



File

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

October 25, 1995

CERTIFIED MAIL- RETURN RECEIPT REQUESTED

Mr. Richard Piper, Environmental Specialist
Florida Power and Light
Post Office Box 088801
North Palm Beach, Florida 33408-8801

Dear Mr. Piper:

RE: Amendment of Permits No. AC43-4037, AC43-4038, AO43-170567, and AO43-170568
FPL Martin Plant Units 1 and 2. Request for additional information.

The Department has reviewed your September 15, and October 5, 1995, application for modification of the above referenced permits. It has been assigned the AIRS ID# 0850001. Please reference this number in all further correspondence. To process your application, the Department requests the following information:

1. Please provide an analysis of any increases in emissions in accordance with the requirements in 62-212.400 F.A.C., if the Department is to remove the fuel sulfur limit for the Martin Units 1 and 2.
2. Substitution of Method 5 with Method 17 will require an Alternate Sampling Procedure (ASP) request. The information outlined in 62-297.620 F.A.C., should be submitted to The Bureau of Air Monitoring and Mobile Sources, Emissions Monitoring, attention Mike Harley, if this substitution is desired.

We will resume processing the application after receipt of the above information. If you have any questions, please call me or Martin Costello at (904) 488-1344

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/mc/kw

cc: M. Harley, DEP
J. Kahn, SED
T. Tittle, SED

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

3. Enter fees for the services requested in the appropriate spaces on the front of this receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811

Marty



FPL

December 7, 1995

RECEIVED

DEC 11 1995

BUREAU OF
AIR REGULATION

Mr. A.A. Linero, P.E.
Administrator, New Source Section
State of Florida
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: **AIRS ID# AO43-0850001**
Amendment of FPL Martin Units 1 and 2 Operating and Construction Permits

In response to your letter of October 25, 1995, FPL is providing the following information that demonstrates that the Department rules given in 62-212.400 F.A.C. do not apply to our request to co-fire higher sulfur fuel oils with natural gas.

Change in the Method of Operation

FPL does not agree that co-firing fuel oil and natural gas is a change in the method of operation, regardless of the sulfur content of the fuel oil. The current operation permit provides for this operation when 1 percent fuel oil is co-fired with natural gas. When co-firing in this way, the controlling requirement is to assure that the sulfur dioxide *emissions limit* of 0.8 lb/mmBtu is met. The sulfur dioxide emission limit is a requirement of the New Source Performance Standards (NSPS) applicable to each unit [i.e., 40 Code of Federal Regulations (CFR) Part 60 Subpart D and rule 62-296.800 F.A.C.]. Co-firing is expressly allowed by the NSPS [refer to Section 60.43(c) which states: "Compliance shall be based on the total heat input from all fossil fuels burned, including gaseous fuels"]. In addition, as shown on the attached table which presents a comparison of emission when co-firing, emissions when co-firing would meet the NSPS emissions limits.

Capable of Accommodating

Even if the use of high sulfur oil is deemed a change in the method of operation, the Martin units would not be required to undergo PSD review due to the exemption in Rule 62-212.400(2)(c)4. F.A.C. which states:

"A modification that is to occur for any of the following reasons shall not be subject to the preconstruction review requirements of this section.....4) Use of an alternative fuel or raw material which the facility was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975..."

The Martin units "commenced construction" as defined in rule 62-212.200(19) F.A.C. prior to January 5, 1975 and were capable of accommodating any sulfur content fuel oil when the construction permits were issued on March 20, 1973. The emissions limits expressly stated in the construction permits and FDEP rules was the NSPS 40 CFR Part 60 Subpart D. Since the construction permit was issued, there have been no federally enforceable permit conditions that have limited the units ability to co-fire fuel oil and natural gas as long as the NSPS emission limit is met. As discussed on previous cases, FDEP-issued operation permits are not federally enforceable. Moreover, the use of the sulfur content in fuel is arguably not an emission limit but a description on how an emission limit would be met.

For these reasons the analysis of emission increases requested in your letter does not appear to be necessary, and I am requesting that the Department resume processing of the application in accordance with my previous request.

With respect to the Alternative Sampling Procedure you requested, FPL will follow this up with the Department at a later date.

As always, I would be pleased to discuss these issues with you or your staff. I may be reached at (407) 625-7661.

Very truly yours,



Rich Piper
Environmental Specialist
Florida Power & Light Company

cc: Tom Tittle

FDEP/SED

Example Emission Comparison for Co-Firing Residual Oil and Natural Gas at Martin Units 1 and 2

KBNRGP
12/7/05

Fuel Parameters	Current Permit	Current Permit	Co-Firing with 2.5% Sulfur Fuel			Co-Firing with 1% Sulfur Fuel		
	(Oil firing Only)	(Gas firing Only)	Oil 29.21%	Gas 70.79%	Total	Oil 73.13%	Gas 26.87%	Total
Heat Content (Btu/gal)	150,952	NA	150,952	NA		150,952	NA	
Heat Content (Btu/cf)	NA	1,000	NA	1000		NA	1000	
Heat Content (Btu/lb)	18,300	21,956	18,300	21,956		18,300	21,956	
Heat Input (MMBtu/hr)	8,650	9,040	2,526	6,124	8,650	6,326	2,324	8,650
Fuel Input (lb/hr)	472,678	411,733	138,050	278,907	416,957	345,668	105,861	451,529
Fuel Input (1,000 gal or MMcf)	57.3	9.04	16.74	6.12		41.91	2.32	
Sulfur Content:								
Oil (%)	0.70%	NA	2.50%	NA		1.00%	NA	
gas (grains/100cf)	NA	1.0	NA	1.0		NA	1	
Sulfur Dioxide								
Basis	NSPS Limit	1 gr/100cf	2.5% Sulfur	1 gr/100cf		1% Sulfur	1 gr/100cf	
Emissions Rate (lb/MMBtu)	0.8	0.0029	2.73	0.0029	0.8	1.09	0.0029	0.8
Emissions (lb/hr)	6,920	25.83	6,903	1,750	6,920	6,913	6.64	6,920
Particulate Matter								
Basis	NSPS Limit	AP-42	AP-42	AP-42		AP-42	AP-42	
Emissions Rate (lb/MMBtu)	0.1	0.003	0.17	0.003	0.05	0.08	0.003	0.06
Emissions (lb/hr)	865	27.12	438	18.37	457	520	6.97	527
Nitrogen Oxides								
Basis	NSPS Limit	NSPS Limit	NSPS Limit	NSPS Limit		NSPS Limit	NSPS Limit	
Emissions Rate (lb/MMBtu)	0.3	0.2	0.3	0.2	0.23	0.3	0.2	0.27
Emissions (lb/hr)	2,595	1,730	758	1225	1,983	1,898	465	2,363
Carbon Monoxide								
Basis	AP-42	AP-42	AP-42	AP-42		AP-42	AP-42	
Emissions Rate (lb/MMBtu)	0.033	0.04	0.033	0.04	0.038	0.033	0.04	0.035
Emissions (lb/hr)	286.5	361.6	84	245	329	210	93	302
Volatile Organic Compounds								
Basis	AP-42	AP-42	AP-42	AP-42		AP-42	AP-42	
Emissions Rate (lb/MMBtu)	0.005	0.0014	0.005	0.0014	0.002	0.005	0.0014	0.004
Emissions (lb/hr)	43.55	12.75	12.72	8.63	21.35	31.65	3.28	35.13



KBS PS

September 15, 1995

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SEP 16 1995

Mr. Clair Fancy
Chief, Bureau of Air Regulation
State of Florida
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Bureau of
Air Regulation

**Re: Amendment of Permits AC43-4037, AC43-4038, AO43-170568 and AO43-170567
FPL Martin Plant Units 1 and 2**

Dear Clair:

The purpose of this correspondence is to request that the Department modify the air construction and air operating permits for these two emission units.

The two subject units are oil and gas-fired steam electric generating units that are currently subject to 40 CFR 60, SubPart D regulation. FPL has installed, operated and maintained continuous emission monitors (CEMs) for SO₂ on these units pursuant to 1993 modifications of the air construction and air operating permits for these units as an indicator for SO₂ emissions during co-firing. In addition, FPL has continued to monitor the fuel sulfur content for these units on a monthly basis, in accordance with specific condition 5 in the aforementioned permits.

FPL proposes to begin utilizing the continuous emission monitor for SO₂ as the compliance method for this pollutant. Limiting emissions to 0.8 lb/mmBtu is consistent with 40 CFR Subpart D requirements. In view of this proposal, the requirement to also limit the sulfur content of the fuel oil sulfur content is superfluous and redundant. FPL suggests the following modified language to the air construction and air operating permits:

Unit 1 - Permit No. AC43-4037 and Unit 2 - Permit No. AC43-4038

Unit 1 - Permit No. AO43-170568 and Unit 2 - Permit No. AO43-170567

~~X~~ Source Description: An air pollution source consisting of a 800 MW Class Fossil Fuel-Fired Steam Generator Unit (900 megawatt gross capacity) equipped with Low Nox Dual Fuel Firing Burners to reduce emission of nitrogen oxides; and multicyclones to control particulate matter emissions. The unit burns ~~low sulfur fuel oil containing a maximum of 0.7% sulfur (by weight),~~ natural gas, or a mixture of ~~low sulfur fuel oil containing a maximum of 1.0% sulfur (by weight)~~ and natural gas in a ratio that will result in a maximum sulfur dioxide emission rate of 0.80 lbs/mmBtu heat input. In addition, the unit has a continuous emission monitoring system for opacity, NOx, and sulfur dioxide. The unit's heat input is 8,650 mmBtu/hr on oil and 9,040 mmBtu/hr on natural gas. When a blend of fuel oil and natural gas are burned, the heat input is prorated based on the percent heat input of each fuel.

~~Specific Condition No. 14: Prior to burning a blend of No. 6 fuel oil containing above 0.7 percent sulfur to a maximum of 1.0 percent sulfur, the permittee shall install, calibrate, maintain, and operate a continuous emissions monitor for sulfur dioxide that meets the requirements of Performance Specification 2 of 40 CFR 75. 60, Appendix B (July 1, 1992). The permittee shall utilize the continuous emission monitor for SO₂ as the method for determining compliance with the emission limit of 0.8 lb/mmBtu. In the event of a failure of the CEM, the permittee shall collect daily samples of fuel oil fired, and composite them over the duration that the CEM is inoperative, and then perform sulfur analysis on the sample to demonstrate compliance with the SO₂ emission limit until such time as the CEM is repaired and operational.~~

~~Specific Condition No. 5: Until such time when the Environmental Protection Agency (EPA) promulgates final rules regarding fuel sampling and test methods, the Department will accept the current fuel sampling and analysis program, provided that daily as fired fuel oil samples are composited and analyzed for sulfur content on a monthly basis to demonstrate compliance with the fuel oil sulfur content limits. Quarterly reports containing the results of monthly fuel oil sampling and analysis shall be submitted to the Department no later than thirty (30) days after the end of each quarter.~~

~~The permittee shall be allowed 90 days after promulgation of fuel sampling and analysis methods to implement an EPA approved method of monitoring sulfur dioxide emissions either by fuel sampling and analysis or continuous instack monitoring or other methods as approved under the provisions of 40 CFR 60.45.~~

FPL views this change as relatively minor in nature. The emission rate will not be affected, therefore PSD review should not be required.

I would like to thank the Department in advance for their consideration of this matter. As always, I would be pleased to answer any questions you may have. Please do not hesitate to contact me at (407) 625-7661.

Very truly yours,



Richard Piper
Environmental Specialist
Florida Power & Light Company

cc: Joe Kahn DEP / SED
 Tom Tittle DEP / SED



FPL

October 5, 1995

RECEIVED.

OCT 9 1995

Mr. Clair Fancy
 Chief, Bureau of Air Regulation
 State of Florida
 Department of Environmental Protection
 2600 Blair Stone Road
 Tallahassee, Florida 32399-2400

Bureau of
 Air Regulation

Re: Fee: Amendment of Permits AC43-4037, AC43-4038, AO43-170568 and AO43-170567
FPL Martin Plant Units 1 and 2

Dear Clair:

Pursuant to a conversation with Mr. Al Linero of your staff, enclosed please find a check in the amount of \$250.00 to cover the administrative costs of the FDEP processing the subject permit amendments for the FPL Martin Plant.

Due to some recent conversations with the Southeast District office, I would like to additionally suggest that the Department add the following change to the permits' Specific Condition #6:

Specific Condition No. 6: The Department may, after reviewing the quarterly opacity, nitrogen oxides, or sulfur dioxide excess emission reports, require the Permittee to perform testing in accordance with reference Method ~~5, 6, 7, 17, 6C, 7E~~, and / or 9 or alternate test methods approved by the Department. The Department will notify the Permittee of such request, as well as the objective for such testing. At the request of the Permittee, the Department will take into account any potential instrument error or malfunction before requiring the scheduling of tests. Substantive violations, as verified by reference method testing, are subject to appropriate legal action; moreover, repetitive violation shall require the Permittee to revise operating and/or maintenance practice to abate these violations.

I would also like to take the opportunity to thank the Department for working with industry to resolve these types of issues in a common-sense, non-bureaucratic fashion. As always, I would be pleased to answer any questions you may have. Please do not hesitate to contact me at (407) 625-7661.

Very truly yours,

Richard Piper
 Environmental Specialist
 Florida Power & Light Company

cc: Joe Kahn DEP / SED
 Tom Tittle DEP / SED
 al linero *FPL*
 an FPL Group company



file

April 12, 1995

Clair Fancy
Chief, Bureau of Air Regulation
State of Florida
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

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APR 13 1995

Bureau of
Air Regulation

Re: Florida Power & Light Company
Martin Power Plant
Temporary Permit Amendment

Dear Clair:

This correspondence is submitted to request from the Department a temporary permit amendment for FPL Martin Unit 4A combustion turbine. This emission unit is currently governed by PSD permit # PSD-FL-146 and Site Certification PA 89-27. This emission unit was placed into service on April 15, 1994. In September 1994, the Department granted a permit revision which allowed for testing of all four combustion turbines with redesigned combustor cans. Testing has been completed on three of the four combustion turbines as of this date.

However, FPL has, within the past few weeks, become aware of potential design issues in the compressor section of the GE combustion turbines. In order to adequately investigate these issues, FPL would like to conduct testing as described below.

Background

FPL has experienced two compressor failures on the 4A combustion turbine since October, 1994. There is no evidence that these failures are related to the dry low NOx combustors which, in their final design configuration, have performed well. The cause of these failures has not yet been determined. GE has identified additional problems with the same model combustion turbine in other installations outside of Florida. Some of these problems have been experienced at the Martin facility, but most were identified overseas. GE has initiated a world-wide test program to investigate the problems and identify their root cause. The root cause identification of the compressor failures and other related problems is the basis for a portion of the proposed test program.

Scope of Testing and Benefits

The test program that is contemplated for the 4A combustion turbine consists of five elements:

1. Compressor
2. Exhaust Diffuser
3. Vibration
4. Performance
5. Turbine Compartment

The purposes of the compressor testing are: 1) Verify the bolt clamping force at assembly and during machine operation; 2) Map the thermal response of the compressor rotor during operation; 3) Obtain rotor temperature data to determine the impact of temperatures on the compressor wheel; 4) Measure the dynamic response on stage 15 blades and stage 15 compressor wheel; and 5) Obtain operational data on the compressor.

The purpose of testing the exhaust diffuser is to determine the excitation mechanisms of the diffuser.

The purpose of the rotor vibration testing is to determine and understand vibrations during the various modes of operation.

The purpose of the performance testing is to determine the base load performance change with increased inlet guide vane (IGV) angle. This will allow determination of the firing temperature characteristics at current and future appropriate performance levels.

The purpose of the compartment temperature test is to monitor the turbine compartment during standard operating sequences.

Benefits of Testing

By performing this testing, FPL and GE will be able to determine what engineering design issues may exist in the compressor section of the combustion turbine, so they can be addressed and thus reduce the possibility of future failures of this component.

The Martin combined-cycle units are among the lowest-emitting as well as among the most efficient generating units in the FPL system. Therefore, when the Martin units are unavailable to provide generating capacity, other, higher-emitting units must be operated in order to make up the deficit in generating capacity.

Test Dates and Times

Unit 4A is currently out of service for an outage. The proposed test program is planned to commence on April 26, 1995, and to be completed on May 26, 1995 or 30 days after initial startup from the current outage. It is possible that the start date could change depending on when the unit is available to return to service. FPL has identified 75 to 100 hours of operation during the test period during which there is a potential for emissions to be higher than the current 25 ppm NOx permit basis. During that 75 to 100 hours,

emissions may at times be higher than the current permit limit of 177 pounds per hour of NOx.

Testing will be performed for 12-14 hours on a typical test day. However, the combustion turbine will be operated normally, in full compliance with current permit limits, during the remainder of each day during the testing period. During the evaluation and testing of the combustion turbine, all pollutant emissions will comply with applicable NSPS limits. Due to the fragile nature of the installed test instrumentation, the testing must be completed as soon as possible after the unit has been restarted from the current outage.

FPL understands that this temporary permit amendment will be in effect for 30 days after startup from the current outage or the completion of testing, whichever occurs first.

Attachment 1 to this letter is potential language for a Temporary Permit Amendment which FPL requests the Department issue, allowing the short-duration testing proposed herein.

FPL recognizes and is appreciative of the Department's cooperation in resolving this situation. Please do not hesitate to contact me at (407) 625-7661 if you have any questions. Thank-you in advance for your consideration of this matter.

Very Truly Yours,

Vince Elviani for Richard Piper

Richard Piper
Environmental Specialist
Florida Power & Light Company

cc: Hamilton S. Oven FDEP/Tallahassee
Tom Tittle FDEP/West Palm Beach

ATTACHMENT 1
TEMPORARY PERMIT AMENDMENT

Florida Power & Light Company is hereby authorized to perform operational testing on combustion turbine 4A for a maximum period of 30 days in order to evaluate potential design issues in the compressor section of the unit, subject to the following conditions:

1. The Department's Southeast District Air Program Administrator shall be notified either in writing or by facsimile, at least 3 days prior to the commencement of testing.
2. To allow time for evaluation and testing of alterations to the compressor section of the combustion turbine, the emission limitations in Specific Condition 4 of the referenced permit (PSD-FL-146) shall not apply on any day during which testing is being conducted during a 30-day period following startup after the current outage. This temporary permit amendment shall remain in effect for 30 days from startup after the current outage or until the testing is completed on combustion turbine 4A, whichever occurs first.
3. During the evaluation and testing of the combustion turbine all pollutant emissions shall comply with the emission limits specified by the New Source Performance Standards (NSPS) for CTs, 40 CFR 60, Subpart GG. The annual allowable emissions (TPY) of NOx for CT 4A in permit PSD-FL-146 shall not be exceeded.
4. During the test period, the currently permitted pounds per hour emission limits for NOx, CO and VOC shall apply as 24-hour average emission limits.
5. After completion of the testing period, CT 4A must be in compliance with all limitations in the referenced permit.