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W. ROBERT FOKES

February 2, 1993

FEB 2 1993

Hamilton S. Oven, Jr.
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399

RE: FPL Martin CG/CC Project, Request for Modification of Certification - PA 89-27

Dear Mr. Oven:

On behalf of Florida Power & Light Co. (FPL), we wish to submit the enclosed request for modification of site certification for the Martin CG/CC Project. This modification request is submitted to the Department of Environmental Regulation as a proposed agreement for modification, pursuant to section 403.516(1)(b), F.S., and Rule 17-17.211, FAC. A check in the amount of $10,000 payable to the Department is also enclosed as the fee for this modification request. Copies of this request are being sent to other parties to the certification order.

Details of this request are set forth in the proposed modification agreement and its supporting material. Proposed revised conditions of certification to address these changes are also included in the modification request. In addition to this request for modification of certification, FPL is also submitting a separate request to amend the PSD permit to make identical changes to those contained in this modification request. A copy of the material supporting the PSD permit amendment request is included in this modification request package.

Should the Department have any questions, FPL staff will be glad to discuss these matters. Please contact us should you have any questions.

Sincerely,

Peter C. Cunningham
Douglas S. Roberts

cc: Richard T. Donelan, Esq.
Counsel for Parties to Certification Order - PA 89-27

RECEIVED

FEB 0 4 1993

Division of Air
Resources Management

2/2/93

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

IN RE:	SITE CERTIFICATION, MARTIN CG/CC PROJECT; FLORIDA POWER & LIGHT CO.,	CERTIFICATION NO. PA 89-27

PROPOSED AGREEMENT FOR MODIFICATION OF SITE CERTIFICATION, INCLUDING ADDITIONAL CONDITIONS OF CERTIFICATION

I.

Florida Power & Light Co. (FPL) hereby requests a modification of the site certification, including conditions of certification, for the FPL Martin CG/CC Project (Project) pursuant to Section 403.516.(1)(b), Florida Statutes (F.S.), Rule 17-17.211, Florida Administrative Code (FAC) and Condition of Certification Number XXI. Those provisions authorize the Department of Environmental Regulation (DER) to modify the certification after public notice and opportunity for review by the public and by the parties to the original certification proceeding and upon no objection to the proposed modifications being raised.

This agreement for modification addresses several changes to the previously certified Project: alterations of the design and operating conditions for the auxiliary boiler and the diesel generator which will support the Project's operation; and clarification of certain startup provisions for the main generating units. FPL's proposed conditions of certification are presented in

Attachment 1. Simultaneously with this modification request, FPL is submitting a request to amend the separately-issued Prevention of Significant Deterioration (PSD) permit for the Project in the same manner. A copy of the supporting information for this proposal and the PSD amendment request are attached hereto and provide information on the proposed changes. In support of this modification, FPL states:

II.

On February 21, 1991, FPL was issued a final Site Certification Order by the Siting Board, pursuant to Chapter 403, Part II, F.S., authorizing the construction and operation of the Martin Coal Gasification/Combined Cycle (CG/CC) Project, subject to the provisions of the certification order and to the conditions of certification included in that order. That certification authorized the construction and operation of Martin Units 3 and 4, which are natural gas and oil-fired combined cycle electrical generating units currently under construction on the FPL Martin site in western Martin County, Florida. Those units each consist of two combustion turbines (CTs), two heat recovery steam generators (HRSGs) and a single steam turbine. The Project also includes various associated facilities that support the operation of the generating units, including an auxiliary boiler and an emergency diesel generator.

FPL has identified several needed modifications to the certification: 1) to authorize a different auxiliary boiler and

diesel generator, both with smaller capacity but with slightly increased emission rates though overall lower total emissions; 2) to remove operating limits on those two facilities; and 3) to clarify the applicability of excess emission limits during "cold startup" periods for the combustion turbines.

Specifically, FPL now proposes to utilize an auxiliary boiler with a capacity of 10,000 pounds per hour of steam instead of an auxiliary boiler with a capacity of 60,000 pounds per hour of steam which was approved as part of the original certification. FPL is also proposing to use a smaller diesel generator of 500 kw capacity instead of the 750 kw generator originally proposed and approved. As described in Attachment 2, these smaller units will result in slightly higher emission rates (pounds per million Btu) over the original units but both will have lower total emissions (in pounds per hour) due to their smaller size.

The current certification also restricts operation of the auxiliary boiler to periods of startup, shutdown and periodic maintenance and the diesel generator to periods of emergency power generation. FPL requests that these operating limitations be removed to allow those facilities to operate as needed. Removal of those operating limits will not result in any greater impact than that originally anticipated and evaluated during the original certification proceeding, as explained in Attachment 2.

The conditions of certification establish emission limits for various pollutants which expressly do not apply "during periods of startup and shutdown" of the units. See Condition of Certification

II.A.4. However, pursuant to Rule 17-210.700(1), FAC, this authorization for excess emissions during startup and shutdown could be construed to be limited to two hours per day. After extensive investigation, FPL has concluded that the CTs will not be able to comply with certain of the established emission limits during the initial periods of a cold steam turbine start (cold start) for those units. FPL has concluded that an additional two hours during cold starts for the first CT of a unit will be required to meet all established emission limits. Such cold start events are expected to occur approximately 12 times per year per unit. See Attachment 3. Accordingly, FPL is requesting that the startup period for these units be clarified to include an additional two hours (for a total of 4 hours).

The activities to be undertaken pursuant to the requested modification of certification will be done in compliance with the existing conditions of certification and with the revised conditions of certification contained in attachment 1 to this proposed modification agreement.

Request For Relief

Accordingly, FPL requests that:

1. All parties to the original certification proceeding agree to, or otherwise not object to, this proposed modification and the attached additional provisions of the certification and the conditions of certification attached hereto within thirty (30) days

of submittal of this proposed Agreement, as provided for in Section 403.516(1)(b), F.S.

2. Upon no objection being raised by the parties as provided above or by a substantially affected person within forty-five (45) days of public notice of this proposed modification, the Department of Environmental Regulation issue an order modifying the terms and conditions of the certification, pursuant to Section 403.516.(1)(b), F.S.

3. The Department of Environmental Regulation grant such other relief as may be appropriate, including necessary additional conditions of certification proposed by agency parties and accepted by FPL.

Respectfully submitted this 2nd day of February, 1993.

HOPPING BOYD GREEN & SAMS

Peter C. Cunningham
Fla. Bar No. 321907
Douglas S. Roberts
Fla. Bar No. 0559466
123 South Calhoun Street
Post Office Box 6526
Tallahassee, Florida 32314
(904) 222-7500

Attorneys for FPL

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing and attachment have been furnished to the following on this 2nd day of February, 1993:

Hamilton S. Oven, Jr., P.E.
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Richard T. Donelan, Esquire
Assistant General Counsel
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

David Jordan, Senior Attorney
Department of Community Affairs
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Delray Beach, FL 33444

Peter Merritt
Treasure Coast Regional Planning Council
3228 SW Martin Downs Blvd., Suite 205
Palm City, FL 33490

Gary Simmons
Troup-Indiantown Drainage District
Post Office Box 128
Indiantown, FL 34956

Attorney

FPL MARTIN CG/CC PROJECT

REQUEST FOR MODIFICATION OF SITE CERTIFICATION

ATTACHMENT 1

PROPOSED REVISED CONDITIONS OF CERTIFICATION

FPL MARTIN CG/CC PROJECT PA-89-27

Revised Conditions of Certification

1. Condition II-A.-4 on page 3 of Conditions of Certification is revised as follows:

4. The maximum allowable emissions from each CT in accordance with the BACT determination, shall not exceed the following, at 40°F (except during periods of startup and shutdown as prescribed by Note e. below.

* * *

e. The excess emissions authorized under Rule 17-210.700(1), FAC, shall be extended an additional two hours (four hours total) for a cold steam turbine start for the first CT of a unit. The second CT of each unit shall comply with established emission limits in accordance with Rule 17-210.700(1), FAC.

2. Condition II-A.-7 on page 6 of Conditions of Certification is revised to read as follows:

7. Auxiliary Steam Boilers and Diesel Generators may be operated as needed. ~~shall operate only during start-up and shutdown, periodic maintenance testing, and for emergency power generation, respectively.~~ Nox emissions for the auxiliary boiler shall not exceed 0.3 ~~0.1~~ lb/MMBtu for natural gas firing or oil firing. ~~or 0.2 lb/MMBtu for oil firing.~~ NOx emissions for the diesel generators shall not exceed 15.0 ~~12.0~~ grams hp/hr.

Sulfur dioxide emissions limitations for the auxiliary steam boilers and diesel generators are established by firing natural gas or limiting the light distillate fuel oil's sulfur content to 0.3% on an annual basis.

FPL MARTIN CG/CC PROJECT

REQUEST FOR MODIFICATION OF SITE CERTIFICATION

ATTACHMENT 2

PSD PERMIT
AMENDMENT REQUEST

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: POWER GENERATION FACILITIES [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [ ] Construction [ ] Operation [ ] Modification [X] AMENDMENT

COMPANY NAME: FLORIDA POWER AND LIGHT COMPANY COUNTY: MARTIN

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) SEE ATTACHMENT A

SOURCE LOCATION: Street SR 710, 5 miles NW of Indiantown City INDIANTOWN

UTM: East 542.87 North 2992.43

Latitude 27 ° 03 ' 18 "N Longitude 80 ° 34 ' 02 "W

APPLICANT NAME AND TITLE: FLORIDA POWER AND LIGHT COMPANY

APPLICANT ADDRESS: JEN/GB PO BOX 088801, NORTH PALM BEACH, FL 33408-8801

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of FLORIDA POWER & LIGHT COMPANY
AN AMENDMENT OF PSD-FL-146

I certify that the statements made in this application for a _____ permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: _____

NANCY H. ROEN, DIRECTOR
Name and Title (Please Type)

Date: 1/29/93 Telephone No. 407-625-7610

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discher an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed _____

William L. Yeager

Name (Please Type)

FPL FLORIDA POWER & LIGHT COMPANY

Company Name (Please Type)

SR 710 5 miles NW of Indiantown 34956

Mailing Address (Please Type)

Florida Registration No. PE0041272 Date: Feb. 1, 1993 Telephone No. (407) 597-7108

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expectec improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

SEE ATTACHMENT A

B. Schedule of project covered in this application (Construction Permit Application Only)
AUXILIARY BOILER AND DIESEL GENERATOR
Start of Construction May 1993 Completion of Construction June 1994

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

THE COST OF POLLUTION CONTROL SYSTEM(S) FOR THIS TYPE OF PROJECT IS EMBEDDED IN THE COST OF THE EMISSION SOURCE SINCE THE POLLUTION CONTROL SYSTEM(S) ARE INTEGRAL PART(S) OF THE DESIGN AND OPERATION OF THE AUXILIARY BOILER AND DIESEL GENERATOR

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

PSD-FL-146 issued 6/5/91

SITE CERTIFICATION PA 89-27 issued 2/21/91

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr 8760 ; if seasonal, describe: SEE ATTACHMENT A

F. If this is a new source or major modification, answer the following questions. (Yes or (No))

1. Is this source in a non-attainment area for a particular pollutant? NO

   a. If yes, has "offset" been applied?

   b. If yes, has "Lowest Achievable Emission Rate" been applied?

   c. If yes, list non-attainment pollutants.

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. NO

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. NO

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? YES*

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? NO

   a. If yes, for what pollutants?

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

* AUXILIARY BOILER ONLY 40 CFR 60 Subpart Dc

FOR DETAILED INFORMATION REGARDING THE MARTIN CG/CC PROJECT, REFER TO THE PSD PERMIT APPLICATION CONTAINED IN SECTION 10.1.5 OF THE SITE CERTIFICATION APPLICATION AS FILED WITH DER IN DECEMBER, 1989.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

NOT APPLICABLE

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

SEE ATTACHMENT A

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4) SEE ATTACHMENT A

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
AUX BOILER GAS		0.016 MMCF/hr	16.3
DIESEL GENERATOR OIL		43.5 gal/hr	5.0

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: SEE TABLE 2-10 & 2-11. ORIGINAL PSD APPLICATION (SCA SECTION 10.1.5)

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average NOT APPLICABLE Maximum NOT APPLICABLE

G. Indicate liquid or solid wastes generated and method of disposal.

NO CHANGE FROM ORIGINALLY PERMITTED

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: SEE ATTACHMENT A ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

_____

_____

_____

_____

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

SEE ORIGINAL PSD APPLICATION (SCA SECTION 10.1.5)

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[X] Yes [ ] No

Contaminant	Rate or Concentration
40 CFR 60 Subpart Dc for aux boiler	
SULFUR DIOXIDE	0.5 % S
PARTICULATE MATTER	NOT APPLICABLE

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy [2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

NOT APPLICABLE FOR THIS AMENDMENT-THE RESULT OF THE ORIGINAL MODELING IS PROVIDED IN SECTION 7.0 OF THE ORIGINAL PSD APPLICATION CONTAINED IN SCA SECTION 10.1.5

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data

1. _____ no. sites _____ TSP _____ ( ) SO^{2} _____ Wind spd/dir

Period of Monitoring ____/____/____ to ____/____/____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	_____	grams/sec
SO_2	_____	grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

ATTACHMENT A.

Florida Power & Light Company (FPL) obtained approval to construct and operate multiple combined-cycle (CC) units in several phases at the existing 11,300 acre Martin site pursuant to the Florida Electrical Power Plant Siting Act, Chapter 403, Part II, Florida Statutes, in February, 1991. A PSD permit for the Project was issued on June 3, 1991. Detailed information about the Martin CG/CC Project is contained in the 8 volume Site Certification Application filed in December, 1989 as amended.

The new units are capable of firing natural gas (primary), No. 2 fuel oil (backup), and coal-derived gas (future) and are identified as Martin Units 3 & 4 (Phase I) and Units 5 & 6 (Phase II (preliminary approval)). Units 3 & 4 are now under construction, with commercial operation scheduled to begin between November, 1993 and April, 1994. Each unit consists of two combustion turbines (CT), two heat recovery steam generators (HRSG), and one steam turbine (ST). Each CT/HRSG will exhaust to an individual stack.

The Project has been previously permitted but recent information and design refinements have necessitated FPL to request a modification of the Site Certification and amendment of the PSD permit. This application primarily focuses on data which is new/revised from the original application. Specifically this application addresses the following items:

1. Auxiliary Boiler for Units 3 & 4
   - change in short term emission rate
   - removal of operating restriction
   - change from single stack to two stacks
   - change in stack parameters

2. Emergency Diesel Generator for Units 3 & 4
   - change in short term emission rate
   - removal of operating restriction
   - change in stack parameters
   - change from single stack to dual stacks

Units 3 & 4 originally were designed to be supported by a 60,000 lb/hr auxiliary boiler capable of firing natural gas or oil and a 750 kw emergency diesel generator capable of firing diesel fuel. The original permit application was based on this design. The current design uses a 10,0000 lb/hr natural gas- and oil-fired auxiliary boiler and a 500 kw generator.

Since the auxiliary boiler will generally be used to supply steam to Units 3 & 4, the operational schedule for the auxiliary boiler will be dependent on Units 3 & 4's operational schedule. Specific Condition 7 of the PSD permit and Condition II.A.7 of the Site Certification restrict operation of the auxiliary boiler to periods

of start-up and shut down. FPL requests that these operational restrictions be removed from the permit to also allow use of the auxiliary boiler when the units are in stand-by mode, thereby providing maximum operational flexibility to the Project. The request is supported by the PSD modeling conducted for the Project which included emissions from the auxiliary boiler operating 8760 hours a year (See Table 2-7 of the original PSD application in SCA section 10.1.5). Since the modeling shows acceptable impact with the auxiliary boiler operating at all times, FPL requests the operating flexibility this affords (See section 7.5 page 181 of the original PSD application in SCA section 10.1.5).

Specific Condition 7 of the PSD permit and Condition II.A.7 of the Site Certification also restrict the diesel generators to periods of emergency power generation. FPL requests that these operational restrictions be removed from the permit since the emergency diesel generator is also required to be tested monthly and may be needed to provide power to the plant even if the units are online. The request is also supported by the PSD modeling conducted for the Project which included the emergency diesel generator operating 8760 hours per year. (See Table 2-8 of the original PSD application in SCA section 10.1.5). Since the modeling shows acceptable impact with the emergency diesel generator operating at all times, FPL also requests the operating flexibility this affords (See section 7.5 page 181 of the original PSD application in SCA section 10.1.5).

While the new auxiliary boiler and the emergency diesel generator have a higher lb/MMBTU or grams hp/hr emission rate than originally permitted, the lb/hr value will be smaller than permitted because of the smaller unit size. The table titled Regulated Airborne Emissions provides the new emissions associated with these units and compares them to those originally permitted emission limits.

FPL selected the auxiliary boiler and emergency diesel generator which incorporate the best available controls within their design and normal operation. The use of clean fuels such as natural gas and No. 2 fuel oil are essentially control devices because of the low potential for airborne emissions as compared to other fuels. The emergency diesel generator has inlet air filters which further decrease particulate emissions.

The following stack parameters have been revised from those provided during the original certification proceeding. These stack changes should not alter the impact assessment performed during the original permitting process since all of the stacks were co-located for purposes of impact modeling. (PSD Application, page 123, paragraph 2). These final design parameters are provided for informational purposes.

Auxiliary Boiler (Natural Gas)

Stack Height - 42.0 ft
Stack Diam. - 1) Superheater - 10 in
2) Boiler - 24 in
Exhaust Stack Temp. -
1) Superheater - 550 F
2) Boiler - 608 F
Stack Exit Velocity -
1) Superheater - 5 ft/sec
2) Boiler - 37.2 ft/sec

Emerg. Diesel Generator (No. 2 Fuel Oil)

Stack Height - 12.5 ft
Stack Diam. - 6 in/stack (Dual stacks)

Exhaust Stack - Temp. 810 F

Stack Exit Velocity - 202 ft/sec

REGULATED AIRBORNE EMISSION

	PERMITTED VALUE		REVISED VALUE	
Auxiliary Boiler	lb/MMBTU	lb/hr	lb/MMBTU	lb/hr
NOx - Nat. Gas	0.1 [1]	7.2 [1]	0.3 [2]	4.89 [2]
NOx - No. 2 Oil	0.2 [1]	10.8 [1]	0.3 [2]	4.89 [2]
Emergency Diesel Generator	grams hp/hr	lb/hr	grams hp/hr	lb/hr
NOx - No. 2 Oil	12.0 [3]	31.10 [3]	15.0 [4]	25.51 [4]

1. Based on a 60,000 lb/hr boiler
2. Based on a 10,000 lb/hr boiler
3. Based on a 750 kw generator
4. Based on a 500 kw generator

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FPL MARTIN CG/CC PROJECT

REQUEST FOR MODIFICATION OF SITE CERTIFICATION

ATTACHMENT 3

CT COLD START EMISSIONS ANALYSIS

EXCESS EMISSION REQUEST

FOR CT COLD STARTS

FLORIDA POWER & LIGHT COMPANY

MARTIN CG/CC PROJECT

JANUARY, 1993

EXCESS EMISSION REQUEST FOR CT COLD STARTS

Florida Power & Light Company (FPL) obtained certification to construct and operate multiple combined-cycle (CC) units in several phases at the existing 11,300 acre Martin site pursuant to the Florida Electric Power Plant Siting Act, Chapter 403, Part II, Florida Statutes, in February, 1991. A PSD permit for the Project was issued on June 3, 1991. Detailed information about the Martin CG/CC Project is contained in the 8 volume Site Certification Application filed in December 1989, as amended.

The new units, (identified as Martin Units 3 & 4 (Phase I) and Units 5 & 6 (Phase II preliminary approval)) are capable of firing natural gas, No. 2 fuel oil, and coal derived gas. Units 3 & 4 are now under construction, with commercial operation scheduled to begin between November, 1993 and April, 1994. Each unit consists of two combustion turbines (CT), two heat recovery steam generator (HRSG), and one steam turbine (ST). Each CT/HRSG will exhaust to an individual stack.

As stated above, Units 3 & 4 have been previously permitted but recent information, design refinements, and field verification have necessitated FPL to request a revision of the Site Certification and PSD permit. Specifically this package addresses FPL's request for clarification that the startup period for these units includes an additional two hours, (for a total of 4 hours). A "cold start" is when the steam turbine is at approximately ambient temperature.

FPL selected the CT which incorporated best available controls within its design and normal operation while using clean fuels such as natural gas and No. 2 fuel oil with the low potential for airborne emissions as compared to other units. The CT's selected for Units 3 & 4 are the General Electric (GE) model 7001F/A, advanced design with dry low NOx combustors (DLN II). Units 3 & 4 will be GE's first field application of this technology.

The use of dry low NOx combustors when firing natural gas eliminates wet injection and consumption of large volumes of water for NOx control. The DLN II combustors are still under development and have not been field tested in a CT. However, lab data has indicated that the DLN II combustor will not be able to meet the Project's permitted emission limits for several pollutants during the initial periods of a "cold start". The excess emissions are due to the fact that the CT's during a "cold start" must hold loads at low levels to allow the ST to warm up before engaging the premix option of the DLN II combustor (ie. 25 ppm NOx) on natural gas and of steam injection on oil.

A "cold start" using a DLN II combustor in combined cycle configuration presents a new and unique situation. Unlike CT's which use a traditional burner design to control NOx, the DLN II combustors are unable to control the CT exhaust temperature to the HRSG and ultimately the steam turbine when firing natural gas. The absence of exhaust temperature controls could result in significant

thermal stress on the back end equipment. The thermal stress damages and substantially reduces the operational life of the equipment. The DLN II combustor when fired on No. 2 fuel oil, is also unable to meet the permitted emission limits for certain pollutants during a "cold start". The DLN II combustor alters the typical flame pattern in the CT which results in the flame being unstable at low loads. The flame instability therefore restricts the amount of steam that can be injected without extinguishing the flame. For flame stability the unit needs to be at approximately 25% load before steam injection is initiated. The exact load level which will provide flame stabilization will be determined during field testing.

FPL and GE have spent a great deal of time and money to try and reduce the thermal stress and the corresponding "excess emissions". The HRSG's were redesigned at a cost of $5 million to tolerate higher exhaust temperatures than are typically encountered. FPL and GE have also been working together to develop a ST temperature maintenance system. The ST temperature maintenance system is designed to keep the ST warm longer between periods of operation. The cost of the ST temperature maintenance system is approximately $300,000 of capital cost. FPL and GE are also developing a "dynamic model" which predicts the performance/operating characteristics of the ST. This model will allow the start-up curve to be revised to the maximum extent possible, thereby minimizing the time required to start a cold CT.

During CT "cold starts", FPL will utilize the design refinements identified above in addition to best operational practices. Best operational practices for "cold start" are currently under development and it is anticipated that the operational practices will be verified during initial field testing of the CT's which is scheduled for late 1993.

The combustion turbines are each expected to be cold started 6 times per year (12 times per unit). The "cold start" will require approximately 4 hours for the initial firing of a CT per unit to reach a sufficiently high temperature that will not damage the back end equipment. The second CT in the unit will only take approximately 2 hours to be at operational load. FPL is therefore seeking a modification of the conditions, in both the site certification order and the PSD permit, to clarify the operating conditions for cold startup of the CTs to allow 4 hours total to meet permitted emission limits.

AIR EMISSION ESTIMATE FOR CT COLD START

Combustion Turbine Running Time (hours)	Actual Emissions[1] (lb/hr) per CT					
	NOx	CO	VOC	PM/PM_{10}	Pb	SO_2
2 - 3	370	1180	90	IN COMPLIANCE		
3 - 4	500	810	60			
4 -	IN COMPLIANCE					
	$\leq$ 177[2]	$\leq$ 94.3[2]	$<$ 3[2]	$<$ 18[2]	neg.[2]	$\leq$ 91.5[2]

1. This data is based on latest laboratory combustion testing of an ongoing program. Some variation in these data is to be expected, however at this time (Jan, 1993) the information presented is the best estimate of cold-start-up emissions.
2. Site Certification PA 89-27 and PSD-FL-146 permitted values

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