is separate from any NSPS or Acid Rain requirement.

24. Section III, Emissions Performance Standards: The Department has restricted the opacity of emissions from the fuel gas heaters to 5%. A 10% limit is requested.

Response: The Department believes that well maintained and operated gas-fired fuel heaters would have no visible emissions. The condition merely requires investigation and corrective actions if visible emissions are present.

Z 341 355 296

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

September 20, 1999

MEMORANDUM

SUBJECT: State Implementation Plans: Policy Regarding Excess Emissions During Malfunctions, Startup, and Shutdown

FROM: Steven A. Herman  
Assistant Administrator for Enforcement and Compliance Assurance

Robert Perciasepe  
Assistant Administrator for Air and Radiation

TO: Regional Administrators, Regions I - X

EPA's policy for state implementation plans (SIPs) regarding excess emissions during malfunctions, startup, shutdown, and maintenance is contained in memoranda from Kathleen Bennett, formerly Assistant Administrator for Air, Noise and Radiation dated September 28, 1982 and February 15, 1983. A recent review of SIPs suggests that several contain provisions that appear to be inconsistent with this policy, either because they were inadvertently approved after EPA issued the 1982-1983 guidance or because they were part of the SIP at that time and have never been removed. In order to address these provisions in a consistent manner, today we are reaffirming and supplementing the 1982-83 policy. In so doing, we are taking this opportunity to clarify several issues of interpretation that have arisen since that time. The updated policy will clarify the types of excess emissions provisions states may incorporate into SIPs so that they can in turn provide greater certainty to the regulated community.

As EPA stated in its 1982 memorandum, because excess emissions might aggravate air quality so as to prevent attainment or interfere with maintenance of the ambient air quality standards, EPA views all excess emissions as violations of the applicable emission limitation. Nevertheless, EPA recognizes that imposition of a penalty for sudden and unavoidable

malfunctions caused by circumstances entirely beyond the control of the owner or operator may not be appropriate. Accordingly, a state or EPA can exercise its "enforcement discretion" to refrain from taking an enforcement action in these circumstances.

The main question of interpretation that has arisen regarding the old policy is whether a state may go beyond this "enforcement discretion" approach and include in its SIP a provision that would, in the context of an enforcement action for excess emissions, excuse a source from penalties if the source can demonstrate that it meets certain objective criteria (an "affirmative defense"). This policy clarifies that states have the discretion to provide such a defense to actions for penalties brought for excess emissions that arise during certain malfunction, startup, and shutdown episodes.

In the context of malfunctions, EPA recognizes that even equipment that is properly designed and maintained can sometimes fail. At the same time, EPA has a fundamental responsibility under the Clean Air Act to ensure that SIPs provide for attainment and maintenance of the national ambient air quality standards ("NAAQS") and protection of PSD increments. Thus, EPA cannot approve an affirmative defense provision that would undermine the fundamental requirement of attainment and maintenance of the NAAQS, or any other requirement of the Clean Air Act. See sections 110(a) and (1) of the Clean Air Act, 42 U.S.C. § 7410(a) and (1).<sup>1</sup> Accordingly, an acceptable affirmative defense provision may only apply to actions for penalties, but not to actions for injunctive relief. This restriction insures that both state and federal authorities remain able to protect air quality standards and PSD increments.

Furthermore, this approach is appropriate only when the respective contributions of individual sources to pollutant concentrations in ambient air are such that no single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments.<sup>2</sup> Where a single source or small

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<sup>1</sup>Pursuant to Section 110(1), EPA may not approve a SIP revision if "the revision would interfere with any applicable requirement concerning attainment and reasonable further progress, or any other applicable requirement of this chapter." See also CAA § 193, 42 U.S.C. § 7515, and the definitions of "emission limitation" and "emission standard" contained in CAA § 302(k), 42 U.S.C. § 7602(k).

<sup>2</sup> In the case of lead and sulfur dioxide, attainment problems usually are caused by one or a few sources and an affirmative defense is not appropriate. This situation can be



group of sources has the potential to cause an exceedance of the NAAQS or PSD increments, EPA believes an affirmative defense approach will not be adequate to protect public health and the environment, and the only appropriate means of dealing with excess emissions during malfunction, startup, and shutdown episodes is through an enforcement discretion approach.<sup>3</sup>

EPA is also taking this opportunity to clarify that it does not intend to approve SIP revisions that would allow a state director's decision to bar EPA's or citizens' ability to enforce applicable requirements. Such an approach would be inconsistent with the regulatory scheme established in Title I of the Clean Air Act. EPA is also adding contemporaneous record keeping and notification criteria to make its policy regarding these types of events consistent with its enforcement approach.

Finally, EPA is clarifying how excess emissions that occur during periods of startup and shutdown should be addressed. In general, because excess emissions that occur during these periods are reasonably foreseeable, they should not be excused. However, EPA recognizes that, for some source categories, even the best available emissions control systems might not be consistently effective during startup or shutdown periods. In areas where the respective contributions of individual sources to pollutant concentrations in ambient air are such that no single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments, these technological limitations may be addressed in the underlying standards themselves through narrowly-tailored SIP revisions that take into account the potential impacts on ambient air quality caused by the inclusion of these allowances. In these instances, as part of its justification of the SIP revision, the state should analyze the

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particularly aggravated where a short-term standard (e.g., where exceedances or violations are based on a few hour period) is also in place. Although this policy is generally applicable for other NAAQS, enforcement discretion is the only appropriate approach for dealing with excess emissions during startup, shutdown, and malfunction in a specific area where a single source or a small group of sources has the potential to cause nonattainment of a short-term NAAQS.

<sup>3</sup> In *American Trucking Association v. EPA*, 175 F. 3d 1027 (D.C. Circ., 1999), the court remanded the PM<sub>2.5</sub> NAAQS to the EPA. The Agency has not determined whether this policy is appropriate for PM<sub>2.5</sub> NAAQS.

impact of the potential worst-case emissions that could occur during startup and shutdown.<sup>4</sup>

In addition to this approach, states may address this problem through the use of enforcement discretion or they may include a general affirmative defense provision in their SIPs for short and infrequent startup and shutdown periods along the lines outlined in the attachment. As mentioned above, however, in those areas where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments, issues relating to excess emissions arising during startup and shutdown may only be addressed through an enforcement discretion approach.

All Regions should review the SIPs for their states in light of this clarification and take steps to insure that excess emissions provisions in these SIPs are consistent with the attached guidance.

Attachment

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<sup>4</sup>States may account for such emissions by including them in their routine rule effectiveness estimates. Rule effectiveness estimates may be prepared in accordance with an EPA policy document entitled "Guidelines for Estimating and Applying Rule Effectiveness for Ozone/Carbon Monoxide State Implementation Plan Base Year Inventories." (EPA-452/R-92-010) November 1992.

## Attachment

### POLICY ON EXCESS EMISSIONS DURING MALFUNCTIONS, STARTUP, AND SHUTDOWN

#### Introduction

This policy specifies when and in what manner state implementation plans (SIPs) may provide for defenses to violations caused by periods of excess emissions due to malfunctions,<sup>1</sup> startup, or shutdown. Generally, since SIPs must provide for attainment and maintenance of the national ambient air quality standards and the achievement of PSD increments, all periods of excess emissions must be considered violations. Accordingly, any provision that allows for an automatic exemption<sup>2</sup> for excess emissions is prohibited.

However, the imposition of a penalty for excess emissions during malfunctions caused by circumstances entirely beyond the control of the owner or operator may not be appropriate. States may, therefore, as an exercise of their inherent enforcement discretion, choose not to penalize a source that has produced excess emissions under such circumstances.

This policy provides an alternative approach to enforcement discretion for areas and pollutants where the respective contributions of individual sources to pollutant concentrations in ambient air are such that no single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments. Where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments, as is often the case for sulfur dioxide and lead,<sup>3</sup> EPA believes approaches other than enforcement discretion are not appropriate. In such cases, any excess emissions may have a significant chance of causing an exceedance or violation of the applicable standard or PSD increment.

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<sup>1</sup>The term excess emission means an air emission level which exceeds any applicable emission limitation. Malfunction means a sudden and unavoidable breakdown of process or control equipment.

<sup>2</sup>The term automatic exemption means a generally applicable provision in a SIP that would provide that if certain conditions existed during a period of excess emissions, then those exceedances would not be considered violations.

<sup>3</sup>This policy also does not apply for purposes of PM<sub>2.5</sub> NAAQS. In *American Trucking Association v. EPA*, 175 F. 3d 1027 (D.C. Circ., 1999), the court remanded the PM<sub>2.5</sub> NAAQS to the EPA. The Agency has not determined whether this policy is appropriate for PM<sub>2.5</sub> NAAQS.

Except where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments, states may include in their SIPs affirmative defenses<sup>4</sup> for excess emissions, as long as the SIP establishes limitations consistent with those set out below. If approved into a SIP, an affirmative defense would be available to sources in an enforcement action seeking penalties brought by the state, EPA, or citizens. However, a determination by the state not to take an enforcement action would not bar EPA or citizen action.<sup>5</sup>

In addition, in certain limited circumstances, it may be appropriate for the state to build into a source-specific or source-category-specific emission standard a provision stating that the otherwise applicable emission limitations do not apply during narrowly defined startup and shutdown periods.

#### I. AUTOMATIC EXEMPTIONS AND ENFORCEMENT DISCRETION

If a SIP contains a provision addressing excess emissions, it cannot be the type that provides for automatic exemptions. Automatic exemptions might aggravate ambient air quality by excusing excess emissions that cause or contribute to a violation of an ambient air quality standard. Additional grounds for disapproving a SIP that includes the automatic exemption approach are discussed in more detail at 42 Fed. Reg. 58171 (November 8, 1977) and 42 Fed. Reg. 21372 (April 27, 1977). As a result, EPA will not approve any SIP revisions that provide automatic exemptions for periods of excess emissions.

The best assurance that excess emissions will not interfere with NAAQS attainment, maintenance, or increments is to address excess emissions through enforcement discretion. This policy provides alternative means for addressing excess emissions of criteria pollutants. However, this policy does not apply where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments. Moreover,

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<sup>4</sup>The term affirmative defense means, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

<sup>5</sup>Because all periods of excess emissions are violations and because affirmative defense provisions may not apply in actions for injunctive relief, under no circumstances would EPA consider periods of excess emissions, even if covered by an affirmative defense, to be "federally permitted releases" under EPCRA or CERCLA.

nothing in this guidance should be construed as requiring states to include affirmative defense provisions in their SIPs.

## II. AFFIRMATIVE DEFENSES FOR MALFUNCTIONS

EPA can approve a SIP revision that creates an affirmative defense to claims for penalties in enforcement actions regarding excess emissions caused by malfunctions as long as the defense does not apply to SIP provisions that derive from federally promulgated performance standards or emission limits, such as new source performance standards (NSPS) and national emissions standards for hazardous air pollutants (NESHAPS).<sup>6</sup> In addition, affirmative defenses are not appropriate for areas and pollutants where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments. Furthermore, affirmative defenses to claims for injunctive relief are not allowed. To be approved, an affirmative defense provision must provide that the defendant has the burden of proof of demonstrating that:

1. The excess emissions were caused by a sudden, unavoidable breakdown of technology, beyond the control of the owner or operator;
2. The excess emissions (a) did not stem from any activity or event that could have been foreseen and avoided, or planned for, and (b) could not have been avoided by better operation and maintenance practices;
3. To the maximum extent practicable the air pollution control equipment or processes were maintained and operated in a manner consistent with good practice for minimizing emissions;
4. Repairs were made in an expeditious fashion when the operator knew or should have known that applicable emission limitations were being exceeded. Off-shift labor and overtime must have been utilized, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;
5. The amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions;

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<sup>6</sup>To the extent a state includes NSPS or NESHAPS in its SIP, the standards should not deviate from those that were federally promulgated. Because EPA set these standards taking into account technological limitations, additional exemptions would be inappropriate.

6. All possible steps were taken to minimize the impact of the excess emissions on ambient air quality;

7. All emission monitoring systems were kept in operation if at all possible;

8. The owner or operator's actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs, or other relevant evidence;

9. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

10. The owner or operator properly and promptly notified the appropriate regulatory authority.

EPA interprets these criteria narrowly. Only those malfunctions that are sudden, unavoidable, and unpredictable in nature qualify for the defense. For example, a single instance of a burst pipe that meets the above criteria may qualify under an affirmative defense. The defense would not be available, however, if the facility had a history of similar failures because of improper design, improper maintenance, or poor operating practices. Furthermore, a source must have taken all available measures to compensate for and resolve the malfunction. If a facility has a baghouse fire that leads to excess emissions, the affirmative defense would be appropriate only for the period of time necessary to modify or curtail operations to come into compliance. The fire should not be used to excuse excess emissions generated during an extended period of time while the operator orders and installs new bags, and relevant SIP language must limit applicability of the affirmative defense accordingly.

### III. EXCESS EMISSIONS DURING STARTUP AND SHUTDOWN

In general, startup and shutdown of process equipment are part of the normal operation of a source and should be accounted for in the planning, design, and implementation of operating procedures for the process and control equipment. Accordingly, it is reasonable to expect that careful and prudent planning and design will eliminate violations of emission limitations during such periods.

#### A. SOURCE CATEGORY SPECIFIC RULES FOR STARTUP AND SHUTDOWN

For some source categories, given the types of control technologies available, there may exist short periods of emissions during startup and shutdown when, despite best efforts regarding planning, design, and operating procedures, the

otherwise applicable emission limitation cannot be met. Accordingly, except in the case where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments, it may be appropriate, in consultation with EPA, to create narrowly-tailored SIP revisions that take these technological limitations into account and state that the otherwise applicable emissions limitations do not apply during narrowly defined startup and shutdown periods. To be approved, these revisions should meet the following requirements:

1. The revision must be limited to specific, narrowly-defined source categories using specific control strategies (e.g., cogeneration facilities burning natural gas and using selective catalytic reduction);
2. Use of the control strategy for this source category must be technically infeasible during startup or shutdown periods;
3. The frequency and duration of operation in startup or shutdown mode must be minimized to the maximum extent practicable;
4. As part of its justification of the SIP revision, the state should analyze the potential worst-case emissions that could occur during startup and shutdown;
5. All possible steps must be taken to minimize the impact of emissions during startup and shutdown on ambient air quality;
6. At all times, the facility must be operated in a manner consistent with good practice for minimizing emissions, and the source must have used best efforts regarding planning, design, and operating procedures to meet the otherwise applicable emission limitation; and
7. The owner or operator's actions during startup and shutdown periods must be documented by properly signed, contemporaneous operating logs, or other relevant evidence.

B. GENERAL AFFIRMATIVE DEFENSE PROVISIONS RELATING TO STARTUP AND SHUTDOWN

In addition to the approach outlined in Section II(A) above, states may address the problem of excess emissions occurring during startup and shutdown periods through an enforcement discretion approach. Further, except in the case where a single source or small group of sources has the potential to cause an exceedance of the NAAQS or PSD increments, states may also adopt for their SIPs an affirmative defense approach. Using this

approach, all periods of excess emissions arising during startup and shutdown must be treated as violations, and the affirmative defense provision must not be available for claims for injunctive relief. Furthermore, to be approved, such a provision must provide that the defendant has the burden of proof of demonstrating that:

1. The periods of excess emissions that occurred during startup and shutdown were short and infrequent and could not have been prevented through careful planning and design;

2. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;

3. If the excess emissions were caused by a bypass (an intentional diversion of control equipment), then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

4. At all times, the facility was operated in a manner consistent with good practice for minimizing emissions;

5. The frequency and duration of operation in startup or shutdown mode was minimized to the maximum extent practicable;

6. All possible steps were taken to minimize the impact of the excess emissions on ambient air quality;

7. All emission monitoring systems were kept in operation if at all possible;

8. The owner or operator's actions during the period of excess emissions were documented by properly signed, contemporaneous operating logs, or other relevant evidence; and

9. The owner or operator properly and promptly notified the appropriate regulatory authority.

If excess emissions occur during routine startup or shutdown periods due to a malfunction, then those instances should be treated as other malfunctions that are subject to the malfunction provisions of this policy. (Reference Part I above).





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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

MAY 16 2000

RECEIVED

MAY 19 2000

BUREAU OF AIR REGULATION

4 APT-ARB

A. A. Linero, P.E.  
Florida Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

SUBJ: Preliminary Determination and Draft PSD Permit for FPL - Martin Power Plant  
(PSD-FL-286) located in Martin County, Florida

Dear Mr. Linero:

Thank you for sending the preliminary determination and draft prevention of significant deterioration (PSD) permit for FPL - Martin Power Plant dated April 28, 2000. The preliminary determination is for the proposed construction and operation of two simple cycle combustion turbines (CTs) with a total nominal generating capacity of 340 MW to be located near Indiantown, FL. The combustion turbines proposed for the facility are General Electric (GE), frame 7FA units. The CTs will primarily combust pipeline quality natural gas with No. 2 fuel oil combusted as backup fuel. As proposed, the CTs will be allowed to fire natural gas up to 3,390 hours per year and fire No. 2 fuel oil a maximum of 500 hours per year. The CTs will be allowed to operate in power augmentation mode for a maximum of 500 hours/year. Total emissions from the proposed project are above the thresholds requiring PSD review for nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM/PM<sub>10</sub>).

Based on our review of the preliminary determination and draft PSD permit, we have the following comments:


1. We suggest you verify the emission rate used by Golder Associates to estimate potential formaldehyde emissions. The emission factor cited by Golder is only one-fifth of the emission factor cited for formaldehyde from natural gas turbines in the recently revised section 3.1 of AP-42. Additionally, the emission factor used by Golder (cited as "Golder Associates, 2000") is not included in the reference section of the application. A complete reference for this emission factor should be provided by Golder along with an explanation for why this emission factor is more appropriate than the emission factor from AP-42.
2. As indicated in the last condition of the excess emission section, the Florida Department of Environmental Protection (FDEP) is proposing "For NO<sub>x</sub> excess emissions due to startup, shutdown or documented malfunction during any calendar day, two hourly averages of monitoring data may be excluded from continuous NO<sub>x</sub> compliance demonstration." It is the

Environmental Protection Agency's policy that BACT applies during all normal operations and that automatic exemptions should not be granted for excess emissions. Startup and shutdown of process equipment are part of the normal operation of a source and should be accounted for in the planning, design, and implementation of operating procedures for the process and control equipment. Accordingly, it is reasonable to expect that careful and prudent planning and design will eliminate violations of emission limitations during such periods. Additionally, it is unclear what is meant by "two hourly averages" and the condition should be reworded to clarify the intent (i.e., two 1-hour averages).

3. We are pleased to see that FDEP re-performed the cost analysis for the SCR and CO oxidation add-on control systems. FDEP concluded the cost effectiveness for the add-on controls were as low as \$10,000/ton removed of NO<sub>x</sub> and \$6,000/ton removed of CO. The original application's cost analysis calculated the cost effectiveness of SCR as \$13,636/ton removed of NO<sub>x</sub> and \$7,595/ton removed of CO and contained several items which should not have been included in the cost analysis or needed further clarification. For instance, the application included the cost for additional NO<sub>x</sub> monitoring and instrumentation and a 3% contingency fee in the annual cost section in addition to the 3% contingency fee included in the capital cost section.

Thank you for the opportunity to comment on the FPL - Martin Power Plant preliminary determination and draft PSD permit. If you have any questions regarding these comments, please direct them to either Katy Forney at 404-562-9130 or Jim Little at 404-562-9118.

Sincerely,



R. Douglas Neeley  
Chief  
Air and Radiation Technology Branch  
Air, Pesticides and Toxics  
Management Division

CC: J. Koerner, BAR  
B. Owen, PPS  
SED  
NPS

# INTEROFFICE MEMORANDUM

**Sensitivity:** COMPANY CONFIDENTIAL

**Date:** 19-May-2000 03:39pm

**From:** Jeff Koerner TAL  
KOERNER\_J

**Dept:**

**Tel No:**

**To:** Rich Piper ( Rich\_Piper@fpl.com )

**Subject:** Draft Response to FPL's Comments on Martin (Partial)

Rich,

I just got time today to review your comments. I am not finished, but I am attaching an initial draft because some will require additional information. In particular, I talked to our staff meteorologist (Chris Carlson) about changing the stack dimensions. He indicated that it would be necessary to provide a full revision of the Air Quality Analysis. You may want to discuss this with Cleve Holladay first - he worked on the Martin project, but is out today. I will try to finish up my review by Monday and email you our finished response.

Jeff

Rich Piper  
FPL Martin Plant  
Initial Response to Comments on Draft Permit  
Page

DRAFT

DRAFT

Rich Piper  
Repowering Licensing Manager  
Florida Power & Light Company  
P.O. Box 14000  
Juno Beach, FL 33408

Re: FPL Martin Plant  
PSD Permit No. PSD-FL-286

Dear Mr. Piper:

I have reviewed your comments on the Draft Permit received on May 16, 2000 and provide the following initial responses. Some of the responses require additional supporting information. The Department is considering your request, but reserves the right to ask other questions before agreeing to any changes to the Draft Permit already issued.

1. The new peaking units' designations will be 8A and 8B, and not 5A and 5B, as indicated in the draft.

Response: Designations will be revised.

2. Page 6 of 14 – Emission Unit Description: FPL has changed the stack dimensions to 80' tall x 18' diameter. The higher stack and smaller diameter should result in decreased ground level impacts. Also, the heat input rate for distillate oil should be 2008 mmBtu/hour, and not 1965.

Response: For each fuel and operating mode, please provide updated pages of the application indicating stack height, stack diameter, exhaust temperature, percent water vapor, volumetric flow rates in acfm and dscfm, and exit velocities. Because it is possible for higher stacks to result in higher pollutant concentrations at greater distances from the project, please provide a fully revised Air Quality Analysis.

None of the *manufacturer's data* indicate a heat input rate for oil firing of 2008 mmBTU per hour. The Department has information from another project for the GE Model 7241(FA) that suggests the heat input for oil firing may be physically limited due to the equipment. Please provide supporting data *from the manufacturer* for the requested heat input based on the HHV of oil as well as the LHV and HHV of the oil. A revised "Estimated Performance" data sheet from General Electric based on the HHV of oil for the Model 7241(FA) would be sufficient. Data should include the LHV and HHV (BTU/lbm), fuel mass flow rates, an inlet temperature of 35° F at 20% RH, net output in MW, exhaust flow rate (lb/hr), and emissions characteristics.

3. Page 7 of 14, Condition 4 - Permitted Capacity: We have suggested language clarifying the heat input limits on power augmentation or peak firing modes, and corrected the btu content of distillate oil.

Response: Again, none of the manufacturer's data suggests a net output of 190 MW for normal gas firing. The data submitted for steam augmentation and peak firing indicate 180 MW and 179 MW, respectively. Again, please provide supporting information for this change as requested in No. 2.

4. Page 7 of 14, Condition 5 – Simple Cycle Operation: The draft language disallowing netting is not supported by

the Department's or EPA's rules. FPL has no current plans to convert these units to combined cycle mode; but if that were to occur, the existing state and federal rules should apply, regarding baseline emissions and netting.

Response: The Department proposes to revise the condition as follows.

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*Simple Cycle Operation Only: Each combustion turbine shall operate only in simple cycle mode. This restriction is based on the permittee's request, which formed the basis of the CO and NOx BACT determinations and resulted in the emission standards specified in this permit. Specifically, the CO and NOx BACT determinations eliminated several control alternatives based on technical considerations due to the elevated temperatures of the exhaust gas as well as costs related to operation as peaking units. Any request to convert these units to combined cycle operation or increase the allowable hours of operation shall be accompanied by a revised CO and NOx BACT analysis and the approval of the Department through a permit modification in accordance with Chapters 62-210 and 62-212, F.A.C. Note: The results of this analysis may validate the initial BACT determination or result in the submittal of a full PSD permit application, new control equipment, and new emissions standards. [Rule 62-212.400(2)(g), F.A.C.]*

5. Page 7 of 14, Condition 6 – Power Augmentation and Peak Firing Modes: The draft permit did not contain the requested peak firing operating mode. FPL requests that this mode be made a part of the PSD permit, and suggests that a combination of the two alternate operating modes be permitted; a maximum of 500 hours / year of power augmentation mode is requested, including 60 hours of peak mode operation; each hour of peak operation would decrease the power augmentation balance hours by 1.25 hours. This approach would result in no increase in the TPY emissions from this mode of operation.

Response: The Department will consider 60 hours per year of “peaking” due to the very limited request. However, the Department proposes to offset the emission increases by reducing power augmentation (steam injection) from 500 hours to 400 hours during any consecutive 12 months. According to my calculations, this would result in a minimal increase of 0.7 tons of NOx per year.

6. Page 8 of 14, Condition 8 – Hours of Operation and Fuel Usage: FPL requests that annual heat input for both gas and oil operation be used as a surrogate for operating hours, in order to provide additional operating flexibility. We have proposed annual limits based on ISO conditions.

Response: The requested change, as stated, would require a new analysis of the cost effectiveness for hot SCR. The Department believes the Draft Permit accurately reflects the request made in the application.

7. Page 8 of 14, Condition 10 – Automated Control System: The control system which FPL uses comes directly from GE. Some changes are requested to better describe what actually happens.

Response: According to information provided by GE, the control system monitors the median exhaust temperature in order to calculate the combustion “reference” temperature. The combustion reference temperature is important because it establishes a set point at which the control system advances from one stage to the next in order to achieve lean premix firing. The Department recognizes that FPL will not design the automated gas control system. Please provide additional information regarding the changes in the control system necessary for “peaking” as it is a non-standard GE item.

8. Page 9 of 14, Condition 12 – DLN Combustion Technology Installation: FPL requests that the term “tuning” be removed, since the term “maintenance” covers this activity. Language is requested that more accurately describes the relationship between CO and NOx formation.

Response: The Department disagrees and will retain the term “tuning” in this condition. In general, CO and NOx emissions are proportional, however, data provided by General Electric for the dry low-NOx 2.6 combustors indicates that both CO and NOx emissions are less than 9.0 ppmvd @ 15% O2 between 50% and 100% of base load.

9. Page 9 of 14, Condition 13(b) – Gas Firing With Power Augmentation or Peak Firing: FPL requests that peak firing capability be reinserted into the permit in order to allow for this type of operation.

Response: Peak firing will be considered after the additional information previously requested is submitted.

10. Page 9 of 14, Condition 14(b) – Gas Firing With Power Augmentation or Peak Firing: FPL requests that NOx limits of 15.0 ppmvd and 105 lb. / hour be used on a 3-hour average for peak firing mode.

DRAFT

Response: Peak firing will be considered after the additional information previously requested is submitted.

11. Page 10 of 14, Condition 14 (end) – FPL requests the word “or” be inserted to clarify that either EPA Method 7E or Method 20 is allowed for compliance.

Response: EPA Method 7E may be used to satisfy the annual compliance test, but EPA Method 20 is required for the initial test in accordance with 40 CFR 60, Subpart GG.

12. Page 10 of 14, Condition 15 (b) – FPL requests an opacity limit of 10% for both oil and natural gas. This is consistent with recent DEP permits for 7FA technology.

Response: General Electric now guarantees a visible emissions limit for gas firing of 5% opacity.

13. Page 10 of 14, Condition 17 – FPL requests that excess emissions excess emissions language in the permit should be reflective of DEP rule 62-210.700(4). Power augmentation is not appropriate to include, and further, the inclusion of data in the 3-hour averages is inappropriate because this data is already required to be reported in a per-occurrence basis in the quarterly excess emissions report.

Response: The Department disagrees. For the excess emissions rule to apply, the unit would have to be operated for at least three hours during power augmentation and the average NOx emissions would have to exceed the standard. The only way the excess emissions could be allowed is if there was a malfunction during this period. The Department believes it is inappropriate to continue to operate with power augmentation if there has been a malfunction. Furthermore, emissions that are prohibited must be included within the compliance averaging periods. In addition, any excess emissions must also be reported in the quarter report. Rule 62-210.700(6), F.A.C. authorizes the Department to, “... adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest.” Because power augmentation is not part of the normal operation of this unit, the Department believes this condition is appropriate.

14. Page 11 of 14, Condition 18(c) – FPL requests that this condition be deleted. Rule 62-210.700(1) and (5) does not impose a limit on opacity values, other than to minimize them.

Response: Again, Rule 62-210.700(6), F.A.C. authorizes the Department to, “... adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest.” Other applicants have accepted these requirements.



**RECEIVED**

MAY 16 2000

May 16, 2000

BUREAU OF AIR REGULATION

Mr. Jeff Koerner, P.E.  
State of Florida  
Department of Environmental Protection  
Division of Air Resources Management  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

**Re: FPL Martin Plant**  
**PSD Permit #PSD-FL-286**

Dear Mr. Koerner:

FPL offers the following comments on the draft PSD permit for the Martin peaking units, submitted to the Department on February 19, 2000. FPL has prepared a marked-up version of the permit which is attached for your reference; an electronic version is also available.

1. The new peaking units' designations will be 8A and 8B, and not 5A and 5B, as indicated in the draft.
2. Page 6 of 14 – Emission Unit Description: FPL has changed the stack dimensions to 80' tall x 18' diameter. The higher stack and smaller diameter should result in decreased ground level impacts. Also, the heat input rate for distillate oil should be 2008 mmBtu/hour, and not 1965.
3. Page 7 of 14; Condition 4 - Permitted Capacity: We have suggested language clarifying the heat input limits on power augmentation or peak firing modes, and corrected the btu content of distillate oil.
4. Page 7 of 14, Condition 5 – Simple Cycle Operation: The draft language disallowing netting is not supported by the Department's or EPA's rules. FPL has no current plans to convert these units to combined cycle mode; but if that were to occur, the existing state and federal rules should apply, regarding baseline emissions and netting.
5. Page 7 of 14, Condition 6 – Power Augmentation and Peak Firing Modes: The draft permit did not contain the requested peak firing operating mode. FPL requests that this mode be made a part of the PSD permit, and suggests that a combination of the two alternate operating modes be permitted; a maximum of 500 hours / year of power augmentation mode is requested, including 60 hours of peak mode operation; each hour of peak operation would decrease the power augmentation balance hours by 1.25 hours. This approach would result in no increase in the TPY emissions from this mode of operation.
6. Page 8 of 14, Condition 8 – Hours of Operation and Fuel Usage: FPL requests that annual heat input for both gas and oil operation be used as a surrogate for operating hours, in order to provide additional operating flexibility. We have proposed annual limits based on ISO conditions.



7. Page 8 of 14, Condition 10 – Automated Control System: The control system which FPL uses comes directly from GE. Some changes are requested to better describe what actually happens.
8. Page 9 of 14, Condition 12 – DLN Combustion Technology Installation: FPL requests that the term “tuning” be removed, since the term “maintenance” covers this activity. Language is requested that more accurately describes the relationship between CO and NOx formation.
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13. Page 10 of 14, Condition 17 – FPL requests that excess emissions excess emissions language in the permit should be reflective of DEP rule 62-210.700(4). Power augmentation is not appropriate to include, and further, the inclusion of data in the 3-hour averages is inappropriate because this data is already required to be reported in a per-occurrence basis in the quarterly excess emissions report.
14. Page 11 of 14, Condition 18(c) – FPL requests that this condition be deleted. Rule 62-210.700(1) and (5) does not impose a limit on opacity values, other than to minimize them.
15. Page 11 of 14, Condition 21 – Initial Tests Required: FPL requests that language be inserted to clarify the corrections to test data required by NSPS as opposed to those required by BACT limits.
16. Page 12 of 14, Condition 22 – Annual Performance Tests: FPL requests that a trigger level of 200 hours of distillate oil operation per year is appropriate and consistent with the Department’s rules (reference 62-297-310.(7)(a) 8) which uses a 400 hour threshold for visible emission testing. And, the CEM will be operating during oil operation which will provide the Department quality-assured data for any oil operating hours.
17. Page 12 of 14, Condition 24 – Tests After Substantial Modification: FPL requests this condition be deleted. “Substantial modification” is not defined in DEP’s rules; however “modification” is, and specifically exempts routine replacement of component parts such as dry low NOx combustors.
18. Page 13 of 14, Condition 25(c) – FPL requests this condition be deleted. Condition 25(b) has been thoroughly reviewed by the utility industry and painstakingly negotiated. No basis exists in the Department’s rule to require this condition.
19. Condition 26 – NOx CEMs: The language is suggested in order to make the Martin permit consistent with those issued by the Department for Fort Myers and Sanford.
20. Condition 26(c) – Data Reporting: The term “block average” is not defined, and it presents a number of problems. FPL requests that the word “block” be removed in order to provide some clarity.
21. Condition 26(e) – Power Augmentation Mode: There is no basis in the Department’s rules to require the cessation of operation in power augmentation should a CEM fail during this mode. The acid rain rules require a high level of CEM availability anyway (>95%), so this condition is superfluous.

22. Condition 28(c) – Alternate Monitoring Plan: FPL requests the addition of one phrase which clarifies that Specific Condition 27 will be satisfied by the alternate monitoring plan.
23. Condition 29 – Monthly Operation Summary: This would be a new requirement for any of FPL's facilities. The facility is already subject to a quarterly excess emissions report which could be adapted to include this information.
24. Section III, Emissions Performance Standards: The Department has restricted the opacity of emissions from the fuel gas heaters to 5%. A 10% limit is requested.

Jeff, I appreciate your excellent work on this application and draft permit and look forward to working with you to resolve these issues. I have attached a marked-up copy of the draft permit for your use. Please do not hesitate to contact me at (561) 691-7058 if I you have any questions.

Very truly yours,



Rich Piper  
Repowering Licensing Manager  
Florida Power & Light Company

cc: D. Ouen, PPS  
EPA  
NPS  
SED

(DRAFT)

**PERMITTEE:**

Florida Power and Light Company – Martin Plant  
P.O. Box 176  
Indiantown, FL 34956

ARMS Permit No.	0850001-008-AC
PSD Permit No.	PSD-FL-286
Facility ID No.	0850001
SIC No.	4911
Expires:	June 1, 2002

*Authorized Representative:*

John M. Lindsay, Plant General Manager

**PROJECT AND LOCATION**

This permit is issued pursuant to the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality. The permit authorizes installation at the existing power plant of two simple cycle, 170 MW combustion turbines with electrical generator sets fired primarily with natural gas.

The project will be constructed at the existing FPL Martin Power Plant located in the western part of unincorporated Martin County approximately seven miles north of Indiantown on State Road 710. The UTM coordinates are Zone 17, 543.1 km E, 2992.9 km N and the map coordinates are Latitude 27° 03' 13", Longitude 80° 33' 46".

**STATEMENT OF BASIS**

This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and 40 CFR 52.21. 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.

**APPENDICES**

The following Appendices are attached as part of this permit.

- Appendix A - Terminology
- Appendix BD - Department's BACT Determinations
- Appendix E - Emissions Standards Summary
- Appendix GC - Construction Permit General Conditions
- Appendix GG - NSPS Subpart GG Requirements for Gas Turbines
- Appendix XS - CEMS Excess Emissions Report

(DRAFT)

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Howard L. Rhodes, Director  
Division of Air Resources Management

Date: \_\_\_\_\_

## SECTION I. FACILITY INFORMATION (DRAFT)

### FACILITY DESCRIPTION

The existing FPL Martin Power Plant currently consists of four electrical generating units. Fossil fuel-fired steam electric generators Nos. 1 and 2 (800 MW each) were built in the 1970's and are fired with low sulfur residual oil and/or natural gas. Combined cycle units Nos. 3A, 3B, 4A, and 4B are General Electric Model 7F combustion turbines (170 MW each) plus heat recovery steam generators. Each pair of gas turbines (3A/3B and 4A/4B) shares a common steam-electrical turbine (160 MW each). Completion of the two new 170 MW simple cycle combustion turbines will bring the electric power generation to a nominal 2940 MW.

### NEW EMISSIONS UNITS

The proposed project will add the following new emissions units.

ARMS ID No.	Emission Unit Description
011	<u>Simple Cycle Unit No. 85A</u> : A General Electric Model PG7241(FA) simple cycle combustion turbine with electrical generator set designed to produce a nominal 170 MW of direct power.
012	<u>Simple Cycle Unit No. 85B</u> : A General Electric Model PG7241(FA) simple cycle combustion turbine with electrical generator set designed to produce a nominal 170 MW of direct power.
13	<u>Two Natural Gas Fuel Heaters</u> : Each gas fuel heater is fired with a maximum heat input of 23.71 mmBTU per hour of natural gas.
14	<u>Oil Storage Tank</u> : 2.1 million-gallon storage tank supplies low sulfur distillate oil as a backup fuel to simple cycle combustion turbine Nos. 5A and 5B.

### REGULATORY CLASSIFICATION

HAPs: Based on the Title V permit, the existing facility is a major source of hazardous air pollutants (Title III). This project is not, in and of itself, major for HAPs.

Acid Rain: The existing facility is subject to the acid rain provisions of the Clean Air Act (Title IV).

Title V Major Source: The existing facility is a Title V major source of air pollution because potential emissions of at least one pollutant such as carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), or volatile organic compounds (VOC) exceed 100 tons per year.

PSD Major Source: The existing facility is classified as a fossil fuel-fired steam electric plant, which is one of the source categories listed in Table 62-212.400-2, F.A.C. Because emissions of at least one pollutant exceed 100 tons per year, the existing facility is considered a major source of air pollution with respect to PSD. Therefore, each new project requires a PSD applicability review. For each potential emission increase greater than the Significant Emissions Rates specified in Table 62-212.400-2, F.A.C., a determination of Best Available Control Technology (BACT) is required. For this project, emissions of CO, NOx, PM/PM<sub>10</sub>, and SO<sub>2</sub> are significant and subject to the BACT standards specified in this permit.

NSPS Sources: Emissions units are subject to the New Source Performance Standards in 40 CFR 60 for the gas turbines (Subpart GG) and the oil storage tank (Subpart Kb).

### RELEVANT DOCUMENTS

- Permit application received on 02/19/00 and all related correspondence.

## SECTION II. COMMON CONDITIONS (DRAFT)

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The following conditions apply to all emissions units and activities defined for this project.

### GENERAL REQUIREMENTS

1. Permitting Authority: All documents related to applications for permits to construct, operate or modify an emissions unit should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (DEP), at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 and phone number 850/488-0114.
2. Compliance Authority: All documents related compliance activities such as reports, tests, and notifications should be submitted to the Air Resources Section of the Southeast District Office, Florida Department of Environmental Protection, 400 North Congress Avenue, P.O. Box 15425, West Palm Beach, Florida 33416-5425. The phone number is 561/681-6600 and the fax number is 561/681-6755.
3. Terminology: The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. *Appendix A* lists frequently used abbreviations and explains the format used to cite rules and regulations in this permit.
4. 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.]
5. 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, 62-17, 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 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 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 facility 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.]
6. 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)]
7. 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.]
8. BACT Determination: In conjunction with extension of the 18 month period to commence or continue construction, 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 52.166(j)(4)]
9. 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.]
10. 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.]

## SECTION II. COMMON CONDITIONS (DRAFT)

11. 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 Region 4 office of the U.S. Environmental Protection Agency in Atlanta, Georgia and a copy to the Department's Bureau of Air Regulation in Tallahassee. [40 CFR 72]
12. Title V Permit: This permit authorizes construction of the permitted emissions unit and initial operation to determine compliance with Department rules. A Title V operation permit is required for routine operation of the permitted emissions units. The permittee shall apply for and receive a Title V operation permit prior to expiration of this permit. 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 Department's Bureau of Air Regulation and a copy to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

### EMISSIONS AND CONTROLS

13. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]
14. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
15. 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. These emissions shall be included in the calculation of the 3-hour averages to demonstrate compliance with the continuous NOx emissions standard. [Rule 62-210.700(4), F.A.C.]
16. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify the Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]

### TESTING REQUIREMENTS

17. Test Notification: The permittee shall notify the Compliance Authority in writing at least 30 days prior to any initial NSPS performance tests and at least 15 days prior to any other required tests. [Rule 62-297.310(7)(a)9., F.A.C. and 40 CFR 60.7, 60.8]
18. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]
19. Applicable Test Procedures
  - (a) Required Sampling Time. Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes. The minimum observation period for a visible emissions compliance test shall be sixty (60) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur. [Rule 62-297.310(4)(a)1. and 2., F.A.C.]

## SECTION II. COMMON CONDITIONS (DRAFT)

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- (b) *Minimum Sample Volume.* Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet. [Rule 62-297.310(4)(b), F.A.C.]
- (c) *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C. [Rule 62-297.310(4)(d), F.A.C.]

### 20. Determination of Process Variables

- (a) *Required Equipment.* The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards. [Rule 62-297.310(5)(a), F.A.C.]
- (b) *Accuracy of Equipment.* Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value. [Rule 62-297.310(5)(b), F.A.C.]

21. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

### RECORDS

22. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2., F.A.C.]

### REPORTS

23. Emissions Performance Test Reports: A report indicating the results of any required emissions performance test shall be submitted to the Compliance Authority no later than 45 days after completion of the last test run. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8)(c), F.A.C. [Rule 62-297.310(8), F.A.C.].
24. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

**SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)**

**COMBUSTION TURBINES**

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

EU ID No.	Common Emission Unit Description
011 012	<p><u>Simple Cycle Units Nos. 85A and 85B</u>: Each unit consists of a General Electric Model PG7241(FA) combustion turbine, an electrical generator set, an automated gas turbine control system, an inlet air filtration system, an evaporative inlet air cooling system, an exhaust stack that is <del>8060</del> feet tall and <del>1822</del> feet in diameter, and associated support equipment.</p> <p><i>Natural Gas</i>: When firing 1858 mmBTU (HHV) per hour of natural gas, each unit produces a maximum 182 MW of power at a compressor inlet air temperature of 35° F. Dry low-NOx (DLN) combustion technology will control NOx emissions. Exhaust gases exit the stack with a volumetric flow rate of approximately 2,461,000 acfm at 1095° F.</p> <p><i>Distillate Oil</i>: When firing <del>2,008</del><del>1965</del> mmBTU per hour of low sulfur distillate oil as a backup fuel for up to 500 hours per year, each unit produces a maximum 189 MW of power at a compressor inlet air temperature of 35° F. Water injection will control NOx emissions. Exhaust gases exit the stack with a volumetric flow rate of approximately 2,539,000 acfm at 1075° F.</p> <p><i>Power Augmentation Mode</i>: When injecting steam during power augmentation mode for up to 500 hours per year, each unit produces a maximum 180 MW of power at a compressor inlet air temperature greater than 59° F <u>although this activity may be performed at lower ambient conditions</u>. Emissions of CO and NOx from the dry low-NOx combustion system will be slightly higher during the power augmentation mode. Exhaust gases exit the stack with a volumetric flow rate of approximately 2,403,000 acfm at 1130° F.</p>

Note: The official designation of these units are 8A and 8B. The higher stack and higher velocity resulting from the smaller stack diameter will decrease ground level impacts.

**APPLICABLE STANDARDS AND REGULATIONS**

1. BACT Determinations: The emissions units addressed in this section are subject to Best Available Control Technology (BACT) determinations for carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM<sub>10</sub>) and sulfur dioxide (SO<sub>2</sub>). [Rule 62-212.400, F.A.C.]
2. NSPS Requirements: Each combustion turbine shall comply with all applicable requirements of 40 CFR 60, adopted by reference in Rule 62-204.800(7)(b), F.A.C.
  - (a) *Subpart A, General Provisions*, 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
    - 40 CFR 60.19, General Notification and Reporting Requirements
  - (b) *Subpart GG, Standards of Performance for Stationary Gas Turbines* are identified in *Appendix GG* of this permit. These provisions include a requirement to correct test data to ISO conditions; however, such correction is not used for compliance determinations with the BACT standards.

**PERFORMANCE RESTRICTIONS**

3. Combustion Turbines: The permittee is authorized to install, tune, operate and maintain two new General Electric Model PG7241(FA) combustion turbines with electrical generator sets, each designed to produce a nominal 170 MW of electrical power. [Applicant Request; Design]



### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

#### COMBUSTION TURBINES

4. Permitted Capacity: The heat input to each combustion turbine from normal gas firing shall not exceed 1858 mmBTU per hour based on the following: 100% base load (182 MW); a higher heating value (HHV) of 23,127 BTU/lbm for natural gas; and compressor inlet air conditions of 35° F and 20% RH. The heat input to each combustion turbine from firing distillate oil shall not exceed 2,008,965 mmBTU per hour based on the following: 100% base load (189 MW); a higher heating value (HHV) of 19,469,365 BTU/lbm for distillate oil; and compressor inlet air conditions 35° F and 20% RH. The heat input to each combustion turbine from gas firing while in power augmentation or peak modes shall not exceed 1,918 mmBTU per hour based on the following: 100% base load (182 MW); a higher heating value (HHV) of 23,127 BTU/lbm for natural gas; and compressor inlet air conditions of 35° F and 20% RH. The permittee shall provide the 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. Heat input rates will vary depending upon ambient conditions and the combustion turbine characteristics. Compliance shall be determined by data compiled from the automated gas turbine control system. This data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. [Design; Rule 62-210.200(PTE), F.A.C.] Note: The distillate oil firing heat input reflects the information in the application and the basis of HHV to LHV of distillate fuel oil (i.e., a ratio of 1.06). The heat capacities of power augmentation and peak modes should be included.
5. Simple Cycle Operation Only: Each combustion turbine is intended to ~~shall~~ operate only in simple cycle mode. ~~This restriction is based on the permittee's request, which formed the basis of the CO and NOx BACT determinations and resulted in the emission standards specified in this permit. Specifically, the CO and NOx BACT determinations eliminated several control alternatives based on technical considerations due to the elevated temperatures of the exhaust gas as well as costs related to operation as peaking units. If these units are modified to combined cycle operation, the requirements in Chapter 62-212 F.A.C. shall be followed in determining PSD applicability and requirements. Any request to convert these units to combined cycle operation or increase the allowable hours of operation shall be considered a phased project and will require a new PSD permit as if the existing project had never been constructed (no netting). Note: At the time of permit issuance, selective catalytic reduction was capable of achieving a NOx emission rate of 3.5 ppmvd corrected to 15% oxygen. [Rule 62-212.400(6)(b), F.A.C.; 40 CFR 51.166(j)(4)] Note: This requirement goes beyond the regulatory framework of PSD applicability and is not appropriate as a specific permit condition. If converted to combined cycle, PSD applicability will be governed by the Department's Rules in Chapter 62-212 F.A.C and the definitions in Chapter 62-210 F.A.C. As such PSD applicability must be evaluated from a facility basis, rather than from an emission unit basis. As mentioned in several correspondences, including FPL's 10-Year Site Plan, submitted annually to the Florida Public Service Commission, these units are not currently part of a phased construction project.~~
6. Allowable Fuels: Each combustion turbine shall be designed and tuned for a primary fuel of pipeline-quality natural gas containing no more than 1 grain of sulfur per 100 dry standard cubic feet of gas. As a backup fuel, each combustion turbine may be fired with low sulfur No. 2 distillate oil (or a superior grade) containing no more than 0.05% sulfur by weight. No other fuels are authorized by this permit. It is noted that both limitations are much more stringent than the sulfur dioxide limitation in 40 CFR 60, NSPS Subpart GG and assures compliance with regulations 40 CFR 60.333 and 60.334 of this subpart. The permittee shall demonstrate compliance with the fuel sulfur limits by keeping the records specified in this permit. [Application; Rule 62-210.200(PTE), F.A.C.]
7. Power Augmentation and Peak Firing Modes: In accordance with the manufacturer's recommendations, steam may be injected into each combustion turbine or the turbine operated at higher firing temperatures when firing natural gas to provide additional peaking power during periods of high electrical power demand. Each unit shall not exceed total of 500 hours of operation - power augmentation including a maximum of 60 hours of peak firing during any consecutive 12 months. The total amount of power augmentation/peak firing (i.e., 500 hours) is decreased by 1.25 hours for each hour operated in peak firing

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

### COMBUSTION TURBINES

mode. To qualify as "power augmentation mode", the combustion turbine must operate at a load of 95% or greater than that of the manufacturer's maximum base load rate adjusted for the compressor inlet air conditions. Prior to activating and after deactivating power augmentation/peak firing, the operator shall log the date, time, and new mode of operation. Power augmentation or peak firing when firing distillate oil is prohibited. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.] Note: Peak mode is a requested mode of operation that will only be used in emergency conditions to provide additional electric power. The 60 dayshours would provide about 2.5 days of service. The decrease in hours of 1.25 hour is based on the ratio of NOx emissions for each mode (i.e., 15 ppmvd/12 ppmvd). With this condition, there is no increase in tons/year emissions from this mode of operation being added to the draft permit. The condition requiring 95% or greater of baseload should be omitted, since the GE control system will regulate the power augmentation and peak modes.

8. Hours of Operation and Fuel Usage: ~~Each~~ Both combustion turbines shall be limited to 12,041,280 mmBtu when firing natural gas during any consecutive 12 months which is equivalent to operating ~~no more than both turbines for 3390 hours over during any consecutive 12 months at ISO conditions. Of this total.~~ Each unit shall not exceed 500 hours of power augmentation/peak firing modes during any consecutive 12 months; the total amount of power augmentation/peak firing (i.e., 500 hours) is decreased by 1.25 hours for each hour operated in peak firing mode. ~~and~~ Both combustion turbines shall be limited to 14 million gallons of distillate oil during any consecutive 12 month period, which is equivalent of operating both turbines for 500 hours of distillate oil firing during any consecutive over 12 months at ISO conditions. The permittee shall install, calibrate, operate and maintain a monitoring system for each combustion turbine to measure and accumulate the quantity of fuel and hours of operation for each mode of operation. [Applicant Request; Rules 62-212.400(BACT) and 62-210.200(PTE), F.A.C.] Note: The use of a cumulative fuel limitation for both turbines, rather than hours of operation will allow flexibility to operate the turbines. ISO conditions are used as the basis since this is the basis of the annual emissions estimates. The requested fuel limit of 12,041,280 for natural gas firing is calculated based on 1,776 mmBtu/hr (HHV-ISO) times 3,390 hours per year times 2 turbines. The requested fuel limit for oil firing of 14 million gallons is calculated based on 1,919 mmBtu/hr (HHV-ISO) divided by 137.7 mmBtu (HHV)/1,000 gallon times 500 hours times 2 turbines.
9. Operating Procedures: The Best Available Control Technology (BACT) determinations established by this permit rely on "good operating practices" to minimize emissions. Therefore, all operators and supervisors shall be properly trained to operate and maintain the combustion turbines and pollution control systems in accordance with the guidelines and procedures established by the manufacturer. The training shall include good operating practices as well as methods of minimizing excess emissions. [Applicant Request; Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

### EMISSIONS CONTROLS

10. Automated Control System: In accordance with the manufacturer's recommendations, the permittee intends to shall install, calibrate, tune, operate, and maintain a Speedtronic™ automated gas turbine control system for each unit. Each system ~~shall be~~ is designed by the manufacturer and operated to monitor and control the gas turbine combustion process and operating parameters including, but not limited to: air/fuel distribution and staging, turbine speed, load conditions, ~~combustion temperatures~~, heat input, and fully automated startup, and shutdown, ~~and cool down.~~ [Design; 62-212.400(BACT), F.A.C.] Note: FPL has no control over the design of the control system. With the exception of the peak firing, the control system is General Electric's standard system. Please note that GE's system does not monitor combustion temperature but rather several temperatures in system including the first blade of the power turbine. The term "cool down" is redundant to shutdown in the context of the sentence.

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

### COMBUSTION TURBINES

11. DLN Combustion Technology: In accordance with the manufacturer's recommendations, the permittee shall install, ~~use~~ operate and maintain the General Electric dry low-NOx combustion system (DLN 2.6 or better) to control NOx emissions from each gas turbine. [Design; Rule 62-212.400(BACT), F.A.C.]
12. DLN Combustion Technology Installation Tuning: Prior to the initial emissions performance tests for each gas turbine, the DLN 2.6 combustors and automated gas turbine control systems shall be installed ~~tuned~~ to optimize the reduction of CO, NOx, and VOC emissions. Thereafter, each system shall be maintained ~~and tuned~~ in accordance with the manufacturer's recommendations to minimize these pollutant emissions. ~~During tuning sessions, each combustion turbine shall be tuned for CO and NOx emissions performance of 9.0 ppmvd corrected to 15% oxygen or better. [Design; Rule 62-212.400(BACT), F.A.C.] Note: The term "tuned" should be omitted since the term "maintenance" implicitly reflects that the permittee must maintain the system according to manufacturer's specifications. The last sentence is contrary to the mechanism of CO and NOx formation (i.e., they are inversely related) and redundant to the emission limitation contained in the permit. Moreover, the control systems will be optimized for NOx control, since continuous compliance is based on NOx.~~

### EMISSIONS STANDARDS

*{Permitting Note: A summary table of the emissions standards is provided in Appendix E of this permit.}*

#### 13. Carbon Monoxide (CO)

- (a) Gas Firing, Normal: When firing natural gas under normal operating conditions, CO emissions from each combustion turbine shall not exceed 32.0 pounds per hour and 9.0 ppmvd corrected to 15% oxygen based on a 3-hour test average conducted at base load.
- (b) Gas Firing With Power Augmentation or Peak Firing: When firing natural gas and injecting steam to provide power augmentation or in peak firing mode, CO emissions from each combustion turbine shall not exceed 47.0 pounds per hour and 15.0 ppmvd corrected to 15% oxygen based on a 3-hour test average conducted at base load or higher.
- (c) Distillate Oil Firing: When firing low sulfur distillate oil as a backup fuel, CO emissions from each combustion turbine shall not exceed 68.0 pounds per hour and 20.0 ppmvd corrected to 15% oxygen based on a 3-hour test average conducted at base load.

The permittee shall demonstrate compliance with these standards by conducting performance tests in accordance with EPA Method 10 and the requirements of this permit. [Rule 62-212.400(BACT), F.A.C.]

#### 14. Nitrogen Oxides (NOx)

- (a) Gas Firing, Normal: When firing natural gas under normal operating conditions, NOx emissions from each combustion turbine shall not exceed 66.0 pounds per hour and 9.0 ppmvd corrected to 15% oxygen based on a 3-hour test average conducted at base load. In addition, NOx emissions shall not exceed 10.0 ppmvd corrected to 15% oxygen based on a 3-hour block average for data collected from the NOx continuous emissions monitor.
- (b) Gas Firing With Power Augmentation or Peak Firing: When firing natural gas and injecting steam to provide power augmentation, NOx emissions from each combustion turbine shall not exceed 82.0 pounds per hour and 12.0 ppmvd corrected to 15% oxygen based on a 3-hour test average conducted at base load or higher. In addition, NOx emissions shall not exceed 12.0 ppmvd corrected to 15% oxygen based on a 3-hour block average for data collected from the NOx continuous emissions monitor. When firing natural gas and in peak firing mode, NOx emissions from each combustion turbine shall not exceed 105 pounds per hour and 15.0 ppmvd corrected to 15% oxygen based on a 3-hour test average conducted at base load or higher. In addition, NOx emissions shall not exceed 15.0 ppmvd corrected to

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

#### COMBUSTION TURBINES

15% oxygen based on a 3-hour block average for data collected from the NOx continuous emissions monitor

- (c) *Distillate Oil Firing:* When firing low sulfur distillate oil as a backup fuel, NOx emissions from each combustion turbine shall not exceed 334.0 pounds per hour and 42.0 ppmvd corrected to 15% oxygen based on a 3-hour test average conducted at base load. In addition, NOx emissions shall not exceed 42.0 ppmvd corrected to 15% oxygen based on a 3-hour block average for data collected from the NOx continuous emissions monitor.

NOx emissions are defined as oxides of nitrogen measured as NO<sub>2</sub>. The permittee shall demonstrate compliance by conducting performance tests and emissions monitoring in accordance with EPA Methods 7E, or 20, and the requirements of this permit. [Rule 62-212.400(BACT), F.A.C.; 40 CFR 60.332] Note: The "or" clarifies the intent of the sentence to allow either EPA Method.

#### 15. Particulate Matter (PM/PM<sub>10</sub>) and Sulfur Dioxide (SO<sub>2</sub>)

- (a) *Fuel Specifications.* Emissions of PM, PM<sub>10</sub>, and SO<sub>2</sub> shall be limited by the use of pipeline-quality natural gas containing no more than 1 grain per standard cubic feet as the primary fuel and restricted use of No. 2 distillate oil (or a superior grade) containing no more than 0.05% sulfur by weight as a backup fuel. The fuel specifications are work practice standards established as BACT limits for PM, PM<sub>10</sub>, and SO<sub>2</sub> emissions. The permittee shall demonstrate compliance with the fuel sulfur limits by maintaining the records specified in this permit. [Rule 62-212.400(BACT), F.A.C.; 40 CFR 60.333]
- (b) *VE Standard.* When firing natural gas with or without power augmentation, visible emissions from each combustion turbine shall not exceed 105% opacity, based on a 6-minute average. When firing distillate oil, visible emissions from each combustion turbine shall not exceed 10% opacity, based on a 6-minute average. The visible emissions limits are work practice standards established as BACT limits for PM and PM<sub>10</sub> emissions. The permittee shall demonstrate compliance with these standards by conducting tests in accordance with EPA Method 9 and the performance testing requirements of this permit. [Rule 62-212.400(BACT), F.A.C.] Note: A 10% opacity is appropriate for both natural gas and distillate oil firing based on previous FDEP permits (see IPS Desoto).

#### 16. Volatile Organic Compounds (VOC)

- (a) *Gas Firing With or Without Power Augmentation/Peak Firing:* When firing natural gas, VOC emissions shall not exceed 3.0 pounds per hour and 1.5 ppmvw based on a 3-hour test average conducted at base load.
- (b) *Distillate Oil Firing:* When firing distillate oil, VOC emissions shall not exceed 7.5 pounds per hour and 3.5 ppmvw based on a 3-hour test average conducted at base load.

The VOC standards are established as PSD-synthetic minor limits. VOC emissions shall be measured and reported in terms of methane. The permittee shall demonstrate compliance with these standards by conducting tests in accordance with EPA Methods 25 or, 25A, and the performance testing requirements of this permit. Optional testing in accordance with EPA Method 18 may be conducted to account for the actual methane fraction of the measured VOC emissions. [Design; Rule 62-4.070(3), F.A.C.]

#### EXCESS EMISSIONS

17. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, ~~power augmentation~~, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction, shall be prohibited. ~~All such emissions shall be included in the calculation of the 3-hour averages to demonstrate compliance with the continuous NOx emissions standard.~~ [Rule 62-210.700(4), F.A.C.] Note: This language goes beyond the rule identified for the condition and that

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

### COMBUSTION TURBINES

incorporated in other permits. Moreover, and emission in excess of the limits must be reported in the quarterly report and identified as to the reason for the emission exceedance.

18. Excess Emissions Allowed: For each combustion turbine, excess NOx and visible emissions during startup, shutdown, and documented malfunction shall be allowed, providing:
- Operators employ best operational practices to minimize the amount and duration of excess emissions.
  - Operation below 50% of base load shall not exceed 120 minutes during any calendar day.
  - ~~During startup and shutdown, visible emissions excluding water vapor shall not exceed 20% opacity for up to ten, 6-minute observation periods during any calendar day. Data for each observation period shall be exclusive for the ten periods.~~ [Design and Rule 62-210.700(1) and (5), F.A.C.]Note: This goes beyond the excess emission rule, which does not specify limits that may occur during excess emissions.
  - During all startups, shutdowns, and malfunctions, the NOx CEM shall monitor and record NOx emissions. For excess NOx emissions due startup, shutdown, and documented malfunctions during any calendar day, two hourly averages of monitoring data ~~shall may~~ be excluded from the continuous NOx compliance demonstration. For excess NOx emissions due to malfunction, the permittee shall notify the Compliance Authority within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. [Design; Rule 62-210.700(1) and (5); Rule 62-4.130, F.A.C.]Note: The cited rules allow the exclusion of these occurrences.

### EMISSIONS PERFORMANCE TESTING

19. Sampling Facilities: The permittee shall design the combustion turbine stack to accommodate adequate testing and sampling locations in order to determine compliance with the applicable emission limits specified by this permit. Permanent stack sampling facilities shall be installed in accordance with Rule 62-297.310(6), F.A.C. [Rules 62-4.070 and 62-204.800, F.A.C.; 40 CFR 60.40a(b)]
20. Test Methods: Compliance tests shall be performed in accordance with the following reference methods as described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C.
- EPA Method 7E - Determination of Nitrogen Oxide Emissions from Stationary Sources
  - EPA Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources
  - EPA Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources
  - EPA Method 20 - Determination of Oxides of Nitrogen Oxide, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
  - EPA Methods 25 or 25A - Determination of Volatile Organic Concentrations *{Note: EPA Method 18 may be conducted to account for the non-regulated methane fraction of the measured VOC emissions.}*

No other methods may be used for compliance testing unless prior written approval is received from the administrator of the Department's Emissions Monitoring Section in accordance with an alternate sampling procedure pursuant to 62-297.620, F.A.C. [40 CFR 60, Appendix A; Rule 62-204.800, F.A.C.]

21. Initial Tests Required: Initial performance tests to demonstrate compliance with each emission standard for normal gas firing, gas firing with power augmentation, and backup distillate oil firing shall be conducted within 60 days after achieving the maximum production rate, but not later than 180 days after initial operation of each emissions unit. Initial performance tests shall be conducted for CO, NOx, VOC and visible emissions. Tests for CO, NOx, and VOC shall be conducted concurrently. NOx performance tests shall be conducted in accordance with the requirements of NSPS Subpart GG and emissions data also shall be converted into units specified in Subpart GG to demonstrate compliance with the NSPS emissions

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

### COMBUSTION TURBINES

standard. [Rule 62-297.310(7)(a)1., F.A.C.; 40 CFR 60.335] Note: This clarifies the intent of the sentence. The NSPS has an ISO correction equation that is not applicable to the BACT limits.

22. Annual Performance Tests: Annual performance tests shall be conducted for each combustion turbine to demonstrate compliance with CO, NO<sub>x</sub>, and visible emissions standards for normal gas firing, gas firing with power augmentation, and backup distillate oil firing. Tests required on an annual basis shall be conducted at least once during each federal fiscal year (October 1<sup>st</sup> to September 30<sup>th</sup>). CO and NO<sub>x</sub> performance tests shall be conducted concurrently. If conducted at permitted capacity, NO<sub>x</sub> emissions data collected during the annual NO<sub>x</sub> continuous monitor RATA required pursuant to 40 CFR 75 may be substituted for the required annual performance test.

(a) If ~~no~~ distillate oil was fired less than 200 hours during the previous 1224 months of operation (~~other than for purposes of testing~~), the annual performance tests when firing distillate oil shall not be required. Note: This request is consistent with the Department's rules (i.e., allowing a certain limited hours of operation during a year) and provides a window for having tests conducted. Moreover, the CEMS will still be operating during any operation on oil and provide the Department reasonable assurance that the emission limits are not being exceeded.

(b) If power augmentation and peak firing ~~were not used~~ operated less than 200 hours during the previous 1224 months of operation (other than for purposes of testing), the annual performance tests for that mode of operation shall not be required. (See note above.)

[Rule 62-297.310(7)(a)4., F.A.C.]

23. Tests Prior to Permit Renewal: Prior to renewing air operation permits, performance tests shall be conducted for each combustion turbine to demonstrate compliance with the CO, NO<sub>x</sub>, VOC and visible emissions standards for normal gas firing, gas firing with power augmentation, and backup oil firing. Tests for CO, NO<sub>x</sub>, and VOC emissions shall be conducted concurrently. All tests shall be conducted within the 12 months prior to renewing the air operation permit. [Rule 62-297.310(7)(a)3., F.A.C.]

24. ~~Tests After Substantial Modifications:~~ All performance tests required for initial startup shall also be conducted after any substantial modification and appropriate shakedown period of air pollution control equipment, including the replacement of dry low-NO<sub>x</sub> combustors. Shakedown periods shall not exceed 100 days after re-starting the combustion turbine. [Rules 62-297.310(7)(a)4. and 62-4.070(3), F.A.C.] Note: This condition has no regulatory basis in Department's rules. Modifications are specifically defined in Chapter 62-210 and the term "substantial modification" has no definition. Moreover, routine maintenance is specifically allowed as an exclusion to the term modification. Inclusion of this condition will only create confusion since it cannot be interpreted by any of the Department's rules or guidance. It should be recognized that continuous compliance using CEMS is required by the permit for the main air pollutant of concern, NO<sub>x</sub>. This alone provides the Department assurance that any routine maintenance activities will meet emission standards.

25. Combustion Turbine Testing Capacity

(a) Initial performance tests shall be conducted in accordance with 40 CFR 60.8 and 40 CFR 60.335 for pollutants subject to New Source Performance Standards (NSPS) in Subpart GG for gas turbines.

(b) Other required performance tests for compliance with standards specified in this permit shall be conducted with the combustion turbine operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the maximum heat input rate allowed by the permit, corrected for the average compressor inlet air temperature during the test (with 100 percent represented by a curve depicting heat input vs. compressor inlet temperature). If it is impracticable to test at permitted capacity, the source may be tested at less than permitted capacity. However, subsequent operation is limited by adjusting the entire heat input vs. ambient temperature curve downward by an increment equal to the difference

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

#### COMBUSTION TURBINES

between the maximum permitted heat input (corrected for inlet temperature) and 110 percent of the value reached during the test until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purposes of additional compliance testing to regain the permitted capacity. Emissions performance tests shall meet all applicable requirements of Chapters 62-204 and 62-297, F.A.C.

- (c) ~~Performance tests for gas firing with the power augmentation mode shall be conducted when operating each combustion turbine at a heat input rate of 100% or greater than that predicted by the manufacturer to achieve a maximum base load rate adjusted for the compressor inlet air conditions. The steam injection rate shall be no lower than 90% of the maximum steam injection rate. Note: Testing during power augmentation or peak firing modes should follow the same procedures in Specific Condition 25. (b) as during other times. The language in Specific Condition 25. (b) has been discussed, reviewed and acknowledged over the last 5 years as the appropriate for testing gas turbines. In addition, it has no basis in the Department's rules.~~

[Rule 62-297.310(2), F.A.C.; 40 CFR 60.335]

## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

### COMBUSTION TURBINES

#### CONTINUOUS MONITORING REQUIREMENTS

26. NO<sub>x</sub> CEMS: The permittee shall install, calibrate, operate, and maintain a CEMS to measure and record NO<sub>x</sub> and oxygen concentrations in each combustion turbine exhaust stack. A monitor for carbon dioxide may be used in place of the oxygen monitor, but the system shall be capable of correcting the emissions to 15% oxygen. The NO<sub>x</sub> monitoring devices shall comply with the certification requirements, quality assurance procedures, and all other provisions of Performance Specifications 2 and 3 as defined in Appendix B of 40 CFR 60 ~~and~~ the Acid Rain monitoring requirements of 40 CFR Part 75. A monitoring plan shall be provided to the Department's Emissions Monitoring Section, EPA Region 4, and the Compliance Authority for review no later than 45 days prior to the first scheduled certification test pursuant to 40 CFR 75.62. The plan shall consist of the following information: CEM equipment specifications, manufacturer, model, type, calibration and maintenance needs, and the proposed location. Note: The requirements of 40 CFR 60 and 40 CFR 75 conflict in some ways, regarding number & frequency of calibration gas checks, etc. The suggested "or" is consistent with the Fort Myers and Sanford air construction permits.

- (a) Installation. Each CEMS shall be installed, calibrated, and properly functioning prior to the initial performance tests. Each device shall comply with the applicable monitoring system requirements of 40 CFR 60.7(a)(5), 40 CFR 60.13, and Appendix F of 40 CFR 60 or 40 CFR Part 75.
- (b) Data Collection. Emissions shall be monitored and recorded at all times including startup, operation, shutdown, and malfunction except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments. Each valid 1-hour average shall be calculated using at least two valid data points at least 15 minutes apart.
- (c) Data Reporting. Data collected by the CEMS shall be used to demonstrate compliance with the emissions standards specified for each 3-hour ~~block~~ average. Emissions shall be reported in units of ppmvd corrected to 15% oxygen for each hour of operation. The compliance averages shall be determined by calculating the arithmetic average of a 3-hour ~~block~~ period of valid hourly emission rates. When a monitoring system reports emissions in excess of the standards allowed by this permit, the permittee shall notify the Compliance Authority within one ~~(+3)~~ working days of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. The Department may request a written report summarizing the excess emissions incident. The permittee shall also report excess emissions in a quarterly report as required by this permit. Note: The term "block average" is not defined, and presents a number of potential problems, such as 1) when does a block average start (i.e. is it predefined to run from 12-3, 3-6, etc., or does it begin at startup? 2) What happens during hours when the CEM data is not valid? 3) How are partial hours handled? Suggest that removing the word "block" may fix these problems.
- (d) Data Exclusion. Unless prohibited by 62-210.700 F.A.C., valid hourly emission rates shall not include periods of excess emissions due to start up, shutdown, or documented malfunction as described and limited under the excess emissions requirements of this permit. Because such data may be excluded, the 3-hour average to determine compliance need not consist of *consecutive* 1-hour emission rates.
- (e) Power Augmentation Mode. ~~In event of a CEMS malfunction or occurrence of excess emissions while operating in the power augmentation mode, the permittee shall immediately cease power augmentation and revert to normal gas firing or shut down the combustion turbine.~~ Note: There is no basis for this condition in the Department's rules. Power augmentation and peak firing should be treated as any other operating condition that provides for circumstances involving CEMS malfunctions.

[Rules 62-4.130, 62-4.160(8), 62-204.800, 62-210.700, 62-212.400(BACT), and 62-297.520, F.A.C.; 40 CFR 60.7; 40 CFR 75]



## SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

### COMBUSTION TURBINES

#### RECORDS

27. Fuel Records: The permittee shall demonstrate compliance with the fuel sulfur limits specified in this permit by maintaining the following records of the sulfur contents.

- (a) The permittee shall obtain data sheets from the vendor indicating the average sulfur content of the natural gas being supplied by 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 equivalent methods.
- (b) The permittee shall obtain data sheets from the vendor indicating the quantity and sulfur content of the distillate oil for each shipment delivered. Methods for determining the sulfur content of distillate oil shall be ASTM D 2880-71 or equivalent methods.

These methods shall be used to determine the sulfur content of the natural gas fired in accordance with any EPA-approved custom fuel monitoring schedule (see Alternate Monitoring Plan), natural gas supplier data or the natural gas sulfur content referenced in 40 CFR 75 Appendix D. The analysis may be performed by the permittee, a service contractor retained by the permittee, the fuel vendor, or any other qualified agency pursuant to 40 CFR 60.335(e). However, the permittee is responsible for ensuring that the procedures in 40 CFR 60.335 or 40 CFR 75 are used to determine the fuel sulfur content for compliance with the SO<sub>2</sub> standard in 40 CFR 60.333. [Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

28. Alternate Monitoring Plan: Subject to EPA approval, the following alternate monitoring may be used to demonstrate compliance.

- (a) Data collected from the NO<sub>x</sub> CEM shall be used in lieu of the water-to-fuel monitoring system required for reporting excess emissions in accordance with 40 CFR 60.334(c)(1) of NSPS, Subpart GG.
- (b) When requested by the Department, the CEMS emission rates for NO<sub>x</sub> on this unit shall be corrected to ISO conditions to demonstrate compliance with the NO<sub>x</sub> standard established in 40 CFR 60.332.
- (c) A *custom fuel monitoring schedule* pursuant to 40 CFR 75 Appendix D for natural gas may be used in lieu of the daily sampling requirements of Specific Condition 27 (40 CFR 60.334(b)(2)), provided:
  - (1) The permittee shall apply for an Acid Rain permit within the deadlines specified in 40 CFR 72.30.
  - (2) The permittee shall submit a monitoring plan, certified by the Authorized Representative, that commits to using a primary fuel of pipeline-supplied natural gas containing no more than 20 grain of sulfur per 100 SCF of gas pursuant to 40 CFR 75.11(d)(2).
  - (3) Each unit shall be monitored for SO<sub>2</sub> emissions using methods consistent with the requirements of 40 CFR 75 and certified by the USEPA.

This custom fuel-monitoring schedule will only be valid when pipeline natural gas is used as the primary fuel. If the primary fuel for these units is changed to a higher sulfur fuel, SO<sub>2</sub> emissions must be accounted for as required pursuant to 40 CFR 75.11(d). [40 CFR 60, Subpart GG; Applicant Request]

29. Monthly Operations Summary: ~~By the fifth calendar day of each month, the permittee shall record the hours of each mode of operation and the fuel consumption for each combustion turbine. The information shall be recorded in a written or electronic log and shall summarize the previous month of operation and the previous 12 months of operation. Information recorded and stored as an electronic file shall be available for inspection and printing within at least one day of a request from the Compliance Authority. [Rule 62-4.160(15), F.A.C.]~~ Note: The requirements for recording information by the fifth day of each month and submittal of information at least one day of a request goes beyond the "reasonable time" stated in the rule. Moreover, the reporting requirements of both the NSPS and Acid Rain Program govern the timeframes for submittal of information.

**SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)**

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**COMBUSTION TURBINES**

**REPORTS**

30. Quarterly Excess Emissions Reports: Following the NSPS format provided in Appendix XS of this permit, periods of startup, shutdown and malfunction shall be monitored, recorded and reported as excess emissions when emission levels exceed the standards specified in this permit. Within 30 days following each calendar quarter, the permittee shall submit a report on any periods of excess emissions that occurred during the previous calendar quarter to the Compliance Authority. [Rules 62-4.130, 62-204.800, 62-210.700(6), F.A.C.; and 40 CFR 60.7]

**SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)**

**FUEL HEATERS / STORAGE TANK**

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

EU ID No.	Emission Unit Description
13	<u>Two Natural Gas Fuel Heaters</u> : Each gas fuel heater is fired with a maximum heat input of 23.71 mmBTU per hour of natural gas.
14	<u>Oil Storage Tank</u> : 2.1 million-gallon storage tank supplies low sulfur distillate oil as a backup fuel to simple cycle combustion turbine Nos. 5A and 5B.

**RULE APPLICABILITY**

1. NSPS Subpart Kb Applicability: NSPS Subpart Kb applies to any storage tank with a capacity greater than or equal to 10,300 gallons (40 cubic meters) that is used to store volatile organic liquids for which construction, reconstruction, or modification is commenced after July 23, 1984. [Rule 62-204.800(7)(b)16., F.A.C.; 40 CFR 60.110b(a)]
2. Exemption from Portions of NSPS Subpart Kb: Tanks with a capacity greater than or equal to 40,000 gallons (151 cubic meters) storing a liquid with a maximum true vapor pressure less than 3.5 kPa are exempt from the General Provisions (40 CFR 60, Subpart A) and from the provisions of NSPS Subpart Kb, *except* for the record keeping requirements specified below. [Rule 62-204.800(7)(b)16., F.A.C.; 40 CFR 60.110b(c)]

**PERFORMANCE RESTRICTIONS**

3. Equipment: The permittee is authorized to install, operate, and maintain the following emissions units and supporting equipment: two gas fuel heaters fired solely with natural gas (23.71 mmBTU per hour) designed to heat the natural gas supplied to simple cycle combustion turbines 5A and 5B; and one 2.1 million gallon distillate oil storage tank designed to provide low sulfur distillate oil to simple cycle combustion turbines 5A and 5B. [Applicant Request]
4. Hours of Operation: The hours of operation for the gas fuel heaters and distillate oil storage tank are not restricted (8760 hours per year). [Applicant Request; Rule 62-210.200(PTE), F.A.C. ]

**EMISSIONS PERFORMANCE STANDARDS**

5. Visible Emissions: Visible emissions of 105% opacity or less from the gas fuel heaters shall be an indicator of good combustion as determined by EPA Method 9. If visible emissions are greater than 105% opacity, the permittee shall investigate the cause and take the necessary corrective actions. This condition does not impose any initial or periodic testing. [Rules 62-4.070(3) and 62-210.700(4), F.A.C.; 40 CFR 60, Appendix A]

**RECORDS**

6. Records: For purposes of reporting in the Annual Operating Report, the permittee shall keep records sufficient to document the annual amount of natural gas fired in the gas fuel heaters and the annual throughput of distillate oil for the storage tank . [Rule 62-210.370(3), F.A.C.]
7. Oil Tank Records: The permittee shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage tank. Records shall be retained for the life of the facility. [Rule 62-204.800(7)(b)16., F.A.C.; 40 CFR 60.116b(a) and (b)]

## INTEROFFICE MEMORANDUM

**Date:** 12-May-2000 01:19pm  
**From:** Rich\_Piper  
Rich\_Piper@fpl.com  
**Dept:**  
**Tel No:**

**To:** Jeff Koerner TAL 850/414-7268 GIC 0 ( Jeff.Koerner@dep.state.fl.us )

**Subject:** Re: Correction to FPL Martin Public Notice

Thanks Jeff,

I've told the Okeechobee News to hold off publishing the Public Notice until we have a chance to talk. I'm meeting with Wanda Parker-Garvin at 1:30 Tuesday...that meeting should take no more than 1-1/2 hours; I should be able to meet with you around 3:30 or earlier. If you want to invite Al, that would be fine also.

- Rich

"Jeff Koerner TAL 850/414-7268 GIC 069" <Jeff.Koerner@dep.state.fl.us> on 05/11/2000 04:23:16 PM

To: "Rich\_Piper" <Rich\_Piper@fpl.com>  
cc: "Alvaro Linero TAL" <Alvaro.Linero@dep.state.fl.us>

Subject: Re: Correction to FPL Martin Public Notice

Rich,

Regarding a meeting for Tuesday the 16th, if you want to keep it on a "drop by" basis after noon, that's fine. I'm in Room 145 in Lucky Suite #13 across the courtyard from Suite #4. I'm usually here until 4:00, but can stay later if we need to. Remember, substantial changes to a Draft Permit require a new Public Notice.

Thanks!

Jeff

# INTEROFFICE MEMORANDUM

**Sensitivity:** COMPANY CONFIDENTIAL

**Date:** 11-May-2000 04:23pm  
**From:** Jeff Koerner TAL  
KOERNER\_J  
**Dept:** Air Resources Management  
**Tel No:** 850/414-7268 GIC 069

**To:** Rich\_Piper ( Rich\_Piper@fpl.com )  
**CC:** Alvaro Linero TAL ( LINERO\_A )

**Subject:** Re: Correction to FPL Martin Public Notice

Rich,

Regarding a meeting for Tuesday the 16th, if you want to keep it on a "drop by" basis after noon, that's fine. I'm in Room 145 in Lucky Suite #13 across the courtyard from Suite #4. I'm usually here until 4:00, but can stay later if we need to. Remember, substantial changes to a Draft Permit require a new Public Notice.

Thanks!

Jeff

# INTEROFFICE MEMORANDUM

**Date:** 11-May-2000 02:08pm  
**From:** Rich\_Piper  
Rich\_Piper@fpl.com  
**Dept:**  
**Tel No:**

**To:** Jeff Koerner TAL 850/414-7268 GIC 0 ( Jeff.Koerner@dep.state.fl.us )

**Subject:** Re: Correction to FPL Martin Public Notice

Thanks Jeff. I've made the correction. The ad should appear in the Okeechobee News on Sunday the 14th.

I can potentially meet with you on Tuesday afternoon, the 16th. I'm going to be in Tallahassee for a meeting at 1:30 with the DEP water folks in Twin Towers, but my flight home doesn't leave until 6:20, so I could drop by Magnolia courtyard when I get done at Twin Towers, if that works? Some of the issues will need Kosky's input, and he's out of town at that time, but since I'll be in the area, if you're available, I could stop by.

Let me know.

- Rich

"Jeff Koerner TAL 850/414-7268 GIC 069" <Jeff.Koerner@dep.state.fl.us> on 05/11/2000 09:26:21 AM

To: "Rich Piper" <Rich\_Piper@fpl.com>, "Ken Kosky" <kkosky@golder.com>  
cc: "James Stormer" <jim\_stormer@doh.state.fl.us>, "Isidore Goldman WPB" <Isidore.Goldman@dep.state.fl.us>

Subject: Correction to FPL Martin Public Notice

Rich,

Thanks! The correct District Office for the Martin Plant is the Southeast District Office and not the Central District Office. As you guessed, this remained from a previous project. Please revise the Public Notice to include the SED address, which is:

Department of Environmental Protection  
Southeast District Office  
400 North Congress Avenue (P.O. Box 15425)  
West Palm Beach, Florida 33416-5425

Telephone: 561/681-6600

Fax: 561/681-6755

I have also attached a revised electronic version for your convenience. I will not follow up with a hard copy unless you request one.

Please call if you need to schedule a meeting to discuss your comments on the draft permit.

Jeff

(See attached file: 286d\_INT.doc )

INTEROFFICE MEMORANDUM

Sensitivity: COMPANY CONFIDENTIAL Date: 11-May-2000 09:26am

From: Jeff Koerner TAL  
KOERNER\_J

Dept:  
Tel No:

To: Rich Piper ( Rich\_Piper@fpl.com )  
To: Ken Kosky ( kkosky@golder.com )  
CC: James Stormer ( jim\_stormer@doh.state.fl.us )  
CC: Isidore Goldman WPB ( GOLDMAN\_I @ A1 @ DEPWPB )

Subject: Correction to FPL Martin Public Notice

Rich,

Thanks! The correct District Office for the Martin Plant is the Southeast District Office and not the Central District Office. As you guessed, this remained from a previous project. Please revise the Public Notice to include the SED address, which is:

Department of Environmental Protection  
Southeast District Office  
400 North Congress Avenue (P.O. Box 15425)  
West Palm Beach, Florida 33416-5425  
Telephone: 561/681-6600  
Fax: 561/681-6755

I have also attached a revised electronic version for your convenience. I will not follow up with a hard copy unless you request one.

Please call if you need to schedule a meeting to discuss your comments on the draft permit.

Jeff

To: Rich Piper  
To: Ken Kosky  
CC: James Stormer  
CC: Isidore Goldman WPB



address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

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

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

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

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

Department of Environmental Protection  
Southeast District Office  
400 North Congress Avenue (P.O. Box 15425)  
West Palm Beach, Florida 33416-5425  
Telephone: 561/681-6600  
Fax: 561/681-6755

*only  
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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 Department's reviewing engineer for this project, Jeff Koerner, at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

{Note: This document was revised on 05/11/00 to correct the District Office location from the Central District to the Southeast District.}

notice to be published in the newspaper