STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF FINAL AIR CONSTRUCTION PERMIT

In the Matter of an
Application for Permit by:

Mr. Robert Bergstrom, Plant General Manager
Florida Power & Light
392 U.S Highway 17 South
East Palatka, Florida 32131

DEP File No. 1070014-003-AC
Inlet Foggers Installation
Combined Cycle Units 003-006
Putnam Power Plant

/

Enclosed is the Final Permit Number 1070014-003 AC for an air construction permit to install foggers at the compressor inlet of four natural gas and No. 2 fuel oil-fired Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators at the Power Plant in Putnam County. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

C. H. Fancy, P.E., Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL AIR CONSTRUCTION PERMIT (including the FINAL permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 7-20-99 to the person(s) listed:

Robert Bergstrom, FP&L*
Richard Piper, FPL
Chris Kirts, DEP NE District
Gregg Worley, EPA
Ken Kosky, P.E., Golder Associates

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) 7-20-99 (Date)

FINAL DETERMINATION

Florida Power and Light Company (FP&L)
Putnam Power Plant, Putnam County
Inlet Foggers Installation
DEP File No: 1070014-003-AC

An Intent to Issue an air construction permit, authorizing the installation of inlet foggers on the four 70 MW Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators at the Putnam Power Plant was distributed on June 3, 1999. This facility is located at 392 U.S Highway 17 South, East Palatka, Putnam County, Florida.

The Public Notice of Intent to Issue Air Construction Permit was published in the Palatka Daily News on June 10, 1999. Comments were received from EPA and FP&L.

EPA comments were in response to the Department request on the applicability of the New Source Performance Standard, 40CFR 60, Subpart GG to these turbines. EPA, basically, stated that "if the maximum operating rate of the turbines still occurs under cold weather conditions when the foggers cannot be used to boost the capacity of these units, the installation of the foggers will not constitute a modification". These comments were addressed in a letter dated June 22, 1999 on the same issue for the Ft. Myers Power Plant.

In response to EPA comments, the Department requested and received additional information from FP&L regarding the maximum operating rate of the turbines: The maximum turbine capacity at 20 degrees F is 1220 mmBtu/hr (HHV when firing gas) and 1120 mmBtu/hr (HHV when firing oil). This is compared to the maximum turbine operating capacity of 1000 mmBtu/hr (HHV when firing gas) and 930 mmBtu/hr (HHV when firing oil) at 80 degrees F, which would be the result of lowering the temperature in the 90 degree F range with the use of the foggers.

FP&L comments were related Specific Condition No. 13. FP&L requested to revise this condition tracking degree-hours in the permit, as opposed to simply hours of operation. They stated that this methodology will afford additional operating flexibility without adversely impacting the environment. The Department evaluated FP&L comments and agreed with their request. Specific Condition No. 13 is revised as follows:

Inlet foggers may be installed at the compressor inlet to each of the four combined cycle Westinghouse Model 501B5A combustion turbine-electric generators. The four foggers may operate up to 40,960 degree F-hours per year in aggregate (average 10,240 degree F-hours per unit per year).
The permittee shall monitor both the hours of operation for the inlet foggers and the degrees of cooling afforded by the inlet foggers. Computation of the degree-hour will be performed as follows:
Degree-hours = # hours inlet fogger operating time X degrees F of cooling.
Degrees of Cooling shall be calculated by subtracting the fogged compressor inlet air temperature from the unfogged compressor inlet temperature (upstream of the fogger). The above calculation shall be performed for each hour of fogger operation. Calculation records shall be maintained on the plant site and made available for inspection upon request.
For each hour of oil operation on any combustion turbine during a calendar year, the allowable aggregate total inlet fogger operating degree-hour shall be reduced by 1.27 degree F-hours.

The final action of the Department will be to issue the permit with the changes as noted above.

Z 333 618 110

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	1070014-003-AC

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2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

PERMITTEE:

Florida Power & Light
392 US Highway 17 South
East Palatka, Florida 32131

Authorized Representative:

Robert Bergstrom
Putnam Plant General Manager

DEP File No.	1070014-003-AC
Project	Inlet Foggers Project ARMS Emissions Units 003-011
SIC No.	4911
Expires:	December 31, 1999

PROJECT AND LOCATION:

This air construction permit describes the existing facility that was approved through Florida Power Plant Certification No. PA 74-01 and its amendments and which operates under that Certification and Title V permit 1070014-001-AV. Additionally, this permit allows installation of inlet foggers on the four existing Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators designated as ARMS Emissions Units 003-006.

The units are located at the FP&L Putnam Plant, 392 US Highway 17 South, East Palatka, Putnam County. UTM coordinates are: Zone 17; 443.3 km E and 3277.80 km N.

STATEMENT OF BASIS:

This 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.). The above named permittee is authorized to modify the facility 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 of Environmental Protection (Department).

ATTACHED APPENDICES MADE A PART OF THIS PERMIT:

Appendix GC	Construction Permit General Conditions
Appendix W	Putnam Plant Heat Input versus Temperature Graphs

Howard L. Rhodes, Director
Division of Air Resources Management

AIR CONSTRUCTION PERMIT 1070014-003-AC

SECTION I – FACILITY DESCRIPTION

FACILITY DESCRIPTION

Currently, this facility consists of four combustion turbines, each with a supplementally-fired heat recovery steam generator (HRSG), an auxiliary boiler, and "unregulated or insignificant" emissions units. The designation in the Department's Air Resources Management System (ARMS) are as follows: the four combustion turbines, ARMS Emissions Units 003 to 006; four duct burners within the four HRSGs, ARMS Emissions Units 007 to 010; and the auxiliary boiler, ARMS Emission Unit 011.

Each combustion turbine is a Westinghouse unit Model 501B5A rated at 70 MW generating capacity (at 85 degrees F ambient temperature), with a maximum heat input for natural gas and fuel oil of 968.3 mm Btu/hr and 910.6 mmBtu/hr, respectively. The duct burners for each HRSG are rated at a maximum heat input of 250 mmBtu/hr, and are fired with natural gas and No. 2 fuel oil. The auxiliary boiler is manufactured by VA-Power and has a maximum heat input for natural gas and No. 2 fuel oil of 16.275 mmBtu/hr and 14.28 mmBtu/hr, respectively.

This permitting action, installation of inlet foggers at the four (4) distillate fuel oil-fired combustion turbines equipped with duct burners, amends Power Plant Conditions of Certification PA 74-01 and creates a new construction permit (1070014-003-AC) for these units. No PSD permit exists for this facility since it was built before 1975 and subsequent modifications have not triggered PSD review. On October 16, 1974, FP& L was issued a Site Certification authorizing the construction and operation of the Putnam Plant.

This Project is exempt from the requirements of Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD) as discussed stated in the Technical Evaluation and Preliminary Determination dated June 2, 1999.

REGULATORY CLASSIFICATION

This facility, FPL Putnam Power Plant, is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NO_X), carbon monoxide (CO), or volatile organic compounds (VOC) exceeds 100 tons per year (TPY).

This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD).

This facility is a major source of hazardous air pollutants (HAPs) and is also subject to the provisions of Title IV, Acid Rain, Clean Air Act as amended in 1990.

PERMIT SCHEDULE

- 06/10/99 Notice of Intent published in the Palatka Daily News
- 06/03/99 Distributed Intent to Issue Permit
- 05/07/99 Application deemed complete
- 03/17/99 Received Application

RELEVANT DOCUMENTS:

The documents listed below are the basis of the permit. They are specifically related to this permitting action, but not all are incorporated into this permit. These documents are on file with the Department.

- Application received on March 29, 1999.
- Department's Intent to Issue and Public Notice Package dated June 2, 1999.
- FPL's comments dated April 16, and May 7, 1999.

AIR CONSTRUCTION PERMIT 1070014-003-AC
SECTION II – ADMINISTRATIVE REQUIREMENTS

1. Unless otherwise indicated in this permit, the construction and operation of the subject emission unit(s) shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S. and Florida Administrative Code Chapters 62-4, 62-103, 62-204, 62-210, 62-212, 62-213, 62-214, 62-296, and 62-297; and the applicable requirements of the Code of Federal Regulations Section 40, Parts 60, 72, 73, and 75.
2. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]
3. Regulating Agencies: 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 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114. All documents related to reports, tests, and notifications should be submitted to the DEP North District office, 7825 Baymeadows Way, Suite 200B, Jacksonville, Florida 32256-7590 and phone number 904/448-4300.
4. General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
5. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
6. Forms and Application Procedures: 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. [Rule 62-210.900, F.A.C.]
7. Modifications: The permittee shall give written notification to the Department when there is any modification to this facility. This notice shall be submitted sufficiently in advance of any critical date involved to allow sufficient time for review, discussion, and revision of plans, if necessary. Such notice shall include, but not be limited to, information describing the precise nature of the change; modifications to any emission control system; production capacity of the facility before and after the change; and the anticipated completion date of the change. [Chapters 62-210 and 62-212]
8. Permit Extension: *This permit expires on December 31, 1999.* The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. [Rule 62-4.080, F.A.C.].
9. Application for a Modification of Title V Permit: An application for a modification of the Title V operating permit, pursuant to Chapter 62-213, F.A.C., must be submitted to the DEP's Bureau of Air Regulation, and a copy sent to the Department's North District office. [Chapter 62-213, F.A.C.]
10. New or Additional Conditions: Pursuant to Rule 62-4.080, F.A.C., 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.]
11. Annual Reports: Pursuant to Rule 62-210.370(2), F.A.C., Annual Operation Reports, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. Annual operating reports shall be sent to the DEP's North District office by March 1st of each year.

AIR CONSTRUCTION PERMIT 1070014-003-AC
SECTION III – SPECIFIC CONDITIONS EUs 003 - 006

This section addresses the following emissions units.

003	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG11. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)
004	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG12. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)
005	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG21. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)
006	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG22. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)

{Permitting notes: These emissions units are regulated under Rule 62-210.300, F.A.C., Permits Required and Power Plant Siting Certification No. PA 74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. Based on information submitted by the applicant in the Title V application, these emissions units are not subject to 40 CFR 60, Subpart GG, Standards of Performance for New Stationary Gas Turbines. Each combustion turbine is exhausted through a heat recovery steam generator. Emissions units 003 and 004 began commercial operation in 1978. Emissions units 005 and 006 began commercial operation in 1977.}

The following specific conditions apply to the emissions units listed above:

Essential Potential to Emit (PTE) Parameters

1. Permitted Capacity. The maximum operation heat input rates are as follows:

Unit No.	mmBtu/hr Heat Input	Fuel Type
003, 004, 005, 006	(a)	Natural Gas
	(a)	Fuel Oil

a Heat input is limited at any given ambient temperature in accordance with the curves attached as Appendix W of this permit.

{Note: As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.}

{Permitting note: The heat input limitations have been placed in each permit to identify the capacity of each unit for the purposes of confirming that emissions testing is conducted within 90 to 100 percent of the unit's rated capacity (or to limit future operation to 110 percent of the test load), to establish appropriate emission limits and to aid in determining future rule applicability.} [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

2. Emissions Unit Operating Rate Limitation After Testing. Applicable requirements of Rule 62-297.310 (2) and (2)(b) F.A.C., Operating Rate During Testing.

3. Methods of Operation - Fuels. The combustion turbines shall only be fired with number 2 or number 6 fuel oil or with natural gas. [Rule 62-213.410, F.A.C., PPSC PA 74-01 condition 1.B.(i)]

Emission Limitations and Standards

4. Sulfur Dioxide - Sulfur Content. The fuel oil sulfur content shall not exceed 0.7 percent by weight. See specific condition **6.** [Rules 62-4.070(3) and 62-213.440, F.A.C., and PPSC PA 74-01 condition 1.B.(i)]

5. Visible Emissions. Visible emissions shall not exceed 20% opacity, except for one 6-minute period per hour during which opacity shall not exceed 27%.
[Rules 62-4.070(3) and 62-213.440, F.A.C., and PPSC PA 74-01 condition 1.B.(ii)]

Test Methods and Procedures

6. Sulfur Dioxide - Sulfur Content. The permittee shall demonstrate compliance with the liquid fuel sulfur limit by means of a fuel analysis provided by the vendor upon each fuel delivery. See specific conditions **4. and 7.** [Rules 62-213.440 and 62-296.406(3), F.A.C.]

7. Fuel Sampling & Analysis - Sulfur. The fuel sulfur content, percent by weight, for liquid fuels shall be evaluated using either ASTM D2622-94, ASTM D4294-90(95), ASTM D1552-95, ASTM D1266-91, or both ASTM D4057-88 and ASTM D129-95 (or latest editions).
[Rules 62-4.070(3), 62-213.440 and 62-297.440, F.A.C.]

8. Visible Emissions. The permittee shall demonstrate compliance with the visible emissions limit by DEP Method 9. [Rules 62-4.070(3) and 62-213.440, F.A.C.]

Monitoring of Operations

9. Annual Tests Required - VE. Except as provided in Rule 62-296.310(7) F.A.C., SIP Approved, emission testing for visible emissions shall be performed annually, no later than September 30th of each year, except for units that are not operating because of scheduled maintenance outages and emergency repairs, which will be tested within thirty days of returning to service. [Rules 62-4.070(3) and 62-213.440, F.A.C.]

10. Wind Restriction and Monitoring. The owner or operator shall burn fuel oil containing no more than 0.50% sulfur (by weight) when sustained winds exceed 20 miles per hour for any continuous period of three hours or longer. The owner or operator shall measure wind velocity and direction, using recognized methods and procedures, at hourly intervals in the plant vicinity, only for those hours during which any combustion turbine at the plant burns fuel oil containing more than 0.50% sulfur (by weight). The owner or operator shall quarterly report wind data, or shall report that no fuel oil containing more than 0.50% sulfur (by weight) was burned, no later than the thirtieth day following the end of each calendar quarter. [PPSC PA 74-01, condition 2]

Excess Emissions

11. Excess emissions resulting from malfunction shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

12. Excess emissions resulting from startup or shutdown shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized. [Rule 62-210.700(2), F.A.C.]

Inlet Fogger Installation

13. Inlet foggers may be installed at the compressor inlet to each of the four combined cycle Westinghouse Model 501B5A combustion turbine-electric generators. The four foggers may operate up to 40,960 degree F-hours per year in aggregate (average 10,240 degree F-hours per unit per year).

    The permittee shall monitor both the hours of operation for the inlet foggers and the degrees of cooling afforded by the inlet foggers. Computation of the degree-hour will be performed as follows:

    Degree-hours = # hours inlet fogger operating time X degrees F of cooling.

    Degrees of Cooling shall be calculated by subtracting the fogged compressor inlet air temperature from the unfogged compressor inlet temperature (upstream of the fogger). The above calculation shall be performed for each hour of fogger operation. Calculation records shall be maintained on the plant site and made available for inspection upon request.

    For each hour of oil operation on any combustion turbine during a calendar year, the allowable aggregate total inlet fogger operating degree-hour shall be reduced by 1.27 degree F-hours.

AIR CONSTRUCTION PERMIT 1070014-003-AC
SECTION IV – SPECIFIC CONDITIONS EUs 007 - 010

This section addresses the following emissions units.

007	Duct burners for Combined Cycle Heat Recovery Steam Generator, HRSG11. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.
008	Duct burners for Combined Cycle Heat Recovery Steam Generator, HRSG12. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.
009	Duct burners for Combined Cycle Heat Recovery Steam Generator, HRSG21. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.
010	Duct burners for Combined Cycle Heat Recovery Steam Generator, HRSG22. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.

{Permitting notes: These emissions units are regulated under Rule 62-210.300, F.A.C., Permits Required and Power Plant Siting Certification No. PA 74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. These emissions units are subject to 40 CFR 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. Each heat recovery steam generator has two stacks that exhaust emissions from the associated combustion turbine and the duct burners. Emissions units 007 and 008 began commercial operation in 1978. Emissions units 009 and 010 began commercial operation in 1977.}

The following specific conditions apply to the emissions units listed above:

Essential Potential to Emit (PTE) Parameters

1. Permitted Capacity. The maximum operation heat input rates are as follows:

Unit No.	mmBtu/hr Heat Input	Fuel Type
007, 008, 009, 010	250	Natural Gas
	250	Fuel Oil

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

{Permitting note: The heat input limitations have been placed in each permit to identify the capacity of each unit for the purposes of confirming that emissions testing is conducted within 90 to 100 percent of the unit's rated capacity (or to limit future operation to 110 percent of the test load), to establish appropriate emission limits and to aid in determining future rule applicability.}

2. Emissions Unit Operating Rate Limitation After Testing. Applicable Requirements of Rule 62-297.310(2) and (2) (b) F.A.C. Operating Rate During Testing.

3. Methods of Operation - Fuels. The duct burners shall only be fired with number 2 fuel oil or with natural gas.

[Rule 62-213.410, F.A.C., PPSC PA 74-01 condition 1.C.(i)]

Emission Limitations and Standards

4. Sulfur Dioxide - Sulfur Content. The fuel oil sulfur content shall not exceed 0.5 percent by weight. See specific condition 7. [Rules 62-4.070(3) and 62-213.440, F.A.C., PPSC PA 74-01 condition 1.C.(i), and 40 CFR 60.42b]

5. Visible Emissions. Visible emissions shall not exceed 20% opacity (6-minute average), except for one 6-minute period per hour during which opacity shall not exceed 27%. The opacity standards apply at all times, except during periods of startup, shutdown or malfunction. [Rules 62-4.070(3) and 62-213.440, F.A.C., PPSC PA 74-01 condition 1.C.(ii)(a), and 40 CFR 60.43b and 60.46b(a)]

6. Nitrogen Oxides. Nitrogen oxide emissions (expressed as NO_2) shall not exceed 0.20 lb/mmBtu while burning natural gas and distillate oil. The nitrogen oxide standards apply at all times including periods of startup, shutdown, or malfunction. [40 CFR 60.44b and PPSC PA 74-01 (modification of 5/28/92)]

Test Methods and Procedures

7. Sulfur Dioxide - Sulfur Content. The permittee shall demonstrate compliance with the liquid fuel sulfur limit by maintaining fuel receipts as described in 40 CFR 60.49b(r). See specific conditions **4. and 14.** [Rules 62-213.440 and 62-296.406(3), F.A.C., and 40 CFR 60.42b]

8. VE Test Methods. To determine compliance with the opacity limits, the owner or operator shall conduct tests using EPA Method 9. [40 CFR 60.46b(d)(7)]

9. Test Methods For Nitrogen Oxides. Compliance with the nitrogen oxides emission limit shall be determined through testing using EPA reference methods 7E and 3A, of 40 CFR part 60 appendix A. [40 CFR 60.46b, PPSC PA 74-01 (modification of 5/28/92)] {Note: PPSC PA 74-01 (modification of 5/28/92) allows use of EPA methods 7E and 3A instead of EPA method 20.}

Monitoring of Operations

10. Emission Tests Required - VE and NOx. Except as provided in Rule 62-297.310 (7) F.A.C., SIP Approved, emission testing shall be conducted as follows: Emission testing for visible emissions shall be performed annually. Emission testing for nitrogen oxides shall be performed prior to renewal, except that an annual test for nitrogen oxides shall be performed each year that fuel oil is fired in these units for more than 400 hours. Testing shall be completed no later than September 30th of each year required, except for units that are not operating because of scheduled maintenance outages and emergency repairs, which will be tested within thirty days of returning to service. [Rules 62-4.070(3) and 62-213.440, F.A.C.]

11. Emission Monitoring For VE. Prior to burning fuel oil in these emissions units, the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere and record the output of the system. This system shall henceforth be operated whenever fuel oil is burned in these emissions units. [40 CFR 60.48b(a)]

12. CEMS Required by Power Plant Siting. The owner or operator shall maintain a continuous emission monitoring system (CEMS) for opacity and nitrogen oxides on one of the paired stacks for each combined cycle unit.

    {The PPSC requires monitors on one stack each of CT/HRSG 1x and 2x, for a total of two stacks that must be monitored. The owner currently operates opacity monitors to satisfy the PPSC requirement to operate the CEMS for opacity. The NOx monitors installed and maintained pursuant to 40 CFR 75 satisfy the PPSC requirement to operate the CEMS for NOx.} [Rule 62-213.440, F.A.C., PPSC PA 74-01 condition 4]

Reporting And Record Keeping Requirements

13. Pursuant to 40 CFR 60.49b Reporting And Record Keeping Requirements.

    The owner or operator of an affected facility shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for distillate oil and natural gas for each calendar quarter. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.

The owner or operator shall maintain records of opacity (required by NSPS whenever fuel oil is burned in these emissions units. See condition B.11 of this permit).

The owner or operator shall maintain records of the following information for each steam-generating unit operating day:

(1) Calendar date.
(2) The average hourly nitrogen oxides emission rates (expressed as NO2) (lb/million Btu heat input) measured or predicted.
(3) The 30-day average nitrogen oxides emission rates (lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days.
(4) Identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under 40 CFR 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken.
(5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.
(6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.
(7) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

The owner or operator is required to submit excess emission reports for any calendar quarter during which there are excess emissions from the affected facility. If there are no excess emissions during the calendar quarter, the owner or operator shall submit a report semiannually stating that no excess emissions occurred during the semiannual reporting period. For the purpose of the opacity limitation, excess emissions are defined as all 6-minute periods during which the average opacity exceeds the opacity standards.
[40 CFR 60.49b(d), (f), (g)(1)-(7) and (h)]

14. Fuel Receipts Required. The owner or operator of an affected facility who elects to demonstrate that the affected facility combusts only very low sulfur oil shall obtain and maintain at the affected facility fuel receipts from the fuel supplier which certify that the oil meets the definition of distillate oil as defined in 40 CFR 60.41b:

> Distillate oil means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396-78, Standard Specifications for Fuel Oils (incorporated by reference-see 40 CFR 60.17).
>
> Very low sulfur oil means an oil that contains no more than 0.5 weight percent sulfur or that, when combusted without sulfur dioxide emission control, has a sulfur dioxide emission rate equal to or less than 215 ng/J (0.5 lb/million Btu) heat input.

For the purposes of this section, the oil need not meet the fuel nitrogen content specification in the definition of distillate oil. Quarterly reports shall be submitted to the Department certifying that only very low sulfur oil meeting this definition was combusted in the affected facility during the preceding quarter.
[40 CFR 60.45b, 60.47b and 60.49b(r)].

SECTION V – SPECIFIC CONDITIONS EU 011

This section addresses the following emissions unit.

011	This emissions unit consists of an auxiliary boiler is manufactured by VA-Power with a maximum heat input for natural gas and number 2 fuel oil of 16.275 mmBtu/hr and 14.28 mmBtu/hr, respectively.

{Permitting notes: This emissions unit is regulated under Rule 62-210.300, F.A.C., Permits Required. This emissions unit is subject to 40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Emissions unit 011 began commercial operation in 1993. The unit was previously regulated under Power Plant Siting Certification No. PA 74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. However, the only applicable condition was in conflict with the NSPS and has been superseded by this permit.}

The following specific conditions apply to the emissions unit listed above:

Essential Potential to Emit (PTE) Parameters

1. Permitted Capacity. The maximum operation heat input rates are as follows:

Unit No.	mmBtu/hr Heat Input	Fuel Type
011	16.275	Natural Gas
	14.28	Number 2 Fuel Oil

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

2. Emissions Unit Operating Rate Limitation After Testing. Per Requirements of Rule 62-297.310(2), F.A.C.

3. Methods of Operation - Fuels. The auxiliary boiler shall only be fired with number 2 fuel oil or with natural gas. [Rule 62-213.410, F.A.C.]

Emission Limitations and Standards

4. Pursuant to 40 CFR 60.42c Standard For Sulfur Dioxide.

   The owner or operator shall not combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. Compliance with the fuel oil sulfur limit shall be determined based on a certification from the fuel supplier, as described under 40 CFR 60.48c(f)(1) (see specific condition 7.). The fuel oil sulfur limit applies at all times, including periods of startup, shutdown, and malfunction.
   [40 CFR 60.42c(d), (h), (i) and (j)]

Monitoring of Operations

5. Emission Monitoring For Sulfur Dioxide.

   As an alternative to operating a CEMS at the outlet of the steam generating unit, the owner or operator shall determine the average SO_2 emission rate by sampling the fuel prior to combustion. Fuel sampling shall be conducted as follows:

   As an alternative fuel sampling procedure for affected facilities combusting oil, oil samples may be collected from the fuel tank for each steam generating unit immediately after the fuel tank is filled and before any oil is combusted. The owner or operator of the affected facility shall analyze the oil sample to determine the sulfur content of the oil. If a partially empty fuel tank is refilled, a new sample and analysis of the fuel in the tank would be required upon filling. Results of the fuel analysis taken after each new shipment of oil is received shall be used as the daily value when calculating the 30-day rolling average until the next shipment is received. If the fuel analysis shows that the sulfur content in the fuel tank is greater than 0.5 weight percent sulfur, the owner or operator shall ensure that the sulfur content of subsequent oil shipments is low enough to cause the 30-day rolling average sulfur content to be 0.5 weight percent sulfur or less. [40 CFR 60.46c(d)(2)]

Reporting And Record Keeping Requirements

6. Pursuant to 40 CFR 60.48c Reporting And Record Keeping Requirements.

For any period in which fuel oil is combusted, the owner or operator shall submit quarterly reports to the Department. Each subsequent quarterly report shall be postmarked by the 30th day following the end of the reporting period.

The owner or operator shall keep records and submit quarterly reports including the following information related to the combustion of fuel oil, as applicable.

(1) Calendar dates covered in the reporting period.
(2) Each 30-day average SO_2 emission rate (lb/million Btu), or 30-day average sulfur content (weight percent), calculated during the reporting period, ending with the last 30-day period in the quarter; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.
(3) Each 30-day average percent of potential SO_2 emission rate calculated during the reporting period, ending with the last 30-day period in the quarter; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.
(4) Identification of any steam generating unit operating days for which SO_2 or diluent (oxygen or carbon dioxide) data have not been obtained by an approved method for at least 75 percent of the operating hours; justification for not obtaining sufficient data; and a description of corrective actions taken.
(5) Identification of any times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and a description of corrective actions taken if data have been excluded for periods other than those during which oil was not combusted in the steam generating unit.
(6) Identification of the F factor used in calculations, method of determination, and type of fuel combusted.
(7) Identification of whether averages have been obtained based on CEMS rather than manual sampling methods.
(11) If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under paragraph (f)(1) of this section, as applicable. In addition to records of fuel supplier certifications, the quarterly report shall include a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.
[40 CFR 60.48c(d), (e)(1)-(7) and (e)(11)]

7. Fuel Supplier Certification and Fuel Records. The owner or operator shall maintain records of fuel supplier certification. Fuel supplier certification shall include the following information:

(i) The name of the oil supplier; and
(ii) A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil:

Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-78, "Standard Specification for Fuel Oils" (incorporated by reference-see 40 CFR 60.17).

The owner or operator of each affected facility shall record and maintain records of the amounts of each fuel combusted during each day. [40 CFR 60.48c(f)(1) and (g)]

APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a) Have access to and copy and records that must be kept under the conditions of the permit;
b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a) A description of and cause of non-compliance; and
b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extend it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.

G.13 This permit also constitutes:

a) Best Available Control Technology ( )
b) Prevention of Significant Deterioration ( ); and
c) New Source Performance Standards ( ).

G.14 The permittee shall comply with the following:

a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

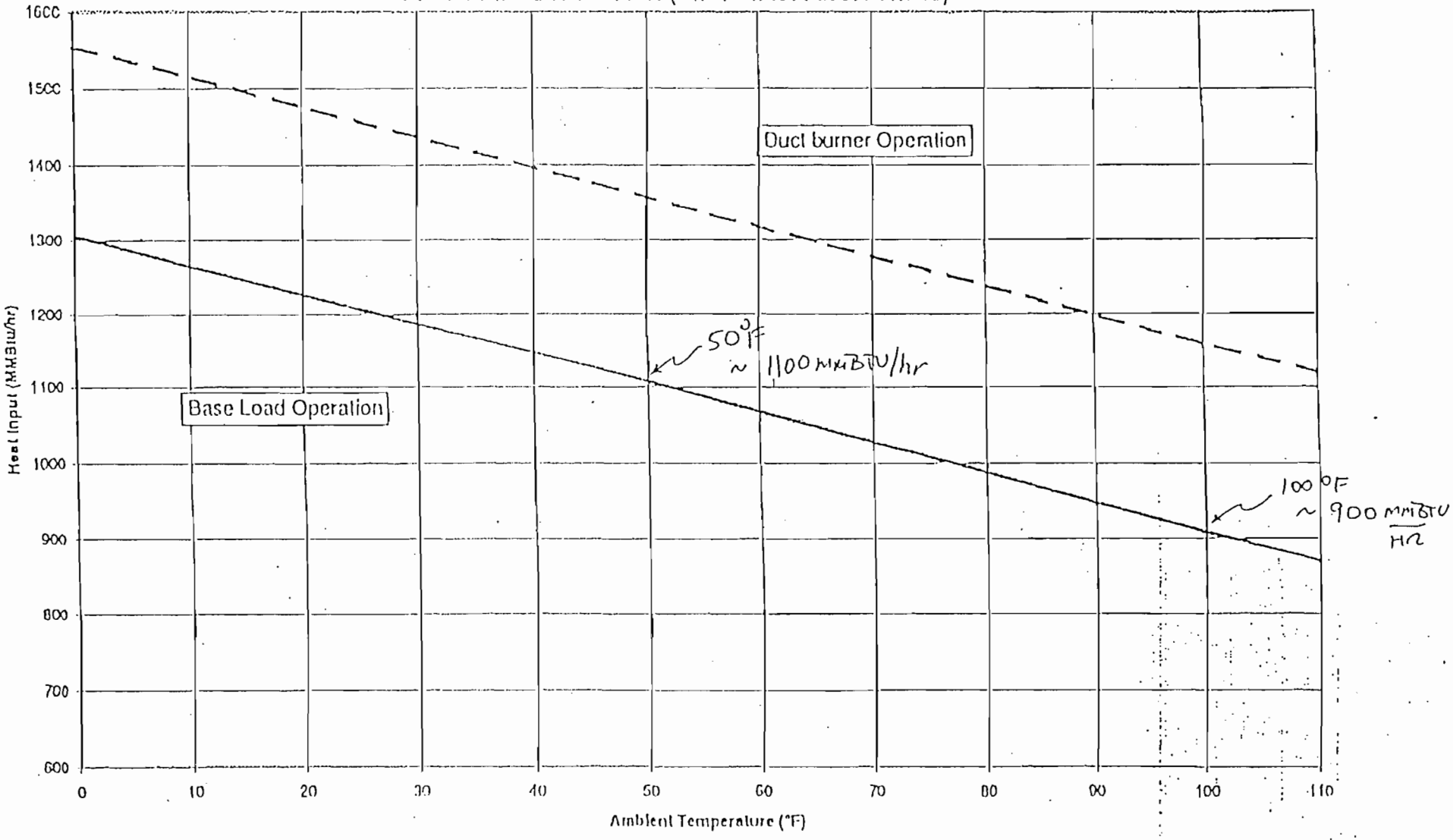
c) Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;
2. The person responsible for performing the sampling or measurements;
3. The dates analyses were performed;
4. The person responsible for performing the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

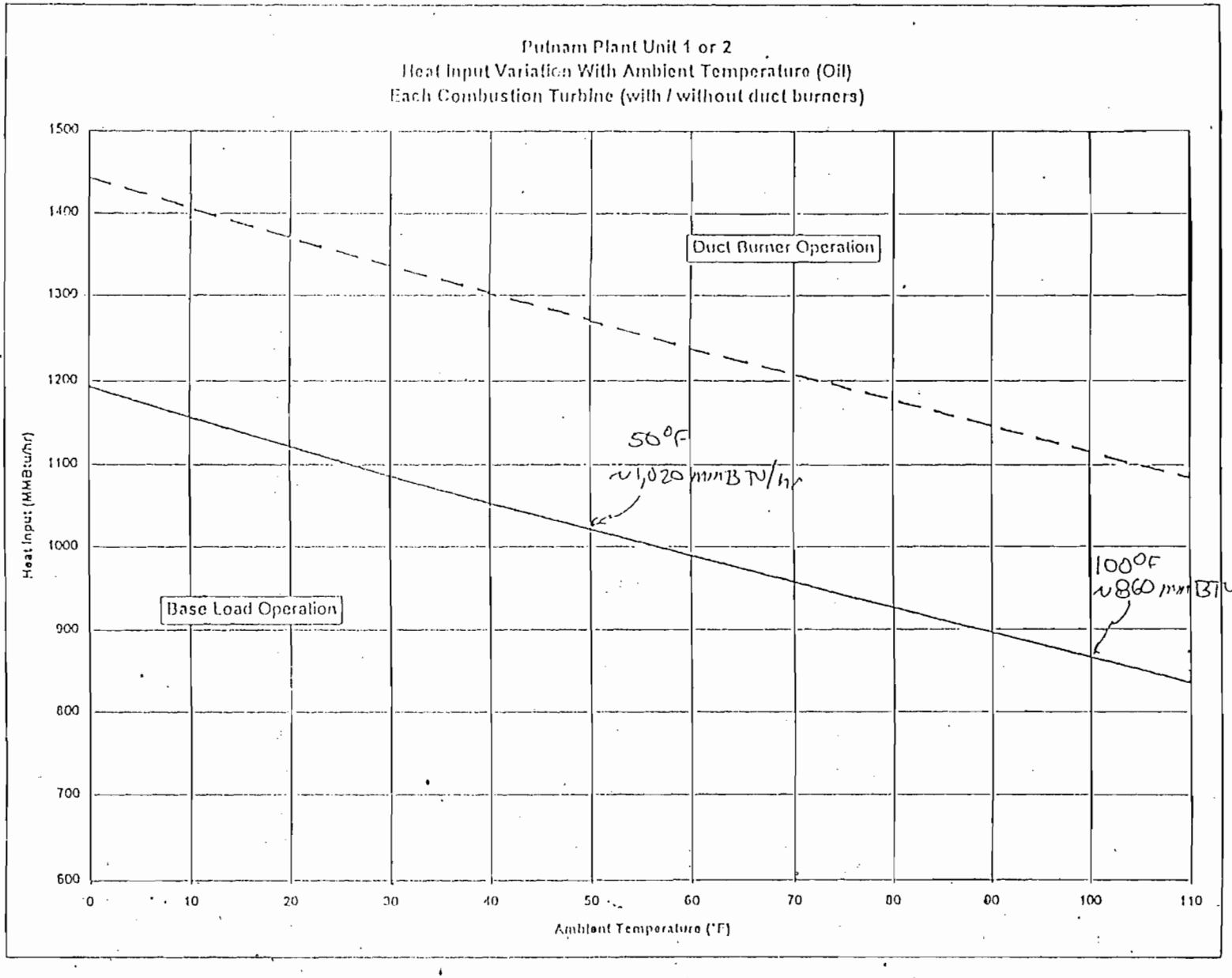
G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

APPENDIX W

Putnam Plant Unit 1 or 2
Heat Input Variation With Ambient Temperature
Each Combustion Turbine (with / without duct burners)



HI Limit Chart 1
9/12/97 2:32 PM


Putnam Plant Unit 1 or 2
Heat Input Variation With Ambient Temperature (Oil)
Each Combustion Turbine (with / without duct burners)
Heat Input (MMBtu/hr)
1500
1400
1300
1200
1100
1000
900
800
700
600
0
10
20
30
40
50
60
70
80
90
100
110
Ambient Temperature (°F)
Duct Burner Operation
Base Load Operation
50°F
~1,020 mmBTU/hr
100°F
~860 mmBTU/hr

CARLTON FIELDS

ATTORNEYS AT LAW

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MAILING ADDRESS:
P.O. BOX 019101, MIAMI, FL 33131-9101
TEL (305) 530-0050 FAX (305) 530-0055

February 24, 2003

Ms. Teresa Heron
State of Florida
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

VIA FEDERAL EXPRESS

Re: Caldwell Energy & Environmental, Inc. vs. Florida Power & Light Company
Case No. CL 01-2415 AG, Palm Beach County Circuit Court
Our File No. 44087-98622

Dear Ms. Heron:

Enclosed please copies of the documents you supplied in response to the Subpoena Duces Tecum in this matter, which I have pre-marked with exhibit stickers for ease of reference.

By copy of this letter I am forwarding copies of the marked documents to the Court Reporter and to opposing counsel so that we all have a set for the telephonic deposition on February 26, 2003 at 9:30 a.m.

Sincerely,

Sean W. Firley

SWF:paw
Enclosures (Heron Deposition Exhibits 1 – 17)

cc: Accurate Stenotype, 100 Salem Court, Tallahassee, FL 32301
Attention: Kendra (w/enclosures)
Spencer Sax, Esq. (w/enclosures)

IN THE CIRCUIT COURT OF THE 15TH JUDICIAL CIRCUIT IN AND FOR PALM BEACH COUNTY, FLORIDA

CASE NO. CL 01-2415 AG

CALDWELL ENERGY & ENVIRONMENTAL, INC., a foreign corporation,

Plaintiff,

vs.

FLORIDA POWER & LIGHT COMPANY, a Florida corporation,

Defendant.
_____/

RE-NOTICE OF TAKING TELEPHONIC DEPOSITION DUCES TECUM
(Change in Date and Time)

PLEASE TAKE NOTICE that the undersigned attorneys will take the deposition of:

Name and Address	Date and Time	Location
Ms. Teresa Heron State of Florida Dept. of Environmental Protection	**February 26, 2002** **9:30 a.m.**	State of Florida. Dept.of Environmental Protection **111 South Magnolia Drive – #4** **Tallahassee, FL 32399-2400**

[**Directions**: 1 to 2 blocks North of US 27 on South Magnolia, in courtyard to the right of The Marketplace. There's a large parking lot and they are on the right side as you face the buildings. They are located on the bottom floor left hand side #4.

The deposition will be upon oral examination before Accurate Stenotype Reporters, or a Notary Public in and for the State of Florida at Large, or some other officer duly authorized by law to take depositions. The oral examination will continue from day to day until completed. The deposition is being taken for the purpose of discovery, for use at trial, or both of the foregoing, or for such other purposes as are permitted under the applicable and governing rules,

pursuant to Florida Rules of Civil Procedure. A list of the documents to be produced is attached hereto as Exhibit A.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was faxed and mailed on this 19th day of February, 2003, to: Spencer Sax, Esq. and Rachelle R. McBride, Esquire, Sachs, Sax & Klein, P.A., Post Office Box 810037, Boca Raton, Florida 33481-0037.

CARLTON FIELDS, P.A.
Counsel for Caldwell Energy Environmental, Inc.
Bank of America Tower at International Place
100 Southeast Second Street, Suite 4000
Miami, Florida 33131
(305) 530-0050

By: _____
MARIA C. MCGUINNESS
Florida Bar No. 858137
SEAN W. FIRLEY
Florida Bar No. 0118567

Co-counsel for Plaintiff:

Robert M. Connolly, Esq.
Stites & Harbison
400 West Market Street
Suite 1800
Louisville, KY 40202-3352

Copy via Facsimile to:
Accurate Stenotype Reporters (850) 878-2254 fax

EXHIBIT A

All documents pertaining to Defendant Florida Power & Light Company's ("FPL") permit application, permit, construction and operation of inlet fogging systems at FPL's Martin County, Florida and Putnam County, Florida power generating plants, including but not limited to any documents discussing FPL's anticipated and estimated use of the fogging systems in hours and/or on an annual basis, expectations for increases in megawatt output through the use of the inlet fogging systems at these power plants and the effect of the fogging systems on NOx emissions.

Best Available Copy

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**********
***  TX REPORT  ***
**********

TRANSMISSION OK

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CARLTON FIELDS, P.A.

ATTORNEYS AT LAW

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MIAMI, FLORIDA 33131-9101

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P.O. BOX 019101, MIAMI FL 33131-9101
TEL (305) 530-0050 FAX (305) 530-0055

FAX COVER SHEET

		Phone Number	Fax Number
Date:	February 19, 2003		
To:	Teresa Heron	850-921-9529	850-922-6979
From:	Sean W. Firley	(305) 530-0050	(305) 530-0055

Client/Matter No.: 44087.98622 **Employee No.:** 648

Total Number of Pages Being Transmitted, Including Cover Sheet: 4

Message: Dear Ms. Heron: Per your conversation with my secretary earlier today, enclosed please find a copy of the Re-Notice of Deposition, rescheduling your deposition for Wednesday, February 26, 2003, at 9:30 a.m. Thank you.

☐ *Original to follow Via Regular Mail* ☑ *Original will Not be Sent* ☐ *Original will follow via Overnight Courier*

Best Available Copy

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**********
***  TX REPORT  ***
**********

TRANSMISSION OK

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CARLTON FIELDS, P.A.

ATTORNEYS AT LAW

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MAILING ADDRESS
P.O. BOX 019101, MIAMI FL 33131-9101
TEL (305) 530-0050 FAX (305) 530-0055

FAX COVER SHEET

		Phone Number	Fax Number
Date:	February 19, 2003		
To:	Spencer Sax, Esq.		
and	Rachelle McBride, Esq.	(561) 994-4499	(561) 994-4985
From:	Sean W. Firley, Esq.	(305) 530-0050	(305) 530-0055

Client/Matter No.: 44087.98622 **Employee No.:** 648

Total Number of Pages Being Transmitted, Including Cover Sheet: 4

Message: Caldwell Energy & Environmental vs. Florida Power & Light Co. Case CL 01-2415 AG

Re-Notice of Deposition of Teresa Heron follows.

☑ *Original to follow Via Regular Mail* ☐ *Original will Not be Sent* ☐ *Original will follow via Overnight Courier*

Best Available Copy

****
*** TX REPORT ***
****

TRANSMISSION OK

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PGS. SENT	4
RESULT	OK

CARLTON FIELDS, P.A.

ATTORNEYS AT LAW

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MIAMI, FLORIDA 33131-9101

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P.O. BOX 019101, MIAMI FL 33131-9101
TEL (305) 530-0050 FAX (305) 530-0055

FAX COVER SHEET

		Phone Number	Fax Number
Date:	February 20, 2003		
To:	Accurate Stenotype ATTN: Kendra	850-878-2221	850-878-2254
From:	Patty Watson for Sean W. Firley	(305) 530-0050	(305) 530-0055

Client/Matter No.: 44087.98622 **Employee No.:** 256

Total Number of Pages Being Transmitted, Including Cover Sheet: 4

Message: Caldwell vs. Florida Power

Per our conversation yesterday, a copy of Re-Notice of Taking Telephonic Deposition Duces Tecum follows resetting the deposition of Teresa Heron for 2/26/03 at 9:30 a.m. Please calendar and arrange to have a court reporter present for this deposition. Both counsel will appear telephonically for this deposition. If you have any questions or require additional information, please contact Sean Firley or Patty Watson at 305-530-0050. Thank you.

Please note that this deposition was previously noticed for 2/20 by Corey Collins of our firm. Mr. Firley of our firm will be appearing telephonically for the rescheduled deposition on 2/26.

Please call me at 305-530-0050 if you have any questions.

☐ *Original to follow Via Regular Mail* ☑ *Original will Not be Sent* ☐ *Original will follow via Overnight Courier*

RECEIVED

MAR 29 1999

BUREAU OF
AIR REGULATION

APPLICATION FOR AIR PERMIT
INSTALLATION OF DIRECT WATER SPRAY FOGGING SYSTEMS
MARTIN PLANT

Prepared For:

Florida Power & Light, Inc.
700 Universe Blvd.
Juno Beach, Florida 33408

Prepared By:

Golder Associates Inc.
6241 NW 23rd Street, Suite 500
Gainesville, Florida 32653

March 1999
9737572Y/F3

SE District

DISTRIBUTION:

6 Copies - Florida Power & Light, Inc. (4 signatures, 2 photocopy signatures)
2 Copies - Golder Associates Inc.

PART I

APPLICATION FOR AIR PERMIT
LONG FORM

RECEIVED

FEB 25 2003

BUREAU OF AIR REGULATION

Department of
Environmental Protection

TO FILE

DIVISION OF AIR RESOURCES MANAGEMI

APPLICATION FOR AIR PERMIT - LONG FORM

RECEIVED
FEB 25 2003
BUREAU OF AIR REGULATION

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

This section of the Application for Air Permit form identifies the facility and information on the scope and purpose of this application. This section also includes information on the owner or authorized representative of the facility (or the responsible official in the case of a Title V source) and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department using ELSA, this section of the Application for Air Permit must also be submitted in hard-copy.

Identification of Facility Addressed in This Application

Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility site name, if any; and the facility's physical location. If known, also enter the facility identification number.

1. Facility Owner/Company Name:	Florida Power & Light Company
2. Site Name:	Martin Plant
3. Facility Identification Number:	0850001 [ ] Unknown
4. Facility Location Information: Street Address or Other Locator:	7m N of Indiantown on SR 710
City: Indiantown	County: Martin Zip Code: 34956
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [X] Yes [ ] No

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	March 29, 1999
2. Permit Number:	0850001-005-AC
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:

   John Lindsay, Plant General Manager

2. Owner/Authorized Representative or Responsible Official Mailing Address:

Organization/Firm: **FPL - Martin Plant**
Street Address: **P.O. Box 176**
City: **Indiantown** State: **FL** Zip Code: **34956-0176**

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:

Telephone: **(561) 597-7106** Fax: **(561) 597-7416**

4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

Signature J.M. Lindsay Date 3/10/99

* Attach letter of authorization if not currently on file.

Scope of Application

This Application for Air Permit addresses the following emissions unit(s) at the facility. An Emissions Unit Information Section (a Section III of the form) must be included for each emissions unit listed.

Emissions Unit ID		Description of Emissions Unit	Permit Type
Unit #	Unit ID		
1	003	CT3A - Combustion Turbine with HRSG	AC1B
2	004	CT3B - Combustion Turbine with HRSG	AC1B
3	005	CT4A - Combustion Turbine with HRSG	AC1B
4	006	CT4B - Combustion Turbine with HRSG	AC1B

See individual Emissions Unit (EU) sections for more detailed descriptions.
Multiple EU IDs indicated with an asterisk (*). Regulated EU indicated with an "R".

Purpose of Application and Category

Check one (except as otherwise indicated):

Category I: All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: _____

[ ] Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed: _____

[ ] Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: _____

Operation permit to be renewed: _____

[ ] Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. Also check Category III.

Operation permit to be revised/corrected: _____

_____

[ ] Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit. Give reason for the revision e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit to be revised: _____

Reason for revision: _____

_____

Category II: All Air Construction Permit Applications Subject to Processing Under Rule 62-210.300(2)(b),F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s): _____

_____

[ ] Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed: _____

[ ] Air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g.; to address one or more newly constructed or modified emissions units.

Operation permit to be revised: _____

Reason for revision: _____

_____

Category III: All Air Construction Permit Applications for All Facilities and Emissions Units.

This Application for Air Permit is submitted to obtain:

[x] Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

Current operation permit number(s), if any: _____

0850001-004-AV

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s): _____

_____

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Application Processing Fee

Check one:

[ ] Attached - Amount: _____ [X] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations:

Installation of direct water spray inlet fogging systems. Since the facility holds a Title V permit pursuant to Chapter 62-213 F.A.C., a permit fee is not required. Refer to Part II for discussion.

2. Projected or Actual Date of Commencement of Construction :

3. Projected Date of Completion of Construction :

Professional Engineer Certification

1. Professional Engineer Name: **Kennard F. Kosky**
   Registration Number: **14996**

2. Professional Engineer Mailing Address:
   Organization/Firm: **Golder Associates Inc.**
   Street Address: **6241 NW 23rd Street, Suite 500**
   City: **Gainesville** State: **FL** Zip Code: **32653-1500**

3. Professional Engineer Telephone Numbers:
   Telephone: **(352) 336-5600** Fax: **(352) 336-6603**

4. Professional Engineer's Statement:

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

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

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

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

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

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

Signature (seal) PE — Date: 3/3/99

* Attach any exception to certification statement.

Application Contact

1. Name and Title of Application Contact:
   Mr. Richard G. Piper, Repowering Licensing Manager

2. Application Contact Mailing Address:

   Organization/Firm: **FPL Environmental Services Dep.**
   Street Address: **700 Universe Blvd.**
   City: **Juno Beach** State: **FL** Zip Code: **33408**

3. Application Contact Telephone Numbers:

   Telephone: **(561) 691-7058** Fax: **(561) 691-7070**

Application Comment

The existing combustion turbines (Units 3A,3B,4A & 4B) will be installed with direct water spray fogging systems that will reduce the turbine inlet air temperature. The temperature reduction will improve the heat rate and increase power due to the cooler-denser inlet air. The net emissions change from this project will not result in an increase of any regulated pollutant greater than the PSD significant emission rates. PSD review does not apply to proposed project. Discussed in Part II.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates:
   Zone: 17 East (km): 543.2 North (km): 2993.0

2. Facility Latitude/Longitude:
   Latitude (DD/MM/SS): 27 / 3 / 29 Longitude: (DD/MM/SS): 80 / 33 / 54

3. Governmental Facility Code:	4. Facility Status Code:	5. Facility Major Group SIC Code:	6. Facility SIC(s):
0	A	49	4911

7. Facility Comment (limit to 500 characters):

The existing Martin plant consists of 2 Fossil Fuel Fired Steam Generators (Units 1 and 2) and 2 Combined Cycle Units (Units 3 and 4). Each combined cycle unit consists of 2 combustion turbines and associated heat recovery steam generators (HRSGs). The primary fuel for the combustion turbines is natural gas with distillate oil as back-up. Refer to Part II for discussion

Facility Contact

1. Name and Title of Facility Contact:
   Willie Welch, Environmental Specialist

2. Facility Contact Mailing Address:
   Organization/Firm: FPL - Martin Plant
   Street Address: P.O. Box 176
   City: Indiantown State: FL Zip Code: 34956-0176

3. Facility Contact Telephone Numbers:
   Telephone: (561) 597-7106 Fax: (561) 597-7416

Facility Regulatory Classifications

1. Small Business Stationary Source? [ ] Yes [x] No [ ] Unknown
2. Title V Source? [x] Yes [ ] No
3. Synthetic Non-Title V Source? [ ] Yes [x] No
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)? [x] Yes [ ] No
5. Synthetic Minor Source of Pollutants Other than HAPs? [ ] Yes [x] No
6. Major Source of Hazardous Air Pollutants (HAPs)? [x] Yes [ ] No
7. Synthetic Minor Source of HAPs? [ ] Yes [x] No
8. One or More Emissions Units Subject to NSPS? [x] Yes [ ] No
9. One or More Emissions Units Subject to NESHAP? [ ] Yes [x] No
10. Title V Source by EPA Designation? [ ] Yes [x] No
11. Facility Regulatory Classifications Comment (limit to 200 characters): **NSPS Subpart GG applies to the combustion turbines.**

B. FACILITY REGULATIONS

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

Facility emissions covered under existing Title V permit, no additional facility or emission unit applicable requirements as a result of the proposed change.

C. FACILITY POLLUTANTS

Facility Pollutant Information

1. Pollutant Emitted	2. Pollutant Classification

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Detail Information:

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hr)	(tons/yr)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

Facility Pollutant Detail Information:

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hr)	(tons/yr)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

E. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location:
   [ ] Attached, Document ID: _____
   [X] Not Applicable [ ] Waiver Requested

2. Facility Plot Plan:
   [ ] Attached, Document ID: _____
   [X] Not Applicable [ ] Waiver Requested

3. Process Flow Diagram(s):
   [X] Attached, Document ID(s): Part II
   [ ] Not Applicable [ ] Waiver Requested

4. Precautions to Prevent Emissions of Unconfined Particulate Matter:
   [ ] Attached, Document ID: _____
   [X] Not Applicable [ ] Waiver Requested

5. Fugitive Emissions Identification:
   [ ] Attached, Document ID: _____
   [X] Not Applicable [ ] Waiver Requested

6. Supplemental Information for Construction Permit Application:
   [X] Attached, Document ID: Part II
   [ ] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

7. List of Proposed Exempt Activities:
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

8. List of Equipment/Activities Regulated under Title VI:
   [ ] Attached, Document ID: _____
   [ ] Equipment/Activities On site but Not Required to be Individually Listed
   [ ] Not Applicable

9. Alternative Methods of Operation:
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

10. Alternative Modes of Operation (Emissions Trading):
    [ ] Attached, Document ID: _____
    [ ] Not Applicable

11. Identification of Additional Applicable Requirements:
[ ] Attached, Document ID: _____
[ ] Not Applicable

12. Compliance Assurance Monitoring Plan:
[ ] Attached, Document ID: _____
[ ] Not Applicable

13. Risk Management Plan Verification:

[ ] Plan Submitted to Implementing Agency - Verification Attached
Document ID: _____

[ ] Plan to be Submitted to Implementing Agency by Required Date

[ ] Not Applicable

14. Compliance Report and Plan
[ ] Attached, Document ID: _____
[ ] Not Applicable

15. Compliance Statement (Hard-copy Required)
[ ] Attached, Document ID: _____
[ ] Not Applicable

PART II

SUPPORTING INFORMATION

Part II

Application for Air Permit
Installation of Direct Water Spray Fogging Systems
Martin Plant

Introduction

Florida Power & Light Company is proposing to install direct water spray fogging systems in the inlet ducts of the existing 4 combustion turbines in combined cycle configuration at the Martin Plant. The purpose of the inlet foggers to provide adiabatic inlet air cooling which increase turbine output and decreases heat rate. The project is part of increasing capacity in a cost effective manner.

Description

The direct inlet fogging systems achieve adiabatic cooling using water to form fine droplets (fog). The fog is produced by injection grids placed in the turbine inlet duct that use nozzles that produce a fine spray. The small fog particles (about 10 to 20 microns) extract the latent heat of vaporization from the gas stream when the water droplet is converted to gas. Heat is removed at a rate of 1,075 Btu/lb of water. The result of the fogging is a cooler more moisture laden air stream. Figure 1 presents a schematic of a typical fogging system.

The amount of heat removed is highly dependent upon the ambient air conditions. The two most important parameters are the dry bulb temperature and relative humidity. As moisture is added to the inlet air by the fogging, the vaporization of the fog droplets cools the air toward the wet-bulb temperature. For the proposed project, the design condition is 95°F and 50 percent relative humidity. The resultant wet bulb temperature, based on psychrometric charts is 79°F. At 100 percent saturation the inlet cooling system would result in a 16°F decrease of the turbine inlet air.

While adiabatic cooling is most efficient for dry climates, adiabatic cooling in Florida can be an effective means of inlet air cooling during the late morning to evening hours. This period is typically 8 to 10 hours per day from about 10 am to 8 pm. In the early morning hours and

evening hours, the typical relatively humidity in Florida is 70 to 90 percent depending on the climatic conditions. Because of the highly variable nature of ambient air conditions, the annual average inlet cooling was assumed to be 8°F. This average was reviewed against a 30 year record of meteorological data for West Palm Beach and found to be representative of the range in conditions that occur over an annual period. This includes cooling associated with the typical mid-afternoon summer days and early morning/evening periods that occur year-round. The typical mid-afternoon cooling for West Palm Beach would be 11°F and would occur in August with a mid-afternoon temperature of 90°F and 64 percent relative humidity. During January, the mid-afternoon cooling would be about 9°F. The typical cooling that would occur in the early morning hours of evening hours with temperatures of about 80°F and a relative humidity of 80 percent would be 5°F. This cooling also assumes that the gas stream can be 100 percent saturated. The ambient air conditions that are modified by the fogging system occur naturally but are more frequent with the fogging system. For example, the average minimum temperatures for the months of November through April range from 55.5°F to 65.1°F with relative humidities ranging from 83 to 81 percent. The amount of adiabatic cooling would range from 3 to 4°F. The annual average temperature reduction used for gas firing was based on 24 hours operation would be about 5.5°F assuming 8°F for 12 hours during the day and 3°F for 12 hours during the night.

Turbine Performance and Emission Estimates

The effect of decreasing the turbine inlet air through the use of fogging will be to increase the mass flow of air that can go through the turbine which allows higher heat input and power output. The combustion turbine is also more efficient since the heat rate decreases with decreasing temperature. For the GE Model PG7221 (Frame 7FA) combustion turbines at the Martin plant, a 5.5°F average decrease in temperature for gas firing would result in a 2.1 percent increase in power and an associated 0.8 percent decrease in heat rate. Thus, while power increases, the production of power is more efficient with concomitant lower emissions per MW-hr generated. The increase in heat rate as a function of temperature decrease is a linear function and for the Fort Myers turbines would be 4.7 mmBtu/hr/°F. The data were determined using GE supplied data (see Attachment A).

Because the turbine is operating on its original power curve, the emission characteristics do not change from what would normally occur at that temperature and relative humidity. An evaluation of emissions from the fogging tests conducted at the FPL Putnam plant did not result in any statistically significant differences in emission rates (see Attachment B). The increase in emissions of criteria pollutants associated with fogging were determined using emission limits contained in the Title V Permit for the facility. This provides the maximum potential allowed and would conservatively estimate emission rates. Table 1 and 2 presents a summary of the operating conditions and emission increases resulting from fogging firing natural gas and distillate fuel oil, respectively. The annual emissions were determined by multiplying the heat input increase per degree Fahrenheit times the emissions rate in lb/mmBtu for the number of degrees Fahrenheit-hours proposed for the turbines. The degree F-hours/year is the total amount of annual temperature reduction proposed for fogging and was calculated by using the average temperature reduction multiplied by the hours of year assumed. For example, the degrees Fahrenheit-hours for gas firing are calculated by multiplying 6,240 hours times 5.5°F or 34,320°F-hours. Each turbine inlet fogging system will be equipped with temperature probes to determine the amount of inlet cooling. This reduction will be recorded for each hour of fogger operation. For the Martin turbines, a maximum of 34,320°F-hours of operation when firing natural gas and 4,000°F-hours of operation when firing distillate fuel oil was used as the basis for annual emission estimates for each turbine.

Regulatory Applicability

A modification is defined in Rule 62-210.200 Florida Administrative Code (F.A.C.) as any physical change in, or a change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Clean Air Act. A modification to a major source of air pollution, such as the Martin Plant, may be subject to review under the Department's Prevention of Significant Deterioration (PSD) rules codified in Rule 62-212.400 F.A.C.

The proposed installation of direct water spray fogging systems is a modification according to Rule 62-212.200 (188) F.A.C., since annual emissions will potentially increase as a result of the increased power and heat input. This has been confirmed by the Department in its December 31, 1998 correspondence to FPL.

Based on the available data, it is concluded that the emission rate does not change as a result of inlet fogging. Therefore, increase in annual potential emissions can be conservatively determined through the use of increases in heat input associated with the use of the fogging systems. For the 4 combustion turbines (CTs) the maximum potential annual increase in emissions is estimated as follows:

Summary of Maximum Annual Emissions - All 4 Units

Pollutant	Gas-Firing Tons/Year	Oil-firing Tons/Year	Total (Oil & Gas)
PM	2.95	1.23	4.19
NO_x	29.04	9.39	38.43
SO_2	15.01	18.74	33.75
CO	15.47	2.15	17.63
VOC	0.49	0.22	0.72
Degrees Fahrenheit-Hours for Each Fuel	34,320	4,000	
Additional Degrees Fahrenheit-Hours on Gas	11,095	0	
Total Gas Only Degrees Fahrenheit-Hours	45,415	0	

These maximum potential emission rates are less than the significant emission rates in Table 62-212.400-2 in Rule 62-212.400 F.A.C. and therefore PSD would not apply. The pollutant closest to the PSD significant emission rates when firing natural gas is NO_x. Emissions of SO_2 are primarily associated with distillate fuel oil which is only used a backup to natural gas. For natural gas only, the maximum potential NO_x emissions would be 34.4 tons/year at 45,415°F-hours per year per CT. This is equivalent to 2.77°F-hours of gas firing for each degree Fahrenheit-hour of oil firing (i.e., 11,095°F hours/4,000°F hours = 2.77°F-hours). The emissions of the other pollutants would be 3.9 tons/year for PM, 19.9 tons/year for SO_2, 20.5 tons/year for CO and 0.65 tons/year for VOC.

FPL proposes that the amount of fogging allowed by the Department be based on a cumulative amount of operating hours for the 4 combustion turbines. This would amount to 181,661 hours of operation when firing only natural gas. If only natural gas is fired, the proposed amount of hours would be decreased by 2.77°F hours for each °F-hour when fuel oil was fired during an annual period. As described previously, the emission rates would not be affected.

In addition, during periods when the fogging system is not used, the operation of the CTs will not be affected by this request and will be operated according to the Department's previous approvals (e.g., authorized to operated 8,760 hours/year/CT).

As described previously, the inlet fogging systems will have temperature monitoring equipment which will record the actual temperature reduction for each hour of operation. These data will be summarized monthly and reported to the Department with the Annual Operating Reports demonstrating that the annual period does not exceed 181,661 degree F-hours for Units 3 and 4.

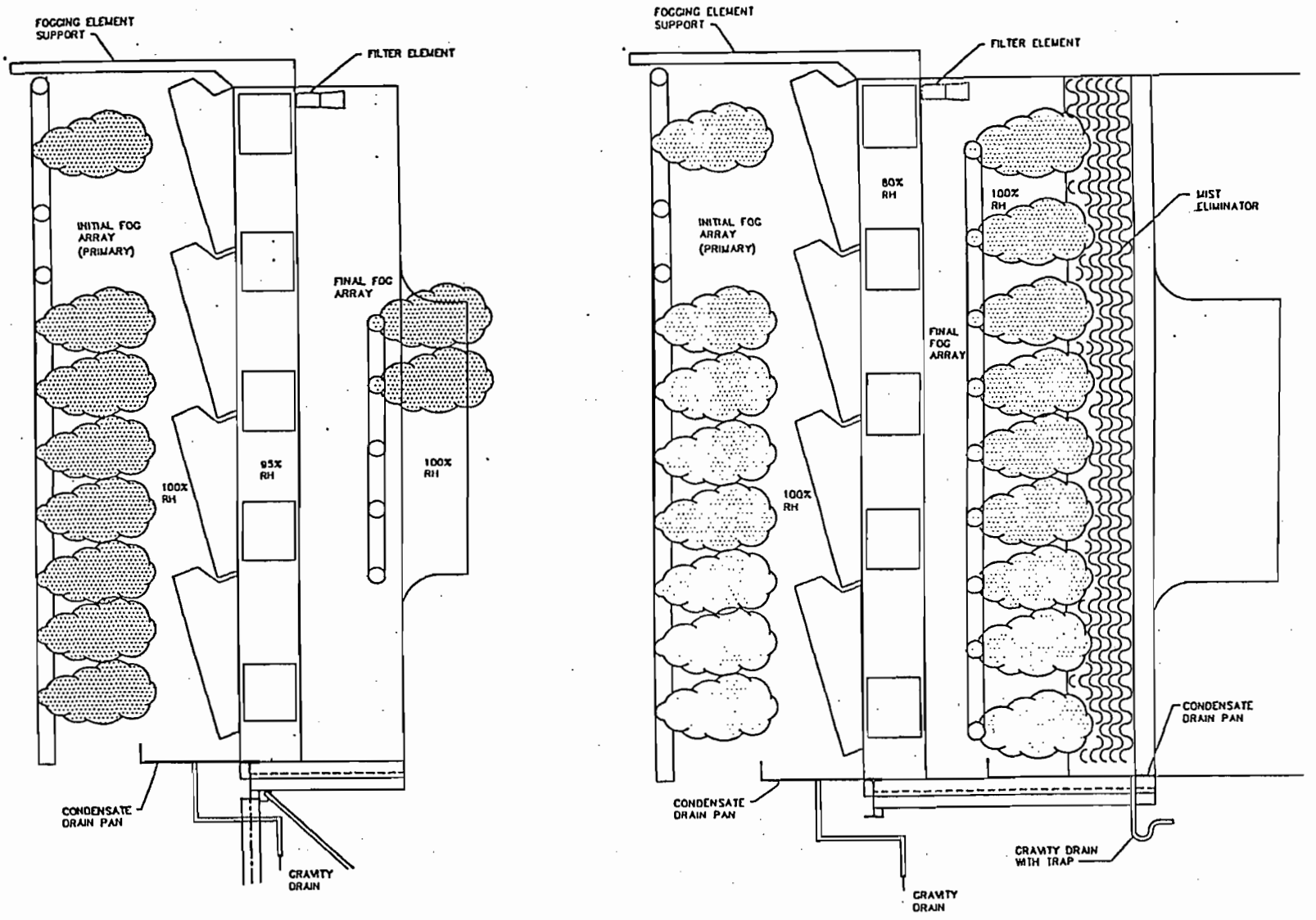


Figure 1. Illustrative Fogging System Schematic
Florida Power & Light, Inc.

Source: Caldwell Energy and Environmental, Inc.

Golder Associates

Table 1 Emission Estimates of the Martin Combined Cycle Combustion Turbines with Inlet Air Cooling System with Direct Water Spray Inlet Fogging (Natural Gas Combustion).

Performance Basis				
Temperature Decrease	°F (1)	5.5		
Power Increase		2.09%		GE Curves
Heat Rate Decrease		1.22%		GE Curves
Heat Input Increase		1.44%		GE Curves
Heat Input Change	mmBtu/ °F	4.7		GE Curves
Hours/year		6,240	(2)	
Hours-°F/year		34,320		hours/year times temperature decrease
Pollutants	**Units**	**Emissions (3)**		**Comments**
PM	lb/MMBtu	0.0092		Based on Title V Permit
	TPY	0.74		per machine
NO_x	lb/MMBtu	0.0900		Based on Title V Permit
	TPY	7.26		per machine
SO_2	lb/MMBtu	0.0465		Based on Title V Permit
	TPY	3.75		per machine
CO	lb/MMBtu	0.0480		Based on Title V Permit
	TPY	3.87		per machine
VOC	lb/MMBtu	0.0015		Based on Title V Permit
	TPY	0.12		per machine

Legend - TPY: tons per year

(1) Temperature decrease is the annual average temperature differential of ambient temperature to compressor inlet temperature utilizing inlet fogger. Assumes 12 hours at 8 °F for daytime and 12 hours at 3 °F for nighttime.

(2) Hours of fogger operation based on estimate of 24 hours per day, 5 days/week and 52 weeks per year.

(3) Emission factor references - PSD-FL-146, Site Certification PA-89-27 and Title V Permit No. 0850001-004-AV.

Table 2 Emission Estimates of the Martin Combined Cycle Combustion Turbines with Inlet Air Cooling System with Direct Water Spray Inlet Fogging (No. 2 Fuel Oil Combustion).

Performance Basis				
Temperature Decrease	°F (1)	8		
Power Increase		3.04%		GE Curves
Heat Rate Decrease		1.22%		GE Curves
Heat Input Increase		2.10%		GE Curves
Heat Input Change	mmBtu/ °F	4.7		GE Curves
Hours/year		500	(2)	
Hours-°F/year		4,000		hours/year times temperature decrease
Pollutants	**Units**	**Emissions (3)**		**Comments**
PM	lb/MMBtu	0.0328		Based on Title V Permit
	TPY	0.31		per machine
NO_x	lb/MMBtu	0.2497		Based on Title V Permit
	TPY	2.35		per machine
SO_2	lb/MMBtu	0.4984		Based on Title V Permit
	TPY	4.68		per machine
CO	lb/MMBtu	0.0573		Based on Title V Permit
	TPY	0.54		per machine
VOC	lb/MMBtu	0.0060		Based on Title V Permit
	TPY	0.06		per machine

Legend - TPY: tons per year

(1) Temperature decrease is the annual average temperature differential of ambient temperature to compressor inlet temperature utilizing inlet fogger.

(2) Distillate oil firing limited to 2000 hours per year for all 4 combustion turbines combined.

(3) Emission factor references - PSD-FL-146, Site Certification PA-89-27 and Title V Pemit No. 0850001-004-AV.

ATTACHMENT A

Attachment A

The following data were obtained from performance curves in the range that fogging would be most effective.

Plant Site:	Martin Combined Cycle Units 3A, 3B, 4A and 4B	
Turbine Model:	GE Model PG7221 (FA)	
Turbine Inlet Temperature (°F)	90	60
Difference (°F)		30
Heat Input (mmBtu/hr)	1,550	1,690
Difference (mmBtu/hr)		140
Rate (mmBtu/hr/ °F)[a]		4.67

Note: [a] heat input difference divided by temperature difference.

ATTACHMENT B

Golder Associates Inc.

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

December 15, 1998

9737572A/1

Florida Power & Light Company
700 Universe Blvd.
P.O. Box 14000
Juno Beach, Florida 33408

Attention: Mr. John Hampp, Environmental Specialist

RE: Putnam Inlet Fogging Emission Tests
Analysis of Data

Dear John:

Golder Associates Inc. has evaluated the emissions data taken during August 25 and 26, 1998 to determine the potential effect of inlet fogging on emission rates of nitrogen oxides (NO_x) and carbon monoxide (CO). The data were obtained at the Putnam Plant using various inlet fogging conditions while operating the unit at nearly constant heat input. The heat input during testing on August 25, 1998 varied by less than 1.5 percent while heat input during testing on August 26, 1998 varied by about 2.5 percent. The data evaluated represented 178 individual 3 minute readings using continuous emission monitoring equipment. There were 72 data points when the inlet foggers were not operating (i.e., "off") while there were 106 data points where the various foggers were operating (i.e., "on").

The data were evaluated using the procedures in Appendix C to 40 CFR Part 60; Determination of Emission Rate Change. The data were also evaluated in terms of the potential effect of inlet fogging. Tables 1.1a and 1.1b present the results of Appendix C evaluation for NO_x and CO, respectively for the data recorded on August 25, 1998. Tables 1.2a and 1.2b present the results of Appendix C evaluation for NO_x and CO, respectively for the data recorded on August 26, 1998. Taken together, the analysis suggests that NO_x concentrations may decrease slightly while CO may increase slightly with the operation of inlet foggers. However, the trend was not always consistent and the differences are small (i.e., up to a few ppm). Other factors also likely played a role in the variability of the data such as the response in continuous emission monitoring equipment, fuel input, ambient temperature and combustion turbine operation variability. Such changes, which cannot be completely accounted for in the data, would make it inappropriate to develop a specific relationships regarding emission rates at this time. Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Kennard F. Kosky, P.E.
Principal

KFK/arz

G:\DATA\DP\PROJECTS\97\9737\9737572A\01\01-LTR.DOC

Table 1.1a Florida Power And Light (FP&L) Test data for the Combustion Turbine Inlet Air Cooling System with Direct Water Spray Inlet Fogging (8/25/98) NO_x Statistical Analysis (Unit 1GT2 - Putnam Plant, Palatka, Fl.)

Hour Range	Fogger on/off	n	v (n-1)	Mean	Std Dev	t	95% C.I.	Upper C.I.	Lower C.I.
1345-1421	off (baseline)	13	12	87.8	0.98	1.782	0.485	88.3	87.4
1424-1521	on	20	19	86.5	1.33	1.729	0.514	87.0	85.9
1524	off	1	0	-	-	-	-		
1527-1533	on	3	2	89.0	0.35	2.92	0.592	89.6	88.4
1536-1539	off	2	1	88.5	0.78	1.86	1.023	89.5	87.4

Legend: n= sample size, v = sample size -1, t=t distribution

Table 1.1b Florida Power And Light (FP&L) Test data for the Combustion Turbine Inlet Air Cooling System with Direct Water Spray Inlet Fogging (8/25/98) CO Statistical Analysis (Unit 1GT2 - Putnam Plant, Palatka, Fl.)

Hour Range	Fogger on/off	n	v (n-1)	Mean	Std Dev	t	95% C.I.	Upper C.I.	Lower C.I.
1345-1421	off (baseline)	13	12	75.9	2.90	1.782	1.433	77.4	74.5
1424-1521	on	20	19	81.0	1.43	1.729	0.554	81.5	80.4
1524	off	1	0	-	-	-	-		
1527-1533	on	3	2	78.0	2.00	2.92	3.372	81.4	74.6
1536-1539	off	2	1	79.5	2.12	1.86	2.790	82.3	76.7

Legend: n= sample size, v = sample size -1, t=t distribution

Table 1.2a Florida Power And Light (FP&L) Test data for the Combustion Turbine Inlet Air Cooling System with Direct Water Spray Inlet Fogging (8/26/98) NO_x Statistical Analysis (Unit 1GT2 - Putnam Plant, Palatka, Fl.)

Hour Range	Fogger on/off	n	v (n-1)	Mean	Std Dev	t	z	95% C.I.	Upper C.I.	Lower C.I.
1103-1227	off (baseline)	29	28	89.1	0.7	1.701	-	0.236	89.4	88.9
1230-1430	on	41	-	90.5	1.3	-	1.645	0.334	90.8	90.2
1433-1539	off	23		96.8	1.3	1.717		0.466	97.3	96.4
1542-1745	on	42		92.4	2.2		1.645	0.561	93.0	91.9
1748-1800	off	5	4	97.7	0.4	2.132	-	0.429	98.1	97.3

Legend: n= sample size, v = sample size -1, t=t distribution, z = z distribution (used when sample size is >30)

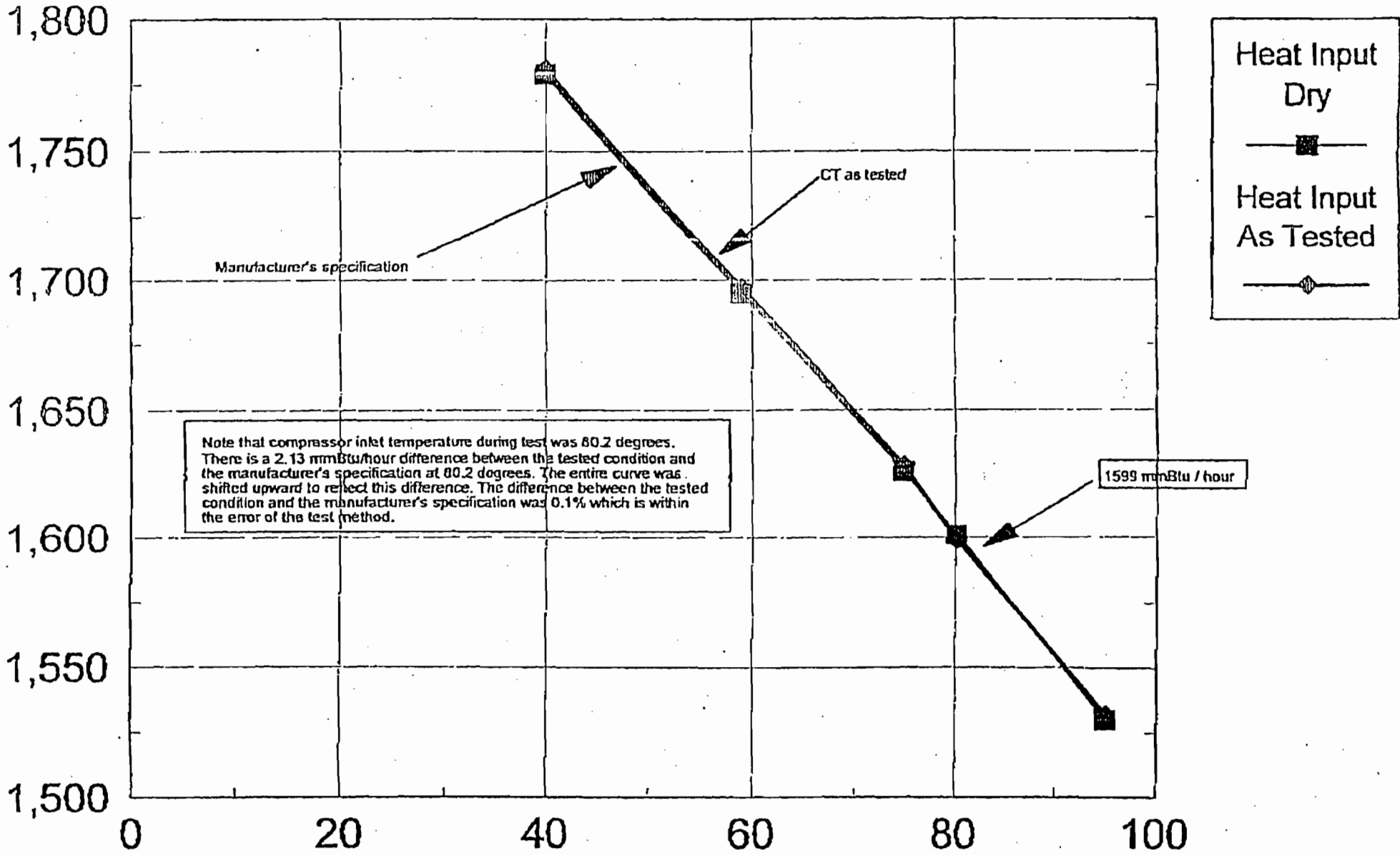
Table 1.2b Florida Power And Light (FP&L) Test data for the Combustion Turbine Inlet Air Cooling System with Direct Water Spray Inlet Fogging (8/26/98) CO Statistical Analysis (Unit 1GT2 - Putnam Plant, Palatka, Fl.)

Hour Range	Fogger on/off	n	v (n-1)	Mean	Std Dev	t		95% C.I.	Upper C.I.	Lower C.I.
1103-1227	off (baseline)	29	28	72.6	2.3	1.701	-	0.728	73.3	71.9
1230-1430	on	41	-	70.9	1.9	-	1.645	0.494	71.4	70.4
1433-1539	off	23		67.2	1.9	1.717		0.688	67.9	66.5
1542-1745	on	42		69.5	3.3		1.645	0.828	70.4	68.7
1748-1800	off	5	4	63.4	0.9	2.132	-	0.853	64.3	62.5

Legend: n= sample size, v = sample size -1, t=t distribution, z = z distribution (used when sample size is >30)

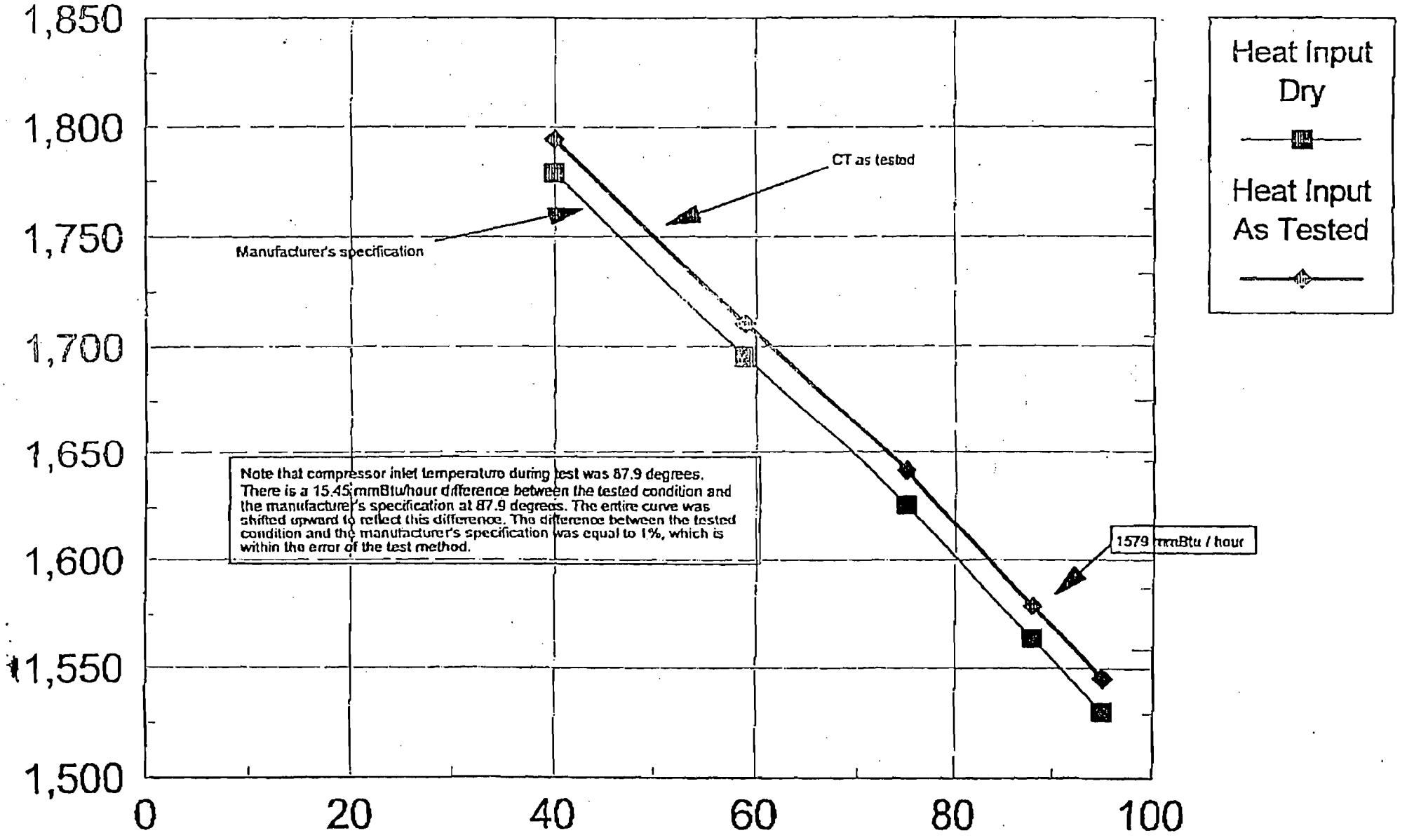
Martin Unit 4B

Heat Input vs. Ambient Temperature Curve

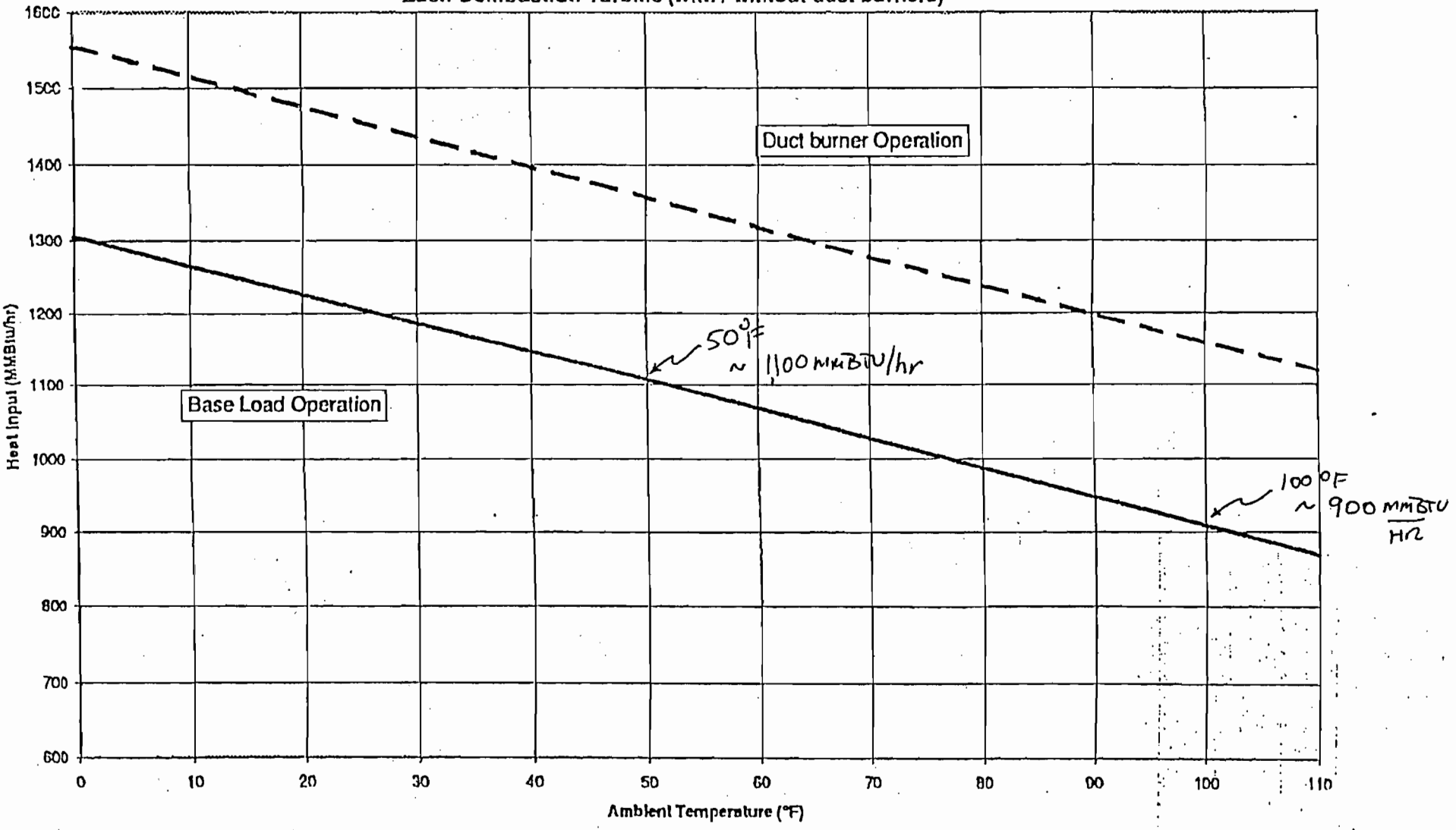


Martin Unit 4A

Heat Input vs. Ambient Temperature Curve



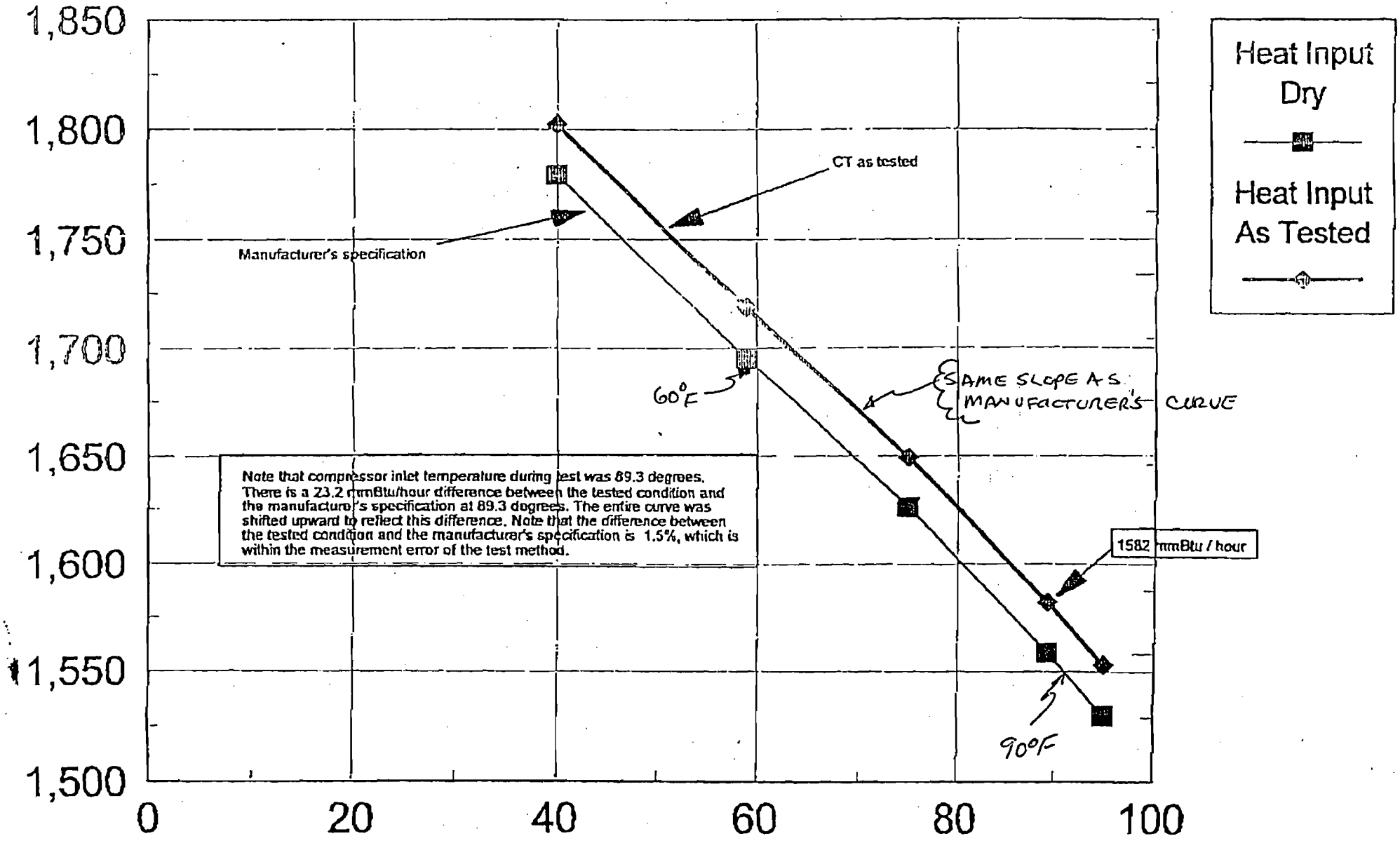
Putnam Plant Unit 1 or 2
Heat Input Variation With Ambient Temperature
Each Combustion Turbine (with / without duct burners)



HI Limit Chart 1
9/12/97 2:32 PM

Martin Unit 3A

Heat Input vs. Ambient Temperature Curve



STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 1070014-003-AC
Florida Power & Light - Putnam Plant
Emissions Units 003-006 Inlet Foggers Project
Putnam County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Power & Light (FP&L). The permit is to install inlet foggers at the compressor inlets of four 70-megawatt natural gas and No. 2 fuel oil-fired Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators at the Putnam Power Plant in Putnam County. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Florida Power & Light, 392 US Highway 17 South, East Palatka, Florida 32131.

These units achieve their maximum rated output on cold days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet air density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling compressor inlet air. The foggers provide no benefit on very humid or cold days and will not be used under those conditions. Maximum power production and emissions will continue to occur during cold days with the foggers turned off. The result is that maximum achievable power production and maximum achievable hourly emissions will not increase, although actual annual emissions will increase because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FPL proposes enforceable conditions to insure non-applicability. FPL asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle units. They are allowed to operate continuously (8760 hours of operation per unit). The maximum increase in annual emissions caused by project in tons per year is summarized below along with the PSD-significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	2	25/15
SO_2	4	40
NO_x	39	40
VOC	2	40
CO	9	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399 2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120. 569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Medication is not available in the proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding, and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when 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, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

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

Because the administrative hearing process is designed to formulate 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

...s hourly emissions will not increase, although actual ...missions will increase because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FPL proposes enforceable conditions to insure non-applicability. FPL asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle units. They are allowed to operate continuously (8760 hours of operation per unit). The maximum increase in annual emissions caused by project in tons per year is summarized below along with the PSD-significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	2	25/15
SO_2	4	40
NO_x	39	40
VOC	2	40
CO	9	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399 2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120. 569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Medication is not available in the proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when 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, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

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

Because the administrative hearing process is designed to formulate 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
Northeast District Office
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7590
Telephone: 904/448-4300
Fax: 904/448-4363

The complete project file includes the application, technical evaluation, 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 Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 1070014-003-AC
Florida Power & Light - Putnam Plant
Emissions Units 003-006 Inlet Foggers Project
Putnam County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Power & Light (FP&L). The permit is to install inlet foggers at the compressor inlets of four 70-megawatt natural gas and No. 2 fuel oil-fired Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators at the Putnam Power Plant in Putnam County. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Florida Power & Light, 392 US Highway 17 South, East Palatka, Florida 32131.

These units achieve their maximum rated output on cold days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet air density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling compressor inlet air. The foggers provide no benefit on very humid or cold days and will not be used under those conditions. Maximum power production and emissions will continue to occur during cold days with the foggers turned off. The result is that maximum achievable power production and maximum achievable hourly emissions will not increase, although actual annual emissions will increase because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FPL proposes enforceable conditions to insure non-applicability. FPL asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle units. They are allowed to operate continuously (8760 hours of operation per unit). The maximum increase in annual emissions caused by project in tons per year is summarized below along with the PSD-significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	2	25/15
SO_2	4	40
NO_x	39	40
VOC	2	40
CO	9	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399 2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120. 569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in the [illegible]

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT MODIFICATION

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0850001-005-AC (PSD-FL-146G)

Florida Power & Light Martin Plant
Inlet Fogger Project
Martin County

The Department of Environmental Protection (Department) gives notice of its intent to issue a PSD permit modification to Florida Power & Light (FP&L). The permit is to install foggers at the compressor inlets of four natural gas and No. 2 fuel oil-fired General Electric PG7221FA combined cycle combustion turbine-electrical generators at the Martin Plant in Martin County. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Florida Power & Light, Post Office Box 176, Indiantown, Florida 34956.

The primary movers are the combustion turbines, which are typically nominally rated by General Electric at approximately 160 MW at 59 degrees when firing gas. The combustion turbines (exclusive of the steam cycle) normally achieve their maximum rated output of approximately 170 MW on cold (32 degrees) days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is only about 140 MW on hot (95 degrees) days because of the lower compressor inlet air density. The foggers can increase hot-day power output (under very dry conditions) by as much as 15 MW, thus almost restoring the units to their nominal rating. Under the design conditions for this Florida site, an improvement of about 8 MW can be expected.

The foggers provide no benefit under humid or cold (less than approximately 50 degrees) conditions and will not be used when they occur. The maximum output of approximately 170 MW will continue to occur at low ambient temperature. The result is that maximum hourly emissions will not increase although actual annual emissions will increase within their permitted limits because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FP&L proposes enforceable conditions to insure non-applicability. FP&L asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle units. The units are allowed to operate continuously and already have a very high availability factor. The maximum increase in annual emissions caused by the project in tons per year is summarized below along with the PSD-significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	4	25/15
SO_2	34	40
NO_X	38	40
VOC	1	40
CO	18	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue a PSD Permit Modification." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. Applicant

Florida Power & Light
Environmental Services Department
700 Universe Blvd
Juno Beach, Fl 33408

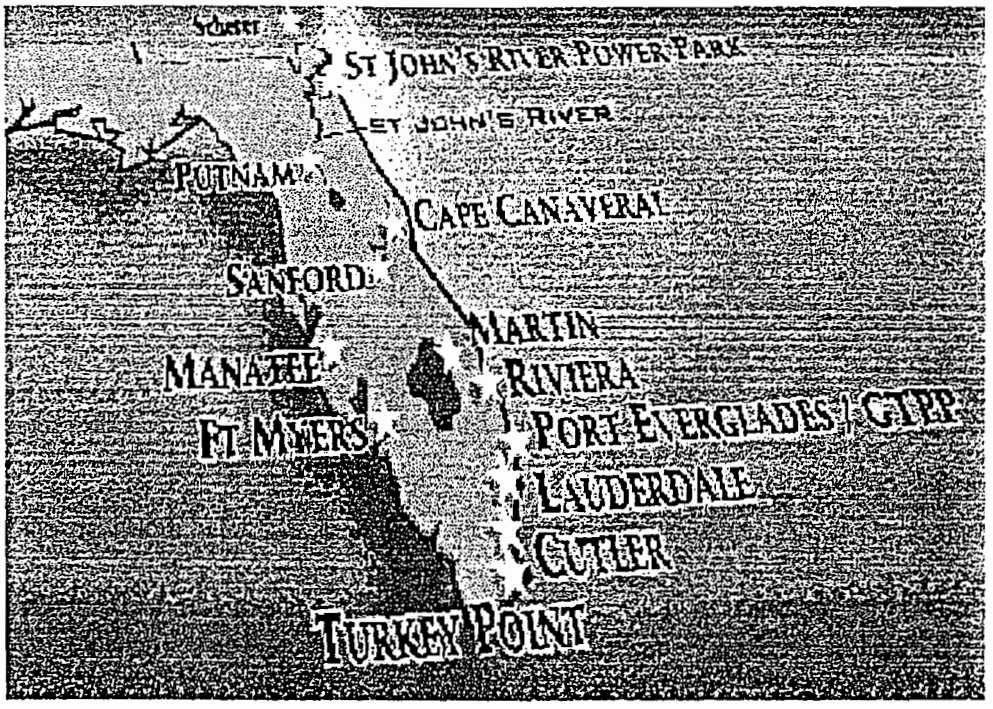
Authorized Representative: John Lindsay, FP&L Martin Plant General Manager

2. Source Name and Location

FP& L Martin Plant
Post Office Box 176
Indiantown, Florida 32956

UTM Coordinates: Zone 17, 543.2 km East and 2993.0 km North

The plant is located 7 miles North of Indiantown, Martin County. The location the Martin Plant within the FP&L system is shown below followed by a photograph of the site downloaded from the FP&L website:



3. Source Description

The Florida Power & Light (FP&L) Martin Plant consists of two oil and natural gas fired conventional steam generating stations, and two oil and natural gas fired combined cycle units. In addition, the facility includes one auxiliary boiler, and two diesel generators (one unregulated). Also included in this permit are two unregulated emissions units identified as facility-wide particulate matter emissions and facility-wide VOC emissions. Based on the Title V application, this facility is a major source of hazardous air pollutants (HAPs).

Inlet foggers are routinely included in new combustion turbine projects and have not affected the Department's decisions regarding Best Available Control Technology.

6. Emissions Increases Due to Modification/Method of Operation

The foggers are physical pieces of equipment whose addition and use can increase emissions on hot or dry days. The use of the foggers can also be considered a change in method of operation of the inlet "air conditioning system" that is already used to filter incoming air.

Assuming a design condition for Florida of 95 degrees (°F) and 50 percent (%) relative humidity, evaporative cooling to the point of saturation of the incoming gas stream results in a temperature decrease of approximately 16 °F to 79 °F. This represents an increase of roughly 5% in power output or on the order of 7 MW per unit. Under average annually averaged conditions, the reduction typically possible is on the order of 5.5 °F, with an associated power increase of about 3 MW.

Refer to attached Heat Input versus Ambient Temperature Curve. FP&L estimated that that heat input to each combustion turbine will increase by approximately 4.7 mmBtu per hour per degree of temperature reduction (mmBtu/hr/°F) by evaporative cooling. If emissions rates are known in terms of pounds per mmBtu (lb/mmBtu), the increase on hourly emissions can be estimated.

FP&L assumed that each unit will be operated 6240 hours per year gas and 125 hours on oil with the fogger on and that the average temperature decrease will be 5.5 °F when the foggers are on. Annual emissions are estimated as detailed in the following table.

TOTAL EMISSIONS INCREASES DUE TO USE OF INLET FOGGERS AT FOUR UNITS

Pollutant	Emission Rate lb/mmBtu (gas)	Emission Rate lb/mmBtu (oil)	Emission Increase ton/yr (gas)	Emission Increase ton/yr (oil)	Annual Increase tons/yr (Oil & Gas)	PSD Threshold tons/yr
NO_x	0.0900	0.2497	29.04	9.39	38.43	40
PM/PM_{10}	0.0092	0.0328	2.95	1.23	4.19	25/15
CO	0.0480	0.0573	15.47	2.15	17.63	100
VOC	0.0015	0.0060	0.491	0.22	0.72	40
SO_2	0.0465	0.4984	15.01	18.74	33.75	40

Source: Application and additional information submitted on March 29 and May 7, 1999 respectively.

Limiting each unit to 6240 hours of operation on gas and 125 hours of operation on oil will not effectively insure that annual emissions increases will not exceed the values given above. This is because the hours of operation will be chosen with a bias toward the days when the possible temperature decrease is greater than 5.5.

To insure enforceability of a limit on annual emissions increases, FP&L proposes to limit the annual "degree-hours (°F-hr)" that the foggers operate. Degrees during a given hour can be calculated by measuring the temperature difference between the ambient and cooled air, while hours are easily documented. These values can be integrated over a year to calculate annual degree hours. Actual annual °F-hr can be directly multiplied by the lb/mmBtu of each pollutant and the 4.7 mmBtu/hr/°F factor and converted to tons to calculate actual annual emissions increases.

(c) For any emissions unit (other than an electric utility steam-generating unit specified in subparagraph (d) of this definition) which has not begun normal operations on a particular date, actual emissions shall equal the potential emissions of the emissions unit on that date.

(d) For an electric utility steam generating unit (other than a new unit or the replacement of an existing unit) actual emissions of the unit following a physical or operational change shall equal the representative actual annual emissions of the unit following the physical or operational change, provided the owner or operator submits to the Department on an annual basis, for a period of 5 years representative of normal post-change operations of the unit, within the period not longer than 10 years following the change, information demonstrating that the physical or operational change did not result in an emissions increase. The definition of "representative actual annual emissions" found in 40 CFR 52.21(b)(33) is adopted and incorporated by reference in Rule 62-204.800, F.A.C.

The term electric utility steam-generating unit is defined as:

Electric Utility Steam Generating Unit – Any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the unit.

Based on Department records, actual hours of operation since 1993 are as follows:

Annual Operating Hours 1993 - 1998

Unit/Year	1993	1994	1995	1996	1997	1998
3A (003)	786	7554	8334	7977	8121	8067
3B (004)	804	7789	8172	8281	8551	8301
4A (005)	91	5181	5974	8305	8243	8417
4B (006)	91	6780	8315	8310	8254	8345

As expected, there was a rapid increase in annual hours of operation after these very efficient units were installed in 1993. Their operation can presently be characterized as "baseload." The foggers will be allowed to operate continuously but will be limited in terms of "degree-hours." As previously mentioned, if the average temperature drop is in fact 5.5 °F, they can operate 6240 hours on gas and 125 hours on oil each.

The combustion turbines have clearly begun *normal operation.* As modern combined cycle units, they are very efficient in comparison with conventional boiler-based steam-electrical units. Each combustion turbine-electrical generator produces 160 MW (nominal) of electrical power excluding the power produced through the steam cycle. The steam cycle associated with each combustion turbine, including the unfired HRSG and steam turbine-electrical generator produces about 70 MW (well in excess of 25 MW) so that the units are clearly steam electrical units. Therefore, the correct approach to determine the magnitude of a net emissions increase is to compare actual emissions from preceding years with representative actual annual emissions as described for steam electrical units.

The application and determination of the Department's rules does not constitute an interpretation of the EPA rules under 40CFR52.21, Prevention of Significant Deterioration or 40CFR60, New Source Performance Standards.

For further details regarding this review, contact:

A.A. Linero, P.E. Administrator
Teresa Heron, Review Engineer
New Source Review Section
Bureau of Air Regulation
850/488-0114

Memorandum

Florida Department of
Environmental Protection

TO: ~~C. H. Fancy~~

THRU: Al Linero AAL 6/15

FROM: Teresa Heron T.H.

DATE: June 15, 1999

SUBJECT: FP&L Martin Plant
DEP File No. 0850001-005-AC

Attached is the draft public notice package including the Intent to Issue and the Technical Evaluation and Preliminary Determination for the compressor inlet fogger project at the FP&L Martin Plant. The application is to install inlet foggers ahead of the compressor inlets of four combined cycle combustion turbines. The foggers will operate on hot days and days of relatively low humidity. The evaporative cooling effected by the foggers will allow the units to operate closer to their rated capacity.

Both short-term and annual emissions will increase because the heat rate through the units will increase when the foggers. Maximum short-term emissions will still occur during cold days when use of the foggers is not feasible. The units already comply with 40 CFR 60, Subpart GG, so NSPS applicability is not an issue. FP&L proposes to limit operation of the coolers to 34,320 degrees F-hour on gas and 4000 degrees F-hour on oil to insure PSD is not triggered by their use.

I recommend your signature and approval of the cover letter and Intent to Issue.

AAL/th

Attachments

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 1070014-003-AC

Florida Power & Light - Putnam Plant
Emissions Units 003-006 Inlet Foggers Project
Putnam County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Power & Light (FP&L). The permit is to install inlet foggers at the compressor inlets of four 70-megawatt natural gas and No. 2 fuel oil-fired Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators at the Putnam Power Plant in Putnam County. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Florida Power & Light, 392 US Highway 17 South, East Palatka, Florida 32131.

These units achieve their maximum rated output on cold days because the greater compressor inlet density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling of the compressor inlet air. The foggers provide no benefit on very humid or cold days and will not be used under those conditions. Maximum power production and emissions will continue to occur during cold conditions with the foggers turned off. The result is that maximum achievable power production and maximum achievable hourly emissions will not increase, although actual annual emissions will increase because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FPL proposes enforceable conditions to insure non-applicability. FPL asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle units. They are allowed to operate continuously (8760 hours of operation per unit). The maximum increase in annual emissions caused by project in tons per year is summarized below along with the PSD-significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	2	25/15
SO_2	4	40
NO_X	39	40
VOC	2	40
CO	9	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

Memorandum

Florida Department of Environmental Protection

TO: Howard L. Rhodes

THRU: C. H. Fancy ok
Al Linero eaj 7/1.-

FROM: Teresa Heron T.H.

DATE: July 15, 1999

SUBJECT: FP&L Putnam Spray Fogging Systems
DEP File No. 1070014-003-AC

Attached is the final permit package for the compressor inlet fogger project at the FP&L Putnam Plant. The application is to install inlet foggers ahead of the compressor inlets of four combined cycle combustion turbines. The foggers will operate on hot days and days of relatively low humidity. The evaporative cooling effected by the foggers will allow the units to operate closer to their rated capacity.

Both short-term and annual emissions will increase because the heat rate through the units will increase when the foggers. However, maximum short-term emissions will still occur during cold days when use of the foggers is not feasible anyway. For this reason, we believe that 40CFR60, Subpart GG will not be triggered. FP&L proposes to limit operation of the coolers to 1,280 hours per unit per year while firing gas and 100 hours per unit per year while firing fuel oil to insure PSD is not triggered by their use. The issue of making a future potential to past actual annual emission increase calculation is extensively addressed in the Technical Evaluation.

We recommend your signature and approval.

AAL/aal

Attachments

COMPLETE MAY 7
INTENT JUNE 3 (DAY 27)
PROOF JULY 12 ACTUALLY SUBMITTED ON JUNE 10 — SINCE > 15 DAYS HAVE
CLOCK STARTS JULY 26 (DAY 27) ELAPSED, WE CAN'T
TODAY JULY 15
DAY 90 SEPT 27

EXHIBIT
tabbies
Heron Depo.
10

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. **Applicant**

Florida Power & Light Company
Environmental Services Department
700 Universe Blvd
Juno Beach, Fl 33408

Authorized Representative: Robert Bergstrom, FP&L Putnam Plant General Manager

2. **Source Name and Location**

FP&L Putnam Power Plant
392 US Highway 17 South
East Palatka, Florida 32131

UTM Coordinates: Zone 17, 443.3 km East and 3277.80 km North

The location of the site within the FP&L grid is shown below:

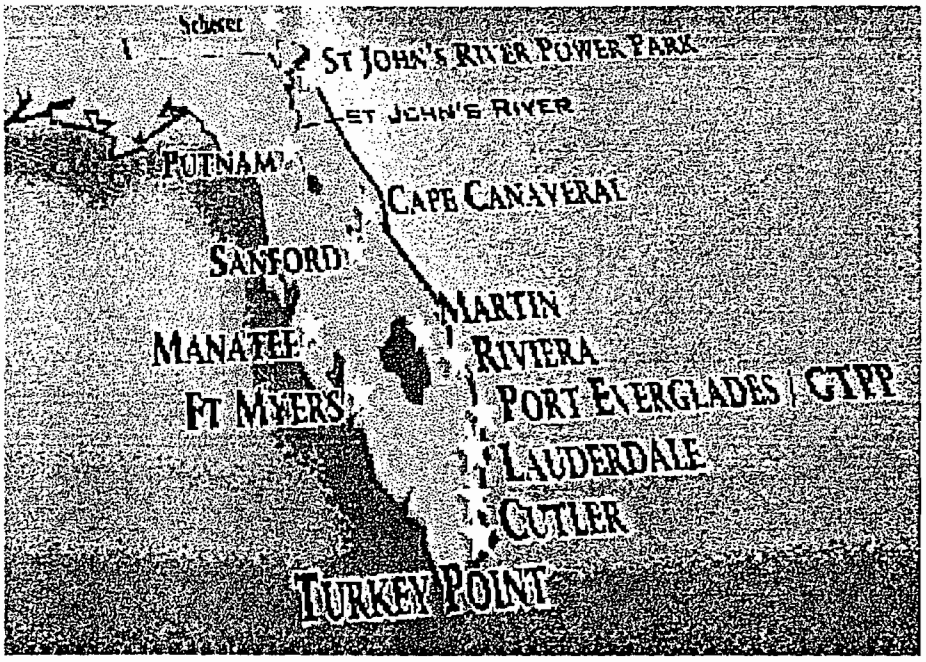


EXHIBIT
Heron Depo.
11

3. **Source Description**

The Florida Power and Light (FP&L) Putnam Plant consists of four combustion turbines, each with an associated heat recovery steam generator equipped with a duct burner; an auxiliary boiler, and "unregulated or insignificant" emissions units. This facility emission units identification in the ARMS system includes the four combustion turbines, ARMS Emissions Units 003 to 006 and four Duct Burners for Combined Cycle Heat Recovery Steam Generators (HRSGs), ARMS Emissions Units 007 to 010 and an auxiliary boiler, ARMS Emission Unit 011.

Each combustion turbine is a Westinghouse unit Model 501B5A rated at 70 MW generating capacity (at 85 degrees F ambient temperature), with a maximum heat input for natural gas and fuel oil of 968.3 mm Btu/hr and 910.6 mmBtu/hr, respectively. The duct burners for each HRSG are rated at a maximum heat input of 250 mmBtu/hr, and are fired with natural gas and No. 2. fuel oil. The auxiliary boiler is manufactured by VA-Power and has a maximum heat input for natural gas and number 2 fuel oil of 16.275 mmBtu/hr and 14.28 mmBtu/hr, respectively.

4. Current Permit and Major Regulatory Program Status

Construction of the Putnam power plant facility was authorized by the Department's under the Power Plant Siting Certification No. PA74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. The four combustion turbines & HRSGs along with an auxiliary boiler, identified in ARMS as Emissions Units 003 through 011, and other unregulated or "insignificant emissions units" are operated under Title V Air Operation Permit No. 1070014-001-AV issued in June 1998.

The HRSGs and the combustion turbines are regulated under Rule 62-210.300, F.A.C. Permits Required. Based on information submitted by the applicant in the Title V application, the combustion turbines are not subject to 40CFR 60, Subpart GG, Standards of Performance for New Stationary Gas Turbines. The HRSGs are subject to 40CFR 60, Subpart Db, Standard of Performance for Industrial-Commercial-Institutional Steam Generating Units. ARMS Emissions units 003, 004, 007 and 008 began commercial operations in 1978. ARMS Emissions Units 005, 006, 009 and 010 began commercial operations in 1977.

5. Permit Modification Request

On March 29, 1999 the Department received a request from FPL for modification of its permits to install inlet foggers at the compressor inlets of Units 003 through 006. These units normally achieve their maximum rated output on cold days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling of the compressor inlet air although maximum output over all temperatures will remain 70 MW or below. The foggers provide little or no benefit on humid or cold days and will not be used under those conditions.

Inlet foggers are routinely included in new combustion turbine projects and have not affected the Department's decisions regarding Best Available Control Technology.

6. Emissions Increases Due to Modification/Method of Operation

The foggers are physical pieces of equipment whose addition and use can increase emissions on hot or dry days. The use of the foggers can also be considered a change in method of operation of the inlet "air conditioning system" that is already used to filter incoming air.

The maximum short-term emissions increases were estimated by FPL using the heat input associated with a 16 degree F decrease in compressor inlet temperature. The maximum annual increases were estimated FP&L using the annual average inlet cooling of 8 degrees F. The increase in heat rate as a function of temperature was estimated by the applicant as 4 mmBtu per degree F when firing natural gas and 3.2 mmBtu per degree F when firing fuel oil. This was then used with the hours of operation to calculate the increases of each pollutant in tons per year. The results were estimated by FPL and are summarized below together with annual emission increase estimates. These are based on 1280

(gas) and 100 (oil) hours of operation per fogger per year [5120 hr/yr (gas) and 400 hr/yr (oil) for all 4 units].

TOTAL EMISSIONS INCREASES DUE TO USE OF INLET FOGGERS AT FOUR UNITS

Pollutant	Emission Rate lb/mmBtu (gas)	Emission Rate lb/mmBtu (oil)	Emission Increase ton/yr (Oil)	Emission Increase Ton/yr (Gas)	Annual Increase tons/yr (Oil & Gas)	PSD Threshold tons/yr
NO_x	0.44	0.698	3.60	36.0	39.6	40
PM/PM_{10}	0.0168	0.0293	0.15	1.38	1.5	25/15
CO	0.11	0.048	0.25	9.01	9.3	100
VOC	0.024	0.017	0.09	1.97	2.1	40
SO_2	0.00286	0.7	3.58	0.23	3.8	40

The emissions increases calculated are the direct result from the physical change in or change in method of operation, i.e. the installation and use of the inlet foggers. These assume that the ability to achieve greater power output when the foggers are used does not result in emissions increases outside the turbines original power curve. The rationale is discussed below.

The emissions characteristics (see Appendix W of attached draft permit) do not change as a result of the use of the foggers from what would normally occur throughout the entire range of temperatures and relative humidity. Rather, the foggers move the operating points along the same curve toward the power and emissions that normally occur at lower temperatures. The worst case emissions scenario will still occur during the winter months and will occur with the foggers off. This is because of the higher air density and massflow during cold weather allows higher heat input and power output. At low temperature, very little cooling can be attained because cold air cannot evaporate and hold much moisture. Under such conditions, icing can occur which is detrimental to the units.

7. Evaluation of PSD Applicability

As a major source, a modification or change in method of operation of Units 003-006 resulting in **significant net emissions increases** is subject to PSD review. Significant net emissions increase is defined in Rule 62-212.400, F.A.C as follows:

> *Significant Net Emissions Increase – A significant net emissions increase of a pollutant regulated under the Act is a net emissions increase equal to or greater than the applicable significant emission rate listed in Table 212.400-2, Regulated Air Pollutants – Significant Emission Rates.*

The significant emission rates are included (see PSD Threshold) in the Table above. The meaning of a net emissions increase is given in Rule 62-212.400, F.A.C. as:

> *Net Emissions Increase - A modification to a facility results in a net emissions increase when, for a pollutant regulated under the Act, the sum of all of the contemporaneous creditable increases and decreases in the actual emissions of the facility, including the increase in emissions of the modification itself and any increases and decreases in quantifiable fugitive emissions, is greater than zero.*

The definition of actual emissions is given in Rule 62-210.200, F.A.C. (definitions) as follows:

> *Actual Emissions - The actual rate of emission of a pollutant from an emissions unit as determined in accordance with the following provisions:*

(a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit. Actual emissions shall be calculated using the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.

(b) The Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that, for any regulated air pollutant, such unit-specific allowable emissions limits are federally enforceable.

(c) For any emissions unit (other than an electric utility steam-generating unit specified in subparagraph (d) of this definition) which has not begun normal operations on a particular date, actual emissions shall equal the potential emissions of the emissions unit on that date.

*(d) **For an electric utility steam generating unit** (other than a new unit or the replacement of an existing unit) actual emissions of the unit following a physical or operational change shall equal the representative actual annual emissions of the unit following the physical or operational change, provided the owner or operator submits to the Department on an annual basis, for a period of 5 years representative of normal post-change operations of the unit, within the period not longer than 10 years following the change, information demonstrating that the physical or operational change did not result in an emissions increase. The definition of "representative actual annual emissions" found in 40 CFR 52.21(b)(33) is adopted and incorporated by reference in Rule 62-204.800, F.A.C.*

The term electric utility steam-generating unit is defined as:

Electric Utility Steam Generating Unit – Any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the unit.

Based on Department records, actual hours of operation since 1993 for these units are as follows:

Unit/Year	Annual Operating Hours 1993 - 1998					
	1993	1994	1995	1996	1997	1998
003	7649	5585	7085	6528	6498	6410
004	7649	5585	7085	6528	6498	6410
005	7727	5963	6490	6607	6255	6601
006	7727	5963	6490	6607	6255	6601

Note: In 1998, the annual hours of operation of the duct burners are reported as 2414 (Unit 007), 2302 (Unit 008), 2579 (Unit 009), and 2579 (Unit 010). These were not recorded in ARMS during previous years.

These units have each operated approximately 6500 ± 1000 hours per year since 1993. The duct burners within the HRSGs operate roughly 40 percent of the time when the combustion turbines operate. The foggers will operate no more than 1280 hours per year when the units burn gas and 100 hours when the units burn oil. This equates to roughly 20 percent of the time when the combustion turbines operate.

The combustion turbines have clearly begun *normal operation.* As combined cycle units, they are fairly efficient in comparison with conventional boiler-based steam-electrical units. They are not, however, baseload units. By comparison, the larger Westinghouse 501F and General Electric 7FA combined cycle units that were installed during the early 1990s in Fort Lauderdale and Martin County and are dispatched much like baseload units.

Each combustion turbine-electrical generator produces approximately 70 MW of electrical power excluding the power produced through the steam cycle. The steam cycle associated with each combustion turbine, including the supplementally-fired HRSG and steam turbine-electrical generator produces well in excess of 25 MW of power. Therefore the correct approach to determine the magnitude of a net emissions increase is to compare actual emissions from preceding years with representative actual annual emissions as described for steam electrical units.

FP&L asserts and the Department accepts that use of the inlet foggers will not affect the hours of operation of the units. Usage of the combustion turbines will depend on the system-wide growth in electrical demand and the impacts of major projects such as the planned 1500 and 2000 megawatt repowering projects at Fort Myers and Sanford. Most likely the Putnam units will continue their normal operation within the historical 6500±1000 hours per year per unit. The emissions are directly related to the hours of operation. Any increases from the fogger project would be dwarfed by the annual swings in usage of the units.

The modification project can, however, be isolated from the normal operation of the units and its effects can be directly predicted and measured without having to make annual comparisons of actual emissions from the combined cycle units before and after the change. The modification itself (i.e. installation and operation of the foggers), however, has not yet begun normal operation. Therefore the future actual emissions caused by the modification are equal to the potential-to-emit, which is based on the increases in heat input associated with the use of the fogging system.

The number of days during which the foggers can economically operate probably limits actual emissions increases to levels below significance for the purposes of PSD applicability. However, FPL proposes to limit operation of the foggers to 1,280 (gas) and 100 (oil) hours per unit per year. This value is approximately 20 % of the permitted hours of operation for each unit. It is also a clear indication that compressor air inlet cooling will not cause the units to operate all of the permitted hours during this mode. Emissions will increase under these limitations (as previously tabulated) by levels less than the significant emissions rates given in Table 212.400-2, F.A.C. The Department concludes, therefore, that PSD does not apply to this project.

8. Evaluation of NSPS Subpart GG Applicability

As a major source, a physical change in or change in the method of operation resulting in an increase in the amount of any air pollutant (to which a standard applies) is subject to applicable requirements of 40 CFR 60, Standards of Performance for New Stationary Sources. Modification under 40 CFR 60.2 [Rule 62.204.800 F.A.C.] is defined as follows:

Modification means any physical change in, or change in the method of operation of, an existing facility which increase the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emissions of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.

The installation of the foggers do not change maximum short-term emissions rates as these are already achieved under natural conditions of low ambient temperatures without the use of the foggers. The inlet fogger installations only change the ambient conditions that occur during the normal operation of the turbines. Therefore, the inlet fogger installations do not make the combustion turbines subject to 40 CFR 60 Subpart GG because, the *physical* change in or change in the method of operation of, caused by the foggers installation do not increase the (maximum short-term) amount of any air pollutant. The Department will request EPA concurrence on this matter.

9. **Proposed Addition of New Conditions to Power Plant Siting Certification No. PA 74-01 and Issuance of an Air Construction Permit.**

These emissions units were constructed under the authority of the Power Plant Siting Certification No. PA74-01 ordered in 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. The Department will amend these conditions of certification by adding a new condition authorizing installation and operation of the inlet foggers and will issue a new air construction permit for these units.

The new conditions applicable to the inlet foggers proposed for Emissions Units 003 -006 are shown in the draft air construction permit. It limits operation of the inlet foggers to 1,280 (gas) and 100 (oil) hours per unit per year.

10. **Conclusions**

The project will not increase the maximum short-term emission rates as these are already achieved under natural conditions of low ambient temperatures without the use of the foggers. Therefore, the Department believes that the 40 CFR60 NSPS Subpart GG is not applicable to these units as a result of the installation of the foggers.

The Department concludes that PSD is not applicable to this project since this project as presented will not result in significant net emissions increases to a major facility. The changes will not cause a significant impact or cause or contribute to a violation of any ambient air quality standard or PSD increment.

The Department's conclusion does not set a precedent for projects implemented at any facilities other than combined cycle unit inlet fogger installations. It does not set precedents related to any physical changes within the compressors, combustors, rotors, heat recovery steam generators, or other key components at such units. The application and determination of the Department's rules does not constitute an interpretation of the EPA rules under 40CFR52.21, Prevention of Significant Deterioration or 40CFR60, Standards of Performance for New Stationary Sources.

For further details regarding this review, contact:

A.A. Linero, P.E. Administrator
Teresa Heron, Review Engineer
New Source Review Section
Bureau of Air Regulation
850/488-0114

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 1070014-003-AC

Florida Power & Light - Putnam Plant
Emissions Units 003-006 Inlet Foggers Project
Putnam County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Power & Light (FP&L). The permit is to install inlet foggers at the compressor inlets of four 70-megawatt natural gas and No. 2 fuel oil-fired Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators at the Putnam Power Plant in Putnam County. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Florida Power & Light, 392 US Highway 17 South, East Palatka, Florida 32131.

These units achieve their maximum rated output on cold days because the greater compressor inlet density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling of the compressor inlet air. The foggers provide no benefit on very humid or cold days and will not be used under those conditions. Maximum power production and emissions will continue to occur during cold conditions with the foggers turned off. The result is that maximum achievable power production and maximum achievable hourly emissions will not increase, although actual annual emissions will increase because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FPL proposes enforceable conditions to insure non-applicability. FPL asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle units. They are allowed to operate continuously (8760 hours of operation per unit). The maximum increase in annual emissions caused by project in tons per year is summarized below along with the PSD-significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	2	25/15
SO_2	4	40
NO_X	39	40
VOC	2	40
CO	9	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

June 2, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. R. Douglas Neeley, Chief
Air, Radiation Technology Branch
US EPA Region IV
61 Forsyth Street
Atlanta, Georgia 30303

Re: DEP File No. 1070014-003-AC
Putnam Plant Units 3-6, Inlet Foggers
Subpart GG Non-Applicability

Dear Mr. Neeley:

Enclosed is a copy of our Intent to Issue a permit to Florida Power and Light (FP&L) for the installation of inlet foggers for use during the summer season on the combined cycle units at the Putnam Plant. We request your concurrence with our preliminary determination or your own separate determination regarding the non-applicability of the 40CFR 60, NSPS Subpart GG for these units.

There are presently 4 Westinghouse 501B5A combustion turbines on the site. Each has a nominal simple cycle capacity of 70 megawatts. The units are permitted to operate continuously. These units normally achieve their maximum rated output on cold days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet density. The foggers increase hot-day power output by approximately 2-4 MW through evaporative cooling of the compressor inlet air. The foggers provide little or no benefit on humid or cold days and will not be used under those conditions.

The foggers will not increase the maximum short-term emission rates for the units, as these are already achieved under natural conditions of low ambient temperatures without the use of the foggers. Therefore the Department believes that Subpart GG is not triggered by the project. The foggers are physical pieces of equipment whose addition and use can increase emissions on hot or dry days. The use of the foggers can also be considered a change in method of operation of the inlet "air conditioning system" that is already used to filter incoming air.

We would appreciate your early review and concurrence. If you have any questions on these matters please call Teresa Heron at 850/921-9529 or me at 850/921-9523.

Sincerely,

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

AAL/aal

Enclosures

EXHIBIT
Heron Depo.
13
tabbies

Memorandum

Florida Department of
Environmental Protection

TO: ~~C. H. Fancy~~ aaf for CHF

THRU: Al Linero aa L 6/2

FROM: Teresa Heron T.H

DATE: June 2, 1999

SUBJECT: FP&L Putnam Spray Fogging Systems
DEP File No. 1070014-003-AC

Attached is the draft public notice package including the Intent to Issue and the Technical Evaluation and Preliminary Determination for the compressor inlet fogger project at the FP&L Putnam Plant. The application is to install inlet foggers ahead of the compressor inlets of four combined cycle combustion turbines. The foggers will operate on hot days and days of relatively low humidity. The evaporative cooling effected by the foggers will allow the units to operate closer to their rated capacity.

Both short-term and annual emissions will increase because the heat rate through the units will increase when the foggers. However, maximum short-term emissions will still occur during cold days when use of the foggers is not feasible anyway. For this reason, we believe that 40CFR60, Subpart GG will not be triggered. FP&L proposes to limit operation of the coolers to 1,280 hours per unit per year while firing gas and 100 hours per unit per year while firing fuel oil to insure PSD is not triggered by their use. The issue of making a future potential to past actual annual emission increase calculation is extensively addressed in the Technical Evaluation.

We recommend your signature and approval of the cover letter and Intent to Issue.

AAL/aal

Attachments

Golder Associates Inc.

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

May 6, 1999

9737572-0100

Mr. C.H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida department of Environmental Protection
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Attention: Ms. Teresa Heron

RE: Inlet Foggers – Putnam Plant Combustion Turbines DEP File 1070014-003-AC
Inlet Foggers – Martin Plant Combustion Turbines DEP File 0850001-005-AC
Florida Power & Light Company (FPL)

Dear Teresa:

This correspondence is submitted to address the Department's information request related to the installation of direct water spray fogging system to the inlet of the Putnam and Martin combustion turbines. The information requested is presented below and in the attachments to this correspondence.

1. Information Requested: Please submit additional data to support the statement that the emission rate does not change as a result of inlet fogging.

   Information Submitted: As discussed in the application, the use of the direct water spray fogging systems will increase the relative humidity of the gas stream while concomitantly reducing the temperature due to adiabatic cooling of the inlet air. This effect is no different than when the turbine is operated under the same ambient conditions that occurs during the normal course of operation in any year. However, it allows the turbine to operate under such ambient conditions more frequently and thus can effect annual emissions. The influence on the emission rate of increasing the relative humidity and temperature is explained in EPA's Alternative Control Techniques Document – NO_x Emissions from Stationary Gas Turbines (EPA-453/R-93-007, January 1993). In Section 4.2.1.3 the report provides information that indicates emissions of NO_x decrease with increasing relative humidity. Also, the mass emission of NO_x decreases per mass of fuel input. This is also the same as lower emissions per amount electric power generated (since power and fuel input are directly related). The lower NO_x emissions with increasing relative humidity and lower temperature can be shown using the equation in Section 4.2.1.3; the adjustment equation in 40 C.F.R. Part 60 Subpart GG, Section 60.335(c)(1).

Table 1 presents calculation of relative NO_x concentrations for various temperatures and relative humidity. As can be seen from the table the relative NO_x concentration decreases with increasing humidity and decreasing temperature. The combined effect can be seen in the last column. Please find attached relevant pages from the EPA cited document. This EPA information is supported by the results of the testing performed at the Putnam Plant that indicated no change in emission rate (concentration) when the fogging system was used. These data also demonstrated no statistical change in CO concentrations as well.

The potential applicability of New Source Performance Standards (NSPS) Subpart GG to the Putnam turbines would be dependant on whether the installation of a fogging system is considered a modification under Section 60.14 of 40 C.F.R. 60. (Note: The NSPS already apply to the Martin turbines; these turbines meet lower emission levels as BACT.) The determination is based on whether a physical change resulted in an increase in the emission rate that is expressed in kilograms per hour. The emission rate can be determined using AP-42, materials balance, CEMs or manual stack tests [see paragraphs (1) and (2) of Section 60.14]. The tests must conducted under representative performance of the facility and that all operating which can effect emissions must be held constant to the maximum degree feasible. As described above, the inlet foggers only changes the ambient conditions that do occur during the normal operation of the turbine. Testing under the requirement to maintain all operating which may effect emissions (i.e., in this case temperature and relative humidity) constant would produce the same result. Thus, the short-term emission rates do not change. Nonetheless, the fogging system does increase the long-term emissions for which a limit on the operation of the fogging system has been requested to keep the increase below the PSD significant emission rate.

2. Information Requested: In reference to Table 1 and 2. (Part II of the Supporting Information), indicate the nominal values for power out, heat rate and heat input.

Information Submitted: The information presented in Table 1 presents the *rate of change* of power, heat rate and heat input for the turbine. The basis of the information is the attached performance curves. As noted from the curves the performance (fuel input and power) is a linear function of inlet temperature. The primary purpose of using the performance curves is to determine the increase in heat rate as a function of temperature. This was determined from the performance curves as 4 mmBtu per °F for Putnam and as 4.7 mmBtu per °F shown in Table 1. Note that the Putnam calculations have been updated to reflect as 4 mmBtu per °F rather than 3 mmBtu per °F in the original submittal. This was then used with the hours of operation to calculate the tons per year. An example for Putnam: 4 mmBtu / °F x 0.44 lb/mmBtu x 8 °F/hour x 1,280 hours x 1 ton/2,000 lb = 9.01 tons/year for NO_x. As noted in the application, AP-42 emission factors were used which for NO_x are from 17 to 25 percent higher than the actual observed emissions. The 4 mmBtu / °F was determined from the performance curves as follows: At 50 °F the heat input is 1,100 mmBtu/hr based on high heating value (HHV). At 100 °F, the heat input is 900 mmBtu/hr (HHV). The difference is 200 mmBtu/hr (1,100 –

900) over 41 °F (100 – 59) or 4 mmBtu / °F. For oil firing the rate was determined to be 3.2 mmBtu / °F using the same procedure.

An example for Martin: 4.7 mmBtu / °F x 0.09 lb/mmBtu x 5.5 °F/hour x 6,240 hours x 1 ton/2,000 lb = 7.26 tons/year for NO_x. The Martin emission rates, as noted in Tables 1 and 2, are based on maximum potential rate in the PSD permit. For NO_x, the maximum emission rate is 177 lb/hour at maximum heat input of 1,966 mmBtu/hr which is 0.09 mmBtu/hr (177/1,966). The 4.7 mmBtu / °F was determined from the heat rate curves as follows: At 60 °F the heat input is 1,550 mmBtu/hr based on high heating value (HHV). At 90 °F, the heat input is 1,690 mmBtu/hr (HHV). The difference is 140 mmBtu/hr (1,690 – 1,550) over 30 °F (90 – 60) or 4.66 mmBtu / °F; this value was rounded to 4.7 mmBtu / °F. This rate was used for both gas and oil firing.

3. Information Requested: Submit the heat input curves for these units.

   Information Submitted: The heat input curves for the Martin Units are attached. The heat input curves for the Putnam Plant are attached.

4. Information Requested: Estimate actual emissions for each facility's turbines and worst case emission rate scenario.

   Information Submitted: The actual emission for each facility is presented in the Annual Operating Report (these will be forwarded separately). As noted in the information supplied in Item 2 above, the emission estimates are based the maximum potential emission rate based on either AP-42 in the case of Putnam and the PSD permit in the case of Martin. Since the requested is based on an incremental increase in annual emissions using the maximum potential emission rates and a maximum amount of fogging (°F-hours per year), the worst case emission estimate is presented in the application.

5. Information Requested: Submit hours of operation for each turbine.

   Information Submitted: The AOR contain the hours of operation.

Your prompt review of the application is appreciated. If there are any further questions, please call.

Sincerely,

GOLDER ASSOCIATES INC.

Kennard F. Kosky, P.E.
Principal
Professional Engineer No. 14996

SEAL

KFK/jkk

Enclosures

cc: Rich Piper, Repowering Licensing Manager
Robert Bergstrom, Putnam Plant General Manager
John Lindsay, Martin Plant General Manager
Bob Burgess, FPL
Jay Blum, FPL

J:\DP\PROJECTS\97\9737\9737572y\F3\#011tr.doc

Table 1a Emission Estimates of the Putnam Facility Combined Cycle Combustion Turbines with Inlet Air Cooling System with Direct Water Spray Inlet Fogging (Natural Gas Combustion).

Performance Basis			
Temperature Decrease	°F (1)	8	
Power Increase		3.28%	PPN Charts
Heat Rate Decrease		1.06%	Westinghouse
Heat Input Increase		2.22%	
Heat Input Change	mmBtu/ °F	4	
Hours/year		1280 (2)	
Hours-°F/year		10,240	hours/year times temperature decrease

Pollutants	Units	Emissions (3)	Comments
PM	lb/MMBtu	0.0168	AP-42 Section 3.1
	TPY	0.34	per machine
NO_x	lb/MMBtu	0.44	AP-42 Section 3.1
	TPY	9.01	per machine
SO_2	lb/MMBtu	0.00286	1 grain/100 cf natural gas
	TPY	0.06	per machine
CO	lb/MMBtu	0.11	AP-42 Section 3.1
	TPY	2.25	per machine
VOC	lb/MMBtu	0.024	AP-42 Section 3.1
	TPY	0.49	per machine

Legend - TPY: tons per year

(1) Temperature decrease is annual average temperature differential of ambient temperature to compressor inlet temperature utilizing inlet fogger.

(2) Hours of fogger operation based on estimate of 8 hours per day and 160 days per year.

(3) Emission factor references - Title V Permit No. 1070014-001-AV, PPSC PA 74-0, EPA AP-42 Emission Factors Section 3.1 "Stationary Gas Turbines".

Table 2a Emission Estimates of the Putnam Facility Combined Cycle Combustion Turbines with Inlet Air Cooling System with Direct Water Spray Inlet Fogging (No. 2 Fuel Oil Combustion).

Performance Basis			
Temperature Decrease	°F (1)	8	
Power Increase		3.28%	PPN Charts
Heat Rate Decrease		1.06%	Westinghouse
Heat Input Increase		2.22%	
Heat Input Change	mmBtu/ °F	3.2	
Hours/year		100 (2)	
Hours-°F/year		800	hours/year times temperature decrease

Pollutants	Units	Emissions (3)	Comments
PM	lb/MMBtu	0.0293	AP-42 Section 3.1
	TPY	0.04	per machine
NO_x	lb/MMBtu	0.698	AP-42 Section 3.1
	TPY	0.89	per machine
SO_2	lb/MMBtu	0.7	Based on Title V Permit
	TPY	0.90	per machine
CO	lb/MMBtu	0.048	AP-42 Section 3.1
	TPY	0.06	per machine
VOC	lb/MMBtu	0.017	AP-42 Section 3.1
	TPY	0.02	per machine

Legend - TPY: tons per year

(1) Temperature decrease isannual average temperature differential of ambient temperature to compressor inlet temperature utilizing inlet fogger.

(2) Hours of fogger operation.

(3) Emission factor references - Title V Permit No. 1070014-001-AV, PPSC PA 74-01, EPA AP-42 Emission Factors Section 3.1 "Stationary Gas Turbines".

Part II

Application for Air Permit
Installation of Direct Water Spray Fogging Systems
Putnam Plant

Introduction

Florida Power & Light Company is proposing to install direct water spray fogging systems in the inlet ducts of the existing 4 combustion turbines in combined cycle configuration at the Putnam Plant. The purpose of the inlet foggers to provide adiabatic inlet air cooling which increase turbine output and decreases heat rate. The project is part of increasing capacity in a cost effective manner.

Description

The direct inlet fogging systems achieve adiabatic cooling using water to form fine droplets (fog). The fog is produced by injection grids placed in the turbine inlet duct that use nozzles that produce a fine spray. The small fog particles (about 10 to 20 microns) extract the latent heat of vaporization from the gas stream when the water droplet is converted to gas. Heat is removed at a rate of 1,075 Btu/lb of water. The result of the fogging is a cooler more moisture laden air stream. Figure 1 presents a schematic of a typical fogging system.

The amount of heat removed is highly dependent upon the ambient air conditions. The two most important parameters are the dry bulb temperature and relative humidity. As moisture is added to the inlet air by the fogging, the vaporization of the fog droplets cools the air toward the wet-bulb temperature. For the proposed project, the design condition is 95°F and 50 percent relative humidity. The resultant wet bulb temperature, based on psychrometric charts is 79°F. At 100 percent saturation the inlet cooling system would result in a 16°F decrease of the turbine inlet air.

While adiabatic cooling is most efficient for dry climates, adiabatic cooling in Florida can be an effective means of inlet air cooling during the late morning to evening hours. This period is typically 8 to 10 hours per day from about 10 am to 8 pm. In the early morning hours and

evening hours, the typical relatively humidity in Florida is 70 to 90 percent depending on the climatic conditions. Because of the highly variable nature of ambient air conditions, the annual average inlet cooling was assumed to be 8°F. This average was reviewed against a 30 year record of meteorological data for Jacksonville and found to be representative of the range in conditions that occur over an annual period. This includes cooling associated with the typical mid-afternoon summer days and early morning/evening periods that occur year-round. The typical mid-afternoon cooling for Jacksonville would be 14°F and would occur in July with a mid-afternoon temperature of 91°F and 58 percent relative humidity. During January, the mid-afternoon cooling would be about 7°F. The typical cooling that would occur in the early morning hours of evening hours with temperatures of about 80°F and a relative humidity of 80 percent would be 5°F. This cooling also assumes that the gas stream can be 100 percent saturated. The ambient air conditions that are modified by the fogging system occur naturally but are more frequent with the fogging system. For example, the average minimum temperatures for the months of November through April range from 41.7°F to 55.7°F with relative humidities ranging from 83 to 88 percent. The amount of adiabatic cooling would range from 1 to 2°F. For the Putnam Plant, an 8°F average reduction was assumed in the calculations for primarily daytime operation.

Turbine Performance and Emission Estimates

The effect of decreasing the turbine inlet air through the use of fogging will be to increase the mass flow of air that can go through the turbine which allows higher heat input and power output. The combustion turbine is also more efficient since the heat rate decreases with decreasing temperature. For the Westinghouse Model 501B5A combustion turbines at the Putnam plant, an 8°F average decrease in temperature would result in a 3.3 percent increase in power and an associated 1.1 percent decrease in heat rate. Thus, while power increases, the production of power is more efficient with concomitant lower emissions per MW-hr generated. The increase in heat rate as a function of temperature decrease is a linear function and for the Putnam turbines would be 4 mmBtu/hr/°F for gas firing and 3.2 mmBtu/hr/°F for oil firing. The data were determined using Westinghouse supplied data (see Attachment A).

Because the turbine is operating on its original power curve, the emission characteristics do not change from what would normally occur at that temperature and relative humidity. An evaluation of emissions from the fogging tests conducted at the FPL Putnam plant did not result in any statistically significant differences in emission rates (see Attachment B). The increase in emissions of criteria pollutants associated with fogging were determined using emission limits contained in the Title V Permit for the facility. This provides the maximum potential allowed and would conservatively estimate emission rates. Table 1 and 2 presents a summary of the operating conditions and emission increases resulting from fogging firing natural gas and distillate fuel oil, respectively. The annual emissions were determined by multiplying the heat input increase per degree Fahrenheit times the emissions rate in lb/mmBtu for the number of hours of proposed for the turbines. The degree F-hours/year is the total amount of annual temperature reduction proposed for fogging and was calculated by using the average temperature reduction multiplied by the hours of year assumed. For example, the degree F-hours for gas firing are calculated by multiplying 1,280 hours times 8°F or 10,240°F-hours. Each turbine inlet fogging system will be equipped with temperature probes to determine the amount of inlet cooling. This reduction will be recorded for each hour of fogger operation. For the Putnam turbines, a maximum of 10,240°F-hours of operation when firing natural gas and 800°F-hours of operation when firing distillate fuel oil was used as the basis for annual emission estimates for each turbine.

The use of AP-42 emission factors is appropriate for estimating maximum potential annual emissions since there are no emission limits for NO_x. This is especially conservative for NO_x since actual emissions are much lower. Over the last two years, quarterly emissions reported from CEM data ranged from 0.322 lb/mmBtu to 0.398 lb/mmBtu. The annual averages from CEM data ranged from 0.351 to 0.371 lb/mmBtu for 1997 and 0.354 to 0.375 lb/mmBtu for 1998. Using an emission factor of 0.44 lb/mmBtu to estimate maximum potential annual emissions, would overestimate annual emissions from 17 to 25 percent greater than that actual observed. Thus, the annual estimated emissions based on AP-42 emission factors are conservative.

Regulatory Applicability

A modification is defined in Rule 62-210.200 Florida Administrative Code (F.A.C.) as any physical change in, or a change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Clean Air Act. A modification to a major source of air pollution, such as the Putnam Plant, may be subject to review under the Department's Prevention of Significant Deterioration (PSD) rules codified in Rule 62-212.400 F.A.C.

The proposed installation of direct water spray fogging systems is a modification according to Rule 62-212.200 (188) F.A.C., since annual emissions will potentially increase as a result of the increased power and heat input. This has been confirmed by the Department in its December 31, 1998 correspondence to FPL.

Based on the available data, it is concluded that the emission rate does not change as a result of inlet fogging. Therefore, increase in annual potential emissions can be conservatively determined through the use of increases in heat input associated with the use of the fogging systems. For the 4 combustion turbines (CTs) the maximum potential annual increase in emissions is estimated as follows:

Summary of Maximum Annual Emissions - All Units

Pollutant	Gas Tons/Year	Oil Tons/Year	Oil & Gas Total
PM	1.38	0.15	1.53
NO_x	36.04	3.57	39.62
SO_2	0.23	3.58	3.82
CO	9.01	0.25	9.26
VOC	1.97	0.09	2.08
Degree Fahrenheit-Hours per year	10,240	800	
Additional Degree Fahrenheit-Hours on Gas	1,015	0	
Total Degree Fahrenheit-Hours Gas Only	11,255	0	

These maximum potential emission rates are less than the significant emission rates in Table 62-212.400-2 in Rule 62-212.400 F.A.C. and therefore PSD would not apply. The pollutant closest to the PSD significant emission rates when firing natural gas is NO_x. Emissions of SO_2 are primarily associated with distillate fuel oil which is only used a backup to natural gas. For natural gas only, the maximum potential NO_x emissions would be 39.62 tons/year at 11,255°F-hours per year per CT. This is equivalent to 1.6°F-hours of gas firing for each hour of oil firing (i.e., 1,015°F-hours/800°F-hours = 1.27°F-hours). The emissions of the other pollutants would be 1.52 tons/year for PM, 0.25 tons/year for SO_2, 9.9 tons/year for CO and 2.16 tons/year for VOC.

FPL proposes that the amount of fogging allowed by the Department be based on a cumulative amount of operating hours for the 4 combustion turbines. This would amount to 45,020°F-hours of operation when firing only natural gas. If only natural gas is fired, the proposed amount of hours would be decreased by 1.27°F-hours for each °F-hour when fuel oil was fired during an annual period. As described previously, the emission rates would not be affected. In addition, during periods when the fogging system is not used, the operation of the CTs will not be affected by this request and will be operated according to the Department's previous approvals (e.g., authorized to operate 8,760 hours/year/CT).

As described previously, the inlet fogging systems will have temperature monitoring equipment which will record the actual temperature reduction for each hour of operation. These data will be summarized monthly and reported to the Department with the Annual Operating Reports demonstrating that the annual period does not exceed 45,020°F-hours for the facility.

Attachment A

The following data were obtained from performance curves in the range that fogging would be most effective (gas firing shown).

Plant Site:	Putnam Plant; GTs 11, 12, 21 and 22	
Turbine Model:	Westinghouse 501B5A	
Turbine Inlet Temperature (°F)	100	50
Difference (°F)		50
Heat Input (mmBtu/hr)	900	1,100
Difference (mmBtu/hr)		200
Rate (mmBtu/hr/ °F)[a]		4.00

Note: [a] heat input difference divided by temperature difference.

PB93-156586

EPA-453/R-93-007

Alternative Control Techniques Document-- NO_x Emissions from Stationary Gas Turbines

Emission Standards Division

U. S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

January 1993

substantially lower thermal NO_x emissions than natural gas or DF-2.[18] For fuels containing FBN, the fuel NO_x production increases with increasing levels of FBN.

4.2.1.3 Ambient Conditions. Ambient conditions that affect NO_x formation are humidity, temperature, and pressure. Of these ambient conditions, humidity has the greatest effect on NO_x formation.[19] The energy required to heat the airborne water vapor has a quenching effect on combustion temperatures, which reduces thermal NO_x formation. At low humidity levels, NO_x emissions increase with increases in ambient temperature. At high humidity levels, the effect of changes in ambient temperature on NO_x formation varies. At high humidity levels and low ambient temperatures, NO_x emissions increase with increasing temperature. Conversely, at high humidity levels and ambient temperatures above 10°C (50°F), NO_x emissions decrease with increasing temperature. This effect of humidity and temperature on NO_x formation is shown in Figure 4-4. A rise in ambient pressure results in higher pressure and temperature levels entering the combustor and so No_x production levels increase with increases in ambient pressure.[19]

The influence of ambient conditions on measured NO_x emission levels can be corrected using the following equation:[20]

$$NO_x = (NO_{xo})(P_r/P_o)^{0.5} e^{19(Ho-0.00633)} (288°K/T_a)^{1.53}$$

where:

NO_x = emission rate of NO_x at 15 percent O_2 and International Standards Organization (ISO) ambient conditions, volume percent;

NO_{xo} = observed NO_x concentration, parts per million by volume (ppmv) referenced to 15 percent O_2;

P_r = reference compressor inlet absolute pressure at 101.3 kilopascals ambient pressure, millimeters mercury (mm Hg);

P_o = observed compressor inlet absolute pressure at test, mm Hg;

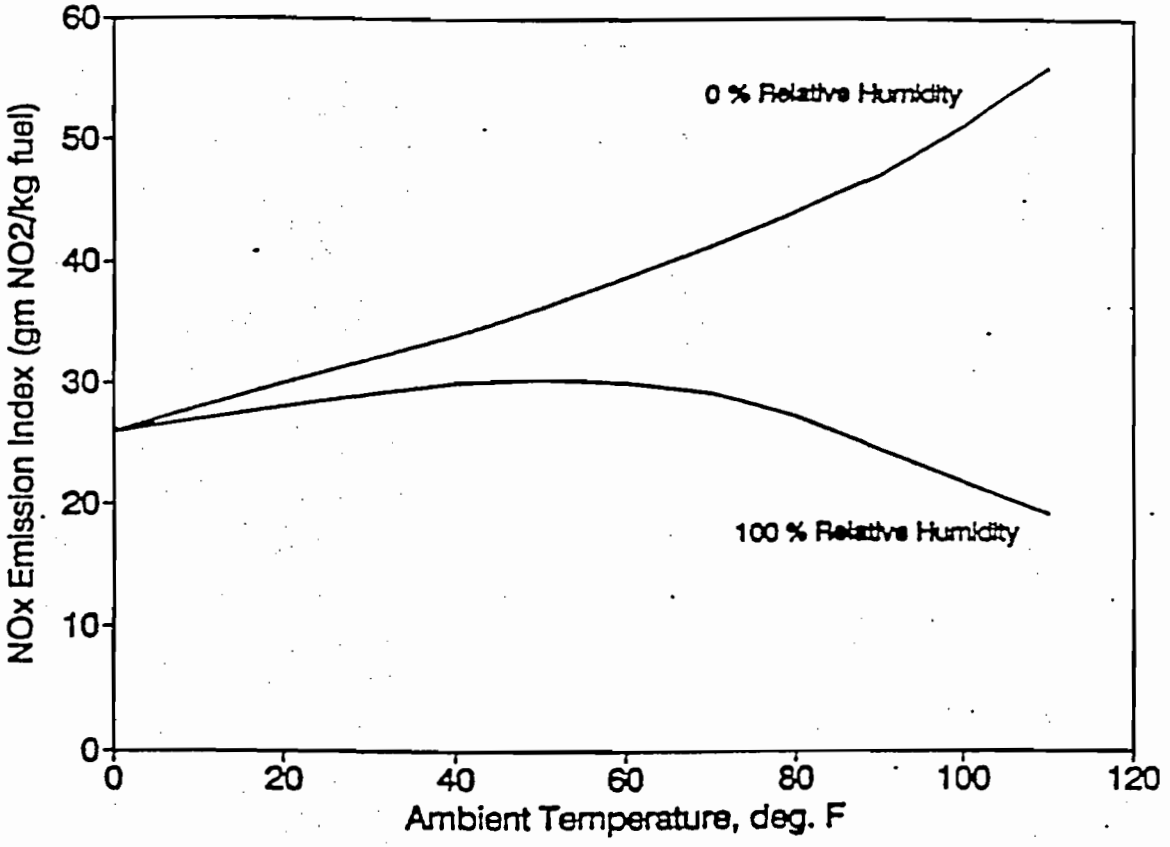


Figure 4-4. Influence of relative humidity and ambient temperature on NO_x formation.[19]

H_o = observed humidity of ambient air, g H_2O/g air;

e = transcendental constant, 2.718; and

T_a = ambient temperature, K.

At least two manufacturers state that this equation does not accurately correct NO_x emissions for their turbine models.[8,12] It is expected that these turbine manufacturers could provide corrections to this equation that would more accurately correct NO_x emissions for the effects of ambient conditions based on test data for their turbine models.

4.2.1.4 Operating Cycles. Emissions from identical turbines used in simple and cogeneration cycles have similar NO_x emissions levels, provided no duct burner is used in heat recovery applications. The NO_x emissions are similar because, as stated in Section 4.2, NO_x is formed only in the turbine combustor and remains at this level regardless of downstream temperature reductions. A turbine operated in a regenerative cycle produces higher NO_x levels, however, due to increased combustor inlet temperatures present in regenerative cycle applications.[21]

4.2.1.5 Power Output Level. The power output level of a gas turbine is directly related to the firing temperature, which is directly related to flame temperature. Each gas turbine has a base-rated power level and corresponding NO_x level. At power outputs below this base-rated level, the flame temperature is lower, so NO_x emissions are lower. Conversely, at peak power outputs above the base rating, NO_x emissions are higher due to higher flame temperature. The NO_x emissions for a range of firing temperatures are shown in Figure 4-3 for one manufacturer's gas turbine.[17]

4.2.2 NO_x Emissions From Duct Burners

In some cogeneration and combined cycle applications, the exhaust heat from the gas turbine is not sufficient to produce the desired quantity of steam from the HRSG, and a supplemental burner, or duct burner, is placed in the exhaust duct between the

Department of
Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

April 26, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Richard Piper
Repowering Licensing Manager
Florida Power & Light Company
Post Office Box 14000
Juno Beach, Florida 33408

Re: Inlet Foggers – Putnan Plant Combustion Turbines DEP File 1070014-003- AC
Inlet Foggers – Martin Plant Combustion Turbines DEP File 0850001-005- AC

Dear Mr. Piper:

The Department received your applications for the installation of the direct water spray fogging system at the FPL's Martin and Putnan Plants. Based on a technical review, the applications are incomplete. Pursuant to Rules 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C., please submit the following information, including all relevant reference materials and calculations:

1. Please submit additional data to support the statement that the emission rate does not change as a result of inlet fogging.
2. In reference to Table 1 and 2. (Part II of the Supporting Information), indicate the nominal values for power output, heat rate and heat input increase.
3. Submit the heat input curves for these units.
4. Estimate actual emissions for each facility's turbines and worst case emission rate scenario.
5. Submit hours of operations for each turbine.

Please contact Teresa Heron at 850/921-9529 if you have any questions.

Sincerely,

C. H. Fancy, P.E., Chief
Bureau of Air Regulation

CHF/th

cc: Ken Kosky, P.E
Chris Kirts, NED
Isidore Goldman, SED

EXHIBIT
Heron Depo.
17

CARLTON FIELDS, P.A.

ATTORNEYS AT LAW

4000 INTERNATIONAL PLACE
100 S.E. SECOND STREET
MIAMI, FLORIDA 33131-9101

MAILING ADDRESS
P.O. BOX 019101, MIAMI FL 33131-9101
TEL (305) 530-0050 FAX (305) 530-0055

FAX COVER SHEET

		Phone Number	Fax Number
Date:	February 19, 2003		
To:	Teresa Heron	850-921-9529	850-922-6979
From:	Sean W. Firley	(305) 530-0050	(305) 530-0055

Client/Matter No.: 44087.98622 **Employee No.:** 648

Total Number of Pages Being Transmitted, Including Cover Sheet: 4

Message: Dear Ms. Heron: Per your conversation with my secretary earlier today, enclosed please find a copy of the Re-Notice of Deposition, rescheduling your deposition for Wednesday, February 26, 2003, at 9:30 a.m. Thank you.

☐ *Original to follow Via Regular Mail* ☑ *Original will Not be Sent* ☐ *Original will follow via Overnight Courier*

IF THERE ARE ANY PROBLEMS OR COMPLICATIONS, PLEASE NOTIFY US IMMEDIATELY AT:
(305) 530-0050

TELECOPIER OPERATOR: _____

IN THE CIRCUIT COURT OF THE 15TH JUDICIAL CIRCUIT IN AND FOR PALM BEACH COUNTY, FLORIDA

CASE NO. CL 01-2415 AG

CALDWELL ENERGY & ENVIRONMENTAL, INC., a foreign corporation,

Plaintiff,

vs.

FLORIDA POWER & LIGHT COMPANY, a Florida corporation,

Defendant.
_____/

RE-NOTICE OF TAKING TELEPHONIC DEPOSITION DUCES TECUM
(Change in Date and Time)

PLEASE TAKE NOTICE that the undersigned attorneys will take the deposition of:

Name and Address	Date and Time	Location
Ms. Teresa Heron State of Florida Dept. of Environmental Protection	**February 26, 2002** **9:30 a.m.**	State of Florida. Dept.of Environmental Protection **111 South Magnolia Drive – #4** **Tallahassee, FL 32399-2400**

[**Directions**: 1 to 2 blocks North of US 27 on South Magnolia, in courtyard to the right of The Marketplace. There's a large parking lot and they are on the right side as you face the buildings. They are located on the bottom floor left hand side #4.

The deposition will be upon oral examination before Accurate Stenotype Reporters, or a Notary Public in and for the State of Florida at Large, or some other officer duly authorized by law to take depositions. The oral examination will continue from day to day until completed. The deposition is being taken for the purpose of discovery, for use at trial, or both of the foregoing, or for such other purposes as are permitted under the applicable and governing rules,

pursuant to Florida Rules of Civil Procedure. A list of the documents to be produced is attached hereto as Exhibit A.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was faxed and mailed on this 19th day of February, 2003, to: Spencer Sax, Esq. and Rachelle R. McBride, Esquire, Sachs, Sax & Klein, P.A., Post Office Box 810037, Boca Raton, Florida 33481-0037.

CARLTON FIELDS, P.A.
Counsel for Caldwell Energy Environmental, Inc.
Bank of America Tower at International Place
100 Southeast Second Street, Suite 4000
Miami, Florida 33131
(305) 530-0050

By: _____
MARIA C. MCGUINNESS
Florida Bar No. 858137
SEAN W. FIRLEY
Florida Bar No. 0118567

Co-counsel for Plaintiff:

Robert M. Connolly, Esq.
Stites & Harbison
400 West Market Street
Suite 1800
Louisville, KY 40202-3352

Copy via Facsimile to:
Accurate Stenotype Reporters (850) 878-2254 fax

EXHIBIT A

All documents pertaining to Defendant Florida Power & Light Company's ("FPL") permit application, permit, construction and operation of inlet fogging systems at FPL's Martin County, Florida and Putnam County, Florida power generating plants, including but not limited to any documents discussing FPL's anticipated and estimated use of the fogging systems in hours and/or on an annual basis, expectations for increases in megawatt output through the use of the inlet fogging systems at these power plants and the effect of the fogging systems on NOx emissions.

CARLTON FIELDS
ATTORNEYS AT LAW

4000 INTERNATIONAL PLACE
100 S. E. SECOND STREET
MIAMI, FLORIDA 33131

MAILING ADDRESS:
P.O. BOX 019101, MIAMI, FL 33131-9101
TEL (305) 530-0050 FAX (305) 530-0055

February 14, 2003

Ms. Teresa Heron
State of Florida
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

VIA U.S. MAIL

Re: Caldwell Energy & Environmental, Inc. vs. Florida Power & Light Company
Case No. CL 01-2415 AG, Palm Beach County Circuit Court
Our File No. 44087-98622

Dear Ms. Heron:

This letter will serve to confirm our telephone conversation today. Thank you for agreeing to begin your deposition on February 20, 2003 at 9:00 a.m., one hour earlier than originally scheduled.

As we discussed, it is very important that we receive copies of all documents you will be producing at the deposition well in advance of the deposition so that we can, in turn, furnish a copy to our opposing counsel who will also appear by telephone. I have enclosed a duplicate copy of the Subpoena which lists the documents requested for your reference.

Please call my secretary, Patty Watson, at the telephone number listed above to coordinate the delivery of the documents. She can supply you with our federal express account number for your use in overnighting the documents to us so that we can avoid the necessity of sending the documents via facsimile.

Sincerely,

Sean W. Firley

SWF:paw
Enclosure

IN THE CIRCUIT COURT OF THE 15TH JUDICIAL CIRCUIT IN AND FOR PALM BEACH COUNTY, FLORIDA

CASE NO. CL 01-2415 AG

CALDWELL ENERGY & ENVIRONMENTAL, INC., a foreign corporation,

Plaintiff,

vs.

COPY

FLORIDA POWER & LIGHT COMPANY, a Florida corporation,

Defendant.
_____/

SUBPOENA DUCES TECUM FOR PRODUCTION OF DOCUMENTS AND THINGS WITH TELEPHONIC DEPOSITION

THE STATE OF FLORIDA:

TO: Ms. Teresa Heron (850-921-9529)
State of Florida
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

YOU ARE COMMANDED to appear at the offices of State of Florida, Department of Environmental Protection, 111 South Magnolia Drive - #4, Tallahassee, FL 32399-2400, on February 20, 2003 at ~~10:00 a.m.~~ 9:00 A.M., and to have with you at that time and place the following:

All documents pertaining to Defendant Florida Power & Light Company's ("FPL") permit application, permit, construction and operation of inlet fogging systems at FPL's Martin County, Florida and Putnam County, Florida power generating plants, including but not limited to any documents discussing FPL's anticipated, estimated and actual use of the fogging systems in hours and/or on an annual basis, expectations for increases in megawatt output through the use

of the inlet fogging systems at these power plants and the effect of the fogging systems on NOx emissions.

These items will be inspected and may be copied at that time. You will not be required to surrender the original items. You may condition the preparation of the copies upon the payment in advance of the reasonable cost of preparation. You have the right to object to the production pursuant to this subpoena at any time before production by giving written notice to the attorney whose name appears on this subpoena.

If you fail to:

(1) Appear as specified; or
(2) Furnish the records instead of appearing as provided above; or
(3) Object to this subpoena

You may be in contempt of Court. You are subpoenaed by the attorney whose name appears on this subpoena and unless excused from this subpoena by this attorney or the Court, you shall respond to this subpoena as directed.

DATED on January ____, 2003.

By:_____

MARIA C. McGUINNESS, ESQ.
Florida Bar No.: 858137
COREY B. COLLINS, ESQ.
Florida Bar No.: 0060704
Attorney for Caldwell Energy & Environmental, Inc.
CARLTON FIELDS, P.A.
100 S.E. Second Street, Suite 4000
Miami, FL 33131
(305) 530-0050

Send Copies to:

MARIA C. McGUINNESS, ESQ.
Carlton Fields, P.A.
100 S.E. Second Street
Suite 4000
Miami, Florida 33131

Department of Environmental Protection

Photocopy Charge Computation

Date: 2/18/03

Photocopies made for: Patty Watson @ Carlton Fields

Photocopies made by: Vickie Gibson

No. of Photocopies:	164	@ $0.15 per copy	$$24.60
	23	@ $0.20 double sided	$$ 4.60

Extensive Clerical or Supervisory Assistance

*Hourly Rate:	×	Hours Spent on Photocopy assignment:	=	Clerical Cost:
$	×		=	$ 6.00

Total Charge for Photocopies: $ $35.20

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The Department of Environmental Protection

Division of Air Resource Management
Attn: Patty Adams, MS 5505 MC 5515
2600 Blairstone Road
Tallahassee, FL 32399- 2400

Check Sheet

Company Name: FP&L Martin 0850001-005-AC
Permit Number: 0850001-005-AC
PSD Number:
Permit Engineer:

Application:

- [x] Initial Application
  - [x] Incompleteness Letters
  - [ ] Responses
  - [ ] Waiver of Department Action
  - [ ] Department Response
  - [ ] Other

Cross References:

- [ ]
- [ ]
- [ ]

Intent:

- [x] Intent to Issue
- [x] Notice of Intent to Issue
- [x] Technical Evaluation
- [ ] BACT Determination
- [x] Unsigned Permit

Correspondence with:

- [ ] EPA
- [ ] Park Services
- [ ] Other

- [x] Proof of Publication
  - [ ] Petitions - (Related to extensions, hearings, etc.)
  - [ ] Waiver of Department Action
  - [ ] Other

Final Determination:

- [ ] Final Determination
- [ ] Signed Permit
- [ ] BACT Determination
  - [ ] Other

Post Permit Correspondence:

- [ ] Extensions/Amendments/Modifications
- [ ] Other

Check Sheet

Company Name: FP&L Putman 1070014
Permit Number: 1070014-003AC
PSD Number:
Permit Engineer:

Application:

- [x] Initial Application
  - [x] Incompleteness Letters
  - [ ] Responses
  - [ ] Waiver of Department Action
  - [ ] Department Response
  - [ ] Other

Cross References:

- [ ]
- [ ]
- [ ]

Intent:

- [x] Intent to Issue
- [x] Notice of Intent to Issue
- [x] Technical Evaluation
- [ ] BACT Determination
- [x] Unsigned Permit

Correspondence with:

- [ ] EPA
- [ ] Park Services
- [ ] Other

- [x] Proof of Publication
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  - [ ] Waiver of Department Action
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Final Determination:

- [x] Final Determination
- [x] Signed Permit
- [ ] BACT Determination
  - [ ] Other

Post Permit Correspondence:

- [ ] Extensions/Amendments/Modifications
- [ ] Other

CARLTON FIELDS
POST OFFICE BOX 019101
MIAMI, FLORIDA 33131-9101

Ms. Teresa Heron
State of Florida
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

32399+2400 01

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DROP OFF YOUR PACKAGE AND SAVE

1 SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER: 1345-2681-5 | Date: 2/18/03

From (Your Name) Please Print: Teresa Heron | Your Phone Number (Very Important): (850)921-9529
Company: D.E.P. - Burea of Air Regulation | Department/Floor No.:
Street Address: 111 S. Magnolia Drive
City: Tallahassee | State: FL | ZIP Required: 32311

2 To (Recipient's Name) Please Print: Patty Watson | Recipient's Phone Number (Very Important): (305)530-0050
Company: for Sean W. Firley, Carlton Fields, Attorneys at Law | Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 4000 International Place, 100 S. E. Second Street
City: Miami | State: FL | ZIP Required: 33131

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)

H IF HOLD AT FEDEX LOCATION, Print FEDEX Address Here
Street Address:
City | State | ZIP Required

3 PAYMENT 1 ☐ Bill Sender 2 ☒ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card
5 ☐ Cash/Check Acct./Credit Card No. 1345-2681-5 Exp. Date: /

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
- 11 ☐ OTHER PACKAGING
- 16 ☐ FEDEX LETTER*
- 12 ☒ FEDEX PAK*
- 13 ☐ FEDEX BOX
- 14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon† No Saturday delivery†)
- 51 ☐ OTHER PACKAGING
- 56 ☐ FEDEX LETTER*
- 52 ☐ FEDEX PAK*
- 53 ☐ FEDEX BOX
- 54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day†)
- 30 ☐ ECONOMY*

*Economy Letter Rate not available. Minimum charge: One pound Economy rate.

Government Overnight (Restricted for authorized users only)
- 46 ☐ GOV'T LETTER
- 41 ☐ GOV'T PACKAGE

Freight Service (for packages over 150 lbs.)
- 70 ☐ OVERNIGHT FREIGHT** (Confirmed reservation required)
- 80 ☐ TWO-DAY FREIGHT**

†Delivery commitment may be later in some areas. *Declared Value Limit $500. **Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

Weekday Service
- 1 ☐ HOLD AT FEDEX LOCATION WEEKDAY (Fill in Section H)
- 2 ☒ DELIVER WEEKDAY

Saturday Service
- 31 ☐ HOLD AT FEDEX LOCATION SATURDAY (Fill in Section H)
- 3 ☐ DELIVER SATURDAY (Extra charge) (Not available to all locations)
- 9 ☐ SATURDAY PICK-UP (Extra charge)

Special Handling
- 4 ☐ DANGEROUS GOODS (Extra charge)
- 6 ☐ DRY ICE Dangerous Goods Shipper's Declaration not required
  Dry Ice, 9, UN 1845 ____ X ____ kg, 904 III
- ☐ DESCRIPTION
- 12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
Total	Total	Total

DIM SHIPMENT (Chargeable Weight) ☐ lbs. ____ X ____ X ____

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- 3 ☐ Drop Box
- 4 ☐ B.S.C.
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- 5 ☐ Station

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We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is $500.

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- Other 2
- Total Charges

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FORMAT #158

158

IN THE CIRCUIT COURT OF THE 15TH JUDICIAL CIRCUIT IN AND FOR PALM BEACH COUNTY, FLORIDA

CASE NO. CL 01-2415 AG

CALDWELL ENERGY & ENVIRONMENTAL, INC., a foreign corporation,

Plaintiff,

vs.

FLORIDA POWER & LIGHT COMPANY, a Florida corporation,

Defendant.

_____/

SUBPOENA DUCES TECUM FOR PRODUCTION OF DOCUMENTS AND THINGS WITH TELEPHONIC DEPOSITION

THE STATE OF FLORIDA:

TO: Ms. Teresa Heron (850-921-9529)
State of Florida
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

J. Lee Vause
Certified Process Server ID#81
Second Judicial Circuit
Florida/County
Served 1/27/03 Time 2:50 AM PM

YOU ARE COMMANDED to appear at the offices of State of Florida, Department of Environmental Protection, 111 South Magnolia Drive - #4, Tallahassee, FL 32399-2400, on February 20, 2003 at 10:00 a.m., and to have with you at that time and place the following:

All documents pertaining to Defendant Florida Power & Light Company's ("FPL") permit application, permit, construction and operation of inlet fogging systems at FPL's Martin County, Florida and Putnam County, Florida power generating plants, including but not limited to any documents discussing FPL's anticipated, estimated and actual use of the fogging systems in hours and/or on an annual basis, expectations for increases in megawatt output through the use

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If you fail to:

(1) Appear as specified; or
(2) Furnish the records instead of appearing as provided above; or
(3) Object to this subpoena

You may be in contempt of Court. You are subpoenaed by the attorney whose name appears on this subpoena and unless excused from this subpoena by this attorney or the Court, you shall respond to this subpoena as directed.

DATED on January 22, 2003.

By: _____

MARIA C. McGUINNESS, ESQ.
Florida Bar No.: 858137
COREY B. COLLINS, ESQ.
Florida Bar No.: 0060704
Attorney for Caldwell Energy & Environmental, Inc.
CARLTON FIELDS, P.A.
100 S.E. Second Street, Suite 4000
Miami, FL 33131
(305) 530-0050

Send Copies to:

MARIA C. McGUINNESS, ESQ.
Carlton Fields, P.A.
100 S.E. Second Street
Suite 4000
Miami, Florida 33131

Memorandum

Florida Department of
Environmental Protection

TO: Howard L. Rhodes

THRU: C. H. Fancy ok
Al Linero aaj 7/15

FROM: Teresa Heron T.H.

DATE: July 15, 1999

SUBJECT: FP&L Putnam Spray Fogging Systems
DEP File No. 1070014-003-AC

Attached is the final permit package for the compressor inlet fogger project at the FP&L Putnam Plant. The application is to install inlet foggers ahead of the compressor inlets of four combined cycle combustion turbines. The foggers will operate on hot days and days of relatively low humidity. The evaporative cooling effected by the foggers will allow the units to operate closer to their rated capacity.

Both short-term and annual emissions will increase because the heat rate through the units will increase when the foggers. However, maximum short-term emissions will still occur during cold days when use of the foggers is not feasible anyway. For this reason, we believe that 40CFR60, Subpart GG will not be triggered. FP&L proposes to limit operation of the coolers to 1,280 hours per unit per year while firing gas and 100 hours per unit per year while firing fuel oil to insure PSD is not triggered by their use. The issue of making a future potential to past actual annual emission increase calculation is extensively addressed in the Technical Evaluation.

We recommend your signature and approval.

AAL/aal

Attachments

COMPLETE MAY 7
INTENT JUNE 3 (DAY 27)
PROOF JULY 12 ACTUALLY PUBLISHED ON JUNE 10 — SINCE > 14 DAYS HAVE ELAPSED, WE CAN ISSUE
CLOCK STARTS JULY 26 (DAY 27)
TODAY JULY 15

DAY 90 SEPT 27

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. Applicant

Florida Power & Light Company
Environmental Services Department
700 Universe Blvd
Juno Beach, Fl 33408

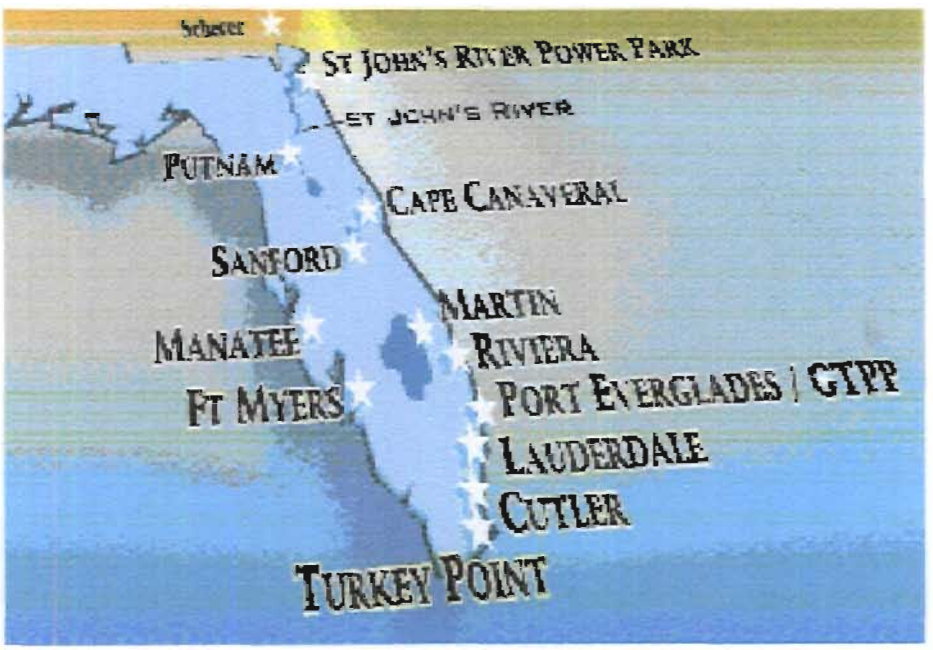
Authorized Representative: Robert Bergstrom, FP&L Putnam Plant General Manager

2. Source Name and Location

FP&L Putnam Power Plant
392 US Highway 17 South
East Palatka, Florida 32131

UTM Coordinates: Zone 17, 443.3 km East and 3277.80 km North

The location of the site within the FP&L grid is shown below:



3. Source Description

The Florida Power and Light (FP&L) Putnam Plant consists of four combustion turbines, each with an associated heat recovery steam generator equipped with a duct burner; an auxiliary boiler, and "unregulated or insignificant" emissions units. This facility emission units identification in the ARMS system includes the four combustion turbines, ARMS Emissions Units 003 to 006 and four Duct Burners for Combined Cycle Heat Recovery Steam Generators (HRSGs), ARMS Emissions Units 007 to 010 and an auxiliary boiler, ARMS Emission Unit 011.

Each combustion turbine is a Westinghouse unit Model 501B5A rated at 70 MW generating capacity (at 85 degrees F ambient temperature), with a maximum heat input for natural gas and fuel oil of 968.3 mm Btu/hr and 910.6 mmBtu/hr, respectively. The duct burners for each HRSG are rated at a maximum heat input of 250 mmBtu/hr, and are fired with natural gas and No. 2. fuel oil. The auxiliary boiler is manufactured by VA-Power and has a maximum heat input for natural gas and number 2 fuel oil of 16.275 mmBtu/hr and 14.28 mmBtu/hr, respectively.

4. Current Permit and Major Regulatory Program Status

Construction of the Putnam power plant facility was authorized by the Department's under the Power Plant Siting Certification No. PA74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. The four combustion turbines & HRSGs along with an auxiliary boiler, identified in ARMS as Emissions Units 003 through 011, and other unregulated or "insignificant emissions units" are operated under Title V Air Operation Permit No. 1070014-001-AV issued in June 1998.

The HRSGs and the combustion turbines are regulated under Rule 62-210.300, F.A.C. Permits Required. Based on information submitted by the applicant in the Title V application, the combustion turbines are not subject to 40CFR 60, Subpart GG, Standards of Performance for New Stationary Gas Turbines. The HRSGs are subject to 40CFR 60, Subpart Db, Standard of Performance for Industrial-Commercial-Institutional Steam Generating Units. ARMS Emissions units 003, 004, 007 and 008 began commercial operations in 1978. ARMS Emissions Units 005, 006, 009 and 010 began commercial operations in 1977.

5. Permit Modification Request

On March 29, 1999 the Department received a request from FPL for modification of its permits to install inlet foggers at the compressor inlets of Units 003 through 006. These units normally achieve their maximum rated output on cold days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling of the compressor inlet air although maximum output over all temperatures will remain 70 MW or below. The foggers provide little or no benefit on humid or cold days and will not be used under those conditions.

Inlet foggers are routinely included in new combustion turbine projects and have not affected the Department's decisions regarding Best Available Control Technology.

6. Emissions Increases Due to Modification/Method of Operation

The foggers are physical pieces of equipment whose addition and use can increase emissions on hot or dry days. The use of the foggers can also be considered a change in method of operation of the inlet "air conditioning system" that is already used to filter incoming air.

The maximum short-term emissions increases were estimated by FPL using the heat input associated with a 16 degree F decrease in compressor inlet temperature. The maximum annual increases were estimated FP&L using the annual average inlet cooling of 8 degrees F. The increase in heat rate as a function of temperature was estimated by the applicant as 4 mmBtu per degree F when firing natural gas and 3.2 mmBtu per degree F when firing fuel oil. This was then used with the hours of operation to calculate the increases of each pollutant in tons per year. The results were estimated by FPL and are summarized below together with annual emission increase estimates. These are based on 1280

(gas) and 100 (oil) hours of operation per fogger per year [5120 hr/yr (gas) and 400 hr/yr (oil) for all 4 units].

TOTAL EMISSIONS INCREASES DUE TO USE OF INLET FOGGERS AT FOUR UNITS

Pollutant	Emission Rate lb/mmBtu (gas)	Emission Rate lb/mmBtu (oil)	Emission Increase ton/yr (Oil)	Emission Increase Ton/yr (Gas)	Annual Increase tons/yr (Oil & Gas)	PSD Threshold tons/yr
NO_x	0.44	0.698	3.60	36.0	39.6	40
PM/PM_{10}	0.0168	0.0293	0.15	1.38	1.5	25/15
CO	0.11	0.048	0.25	9.01	9.3	100
VOC	0.024	0.017	0.09	1.97	2.1	40
SO_2	0.00286	0.7	3.58	0.23	3.8	40

The emissions increases calculated are the direct result from the physical change in or change in method of operation, i.e. the installation and use of the inlet foggers. These assume that the ability to achieve greater power output when the foggers are used does not result in emissions increases outside the turbines original power curve. The rationale is discussed below.

The emissions characteristics (see Appendix W of attached draft permit) do not change as a result of the use of the foggers from what would normally occur throughout the entire range of temperatures and relative humidity. Rather, the foggers move the operating points along the same curve toward the power and emissions that normally occur at lower temperatures. The worst case emissions scenario will still occur during the winter months and will occur with the foggers off. This is because of the higher air density and massflow during cold weather allows higher heat input and power output. At low temperature, very little cooling can be attained because cold air cannot evaporate and hold much moisture. Under such conditions, icing can occur which is detrimental to the units.

7. Evaluation of PSD Applicability

As a major source, a modification or change in method of operation of Units 003-006 resulting in **significant net emissions increases** is subject to PSD review. Significant net emissions increase is defined in Rule 62-212.400, F.A.C as follows:

> *Significant Net Emissions Increase – A significant net emissions increase of a pollutant regulated under the Act is a **net emissions increase** equal to or greater than the applicable significant emission rate listed in Table 212.400-2, Regulated Air Pollutants – Significant Emission Rates.*

The significant emission rates are included (see PSD Threshold) in the Table above. The meaning of a net emissions increase is given in Rule 62-212.400, F.A.C. as:

> *Net Emissions Increase - A modification to a facility results in a net emissions increase when, for a pollutant regulated under the Act, the sum of all of the contemporaneous creditable increases and decreases in the **actual emissions** of the facility, including the increase in emissions of the modification itself and any increases and decreases in quantifiable fugitive emissions, is greater than zero.*

The definition of actual emissions is given in Rule 62-210.200, F.A.C. (definitions) as follows:

> *Actual Emissions - The actual rate of emission of a pollutant from an emissions unit as determined in accordance with the following provisions:*

(a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit. Actual emissions shall be calculated using the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.

(b) The Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that, for any regulated air pollutant, such unit-specific allowable emissions limits are federally enforceable.

(c) For any emissions unit (other than an electric utility steam-generating unit specified in subparagraph (d) of this definition) which has not begun normal operations on a particular date, actual emissions shall equal the potential emissions of the emissions unit on that date.

*(d) **For an electric utility steam generating unit** (other than a new unit or the replacement of an existing unit) actual emissions of the unit following a physical or operational change shall equal the representative actual annual emissions of the unit following the physical or operational change, provided the owner or operator submits to the Department on an annual basis, for a period of 5 years representative of normal post-change operations of the unit, within the period not longer than 10 years following the change, information demonstrating that the physical or operational change did not result in an emissions increase. The definition of "representative actual annual emissions" found in 40 CFR 52.21(b)(33) is adopted and incorporated by reference in Rule 62-204.800, F.A.C.*

The term electric utility steam-generating unit is defined as:

Electric Utility Steam Generating Unit – Any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the unit.

Based on Department records, actual hours of operation since 1993 for these units are as follows:

Unit/Year	Annual Operating Hours 1993 - 1998					
	1993	1994	1995	1996	1997	1998
003	7649	5585	7085	6528	6498	6410
004	7649	5585	7085	6528	6498	6410
005	7727	5963	6490	6607	6255	6601
006	7727	5963	6490	6607	6255	6601

Note: In 1998, the annual hours of operation of the duct burners are reported as 2414 (Unit 007), 2302 (Unit 008), 2579 (Unit 009), and 2579 (Unit 010). These were not recorded in ARMS during previous years.

These units have each operated approximately 6500 ± 1000 hours per year since 1993. The duct burners within the HRSGs operate roughly 40 percent of the time when the combustion turbines operate. The foggers will operate no more than 1280 hours per year when the units burn gas and 100 hours when the units burn oil. This equates to roughly 20 percent of the time when the combustion turbines operate.

The combustion turbines have clearly begun *normal operation.* As combined cycle units, they are fairly efficient in comparison with conventional boiler-based steam-electrical units. They are not, however, baseload units. By comparison, the larger Westinghouse 501F and General Electric 7FA combined cycle units that were installed during the early 1990s in Fort Lauderdale and Martin County and are dispatched much like baseload units.

Each combustion turbine-electrical generator produces approximately 70 MW of electrical power excluding the power produced through the steam cycle. The steam cycle associated with each combustion turbine, including the supplementally-fired HRSG and steam turbine-electrical generator produces well in excess of 25 MW of power. Therefore the correct approach to determine the magnitude of a net emissions increase is to compare actual emissions from preceding years with representative actual annual emissions as described for steam electrical units.

FP&L asserts and the Department accepts that use of the inlet foggers will not affect the hours of operation of the units. Usage of the combustion turbines will depend on the system-wide growth in electrical demand and the impacts of major projects such as the planned 1500 and 2000 megawatt repowering projects at Fort Myers and Sanford. Most likely the Putnam units will continue their normal operation within the historical 6500±1000 hours per year per unit. The emissions are directly related to the hours of operation. Any increases from the fogger project would be dwarfed by the annual swings in usage of the units.

The modification project can, however, be isolated from the normal operation of the units and its effects can be directly predicted and measured without having to make annual comparisons of actual emissions from the combined cycle units before and after the change. The modification itself (i.e. installation and operation of the foggers), however, has not yet begun normal operation. Therefore the future actual emissions caused by the modification are equal to the potential-to-emit, which is based on the increases in heat input associated with the use of the fogging system.

The number of days during which the foggers can economically operate probably limits actual emissions increases to levels below significance for the purposes of PSD applicability. However, FPL proposes to limit operation of the foggers to 1,280 (gas) and 100 (oil) hours per unit per year. This value is approximately 20 % of the permitted hours of operation for each unit. It is also a clear indication that compressor air inlet cooling will not cause the units to operate all of the permitted hours during this mode. Emissions will increase under these limitations (as previously tabulated) by levels less than the significant emissions rates given in Table 212.400-2, F.A.C. The Department concludes, therefore, that PSD does not apply to this project.

8. Evaluation of NSPS Subpart GG Applicability

As a major source, a physical change in or change in the method of operation resulting in an increase in the amount of any air pollutant (to which a standard applies) is subject to applicable requirements of 40 CFR 60, Standards of Performance for New Stationary Sources. Modification under 40 CFR 60.2 [Rule 62.204.800 F.A.C.] is defined as follows:

Modification means any physical change in, or change in the method of operation of, an existing facility which increase the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emissions of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.

The installation of the foggers do not change maximum short-term emissions rates as these are already achieved under natural conditions of low ambient temperatures without the use of the foggers. The inlet fogger installations only change the ambient conditions that occur during the normal operation of the turbines. Therefore, the inlet fogger installations do not make the combustion turbines subject to 40 CFR 60 Subpart GG because, the *physical* change in or change in the method of operation of, caused by the foggers installation do not increase the (maximum short-term) amount of any air pollutant. The Department will request EPA concurrence on this matter.

9. Proposed Addition of New Conditions to Power Plant Siting Certification No. PA 74-01 and Issuance of an Air Construction Permit.

These emissions units were constructed under the authority of the Power Plant Siting Certification No. PA74-01 ordered in 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. The Department will amend these conditions of certification by adding a new condition authorizing installation and operation of the inlet foggers and will issue a new air construction permit for these units.

The new conditions applicable to the inlet foggers proposed for Emissions Units 003 -006 are shown in the draft air construction permit. It limits operation of the inlet foggers to 1,280 (gas) and 100 (oil) hours per unit per year.

10. Conclusions

The project will not increase the maximum short-term emission rates as these are already achieved under natural conditions of low ambient temperatures without the use of the foggers. Therefore, the Department believes that the 40 CFR60 NSPS Subpart GG is not applicable to these units as a result of the installation of the foggers.

The Department concludes that PSD is not applicable to this project since this project as presented will not result in significant net emissions increases to a major facility. The changes will not cause a significant impact or cause or contribute to a violation of any ambient air quality standard or PSD increment.

The Department's conclusion does not set a precedent for projects implemented at any facilities other than combined cycle unit inlet fogger installations. It does not set precedents related to any physical changes within the compressors, combustors, rotors, heat recovery steam generators, or other key components at such units. The application and determination of the Department's rules does not constitute an interpretation of the EPA rules under 40CFR52.21, Prevention of Significant Deterioration or 40CFR60, Standards of Performance for New Stationary Sources.

For further details regarding this review, contact:

A.A. Linero, P.E. Administrator
Teresa Heron, Review Engineer
New Source Review Section
Bureau of Air Regulation
850/488-0114

PERMITTEE:

Florida Power & Light
392 US Highway 17 South
East Palatka, Florida 32131

DEP File No.	1070014-003-AC
Project	Inlet Foggers Project ARMS Emissions Units 003-011
SIC No.	4911
Expires:	December 31, 1999

Authorized Representative:

Robert Bergstrom
Putnam Plant General Manager

PROJECT AND LOCATION:

This air construction permit describes the existing facility that was approved through Florida Power Plant Certification No. PA 74-01 and its amendments and which operates under that Certification and Title V permit 1070014-001-AV. Additionally, this permit allows installation of inlet foggers on the four existing Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators designated as ARMS Emissions Units 003-006.

The units are located at the FP&L Putnam Plant, 392 US Highway 17 South, East Palatka, Putnam County. UTM coordinates are: Zone 17; 443.3 km E and 3277.80 km N.

STATEMENT OF BASIS:

This 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.). The above named permittee is authorized to modify the facility 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 of Environmental Protection (Department).

ATTACHED APPENDICES MADE A PART OF THIS PERMIT:

Appendix GC	Construction Permit General Conditions
Appendix W	Putnam Plant Heat Input versus Temperature Graphs

Howard L. Rhodes, Director
Division of Air Resources
Management

AIR CONSTRUCTION PERMIT 1070014-003-AC

SECTION I – FACILITY DESCRIPTION

FACILITY DESCRIPTION

Currently, this facility consists of four combustion turbines, each with a supplementally-fired heat recovery steam generator (HRSG), an auxiliary boiler, and "unregulated or insignificant" emissions units. The designation in the Department's Air Resources Management System (ARMS) are as follows: the four combustion turbines, ARMS Emissions Units 003 to 006; four duct burners within the four HRSGs, ARMS Emissions Units 007 to 010; and the auxiliary boiler, ARMS Emission Unit 011.

Each combustion turbine is a Westinghouse unit Model 501B5A rated at 70 MW generating capacity (at 85 degrees F ambient temperature), with a maximum heat input for natural gas and fuel oil of 968.3 mm Btu/hr and 910.6 mmBtu/hr, respectively. The duct burners for each HRSG are rated at a maximum heat input of 250 mmBtu/hr, and are fired with natural gas and No. 2 fuel oil. The auxiliary boiler is manufactured by VA-Power and has a maximum heat input for natural gas and No. 2 fuel oil of 16.275 mmBtu/hr and 14.28 mmBtu/hr, respectively.

This permitting action, installation of inlet foggers at the four (4) distillate fuel oil-fired combustion turbines equipped with duct burners, amends Power Plant Conditions of Certification PA 74-01 and creates a new construction permit (1070014-003-AC) for these units. No PSD permit exists for this facility since it was built before 1975 and subsequent modifications have not triggered PSD review. On October 16, 1974, FP& L was issued a Site Certification authorizing the construction and operation of the Putnam Plant.

This Project is exempt from the requirements of Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD) as discussed stated in the Technical Evaluation and Preliminary Determination dated June 2, 1999.

REGULATORY CLASSIFICATION

This facility, FPL Putnam Myers Power Plant, is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NO_X), carbon monoxide (CO), or volatile organic compounds (VOC) exceeds 100 tons per year (TPY).

This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD).

This facility is a major source of hazardous air pollutants (HAPs) and is also subject to the provisions of Title IV, Acid Rain, Clean Air Act as amended in 1990.

PERMIT SCHEDULE

- xx/xx/99 Notice of Intent published in the _____ .
- 06/02/99 Distributed Intent to Issue Permit
- 05/07/99 Application deemed complete
- 03/17/99 Received Application

RELEVANT DOCUMENTS:

The documents listed below are the basis of the permit. They are specifically related to this permitting action, but not all are incorporated into this permit. These documents are on file with the Department.

- Application received on March 29, 1999.
- Department's Intent to Issue and Public Notice Package dated June 2, 1999.
- FPL's comments dated April 16, and May 7, 1999

AIR CONSTRUCTION PERMIT 1070014-003-AC
SECTION II – ADMINISTRATIVE REQUIREMENTS

1. Unless otherwise indicated in this permit, the construction and operation of the subject emission unit(s) shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S. and Florida Administrative Code Chapters 62-4, 62-103, 62-204, 62-210, 62-212, 62-213, 62-214, 62-296, and 62-297; and the applicable requirements of the Code of Federal Regulations Section 40, Parts 60, 72, 73, and 75.
2. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]
3. Regulating Agencies: 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 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114. All documents related to reports, tests, and notifications should be submitted to the DEP North District office, 7825 Baymeadows Way, Suite 200B, Jacksonville, Florida 32256-7590 and phone number 904/448-4300.
4. General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
5. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
6. Forms and Application Procedures: 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. [Rule 62-210.900, F.A.C.]
7. Modifications: The permittee shall give written notification to the Department when there is any modification to this facility. This notice shall be submitted sufficiently in advance of any critical date involved to allow sufficient time for review, discussion, and revision of plans, if necessary. Such notice shall include, but not be limited to, information describing the precise nature of the change; modifications to any emission control system; production capacity of the facility before and after the change; and the anticipated completion date of the change. [Chapters 62-210 and 62-212]
8. Permit Extension: *This permit expires on December 31, 1999.* The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. [Rule 62-4.080, F.A.C.].
9. Application for a Modification of Title V Permit: An application for a modification of the Title V operating permit, pursuant to Chapter 62-213, F.A.C., must be submitted to the DEP's Bureau of Air Regulation, and a copy sent to the Department's North District office. [Chapter 62-213, F.A.C.]
10. New or Additional Conditions: Pursuant to Rule 62-4.080, F.A.C., 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.]
11. Annual Reports: Pursuant to Rule 62-210.370(2), F.A.C., Annual Operation Reports, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. Annual operating reports shall be sent to the DEP's North District office by March 1st of each year.

AIR CONSTRUCTION PERMIT 1070014-003-AC
SECTION III – SPECIFIC CONDITIONS EUs 003 - 006

This section addresses the following emissions units.

003	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG11. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)
004	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG12. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)
005	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG21. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)
006	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG22. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)

{Permitting notes: These emissions units are regulated under Rule 62-210.300, F.A.C., Permits Required and Power Plant Siting Certification No. PA 74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. Based on information submitted by the applicant in the Title V application, these emissions units are not subject to 40 CFR 60, Subpart GG, Standards of Performance for New Stationary Gas Turbines. Each combustion turbine is exhausted through a heat recovery steam generator. Emissions units 003 and 004 began commercial operation in 1978. Emissions units 005 and 006 began commercial operation in 1977.}

The following specific conditions apply to the emissions units listed above:

Essential Potential to Emit (PTE) Parameters

1. Permitted Capacity. The maximum operation heat input rates are as follows:

Unit No.	mmBtu/hr Heat Input	Fuel Type
003, 004, 005, 006	(a)	Natural Gas
	(a)	Fuel Oil

a Heat input is limited at any given ambient temperature in accordance with the curves attached as Appendix W of this permit.

{Note: As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.}

{Permitting note: The heat input limitations have been placed in each permit to identify the capacity of each unit for the purposes of confirming that emissions testing is conducted within 90 to 100 percent of the unit's rated capacity (or to limit future operation to 110 percent of the test load), to establish appropriate emission limits and to aid in determining future rule applicability.} [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

2. Emissions Unit Operating Rate Limitation After Testing. Applicable requirements of Rule 62-297.310 (2) and (2)(b) F.A.C., Operating Rate During Testing.

3. Methods of Operation - Fuels. The combustion turbines shall only be fired with number 2 or number 6 fuel oil or with natural gas. [Rule 62-213.410, F.A.C., PPSC PA 74-01 condition 1.B.(i)]

Emission Limitations and Standards

4. Sulfur Dioxide - Sulfur Content. The fuel oil sulfur content shall not exceed 0.7 percent by weight. See specific condition **6**. [Rules 62-4.070(3) and 62-213.440, F.A.C., and PPSC PA 74-01 condition 1.B.(i)]

5. Visible Emissions. Visible emissions shall not exceed 20% opacity, except for one 6-minute period per hour during which opacity shall not exceed 27%.
[Rules 62-4.070(3) and 62-213.440, F.A.C., and PPSC PA 74-01 condition 1.B.(ii)]

Test Methods and Procedures

6. Sulfur Dioxide - Sulfur Content. The permittee shall demonstrate compliance with the liquid fuel sulfur limit by means of a fuel analysis provided by the vendor upon each fuel delivery. See specific conditions **4. and 7.** [Rules 62-213.440 and 62-296.406(3), F.A.C.]

7. Fuel Sampling & Analysis - Sulfur. The fuel sulfur content, percent by weight, for liquid fuels shall be evaluated using either ASTM D2622-94, ASTM D4294-90(95), ASTM D1552-95, ASTM D1266-91, or both ASTM D4057-88 and ASTM D129-95 (or latest editions).
[Rules 62-4.070(3), 62-213.440 and 62-297.440, F.A.C.]

8. Visible Emissions. The permittee shall demonstrate compliance with the visible emissions limit by DEP Method 9. [Rules 62-4.070(3) and 62-213.440, F.A.C.]

Monitoring of Operations

9. Annual Tests Required - VE. Except as provided in Rule 62-296.310(7) F.A.C., SIP Approved, emission testing for visible emissions shall be performed annually, no later than September 30th of each year, except for units that are not operating because of scheduled maintenance outages and emergency repairs, which will be tested within thirty days of returning to service. [Rules 62-4.070(3) and 62-213.440, F.A.C.]

10. Wind Restriction and Monitoring. The owner or operator shall burn fuel oil containing no more than 0.50% sulfur (by weight) when sustained winds exceed 20 miles per hour for any continuous period of three hours or longer. The owner or operator shall measure wind velocity and direction, using recognized methods and procedures, at hourly intervals in the plant vicinity, only for those hours during which any combustion turbine at the plant burns fuel oil containing more than 0.50% sulfur (by weight). The owner or operator shall quarterly report wind data, or shall report that no fuel oil containing more than 0.50% sulfur (by weight) was burned, no later than the thirtieth day following the end of each calendar quarter. [PPSC PA 74-01, condition 2]

Excess Emissions

11. Excess emissions resulting from malfunction shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

12. Excess emissions resulting from startup or shutdown shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized. [Rule 62-210.700(2), F.A.C.]

Inlet Fogger Installation

13. Inlet foggers may be installed at the compressor inlet to each of the four combined cycle Westinghouse Model 501B5A combustion turbine-electric generators. The four foggers may operate up to 5120 hours per year in aggregate (average 1280 hours per unit per year) while firing gas and 400 hours per year aggregate(average 100 hour per unit per year) while firing fuel oil.

This section addresses the following emissions units.

007	Ductburners for Combined Cycle Heat Recovery Steam Generator, HRSG11. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.
008	Duct burners for Combined Cycle Heat Recovery Steam Generator, HRSG12. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.
009	Duct burners for Combined Cycle Heat Recovery Steam Generator, HRSG21. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.
010	Duct burners for Combined Cycle Heat Recovery Steam Generator, HRSG22. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.

{Permitting notes: These emissions units are regulated under Rule 62-210.300, F.A.C., Permits Required and Power Plant Siting Certification No. PA 74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. These emissions units are subject to 40 CFR 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. Each heat recovery steam generator has two stacks that exhaust emissions from the associated combustion turbine and the duct burners. Emissions units 007 and 008 began commercial operation in 1978. Emissions units 009 and 010 began commercial operation in 1977.}

The following specific conditions apply to the emissions units listed above:

Essential Potential to Emit (PTE) Parameters

1. Permitted Capacity. The maximum operation heat input rates are as follows:

Unit No.	mmBtu/hr Heat Input	Fuel Type
007, 008, 009, 010	250	Natural Gas
	250	Fuel Oil

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

{Permitting note: The heat input limitations have been placed in each permit to identify the capacity of each unit for the purposes of confirming that emissions testing is conducted within 90 to 100 percent of the unit's rated capacity (or to limit future operation to 110 percent of the test load), to establish appropriate emission limits and to aid in determining future rule applicability.}

2. Emissions Unit Operating Rate Limitation After Testing. Applicable Requirements of Rule 62-297.310(2) and (2) (b) F.A.C. Operating Rate During Testing.

3. Methods of Operation - Fuels. The duct burners shall only be fired with number 2 fuel oil or with natural gas.

[Rule 62-213.410, F.A.C., PPSC PA 74-01 condition 1.C.(i)]

Emission Limitations and Standards

4. Sulfur Dioxide - Sulfur Content. The fuel oil sulfur content shall not exceed 0.5 percent by weight. See specific condition 7. [Rules 62-4.070(3) and 62-213.440, F.A.C., PPSC PA 74-01 condition 1.C.(i), and 40 CFR 60.42b]

5. Visible Emissions. Visible emissions shall not exceed 20% opacity (6-minute average), except for one 6-minute period per hour during which opacity shall not exceed 27%. The opacity standards apply at all times, except during periods of startup, shutdown or malfunction. [Rules 62-4.070(3) and 62-213.440, F.A.C., PPSC PA 74-01 condition 1.C.(ii)(a), and 40 CFR 60.43b and 60.46b(a)]

6. Nitrogen Oxides. Nitrogen oxide emissions (expressed as NO_2) shall not exceed 0.20 lb/mmBtu while burning natural gas and distillate oil. The nitrogen oxide standards apply at all times including periods of startup, shutdown, or malfunction. [40 CFR 60.44b and PPSC PA 74-01 (modification of 5/28/92)]

Test Methods and Procedures

7. Sulfur Dioxide - Sulfur Content. The permittee shall demonstrate compliance with the liquid fuel sulfur limit by maintaining fuel receipts as described in 40 CFR 60.49b(r). See specific conditions **4. and 14.** [Rules 62-213.440 and 62-296.406(3), F.A.C., and 40 CFR 60.42b]

8. VE Test Methods. To determine compliance with the opacity limits, the owner or operator shall conduct tests using EPA Method 9. [40 CFR 60.46b(d)(7)]

9. Test Methods For Nitrogen Oxides. Compliance with the nitrogen oxides emission limit shall be determined through testing using EPA reference methods 7E and 3A, of 40 CFR part 60 appendix A. [40 CFR 60.46b, PPSC PA 74-01 (modification of 5/28/92)] {Note: PPSC PA 74-01 (modification of 5/28/92) allows use of EPA methods 7E and 3A instead of EPA method 20.}

Monitoring of Operations

10. Emission Tests Required - VE and NOx. Except as provided in Rule 62-297.310 (7) F.A.C., SIP Approved, emission testing shall be conducted as follows: Emission testing for visible emissions shall be performed annually. Emission testing for nitrogen oxides shall be performed prior to renewal, except that an annual test for nitrogen oxides shall be performed each year that fuel oil is fired in these units for more than 400 hours. Testing shall be completed no later than September 30th of each year required, except for units that are not operating because of scheduled maintenance outages and emergency repairs, which will be tested within thirty days of returning to service. [Rules 62-4.070(3) and 62-213.440, F.A.C.]

11. Emission Monitoring For VE. Prior to burning fuel oil in these emissions units, the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere and record the output of the system. This system shall thenceforth be operated whenever fuel oil is burned in these emissions units. [40 CFR 60.48b(a)]

12. CEMS Required by Power Plant Siting. The owner or operator shall maintain a continuous emission monitoring system (CEMS) for opacity and nitrogen oxides on one of the paired stacks for each combined cycle unit.

    {The PPSC requires monitors on one stack each of CT/HRSG 1x and 2x, for a total of two stacks that must be monitored. The owner currently operates opacity monitors to satisfy the PPSC requirement to operate the CEMS for opacity. The NOx monitors installed and maintained pursuant to 40 CFR 75 satisfy the PPSC requirement to operate the CEMS for NOx.} [Rule 62-213.440, F.A.C., PPSC PA 74-01 condition 4]

Reporting And Record Keeping Requirements

13. Pursuant to 40 CFR 60.49b Reporting And Record Keeping Requirements.

    The owner or operator of an affected facility shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for distillate oil and natural gas for each calendar quarter. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.

The owner or operator shall maintain records of opacity (required by NSPS whenever fuel oil is burned in these emissions units. See condition B.11 of this permit).

The owner or operator shall maintain records of the following information for each steam-generating unit operating day:

(1) Calendar date.
(2) The average hourly nitrogen oxides emission rates (expressed as NO2) (lb/million Btu heat input) measured or predicted.
(3) The 30-day average nitrogen oxides emission rates (lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days.
(4) Identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under 40 CFR 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken.
(5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.
(6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.
(7) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

The owner or operator is required to submit excess emission reports for any calendar quarter during which there are excess emissions from the affected facility. If there are no excess emissions during the calendar quarter, the owner or operator shall submit a report semiannually stating that no excess emissions occurred during the semiannual reporting period. For the purpose of the opacity limitation, excess emissions are defined as all 6-minute periods during which the average opacity exceeds the opacity standards.
[40 CFR 60.49b(d), (f), (g)(1)-(7) and (h)]

14. Fuel Receipts Required. The owner or operator of an affected facility who elects to demonstrate that the affected facility combusts only very low sulfur oil shall obtain and maintain at the affected facility fuel receipts from the fuel supplier which certify that the oil meets the definition of distillate oil as defined in 40 CFR 60.41b:

    Distillate oil means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396-78, Standard Specifications for Fuel Oils (incorporated by reference-see 40 CFR 60.17).

    Very low sulfur oil means an oil that contains no more than 0.5 weight percent sulfur or that, when combusted without sulfur dioxide emission control, has a sulfur dioxide emission rate equal to or less than 215 ng/J (0.5 lb/million Btu) heat input.

    For the purposes of this section, the oil need not meet the fuel nitrogen content specification in the definition of distillate oil. Quarterly reports shall be submitted to the Department certifying that only very low sulfur oil meeting this definition was combusted in the affected facility during the preceding quarter.
    [40 CFR 60.45b, 60.47b and 60.49b(r)].

AIR CONSTRUCTION PERMIT 1070014-003-AC

SECTION V – SPECIFIC CONDITIONS EU 011

This section addresses the following emissions unit.

011	This emissions unit consists of an auxiliary boiler is manufactured by VA-Power with a maximum heat input for natural gas and number 2 fuel oil of 16.275 mmBtu/hr and 14.28 mmBtu/hr, respectively.

{Permitting notes: This emissions unit is regulated under Rule 62-210.300, F.A.C., Permits Required. This emissions unit is subject to 40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Emissions unit 011 began commercial operation in 1993. The unit was previously regulated under Power Plant Siting Certification No. PA 74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. However, the only applicable condition was in conflict with the NSPS and has been superseded by this permit.}

The following specific conditions apply to the emissions unit listed above:

Essential Potential to Emit (PTE) Parameters

1. Permitted Capacity. The maximum operation heat input rates are as follows:

Unit No.	mmBtu/hr Heat Input	Fuel Type
011	16.275	Natural Gas
	14.28	Number 2 Fuel Oil

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

2. Emissions Unit Operating Rate Limitation After Testing. Per Requirements of Rule 62-297.310(2), F.A.C.

3. Methods of Operation - Fuels. The auxiliary boiler shall only be fired with number 2 fuel oil or with natural gas. [Rule 62-213.410, F.A.C.]

Emission Limitations and Standards

4. Pursuant to 40 CFR 60.42c Standard For Sulfur Dioxide.

   The owner or operator shall not combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. Compliance with the fuel oil sulfur limit shall be determined based on a certification from the fuel supplier, as described under 40 CFR 60.48c(f)(1) (see specific condition 7.). The fuel oil sulfur limit applies at all times, including periods of startup, shutdown, and malfunction.
   [40 CFR 60.42c(d), (h), (i) and (j)]

Monitoring of Operations

5. Emission Monitoring For Sulfur Dioxide.

   As an alternative to operating a CEMS at the outlet of the steam generating unit, the owner or operator shall determine the average SO_2 emission rate by sampling the fuel prior to combustion. Fuel sampling shall be conducted as follows:

   As an alternative fuel sampling procedure for affected facilities combusting oil, oil samples may be collected from the fuel tank for each steam generating unit immediately after the fuel tank is filled and before any oil is combusted. The owner or operator of the affected facility shall analyze the oil sample to determine the sulfur content of the oil. If a partially empty fuel tank is refilled, a new sample and analysis of the fuel in the tank would be required upon filling. Results of the fuel analysis taken after each new shipment of oil is received shall be used as the daily value when calculating the 30-day rolling average until the next shipment is received. If the fuel analysis shows that the sulfur content in the fuel tank is greater than 0.5 weight percent sulfur, the owner or operator shall ensure that the sulfur content of subsequent oil shipments is low enough to cause the 30-day rolling average sulfur content to be 0.5 weight percent sulfur or less. [40 CFR 60.46c(d)(2)]

Reporting And Record Keeping Requirements

6. Pursuant to 40 CFR 60.48c Reporting And Record Keeping Requirements.

For any period in which fuel oil is combusted, the owner or operator shall submit quarterly reports to the Department. Each subsequent quarterly report shall be postmarked by the 30th day following the end of the reporting period.

The owner or operator shall keep records and submit quarterly reports including the following information related to the combustion of fuel oil, as applicable.

(1) Calendar dates covered in the reporting period.
(2) Each 30-day average SO_2 emission rate (lb/million Btu), or 30-day average sulfur content (weight percent), calculated during the reporting period, ending with the last 30-day period in the quarter; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.
(3) Each 30-day average percent of potential SO_2 emission rate calculated during the reporting period, ending with the last 30-day period in the quarter; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.
(4) Identification of any steam generating unit operating days for which SO_2 or diluent (oxygen or carbon dioxide) data have not been obtained by an approved method for at least 75 percent of the operating hours; justification for not obtaining sufficient data; and a description of corrective actions taken.
(5) Identification of any times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and a description of corrective actions taken if data have been excluded for periods other than those during which oil was not combusted in the steam generating unit.
(6) Identification of the F factor used in calculations, method of determination, and type of fuel combusted.
(7) Identification of whether averages have been obtained based on CEMS rather than manual sampling methods.
(11) If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under paragraph (f)(1) of this section, as applicable. In addition to records of fuel supplier certifications, the quarterly report shall include a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.
[40 CFR 60.48c(d), (e)(1)-(7) and (e)(11)]

7. Fuel Supplier Certification and Fuel Records. The owner or operator shall maintain records of fuel supplier certification. Fuel supplier certification shall include the following information:

(i) The name of the oil supplier; and
(ii) A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil:

Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-78, "Standard Specification for Fuel Oils" (incorporated by reference-see 40 CFR 60.17).

The owner or operator of each affected facility shall record and maintain records of the amounts of each fuel combusted during each day. [40 CFR 60.48c(f)(1) and (g)]

APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a) Have access to and copy and records that must be kept under the conditions of the permit;
b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a) A description of and cause of non-compliance; and
b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extend it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.

G.13 This permit also constitutes:

a) Best Available Control Technology ( )
b) Prevention of Significant Deterioration ( ); and
c) New Source Performance Standards ( ).

G.14 The permittee shall comply with the following:

a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

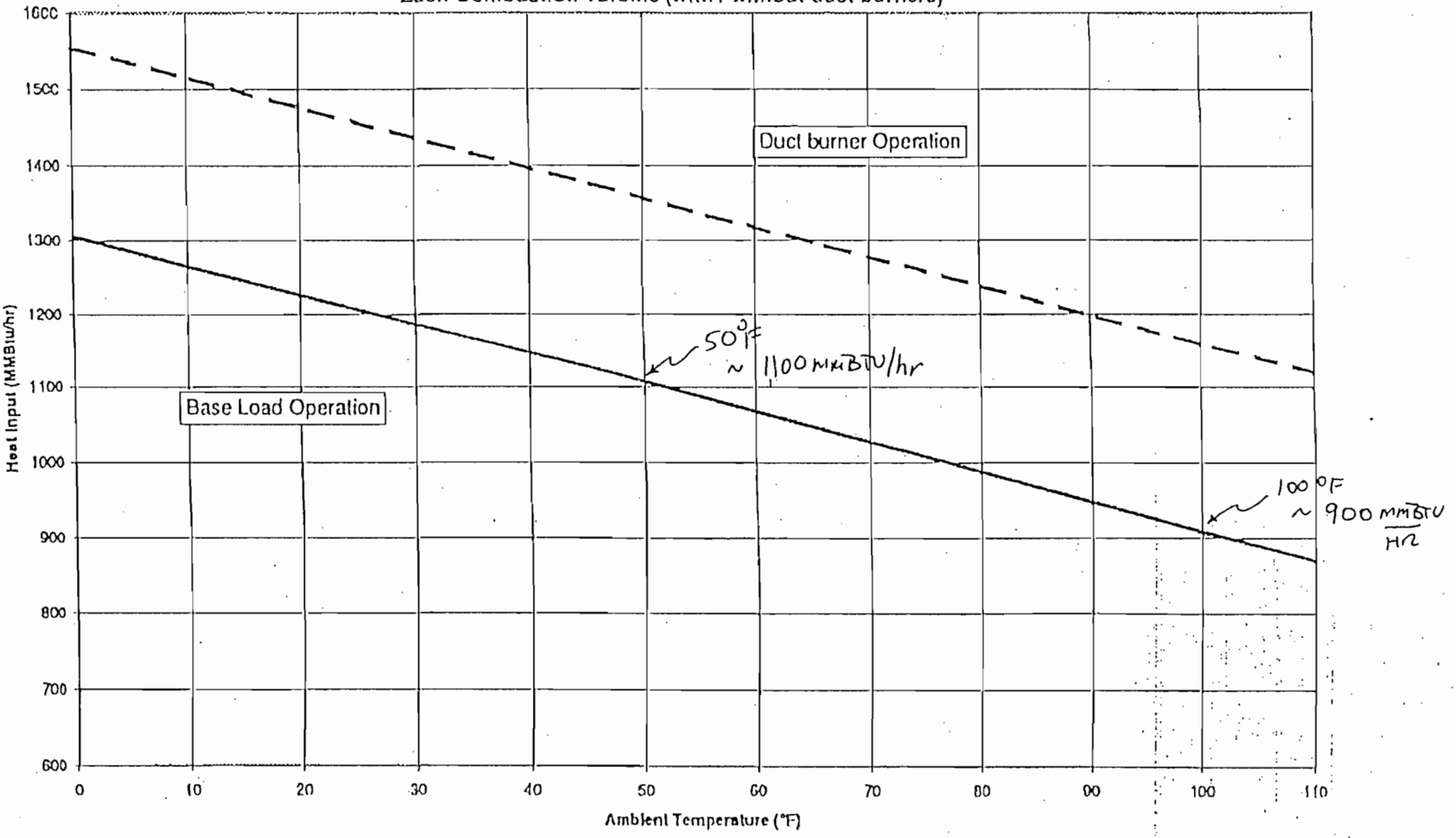
c) Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;
2. The person responsible for performing the sampling or measurements;
3. The dates analyses were performed;
4. The person responsible for performing the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

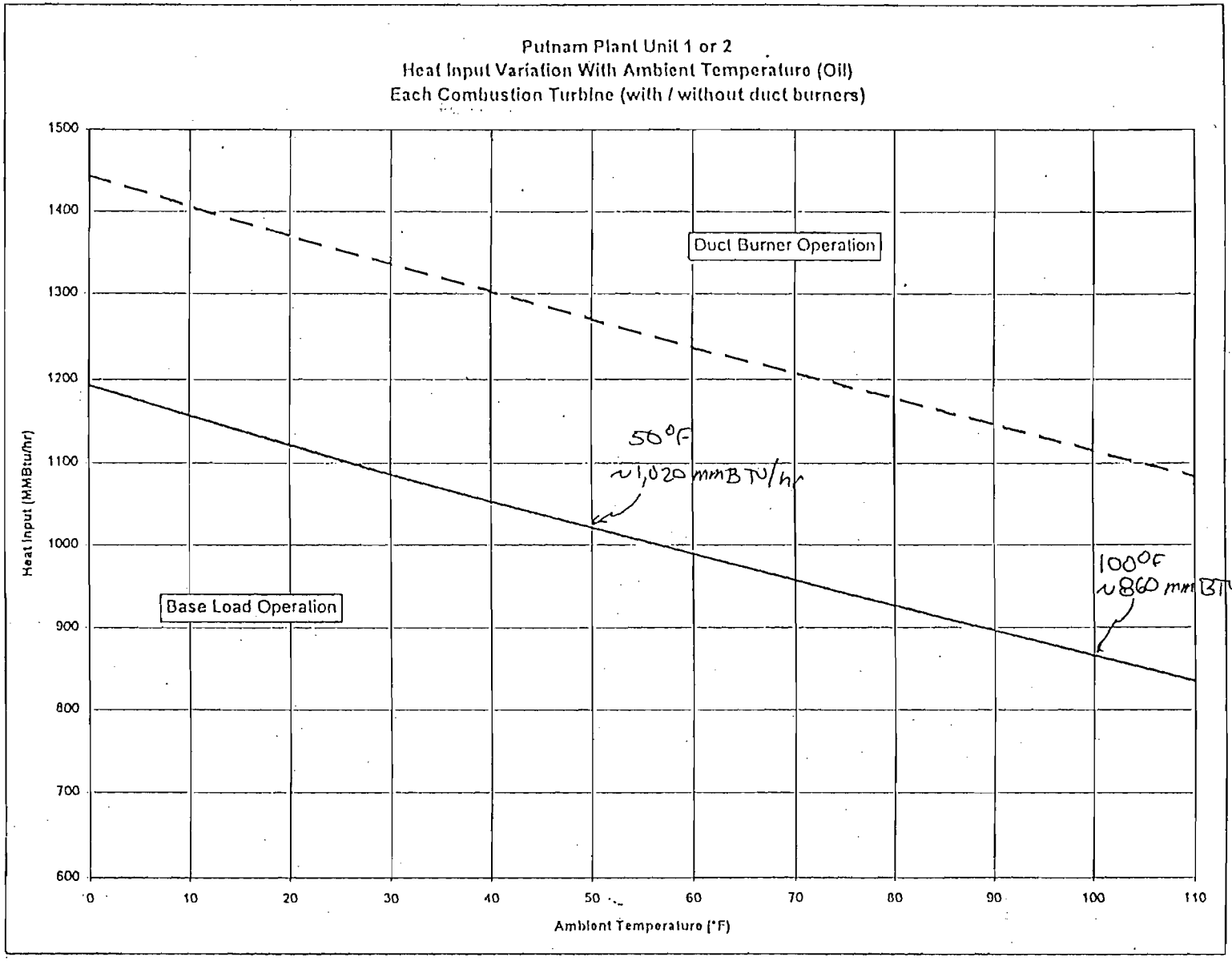
G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

APPENDIX W

Putnam Plant Unit 1 or 2
Heat Input Variation With Ambient Temperature
Each Combustion Turbine (with / without duct burners)



HI Limit Chart 1
9/12/97 2:32 PM


Putnam Plant Unit 1 or 2
Heat Input Variation With Ambient Temperature (Oil)
Each Combustion Turbine (with / without duct burners)
Heat Input (MMBtu/hr)
1500
1400
1300
1200
1100
1000
900
800
700
600
0
10
20
30
40
50
60
70
80
90
100
110
Ambient Temperature (°F)
Duct Burner Operation
Base Load Operation
50°F
~1,020 mmBTU/hr
100°F
~860 mmBTU/hr

Florida Power & Light Company, Environmental Services Dept., P.O. Box 14000, Juno Beach, FL 33408

FPL

June 30, 1999

Ms. Teresa Heron, P.E.
New Source Review Section
Bureau of Air Regulation
Florida Department of Environmental Protection
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

RE: FPL Putnam Combustion Turbine Inlet Foggers
Proposed Permit 1070014-003-AC

Dear Teresa:

FPL would like to offer the following comment on the proposed permit:

Tracking *degree-hours* in the permit, as opposed to simply hours of operation, will afford additional operating flexibility to FPL, without adversely impacting the environment. Accordingly, FPL requests the following change to Specific Condition 13:

> *Inlet foggers may be installed at the compressor inlet to each of the four combined cycle Westinghouse Model 501B5A combustion turbine-electric generators. The four foggers may operate up to ~~5120~~ 45,020 degree-hours per year in aggregate (average 11,255 degree-hours per unit per year) ~~while firing gas and 400 hours per year aggregate (average hour per unit per year) while firing fuel oil.~~*
>
> *The permittee shall monitor both the hours of operation for the inlet foggers and the degrees of cooling afforded by the inlet foggers. Computation of the degree-hours will be performed as follows:*
>
> *Degree-hours = # hours inlet fogger operating time x degrees F of cooling*
>
> *Degrees of cooling shall be calculated by subtracting the fogged compressor inlet air temperature from the unfogged compressor inlet air temperature (upstream of the fogger). The above calculation shall be performed for each hour of fogger operation. Calculation records shall be maintained on the plant site and made available for inspection upon request.*
>
> *For each hour of oil operation on any combustion turbine during a calendar year, the allowable aggregate total inlet fogger operating degree-hours shall be reduced by 1.27 degree-hours.*

Teresa, I appreciate your consideration of these comments. Should you have any questions, or wish to discuss any of these items further, please do not hesitate to contact me at (561) 691-7058.

Very truly yours,

Richard Piper
Repowering Licensing Manager
Florida Power and Light Company

Richard Piper

FPL

July 8, 1999

Teresa -

Per our conversation this morning, attached is the copies of the Public Notices for Putnam and Martin.

-RICH

May be

Duplicates of

Public Notices

on both Plants

Florida Power & Light Company, Environmental Services Dept., P.O. Box 14000, Juno Beach, FL 33408

FPL

June 15, 1999

Ms. Teresa Heron, P.E.
New Source Review Section
Bureau of Air Regulation
Florida Department of Environmental Protection
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

RE: FPL Putnam Combustion Turbine Inlet Foggers
Proposed Permit 1070014-003-AC

Dear Teresa:

Enclosed pursuant to Clair Fancy's correspondence of June 2, 1999, please find one copy of the Proof of Publication for the subject inlet foggers at the Putnam facility. The Notice of Intent was published on June 10, 1999.

Teresa, should you have any questions, please do not hesitate to contact me at (561) 691-7058.

Very truly yours,

Richard Piper
Repowering Licensing Manager
Florida Power and Light Company

STATE OF FLORIDA \
| SS:
County of Putnam /

The undersigned personally appeared before me, a Notary Public for the State of Florida, and deposes that the Daily News is a daily; newspaper of general circulation, printed in the English Language and published in the City of Palatka, in said County and State; and that the attached order, notice, publication and/or advertisement of: **Public notice of intent to issue air construction permit**

was published in said newspaper **1** time(s), said publication being made on the following dates: **June 10, 1999**

The Daily News has been continuously published as a daily newspaper, and has been entered as second class mail matter at the post office at the City of Palatka, Putnam County, Florida, each for a period of more than one year next preceding the date of the first publication of the above descried order, notice, publication and/or advertisement.

Joyce Guthrie

Sworn to and subscribed before me this June 10, 1999
by Joyce Guthrie, Business Office Manager of the Daily News, a Florida corporation, on behalf of the corporation.

Judy C. Bailey

Judy C. Bailey, Notary Public, State of Florida

Notary Seal:

__X_Personally known to me, or
____Produced Identification:

_____

X Did take an oath

OFFICIAL NOTARY SEAL
JUDY C BAILEY
NOTARY PUBLIC STATE OF FLORIDA
COMMISSION NO. CC826581
MY COMMISSION EXP. MAY 3,2003

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 1070014-003-AC
Florida Power & Light - Putnam Plant
Emissions Units 003-006 Inlet Foggers Project
Putnam County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Power & Light (FP&L). The permit is to install inlet foggers at the compressor inlets of four 70-megawatt natural gas and No. 2 fuel oil-fired Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators at the Putnam Power Plant in Putnam County. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Florida Power & Light, 392 US Highway 17 South, East Palatka, Florida 32131.

These units achieve their maximum rated output on cold days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet air density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling compressor inlet air. The foggers provide no benefit on very humid or cold days and will not be used under those conditions. Maximum power production and emissions will continue to occur during cold days with the foggers turned off. The result is that maximum achievable power production and maximum achievable hourly emissions will not increase, although actual annual emissions will increase because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FPL proposes enforceable conditions to insure non-applicability. FPL asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle units. They are allowed to operate continuously (8760 hours of operation per unit). The maximum increase in annual emissions caused by project in tons per year is summarized below along with the PSD-significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	2	25/15
SO_2	4	40
NO_x	39	40
VOC	2	40
CO	9	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399 2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120. 569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Medication is not available in the proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of nay person to tile a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when 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, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

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

Because the administrative hearing process is designed to formulate 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

Deparment of Environmental Protection
Northeast District Office
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7590
Telephone: 904/448-4300
Fax: 904/448-4363

The complete project file includes the application, technical evaluation, 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 Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

Florida Power & Light Company, Environmental Services Dept., P.O. Box 14000, Juno Beach, FL 33408

FPL

Post-It® Fax Note 7671	Date 7/12	# of pages ▶ 3
To Teresa Heron	From RICH PIPER	
Co./Dept. FDEP	Co.	
Phone #	Phone #	
Fax # 850 922 6979	Fax #	

June 15, 1999

Ms. Teresa Heron, P.E.
New Source Review Section
Bureau of Air Regulation
Florida Department of Environmental Protection
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

RE: FPL Putnam Combustion Turbine Inlet Foggers
Proposed Permit 1070014-003-AC

Dear Teresa:

Enclosed pursuant to Clair Fancy's correspondence of June 2, 1999, please find one copy of the Proof of Publication for the subject inlet foggers at the Putnam facility. The Notice of Intent was published on June 10, 1999.

Teresa, should you have any questions, please do not hesitate to contact me at (561) 691-7058.

Very truly yours,

Richard Piper
Repowering Licensing Manager
Florida Power and Light Company

STATE OF FLORIDA)
) SS:
County of Putnam)

The undersigned personally appeared before me, a Notary Public for the State of Florida, and deposes that the Daily News is a daily; newspaper of general circulation, printed in the English Language and published in the City of Palatka, in said County and State; and that the attached order, notice, publication and/or advertisement of: **Public *notice of intent to issue air construction permit***

was published in said newspaper **1** time(s), said publication being made on the following dates: **June 10, 1999**

The Daily News has been continuously published as a daily newspaper, and has been entered as second class mail matter at the post office at the City of Palatka, Putnam County, Florida, each for a period of more than one year next preceding the date of the first publication of the above descried order, notice, publication and/or advertisement.

Joyce Guthrie

Sworn to and subscribed before me this June 10, 1999
by Joyce Guthrie, Business Office Manager of the Daily News, a Florida corporation, on behalf of the corporation.

Judy C. Bailey

Judy C. Bailey, Notary Public, State of Florida

Notary Seal:

_X_ Personally known to me, or
___ Produced Identification:

_____

X Did take an oath

OFFICIAL NOTARY SEAL
JUDY C BAILEY
NOTARY PUBLIC STATE OF FLORIDA
COMMISSION NO. CC826581
MY COMMISSION EXP. MAY 3,2003

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 1070014-003-AC
Florida Power & Light - Putnam Plant
Emissions Units 003-006 Inlet Foggers Project
Putnam County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Power & Light (FP&L). The permit is to install inlet foggers at the compressor inlets of four 70-megawatt natural gas and No. 2 fuel oil-fired Westinghouse Model 501 BSA combined cycle combustion turbine-electrical generators at the Putnam Power Plant in Putnam County. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Florida Power & Light, 392 US Highway 17 South, East Palatka, Florida 32131.

These units achieve their maximum rated output on cold days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet air density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling compressor inlet air. The foggers provide no benefit on very humid or cold days and will not be used under those conditions. Maximum power production and emissions will continue to occur during cold days with the foggers turned off. The result is that maximum achievable power production and maximum achievable hourly emissions will not increase, although actual annual emissions will increase because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FPL proposes enforceable conditions to insure non-applicability. FPL asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle units. They are allowed to operate continuously (8760 hours of operation per unit). The maximum increase in annual emissions caused by project in tons per year is summarized below along with the PSD significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	2	25/15
SO_2	4	40
NO_x	39	40
VOC	2	40
CO	9	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S. before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in the proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when 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, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

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

Because the administrative hearing process is designed to formulate 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
Northeast District Office
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7590
Telephone: 904/448-4300
Fax: 904/448-4363

The complete project file includes the application, technical evaluation, 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 Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301/ phone: 850/488-0114, for additional information.

DAVID MCNEAL 404/562 9095

David – Attached are pages from GE paper "GE Heavy-Duty Gas Turbine Performance Characteristics" by F.J. Brooks, GE Power Systems, Schenectady NY. 1996.

It states evaporative cooling is limited to 59°F and above. It is good to have a "literature source." I would stick to the 50°F that I cited earlier.

It is possible that for other applications (i.e. air conditioning in buildings) there may be a different practical limit. In any case I think I've now fully addressed this one.

Thanks

Al

Post-it® Fax Note 7671	Date 6/11	# of pages ▶ 3
To D. McNeal	From Al Linero	
Co./Dept.	Co. DEP-Air	
Phone #	Phone #	
Fax #	Fax #	

A. Linero 6/11

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

June 7, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John Lindsay
Plant General Manager
Florida Power & Light
Post Office Box 176
Indiantown, Florida 34946-0176

Re: DEP File No. PSD-FL-146(G) and 0850001-005-AC
FPL Martin Plant
Inlet Foggers Installation

Dear Mr. Lindsay:

Enclosed is one copy of the Draft Permit and Technical Evaluation and Preliminary Determination, for the referenced project in Martin County. The Department's Intent to Issue PSD Permit Modification and the "PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT MODIFICATION" are also included.

The "Public Notice of Intent to Issue PSD Permit Modification" must be published one time only, as soon as possible, the legal advertising section of a newspaper of general circulation in the area affected, pursuant to the requirements of Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit modification.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any questions, please call Mr. Linero at 850/921-9523.

Sincerely,

C. H. Fancy, P.E., Chief,
Bureau of Air Regulation

CHF/aal

Enclosures

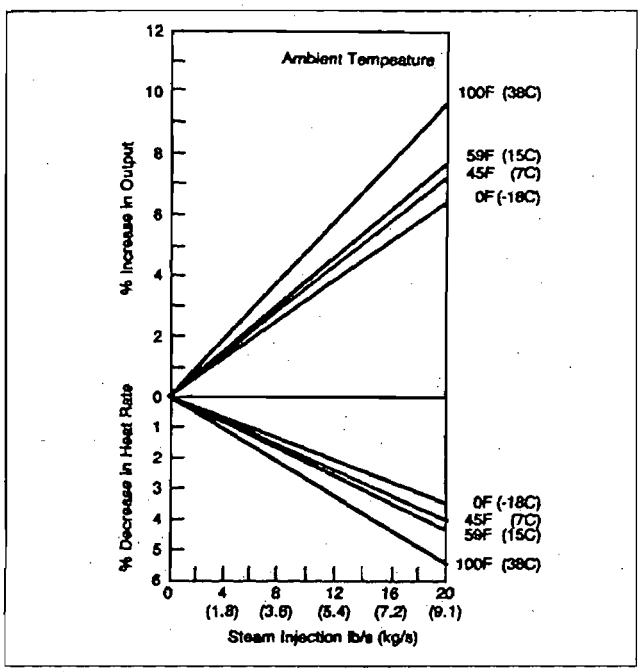


Figure 13. Effect of steam injection on output and heat rate

than that obtained on natural gas. In the case of higher heating value fuels, such as refinery gases, output and efficiency may be equal to or lower than that obtained on natural gas.

Dilutent Injection

Since the early 1970s, GE has used water or steam injection for NO_x control to meet applicable state and federal regulations. This is accomplished by admitting water or steam in the cap area or "head-end" of the combustion liner. Each machine and combustor configuration has limits on water or steam injection levels to protect the combustion system and turbine section. Depending on the amount of water or steam injection needed to achieve the desired NO_x level, output will increase because of the additional mass flow. Figure 13 shows the effect of steam injection on output and heat rate for an MS7001EA. These curves assume that steam is free to the gas turbine cycle, therefore heat rate improves. Since it takes more fuel to raise water to combustor conditions than steam, water injection does not provide an improvement in heat rate.

AIR EXTRACTION

In some gas turbine applications, it may be desirable to extract air from the compressor. Generally, up to 5% of the compressor airflow can be extracted from the compressor discharge casing without modification to casings or on-base piping. Pressure and air temperature will depend on the type of machine and site conditions. Air extraction between 6% and 20% may be possible, depending on the machine and combustor configuration, with some modifications to the casings, piping and controls. Such applications need to be reviewed on a case-by-case basis. Air extractions above 20% will require extensive modification to the turbine casing and unit configuration. Figure 14 shows the effect of air extraction on output and heat rate. As a "rule of thumb," every 1% in air extraction results in a 2% loss in power.

PERFORMANCE ENHANCEMENTS

Generally, controlling some of the factors that affect gas turbine performance is not possible. Most are determined by the planned site location and the plant configuration, i.e., simple- or combined-cycle. In the event additional output is needed, several possibilities to enhance performance may be considered.

Inlet Cooling

The ambient effect curve (Figure 8) clearly shows that turbine output and heat rate are improved as compressor inlet temperature decreases. Lowering the compressor inlet temperature can be accomplished by installing an

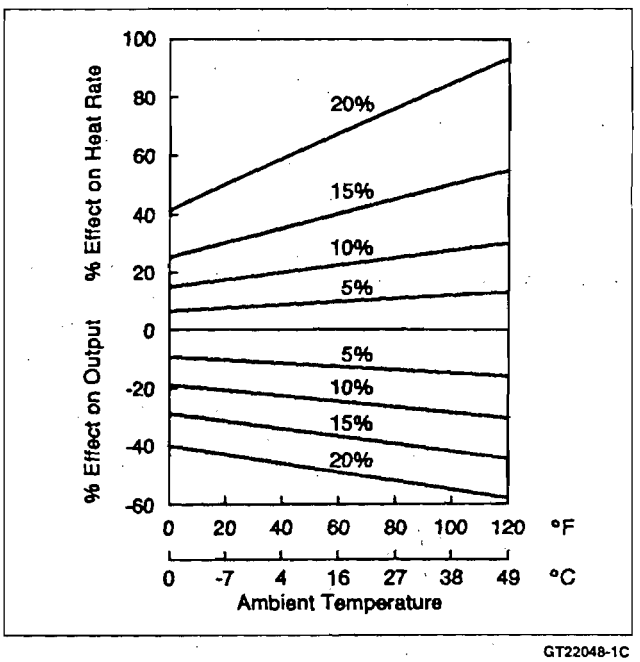


Figure 14. Effect of air extraction on output and heat rate

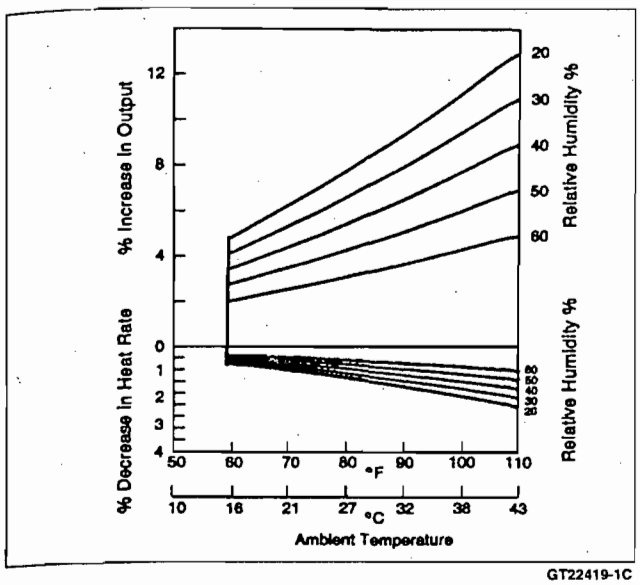


Figure 15. Effect of evaporative cooling on output and heat rate

evaporative cooler or inlet chiller in the inlet ducting downstream of the inlet filters. Careful application of these systems is necessary, as condensation or carryover of water can exacerbate compressor fouling and degrade performance. Generally, such systems are followed by moisture separators or coalescing pads to reduce the possibility of moisture carryover.

As Figure 15 shows, the biggest gains from evaporative cooling are realized in hot, low-humidity climates. It should be noted, from Figure 15, that evaporative cooling is limited to ambient temperatures of 59 F/15 C and above because of the potential for icing the compressor. Information contained in Figure 15 is based on an 85% effective evaporative cooler. Effectiveness is a measure of how close the cooler exit temperature approaches the ambient wet bulb temperature. For most applications, coolers having an effectiveness of 85% or 90% provide the most economic benefit.

Chillers, unlike evaporative coolers, are not limited by the ambient wet bulb temperature. The achievable temperature is limited only by the capacity of the chilling device to produce coolant and the ability of the coils to transfer heat. Cooling initially follows a line of constant specific humidity (Figure 16). As saturation is approached, water begins to condense from the air, and mist eliminators are used. Further heat transfer cools the condensate and air, and causes more condensation. Because of the relatively high heat of vaporization of water, most of the cooling energy in this regime goes to condensation and little to temperature reduction.

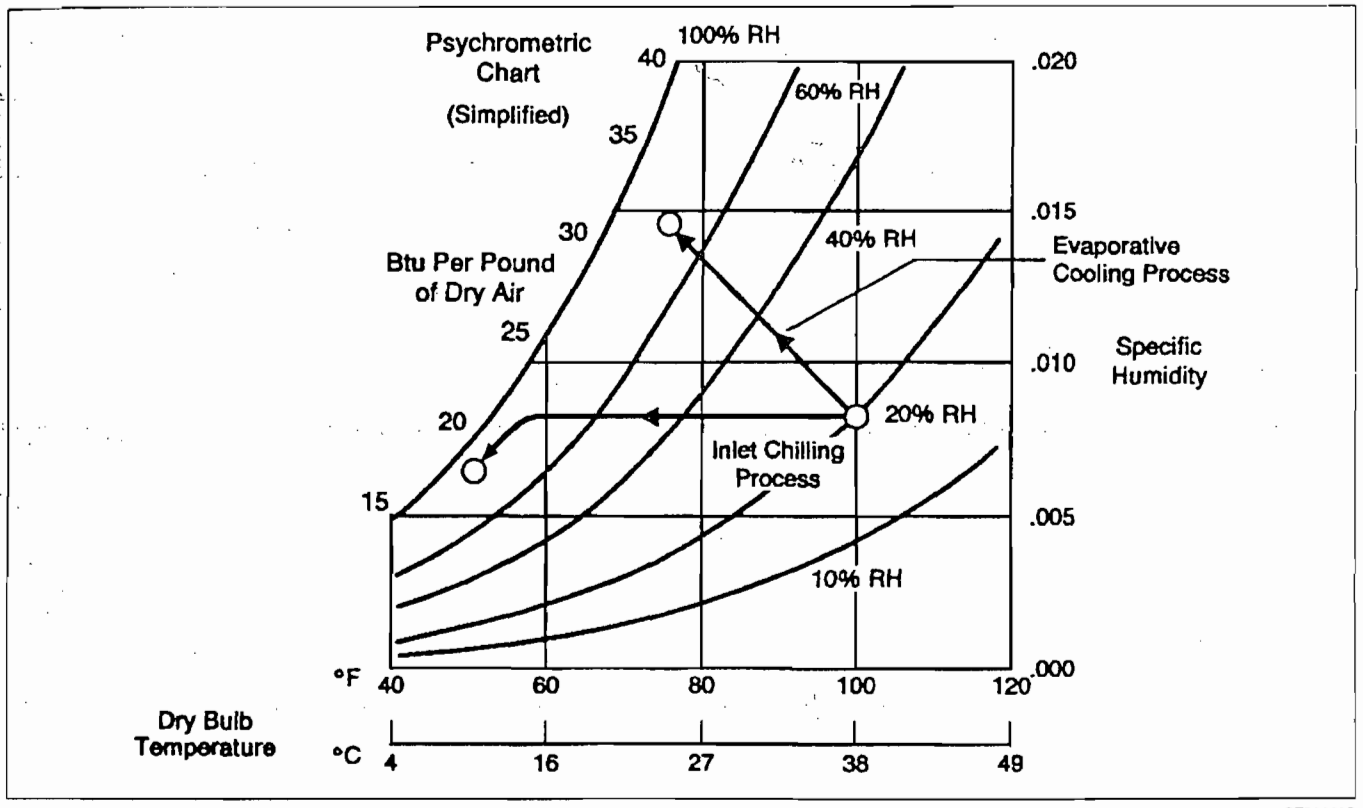


Figure 16. Inlet chilling process

1/4

4 pages

DAVID MC NEAL

David – I can't find my good articles. I think I loaned them to Marty Costello and he is in training.

Here is a decent article from Caldwell who supply the systems. According to Don Shepherd of Caldwell, the combustion turbine manufacturers advise against operating coolers below about 50 °F to avoid icing.

At very low temperatures, it might even be necessary to heat inlet air. So the heat input/temperature curve shouldn't change and emissions will still be at maximum under naturally-occuring low temp conditions.

Feel free to contact Shepherd at 502/964-6450.

If I find something better, I'll send it to you. Otherwise I'll have to pull out the psychometric charts and develop the information myself. Attached chart seems to show ranges for evaporative and indirect cooling.

In summary, the obvious gains are from high temp/low humidity conditions. There is nothing to gain at low temperature except to cause operating problems.

Thanks Al

2/4

CALDWELL ENERGY & ENVIRONMENTAL, INC.

4020 Tower Rd • Louisville, KY 40232
(502) 964-6450 • Fax: (502) 964-7444 • mail@caldwellenergy.com

I'll try to get something that talks about power practical limit and all will send it to you.

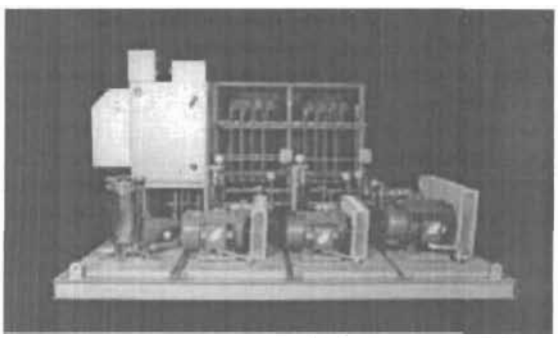
POWERFog™

Evaporative cooling has taken a revolutionary step...POWERFog. Traditional methods of cooling combustion turbine inlet air involved using uncontrolled amounts of water sprayed over wetted media. Now, injecting carefully regulated amounts of micron sized droplets into the inlet air of your combustion turbine(s) allows even more power to be generated. POWERFog systems can cool the air down to the saturation temperature of the ambient air without creating a power limiting pressure drop.

POWERFog systems cool atmospheric air from the dry bulb temperature all the way down to the wet bulb temperature. The drier the air, the more cooling can be achieved. You might think that these systems would not be effective in humid climates, but this is not true. While the dry bulb temperature increases as the sun moves higher in the sky, the wet bulb temperature stays relatively constant. This means that the greatest amount of cooling is achieved right when you need it most, during the hottest part of the day. At a design point of 95°F(35°C)/50% Relative Humidity (RH), a typical combustion turbine will realize about a six percent (6%) increase in power. In a dry hot climate, a 100°F(38°C)/20% RH condition will yield about an eleven percent (11%) increase. These systems are by far, the least expensive means to improve your plants performance. A typical simple payback is less than one year. Installation takes only a few days, and can frequently be done while your turbine is on-line.

System Design

All systems should be sized based on historical weather data for your plant's location. CE&E maintains a database of five years of hourly weather data for 262 stations around the country. Our advanced modeling system optimizes each CTIAC system relative to your technical and economic requirements. For each system there is an optimal design point which will maximize your return on investment in the system.



Performance Engineered Combustion Turbine Inlet Air Cooling

One of the most cost-effective ways to increase combustion turbine power output in high temperature ambient conditions is to reduce the air temperature by evaporating water into the turbine's inlet air. This denser air increases the mass flow to the turbine and since combustion turbines rely on this mass flow for power, output of the combustion turbine is significantly increased. On a 90°F day, with 20% relative humidity, inlet air temperature can be reduced to 63°F simply by evaporating water into the turbine's air stream. For the majority of combustion turbine types, this means a 9% increase in power output. The illustration above shows how a POWERFog system can improve your Combustion Turbine(s) performance.

Traditional methods of evaporating water into the inlet air use media blocks and de-misters that increase the pressure drop, and there for reduce the power output capability of combustion turbines. These systems also require a significant amount of annual maintenance.

A more efficient way to evaporate water into the inlet air stream is to use a device that creates a "fog" of micron sized droplets of water. These droplets can be made so small that they can achieve more evaporative efficiency than traditional evaporative coolers. Inlet pressure drop across the system typically cannot even be measured by plant instrumentation. Caldwell Energy will engineer and guarantee the superior performance of a POWERFog system over media type evaporative coolers.

3/4

Caldwell Energy engineered the POWERFog HP system specifically for combustion turbine applications. This Combustion Turbine Inlet Air Cooling (CTIAC) system uses Caldwell Energy's proprietary high pressure nozzle design which maximizes evaporative efficiency and hence the power output of the combustion turbine. Custom engineered advanced control system logic, combined with multiple nozzle arrays, are all designed to optimize the system's performance. Special features provide for safe system operation.

The POWERFog HP nozzle creates a fog by spraying a high pressure water jet at an impaction pin directly in front of the ejected water stream. Water pressure can vary, typically between 1,000 and 3,500 pounds per square inch depending on the required droplet size. A drawing of the POWERFog HP nozzle is illustrated in Figure 2. Increased pressure reduces the size of the droplets. The key to determining the system design is the residence time of the water droplets in the inlet air, prior to the cooled air entering the compressor of the combustion turbine. This defines the required droplet size.

Fogging systems cool inlet air down to the wet bulb temperature of the ambient. This makes it highly effective in dry climates but also effective in more humid ones. Fogging systems in humid climates are still economical since the hottest periods of a day coincide with the periods of lowest relative humidity. Figure 3 illustrates the temperature and humidity distribution for a hot, sunny, and humid day. Note that the wet bulb temperature remains relatively constant.

In the case where the residence time of the fog prior to entry into compressor section of the combustion turbine is short, high pressure systems may not ensure complete evaporation. To address this condition, Caldwell Energy developed the POWERFog US system. This system produces smaller droplets, a fraction of the diameter of high pressure systems. These smaller droplets allow for faster evaporation.

Internally mounted POWERFog systems can be installed during a 2-4 day outage while you are doing your turbine inspection. Externally mounted POWERFog systems can normally be installed while the combustion turbine is running.

Caldwell Energy engineers, designs, manufactures, and installs all types of Combustion Turbine Inlet Air Cooling (CTIAC) systems, including fogging, chilling, refrigeration, and thermal energy storage systems. Let us give you the complete cooling picture today.

POWERFog™ POWERChill™ POWERStor™

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I'm sure this is impossible to read, I'll review ASHRAE book if I can find one. 4/4

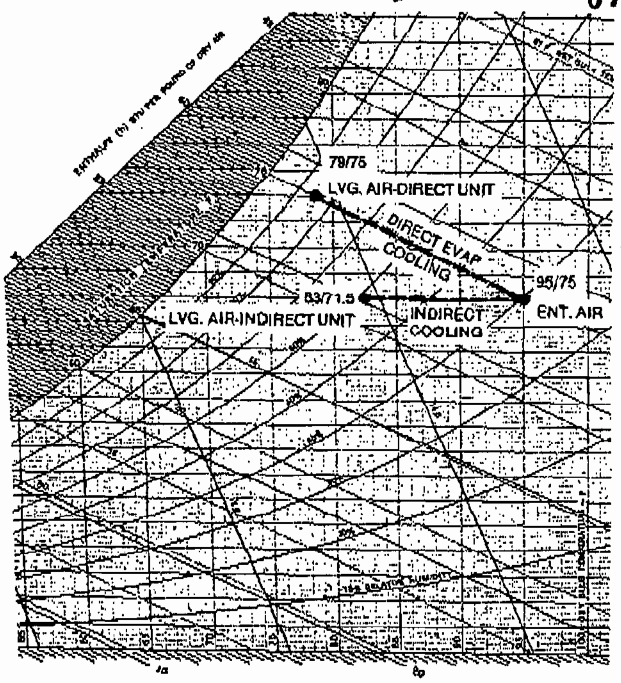

Fig. 1 Psychrometrics of Evaporative Cooling

The performance of an indirect evaporative cooling system can also be shown on a psychrometric chart. Many manufacturers of indirect evaporative cooling equipment use a similar definition of effectiveness as is used for a direct evaporative cooler. The term performance factor (PF) is also used. In indirect evaporative cooling, the cooling process in the primary airstream follows a line of constant moisture content (constant dew point). Performance factor (or effectiveness) is the dry-bulb depression in the primary airstream divided by the difference between the entering dry-bulb temperature of the primary airstream and the entering wet-bulb temperature of the secondary air. Depending on the heat exchanger design and relative air quantities of primary and secondary air, effectiveness ratings may be as high as 85%.

Continuing the example, assuming an effectiveness of 60%, and assuming both primary air and secondary air enter the apparatus at the outdoor condition of 95°F db and 75°F wb, the dry-bulb depression is 0.60 (95 − 75) = 12°F. The dry-bulb temperature leaving the indirect evaporative cooling process is 95 − 12 = 83°F. Because the process cools without adding moisture, the wet-bulb temperature is also reduced. Plotting on the psychrometric chart shows that the final wet-bulb temperature is 71.5°F. Because both the wet- and the dry-bulb temperatures in the indirect evaporative cooling process are reduced, indirect evaporative cooling can be used as a substitute for a portion of the refrigeration load in many applications.

Humidification

Air can be humidified with an evaporative cooler by three methods: (1) using recirculated water without prior treatment of the air, (2) preheating the air and treating it with recirculated water, or (3) using heated water. In any evaporative cooler installation, the air should not enter with a wet-bulb temperature of less than 39°F; otherwise, the water may freeze.

Recirculated Spray Water

Except for both the small amount of outside energy added by the recirculating pump in the form of shaft work and the small amount of heat leakage into the apparatus from outside (including through the pump and its connecting piping), evaporative cooling is strictly adiabatic. Evaporation occurs from the recirculated liquid. Its temperature should adjust to the thermodynamic wet-bulb temperature of the entering air.

The whole airstream is not brought to complete saturation, but its state point should move along a line of constant thermodynamic wet-bulb temperature. The extent to which the leaving air temperature approaches the thermodynamic wet-bulb temperature of the entering air is expressed by a saturation effectiveness ratio, often called the humidifying effectiveness in humidifiers. The representative saturation, or humidifying effectiveness, of a spray-type air washer with various spray arrangements is listed in Table 1.

The degree of saturation depends on the extent of the contact between air and water. Other conditions being equal, a low-velocity airflow is conducive to higher humidifying effectiveness.

Table 1 Effectiveness of Spray Arrangements in a Spray-Type Air Washer

Bank	Arrangement	Length, ft	Effectiveness, %
1	Downstream	4	50 to 60
1	Downstream	6	60 to 75
1	Upstream	6	65 to 80
2	Downstream	8 to 10	80 to 90
2	Opposing	8 to 10	85 to 95
2	Upstream	8 to 10	90 to 98

Preheating Air

Preheating the air increases both the dry- and wet-bulb temperatures and lowers the relative humidity, but it does not alter the humidity ratio (i.e., the mass ratio of water vapor to dry air). At a higher wet-bulb temperature, but with the same humidity ratio, more water can be absorbed per unit mass of dry air in passing through the evaporative cooler (if the humidifying effectiveness of the evaporative cooler is not adversely affected by operation at the higher wet-bulb temperature). The analysis of the process that occurs in the evaporative cooler is the same as that for recirculated water. The final preferred conditions are achieved by adjusting the amount of preheating to give the required wet-bulb temperature at the entrance to the evaporative cooler.

Heated Recirculated Water

Even if heat is added to the recirculated water, the mixing in the evaporative cooler may still be regarded as adiabatic. The state point of the mixture should move toward the specific enthalpy of the heated water. By elevating the water temperature, it is possible to raise the air temperature (both dry and wet bulb) above the dry-bulb temperature of the entering air.

The relative humidity of the leaving air may be controlled by (1) bypassing some of the air around the evaporative cooler and remixing the two airstreams downstream or (2) automatically reducing the number of operating spray nozzles or sections of media wetted by operating valves in the different recycle header branches.

Dehumidification and Cooling

Evaporative coolers are also used to cool and dehumidify air. Heat and moisture removed from the air raise the water temperature. If the entering water temperature is below the entering wet-bulb temperature, both the dry- and wet-bulb temperatures are lowered. Dehumidification results if the leaving water temperature is below the entering dew-point temperature. Moreover, the final water temperature is determined by the sensible and latent heat pickup and the amount of water circulated. However, this final temperature must not exceed the final required dew point, with one or two degrees below dew point being common.

4020 Tower Road
Louisville, Kentucky
Phone: 502-964-6450
Fax: 502-964-7444

CALDWELL ENERGY & ENVIRONMENTAL, INC.

Fax

Company: | From: Don Shepherd

Attn: Al Lagre

Fax: 850-922-6979 | Pages(Including Cover): 2

Phone: | Date: 6/10/97

Re: | CC:

EVAP-Cooling

☐ Urgent ☑ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

• Comments:

See ASHRAE Limit

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

June 2, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. R. Douglas Neeley, Chief
Air, Radiation Technology Branch
US EPA Region IV
61 Forsyth Street
Atlanta, Georgia 30303

Re: DEP File No. 1070014-003-AC
Putnam Plant Units 3-6, Inlet Foggers
Subpart GG Non-Applicability

Dear Mr. Neeley:

Enclosed is a copy of our Intent to Issue a permit to Florida Power and Light (FP&L) for the installation of inlet foggers for use during the summer season on the combined cycle units at the Putnam Plant. We request your concurrence with our preliminary determination or your own separate determination regarding the non-applicability of the 40CFR 60, NSPS Subpart GG for these units.

There are presently 4 Westinghouse 501B5A combustion turbines on the site. Each has a nominal simple cycle capacity of 70 megawatts. The units are permitted to operate continuously. These units normally achieve their maximum rated output on cold days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet density. The foggers increase hot-day power output by approximately 2-4 MW through evaporative cooling of the compressor inlet air. The foggers provide little or no benefit on humid or cold days and will not be used under those conditions.

The foggers will not increase the maximum short-term emission rates for the units, as these are already achieved under natural conditions of low ambient temperatures without the use of the foggers. Therefore the Department believes that Subpart GG is not triggered by the project. The foggers are physical pieces of equipment whose addition and use can increase emissions on hot or dry days. The use of the foggers can also be considered a change in method of operation of the inlet "air conditioning system" that is already used to filter incoming air.

We would appreciate your early review and concurrence. If you have any questions on these matters please call Teresa Heron at 850/921-9529 or me at 850/921-9523.

Sincerely,

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

AAL/aal

Enclosures

Z 333 618 159

US Postal Service

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PS Form **3800**, April 1995

pulham
1070014-003-AC

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Doug Neeley, Chief
Air Branch
US EPA - Region 4
61 Forsyth St.
Atlanta, GA 30303

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Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

June 2, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert Bergstrom, Plant General Manager
FP&L – Putnam Plant
392 U.S. Highway 17 South
East Palatka, Florida 32131

Re: DEP File No. 1070014-003-AC
FP&L Putnam Plant Units 003-006
Inlet Foggers Installation

Dear Mr. Bergstrom:

Enclosed is one copy of the Draft Permit and Technical Evaluation and Preliminary Determination, for the referenced project in Putnam County. The Department's Intent to Issue Air Construction Permit and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT " are also included.

The "Public Notice of Intent to Issue Air Construction Permit " must be published one time only, as soon as possible, the legal advertising section of a newspaper of general circulation in the area affected, pursuant to the requirements of Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any questions, please call Mr. Linero at 850/921-9523.

Sincerely,

A. A. Linero P.E. 6/2

for C. H. Fancy, P.E., Chief,
Bureau of Air Regulation

CHF/th

Enclosures

In the Matter of an
Application for Permit by:

Mr. Robert Bergstrom
Plant General Manager
Florida Power & Light
392 US Highway 17 South
East Palatka, Florida 32131

DEP File No. 1070014-003-AC
Combined Cycle Turbines 003-006
Inlet Foggers Installation
Putnan Power Plant
Putnam County

/

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification (copy of DRAFT Permit attached) for the proposed project, detailed in the application specified above and the attached Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, Florida Power & Light (FP&L), applied on March 29, 1999 to the Department to add inlet foggers to four combined cycle combustion turbine-electrical generators (Units 003-006) at the Putman Plant in Putman County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit is required to conduct the work.

The Department intends to issue this air construction permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403:815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed ""Public Notice of Intent to Issue Air Construction Permit" The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). The Department suggests that you publish the notice within thirty days of receipt of this letter. You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit or other authorization. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit" Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when 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, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

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

Because the administrative hearing process is designed to formulate 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. Mediation is not available in this proceeding.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

for C. H. Fancy, P.E., Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE, Technical Evaluation and Preliminary Determination, and the DRAFT Permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 6-3-99 to the person(s) listed:

Robert Bergstrom, FP&L*
Richard Piper, FP&L
Ken Kosky, P.E.
Gregg Worley, EPA
Chris Kirts, NE District

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kerri Tobler (Clerk) 6-3-99 (Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 1070014-003-AC

Florida Power & Light - Putnam Plant
Emissions Units 003-006 Inlet Foggers Project
Putnam County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Power & Light (FP&L). The permit is to install inlet foggers at the compressor inlets of four 70-megawatt natural gas and No. 2 fuel oil-fired Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators at the Putnam Power Plant in Putnam County. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Florida Power & Light, 392 US Highway 17 South, East Palatka, Florida 32131.

These units achieve their maximum rated output on cold days because the greater compressor inlet density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling of the compressor inlet air. The foggers provide no benefit on very humid or cold days and will not be used under those conditions. Maximum power production and emissions will continue to occur during cold conditions with the foggers turned off. The result is that maximum achievable power production and maximum achievable hourly emissions will not increase, although actual annual emissions will increase because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FPL proposes enforceable conditions to insure non-applicability. FPL asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle units. They are allowed to operate continuously (8760 hours of operation per unit). The maximum increase in annual emissions caused by project in tons per year is summarized below along with the PSD-significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	2	25/15
SO_2	4	40
NO_X	39	40
VOC	2	40
CO	9	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when 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, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

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

Because the administrative hearing process is designed to formulate 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
Northeast District Office
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7590
Telephone: 904/448-4300
Fax: 904/448-4363

The complete project file includes the application, technical evaluation, 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 Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

June 2, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert Bergstrom, Plant General Manager
FP&L – Putnam Plant
392 U.S. Highway 17 South
East Palatka, Florida 32131

Re: DEP File No. 1070014-003-AC
FP&L Putnam Plant Units 003-006
Inlet Foggers Installation

Dear Mr. Bergstrom:

Enclosed is one copy of the Draft Permit and Technical Evaluation and Preliminary Determination, for the referenced project in Putnam County. The Department's Intent to Issue Air Construction Permit and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT " are also included.

The "Public Notice of Intent to Issue Air Construction Permit " must be published one time only, as soon as possible, the legal advertising section of a newspaper of general circulation in the area affected, pursuant to the requirements of Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any questions, please call Mr. Linero at 850/921-9523.

Sincerely,

for C. H. Fancy, P.E., Chief,
Bureau of Air Regulation

CHF/th

Enclosures

In the Matter of an
Application for Permit by:

Mr. Robert Bergstrom
Plant General Manager
Florida Power & Light
392 US Highway 17 South
East Palatka, Florida 32131

DEP File No. 1070014-003-AC
Combined Cycle Turbines 003-006
Inlet Foggers Installation
Putnan Power Plant
Putnam County

/

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification (copy of DRAFT Permit attached) for the proposed project, detailed in the application specified above and the attached Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, Florida Power & Light (FP&L), applied on March 29, 1999 to the Department to add inlet foggers to four combined cycle combustion turbine-electrical generators (Units 003-006) at the Putman Plant in Putman County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit is required to conduct the work.

The Department intends to issue this air construction permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed ""Public Notice of Intent to Issue Air Construction Permit" The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). The Department suggests that you publish the notice within thirty days of receipt of this letter. You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit or other authorization. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit" Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when 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, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

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

Because the administrative hearing process is designed to formulate 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. Mediation is not available in this proceeding.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

for C. H. Fancy, P.E., Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE, Technical Evaluation and Preliminary Determination, and the DRAFT Permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 6-3-99 to the person(s) listed:

Robert Bergstrom, FP&L*
Richard Piper, FP&L
Ken Kosky, P.E.
Gregg Worley, EPA
Chris Kirts, NE District

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kerri Tobler 6-3-99
(Clerk) (Date)

Z 333 618 158

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Robert Bergstrom	
Street & Number FP&L - Putnam	
Post Office, State, & ZIP Code E. Palatka, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 1070014-003-AC 6-3-99	

PS Form **3800**, April 1995

Is your **RETURN ADDRESS** completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Robert Bergstrom, PGM
FP&L - Putnam Plant
392 US HWY 17 South
East Palatka, Fl
32131

4a. Article Number Z 333 618 158

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery 6-17-99

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 1070014-003-AC

Florida Power & Light - Putnam Plant
Emissions Units 003-006 Inlet Foggers Project
Putnam County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Power & Light (FP&L). The permit is to install inlet foggers at the compressor inlets of four 70-megawatt natural gas and No. 2 fuel oil-fired Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators at the Putnam Power Plant in Putnam County. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Florida Power & Light, 392 US Highway 17 South, East Palatka, Florida 32131.

These units achieve their maximum rated output on cold days because the greater compressor inlet density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling of the compressor inlet air. The foggers provide no benefit on very humid or cold days and will not be used under those conditions. Maximum power production and emissions will continue to occur during cold conditions with the foggers turned off. The result is that maximum achievable power production and maximum achievable hourly emissions will not increase, although actual annual emissions will increase because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FPL proposes enforceable conditions to insure non-applicability. FPL asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle units. They are allowed to operate continuously (8760 hours of operation per unit). The maximum increase in annual emissions caused by project in tons per year is summarized below along with the PSD-significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	2	25/15
SO_2	4	40
NO_X	39	40
VOC	2	40
CO	9	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when 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, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

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

Because the administrative hearing process is designed to formulate 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
Northeast District Office
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7590
Telephone: 904/448-4300
Fax: 904/448-4363

The complete project file includes the application, technical evaluation, 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 Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. Applicant

Florida Power & Light Company
Environmental Services Department
700 Universe Blvd
Juno Beach, Fl 33408

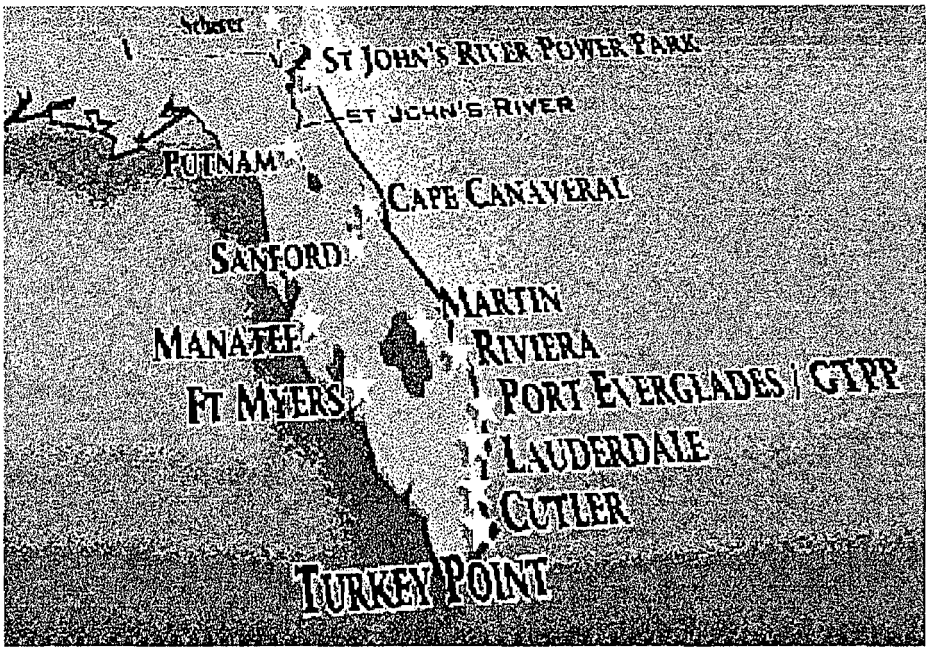
Authorized Representative: Robert Bergstrom, FP&L Putnam Plant General Manager

2. Source Name and Location

FP&L Putnam Power Plant
392 US Highway 17 South
East Palatka, Florida 32131

UTM Coordinates: Zone 17, 443.3 km East and 3277.80 km North

The location of the site within the FP&L grid is shown below:



3. Source Description

The Florida Power and Light (FP&L) Putnam Plant consists of four combustion turbines, each with an associated heat recovery steam generator equipped with a duct burner; an auxiliary boiler, and "unregulated or insignificant" emissions units. This facility emission units identification in the ARMS system includes the four combustion turbines, ARMS Emissions Units 003 to 006 and four Duct Burners for Combined Cycle Heat Recovery Steam Generators (HRSGs), ARMS Emissions Units 007 to 010 and an auxiliary boiler, ARMS Emission Unit 011.

Each combustion turbine is a Westinghouse unit Model 501B5A rated at 70 MW generating capacity (at 85 degrees F ambient temperature), with a maximum heat input for natural gas and fuel oil of 968.3 mm Btu/hr and 910.6 mmBtu/hr, respectively. The duct burners for each HRSG are rated at a maximum heat input of 250 mmBtu/hr, and are fired with natural gas and No. 2. fuel oil. The auxiliary boiler is manufactured by VA-Power and has a maximum heat input for natural gas and number 2 fuel oil of 16.275 mmBtu/hr and 14.28 mmBtu/hr, respectively.

4. **Current Permit and Major Regulatory Program Status**

Construction of the Putnam power plant facility was authorized by the Department's under the Power Plant Siting Certification No. PA74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. The four combustion turbines & HRSGs along with an auxiliary boiler, identified in ARMS as Emissions Units 003 through 011, and other unregulated or "insignificant emissions units" are operated under Title V Air Operation Permit No. 1070014-001-AV issued in June 1998.

The HRSGs and the combustion turbines are regulated under Rule 62-210.300, F.A.C. Permits Required. Based on information submitted by the applicant in the Title V application, the combustion turbines are not subject to 40CFR 60, Subpart GG, Standards of Performance for New Stationary Gas Turbines. The HRSGs are subject to 40CFR 60, Subpart Db, Standard of Performance for Industrial-Commercial-Institutional Steam Generating Units. ARMS Emissions units 003, 004, 007 and 008 began commercial operations in 1978. ARMS Emissions Units 005, 006, 009 and 010 began commercial operations in 1977.

5. **Permit Modification Request**

On March 29, 1999 the Department received a request from FPL for modification of its permits to install inlet foggers at the compressor inlets of Units 003 through 006. These units normally achieve their maximum rated output on cold days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling of the compressor inlet air although maximum output over all temperatures will remain 70 MW or below. The foggers provide little or no benefit on humid or cold days and will not be used under those conditions.

Inlet foggers are routinely included in new combustion turbine projects and have not affected the Department's decisions regarding Best Available Control Technology.

6. **Emissions Increases Due to Modification/Method of Operation**

The foggers are physical pieces of equipment whose addition and use can increase emissions on hot or dry days. The use of the foggers can also be considered a change in method of operation of the inlet "air conditioning system" that is already used to filter incoming air.

The maximum short-term emissions increases were estimated by FPL using the heat input associated with a 16 degree F decrease in compressor inlet temperature. The maximum annual increases were estimated FP&L using the annual average inlet cooling of 8 degrees F. The increase in heat rate as a function of temperature was estimated by the applicant as 4 mmBtu per degree F when firing natural gas and 3.2 mmBtu per degree F when firing fuel oil. This was then used with the hours of operation to calculate the increases of each pollutant in tons per year. The results were estimated by FPL and are summarized below together with annual emission increase estimates. These are based on 1280

(gas) and 100 (oil) hours of operation per fogger per year [5120 hr/yr (gas) and 400 hr/yr (oil) for all 4 units].

TOTAL EMISSIONS INCREASES DUE TO USE OF INLET FOGGERS AT FOUR UNITS

Pollutant	Emission Rate lb/mmBtu (gas)	Emission Rate lb/mmBtu (oil)	Emission Increase ton/yr (Oil)	Emission Increase Ton/yr (Gas)	Annual Increase tons/yr (Oil & Gas)	PSD Threshold tons/yr
NO_x	0.44	0.698	3.60	36.0	39.6	40
PM/PM_{10}	0.0168	0.0293	0.15	1.38	1.5	25/15
CO	0.11	0.048	0.25	9.01	9.3	100
VOC	0.024	0.017	0.09	1.97	2.1	40
SO_2	0.00286	0.7	3.58	0.23	3.8	40

The emissions increases calculated are the direct result from the physical change in or change in method of operation, i.e. the installation and use of the inlet foggers. These assume that the ability to achieve greater power output when the foggers are used does not result in emissions increases outside the turbines original power curve. The rationale is discussed below.

The emissions characteristics (see Appendix W of attached draft permit) do not change as a result of the use of the foggers from what would normally occur throughout the entire range of temperatures and relative humidity. Rather, the foggers move the operating points along the same curve toward the power and emissions that normally occur at lower temperatures. The worst case emissions scenario will still occur during the winter months and will occur with the foggers off. This is because of the higher air density and massflow during cold weather allows higher heat input and power output. At low temperature, very little cooling can be attained because cold air cannot evaporate and hold much moisture. Under such conditions, icing can occur which is detrimental to the units.

7. Evaluation of PSD Applicability

As a major source, a modification or change in method of operation of Units 003-006 resulting in **significant net emissions increases** is subject to PSD review. Significant net emissions increase is defined in Rule 62-212.400, F.A.C as follows:

> *Significant Net Emissions Increase – A significant net emissions increase of a pollutant regulated under the Act is a* ***net emissions increase*** *equal to or greater than the applicable significant emission rate listed in Table 212.400-2, Regulated Air Pollutants – Significant Emission Rates.*

The significant emission rates are included (see PSD Threshold) in the Table above. The meaning of a net emissions increase is given in Rule 62-212.400, F.A.C. as:

> *Net Emissions Increase - A modification to a facility results in a net emissions increase when, for a pollutant regulated under the Act, the sum of all of the contemporaneous creditable increases and decreases in the* ***actual emissions*** *of the facility, including the increase in emissions of the modification itself and any increases and decreases in quantifiable fugitive emissions, is greater than zero.*

The definition of actual emissions is given in Rule 62-210.200, F.A.C. (definitions) as follows:

> *Actual Emissions - The actual rate of emission of a pollutant from an emissions unit as determined in accordance with the following provisions:*

(a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit. Actual emissions shall be calculated using the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.

(b) The Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that, for any regulated air pollutant, such unit-specific allowable emissions limits are federally enforceable.

(c) For any emissions unit (other than an electric utility steam-generating unit specified in subparagraph (d) of this definition) which has not begun normal operations on a particular date, actual emissions shall equal the potential emissions of the emissions unit on that date.

*(d) **For an electric utility steam generating unit** (other than a new unit or the replacement of an existing unit) actual emissions of the unit following a physical or operational change shall equal the representative actual annual emissions of the unit following the physical or operational change, provided the owner or operator submits to the Department on an annual basis, for a period of 5 years representative of normal post-change operations of the unit, within the period not longer than 10 years following the change, information demonstrating that the physical or operational change did not result in an emissions increase. The definition of "representative actual annual emissions" found in 40 CFR 52.21(b)(33) is adopted and incorporated by reference in Rule 62-204.800, F.A.C.*

The term electric utility steam-generating unit is defined as:

Electric Utility Steam Generating Unit – Any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the unit.

Based on Department records, actual hours of operation since 1993 for these units are as follows:

Unit/Year	Annual Operating Hours 1993 - 1998					
	1993	1994	1995	1996	1997	1998
003	7649	5585	7085	6528	6498	6410
004	7649	5585	7085	6528	6498	6410
005	7727	5963	6490	6607	6255	6601
006	7727	5963	6490	6607	6255	6601

Note: In 1998, the annual hours of operation of the duct burners are reported as 2414 (Unit 007), 2302 (Unit 008), 2579 (Unit 009), and 2579 (Unit 010). These were not recorded in ARMS during previous years.

These units have each operated approximately 6500 ± 1000 hours per year since 1993. The duct burners within the HRSGs operate roughly 40 percent of the time when the combustion turbines operate. The foggers will operate no more than 1280 hours per year when the units burn gas and 100 hours when the units burn oil. This equates to roughly 20 percent of the time when the combustion turbines operate.

The combustion turbines have clearly begun *normal operation.* As combined cycle units, they are fairly efficient in comparison with conventional boiler-based steam-electrical units. They are not, however, baseload units. By comparison, the larger Westinghouse 501F and General Electric 7FA combined cycle units that were installed during the early 1990s in Fort Lauderdale and Martin County and are dispatched much like baseload units.

Each combustion turbine-electrical generator produces approximately 70 MW of electrical power excluding the power produced through the steam cycle. The steam cycle associated with each combustion turbine, including the supplementally-fired HRSG and steam turbine-electrical generator produces well in excess of 25 MW of power. Therefore the correct approach to determine the magnitude of a net emissions increase is to compare actual emissions from preceding years with representative actual annual emissions as described for steam electrical units.

FP&L asserts and the Department accepts that use of the inlet foggers will not affect the hours of operation of the units. Usage of the combustion turbines will depend on the system-wide growth in electrical demand and the impacts of major projects such as the planned 1500 and 2000 megawatt repowering projects at Fort Myers and Sanford. Most likely the Putnam units will continue their normal operation within the historical 6500±1000 hours per year per unit. The emissions are directly related to the hours of operation. Any increases from the fogger project would be dwarfed by the annual swings in usage of the units.

The modification project can, however, be isolated from the normal operation of the units and its effects can be directly predicted and measured without having to make annual comparisons of actual emissions from the combined cycle units before and after the change. The modification itself (i.e. installation and operation of the foggers), however, has not yet begun normal operation. Therefore the future actual emissions caused by the modification are equal to the potential-to-emit, which is based on the increases in heat input associated with the use of the fogging system.

The number of days during which the foggers can economically operate probably limits actual emissions increases to levels below significance for the purposes of PSD applicability. However, FPL proposes to limit operation of the foggers to 1,280 (gas) and 100 (oil) hours per unit per year. This value is approximately 20 % of the permitted hours of operation for each unit. It is also a clear indication that compressor air inlet cooling will not cause the units to operate all of the permitted hours during this mode. Emissions will increase under these limitations (as previously tabulated) by levels less than the significant emissions rates given in Table 212.400-2, F.A.C. The Department concludes, therefore, that PSD does not apply to this project.

8. Evaluation of NSPS Subpart GG Applicability

As a major source, a physical change in or change in the method of operation resulting in an increase in the amount of any air pollutant (to which a standard applies) is subject to applicable requirements of 40 CFR 60, Standards of Performance for New Stationary Sources. Modification under 40 CFR 60.2 [Rule 62.204.800 F.A.C.] is defined as follows:

Modification means any physical change in, or change in the method of operation of, an existing facility which increase the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emissions of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.

The installation of the foggers do not change maximum short-term emissions rates as these are already achieved under natural conditions of low ambient temperatures without the use of the foggers. The inlet fogger installations only change the ambient conditions that occur during the normal operation of the turbines. Therefore, the inlet fogger installations do not make the combustion turbines subject to 40 CFR 60 Subpart GG because, the *physical* change in or change in the method of operation of, caused by the foggers installation do not increase the (maximum short-term) amount of any air pollutant. The Department will request EPA concurrence on this matter.

9. Proposed Addition of New Conditions to Power Plant Siting Certification No. PA 74-01 and Issuance of an Air Construction Permit.

These emissions units were constructed under the authority of the Power Plant Siting Certification No. PA74-01 ordered in 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. The Department will amend these conditions of certification by adding a new condition authorizing installation and operation of the inlet foggers and will issue a new air construction permit for these units.

The new conditions applicable to the inlet foggers proposed for Emissions Units 003 -006 are shown in the draft air construction permit. It limits operation of the inlet foggers to 1,280 (gas) and 100 (oil) hours per unit per year.

10. Conclusions

The project will not increase the maximum short-term emission rates as these are already achieved under natural conditions of low ambient temperatures without the use of the foggers. Therefore, the Department believes that the 40 CFR60 NSPS Subpart GG is not applicable to these units as a result of the installation of the foggers.

The Department concludes that PSD is not applicable to this project since this project as presented will not result in significant net emissions increases to a major facility. The changes will not cause a significant impact or cause or contribute to a violation of any ambient air quality standard or PSD increment.

The Department's conclusion does not set a precedent for projects implemented at any facilities other than combined cycle unit inlet fogger installations. It does not set precedents related to any physical changes within the compressors, combustors, rotors, heat recovery steam generators, or other key components at such units. The application and determination of the Department's rules does not constitute an interpretation of the EPA rules under 40CFR52.21, Prevention of Significant Deterioration or 40CFR60, Standards of Performance for New Stationary Sources.

For further details regarding this review, contact:

A.A. Linero, P.E. Administrator
Teresa Heron, Review Engineer
New Source Review Section
Bureau of Air Regulation
850/488-0114

PERMITTEE:

Florida Power & Light
392 US Highway 17 South
East Palatka, Florida 32131

DEP File No.	1070014-003-AC
Project	Inlet Foggers Project ARMS Emissions Units 003-011
SIC No.	4911
Expires:	December 31, 1999

Authorized Representative:

Robert Bergstrom
Putnam Plant General Manager

PROJECT AND LOCATION:

This air construction permit describes the existing facility that was approved through Florida Power Plant Certification No. PA 74-01 and its amendments and which operates under that Certification and Title V permit 1070014-001-AV. Additionally, this permit allows installation of inlet foggers on the four existing Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators designated as ARMS Emissions Units 003-006.

The units are located at the FP&L Putnam Plant, 392 US Highway 17 South, East Palatka, Putnam County. UTM coordinates are: Zone 17; 443.3 km E and 3277.80 km N.

STATEMENT OF BASIS:

This 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.). The above named permittee is authorized to modify the facility 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 of Environmental Protection (Department).

ATTACHED APPENDICES MADE A PART OF THIS PERMIT:

Appendix GC	Construction Permit General Conditions
Appendix W	Putnam Plant Heat Input versus Temperature Graphs

Howard L. Rhodes, Director
Division of Air Resources
Management

AIR CONSTRUCTION PERMIT 1070014-003-AC

SECTION I – FACILITY DESCRIPTION

FACILITY DESCRIPTION

Currently, this facility consists of four combustion turbines, each with a supplementally-fired heat recovery steam generator (HRSG), an auxiliary boiler, and "unregulated or insignificant" emissions units. The designation in the Department's Air Resources Management System (ARMS) are as follows: the four combustion turbines, ARMS Emissions Units 003 to 006; four duct burners within the four HRSGs, ARMS Emissions Units 007 to 010; and the auxiliary boiler, ARMS Emission Unit 011.

Each combustion turbine is a Westinghouse unit Model 501B5A rated at 70 MW generating capacity (at 85 degrees F ambient temperature), with a maximum heat input for natural gas and fuel oil of 968.3 mm Btu/hr and 910.6 mmBtu/hr, respectively. The duct burners for each HRSG are rated at a maximum heat input of 250 mmBtu/hr, and are fired with natural gas and No. 2 fuel oil. The auxiliary boiler is manufactured by VA-Power and has a maximum heat input for natural gas and No. 2 fuel oil of 16.275 mmBtu/hr and 14.28 mmBtu/hr, respectively.

This permitting action, installation of inlet foggers at the four (4) distillate fuel oil-fired combustion turbines equipped with duct burners, amends Power Plant Conditions of Certification PA 74-01 and creates a new construction permit (1070014-003-AC) for these units. No PSD permit exists for this facility since it was built before 1975 and subsequent modifications have not triggered PSD review. On October 16, 1974, FP& L was issued a Site Certification authorizing the construction and operation of the Putnam Plant.

This Project is exempt from the requirements of Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD) as discussed stated in the Technical Evaluation and Preliminary Determination dated June 2, 1999.

REGULATORY CLASSIFICATION

This facility, FPL Putnam Myers Power Plant, is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NO_X), carbon monoxide (CO), or volatile organic compounds (VOC) exceeds 100 tons per year (TPY).

This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD).

This facility is a major source of hazardous air pollutants (HAPs) and is also subject to the provisions of Title IV, Acid Rain, Clean Air Act as amended in 1990.

PERMIT SCHEDULE

- xx/xx/99 Notice of Intent published in the _____ .
- 06/02/99 Distributed Intent to Issue Permit
- 05/07/99 Application deemed complete
- 03/17/99 Received Application

RELEVANT DOCUMENTS:

The documents listed below are the basis of the permit. They are specifically related to this permitting action, but not all are incorporated into this permit. These documents are on file with the Department.

- Application received on March 29, 1999.
- Department's Intent to Issue and Public Notice Package dated June 2, 1999.
- FPL's comments dated April 16, and May 7, 1999

SECTION II – ADMINISTRATIVE REQUIREMENTS

1. Unless otherwise indicated in this permit, the construction and operation of the subject emission unit(s) shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S. and Florida Administrative Code Chapters 62-4, 62-103, 62-204, 62-210, 62-212, 62-213, 62-214, 62-296, and 62-297; and the applicable requirements of the Code of Federal Regulations Section 40, Parts 60, 72, 73, and 75.
2. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]
3. Regulating Agencies: 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 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114. All documents related to reports, tests, and notifications should be submitted to the DEP North District office, 7825 Baymeadows Way, Suite 200B, Jacksonville, Florida 32256-7590 and phone number 904/448-4300.
4. General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
5. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
6. Forms and Application Procedures: 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. [Rule 62-210.900, F.A.C.]
7. Modifications: The permittee shall give written notification to the Department when there is any modification to this facility. This notice shall be submitted sufficiently in advance of any critical date involved to allow sufficient time for review, discussion, and revision of plans, if necessary. Such notice shall include, but not be limited to, information describing the precise nature of the change; modifications to any emission control system; production capacity of the facility before and after the change; and the anticipated completion date of the change. [Chapters 62-210 and 62-212]
8. Permit Extension: *This permit expires on December 31, 1999.* The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. [Rule 62-4.080, F.A.C.].
9. Application for a Modification of Title V Permit: An application for a modification of the Title V operating permit, pursuant to Chapter 62-213, F.A.C., must be submitted to the DEP's Bureau of Air Regulation, and a copy sent to the Department's North District office. [Chapter 62-213, F.A.C.]
10. New or Additional Conditions: Pursuant to Rule 62-4.080, F.A.C., 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.]
11. Annual Reports: Pursuant to Rule 62-210.370(2), F.A.C., Annual Operation Reports, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. Annual operating reports shall be sent to the DEP's North District office by March 1st of each year.

AIR CONSTRUCTION PERMIT 1070014-003-AC

SECTION III – SPECIFIC CONDITIONS EUs 003 - 006

This section addresses the following emissions units.

003	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG11. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)
004	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG12. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)
005	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG21. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)
006	Combustion Turbine for Combined Cycle Heat Recovery Steam Generator, HRSG22. This emissions unit consists of a Westinghouse combustion turbine, rated at 70 MW generating capacity (at 85 degrees F ambient temperature). Heat input for this unit may vary at different ambient temperatures in accordance with the curves attached as Appendix W of this permit. (As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.)

{Permitting notes: These emissions units are regulated under Rule 62-210.300, F.A.C., Permits Required and Power Plant Siting Certification No. PA 74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. Based on information submitted by the applicant in the Title V application, these emissions units are not subject to 40 CFR 60, Subpart GG, Standards of Performance for New Stationary Gas Turbines. Each combustion turbine is exhausted through a heat recovery steam generator. Emissions units 003 and 004 began commercial operation in 1978. Emissions units 005 and 006 began commercial operation in 1977.}

The following specific conditions apply to the emissions units listed above:

Essential Potential to Emit (PTE) Parameters

1. Permitted Capacity. The maximum operation heat input rates are as follows:

Unit No.	mmBtu/hr Heat Input	Fuel Type
003, 004, 005, 006	(a)	Natural Gas
	(a)	Fuel Oil

a Heat input is limited at any given ambient temperature in accordance with the curves attached as Appendix W of this permit.

{Note: As an example, maximum heat input for natural gas or fuel oil at 85 degrees F ambient temperature is 968.3 mmBtu/hr and 910.6 mmBtu/hr, respectively.}

{Permitting note: The heat input limitations have been placed in each permit to identify the capacity of each unit for the purposes of confirming that emissions testing is conducted within 90 to 100 percent of the unit's rated capacity (or to limit future operation to 110 percent of the test load), to establish appropriate emission limits and to aid in determining future rule applicability.} [Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

2. Emissions Unit Operating Rate Limitation After Testing. Applicable requirements of Rule 62-297.310 (2) and (2)(b) F.A.C., Operating Rate During Testing.

3. Methods of Operation - Fuels. The combustion turbines shall only be fired with number 2 or number 6 fuel oil or with natural gas. [Rule 62-213.410, F.A.C., PPSC PA 74-01 condition 1.B.(i)]

Emission Limitations and Standards

4. Sulfur Dioxide - Sulfur Content. The fuel oil sulfur content shall not exceed 0.7 percent by weight. See specific condition **6**. [Rules 62-4.070(3) and 62-213.440, F.A.C., and PPSC PA 74-01 condition 1.B.(i)]

5. Visible Emissions. Visible emissions shall not exceed 20% opacity, except for one 6-minute period per hour during which opacity shall not exceed 27%.
[Rules 62-4.070(3) and 62-213.440, F.A.C., and PPSC PA 74-01 condition 1.B.(ii)]

Test Methods and Procedures

6. Sulfur Dioxide - Sulfur Content. The permittee shall demonstrate compliance with the liquid fuel sulfur limit by means of a fuel analysis provided by the vendor upon each fuel delivery. See specific conditions **4. and 7.** [Rules 62-213.440 and 62-296.406(3), F.A.C.]

7. Fuel Sampling & Analysis - Sulfur. The fuel sulfur content, percent by weight, for liquid fuels shall be evaluated using either ASTM D2622-94, ASTM D4294-90(95), ASTM D1552-95, ASTM D1266-91, or both ASTM D4057-88 and ASTM D129-95 (or latest editions).
[Rules 62-4.070(3), 62-213.440 and 62-297.440, F.A.C.]

8. Visible Emissions. The permittee shall demonstrate compliance with the visible emissions limit by DEP Method 9. [Rules 62-4.070(3) and 62-213.440, F.A.C.]

Monitoring of Operations

9. Annual Tests Required - VE. Except as provided in Rule 62-296.310(7) F.A.C., SIP Approved, emission testing for visible emissions shall be performed annually, no later than September 30th of each year, except for units that are not operating because of scheduled maintenance outages and emergency repairs, which will be tested within thirty days of returning to service. [Rules 62-4.070(3) and 62-213.440, F.A.C.]

10. Wind Restriction and Monitoring. The owner or operator shall burn fuel oil containing no more than 0.50% sulfur (by weight) when sustained winds exceed 20 miles per hour for any continuous period of three hours or longer. The owner or operator shall measure wind velocity and direction, using recognized methods and procedures, at hourly intervals in the plant vicinity, only for those hours during which any combustion turbine at the plant burns fuel oil containing more than 0.50% sulfur (by weight). The owner or operator shall quarterly report wind data, or shall report that no fuel oil containing more than 0.50% sulfur (by weight) was burned, no later than the thirtieth day following the end of each calendar quarter. [PPSC PA 74-01, condition 2]

Excess Emissions

11. Excess emissions resulting from malfunction shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]

12. Excess emissions resulting from startup or shutdown shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized. [Rule 62-210.700(2), F.A.C.]

Inlet Fogger Installation

13. Inlet foggers may be installed at the compressor inlet to each of the four combined cycle Westinghouse Model 501B5A combustion turbine-electric generators. The four foggers may operate up to 5120 hours per year in aggregate (average 1280 hours per unit per year) while firing gas and 400 hours per year aggregate(average 100 hour per unit per year) while firing fuel oil.

This section addresses the following emissions units.

007	Ductburners for Combined Cycle Heat Recovery Steam Generator, HRSG11. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.
008	Duct burners for Combined Cycle Heat Recovery Steam Generator, HRSG12. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.
009	Duct burners for Combined Cycle Heat Recovery Steam Generator, HRSG21. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.
010	Duct burners for Combined Cycle Heat Recovery Steam Generator, HRSG22. This emissions unit consists of duct burners for one heat recovery steam generator. Each HRSG is associated with one combustion turbine. Each HRSG's duct burners have a maximum heat input for natural gas or number 2 fuel oil of 250 mmBtu/hr.

{Permitting notes: These emissions units are regulated under Rule 62-210.300, F.A.C., Permits Required and Power Plant Siting Certification No. PA 74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. These emissions units are subject to 40 CFR 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. Each heat recovery steam generator has two stacks that exhaust emissions from the associated combustion turbine and the duct burners. Emissions units 007 and 008 began commercial operation in 1978. Emissions units 009 and 010 began commercial operation in 1977.}

The following specific conditions apply to the emissions units listed above:

Essential Potential to Emit (PTE) Parameters

1. Permitted Capacity. The maximum operation heat input rates are as follows:

Unit No.	mmBtu/hr Heat Input	Fuel Type
007, 008, 009, 010	250	Natural Gas
	250	Fuel Oil

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

{Permitting note: The heat input limitations have been placed in each permit to identify the capacity of each unit for the purposes of confirming that emissions testing is conducted within 90 to 100 percent of the unit's rated capacity (or to limit future operation to 110 percent of the test load), to establish appropriate emission limits and to aid in determining future rule applicability.}

2. Emissions Unit Operating Rate Limitation After Testing. Applicable Requirements of Rule 62-297.310(2) and (2) (b) F.A.C. Operating Rate During Testing.

3. Methods of Operation - Fuels. The duct burners shall only be fired with number 2 fuel oil or with natural gas.

[Rule 62-213.410, F.A.C., PPSC PA 74-01 condition 1.C.(i)]

Emission Limitations and Standards

4. Sulfur Dioxide - Sulfur Content. The fuel oil sulfur content shall not exceed 0.5 percent by weight. See specific condition 7. [Rules 62-4.070(3) and 62-213.440, F.A.C., PPSC PA 74-01 condition 1.C.(i), and 40 CFR 60.42b]

5. Visible Emissions. Visible emissions shall not exceed 20% opacity (6-minute average), except for one 6-minute period per hour during which opacity shall not exceed 27%. The opacity standards apply at all times, except during periods of startup, shutdown or malfunction. [Rules 62-4.070(3) and 62-213.440, F.A.C., PPSC PA 74-01 condition 1.C.(ii)(a), and 40 CFR 60.43b and 60.46b(a)]

6. Nitrogen Oxides. Nitrogen oxide emissions (expressed as NO_2) shall not exceed 0.20 lb/mmBtu while burning natural gas and distillate oil. The nitrogen oxide standards apply at all times including periods of startup, shutdown, or malfunction. [40 CFR 60.44b and PPSC PA 74-01 (modification of 5/28/92)]

Test Methods and Procedures

7. Sulfur Dioxide - Sulfur Content. The permittee shall demonstrate compliance with the liquid fuel sulfur limit by maintaining fuel receipts as described in 40 CFR 60.49b(r). See specific conditions **4. and 14.** [Rules 62-213.440 and 62-296.406(3), F.A.C., and 40 CFR 60.42b]

8. VE Test Methods. To determine compliance with the opacity limits, the owner or operator shall conduct tests using EPA Method 9. [40 CFR 60.46b(d)(7)]

9. Test Methods For Nitrogen Oxides. Compliance with the nitrogen oxides emission limit shall be determined through testing using EPA reference methods 7E and 3A, of 40 CFR part 60 appendix A. [40 CFR 60.46b, PPSC PA 74-01 (modification of 5/28/92)] {Note: PPSC PA 74-01 (modification of 5/28/92) allows use of EPA methods 7E and 3A instead of EPA method 20.}

Monitoring of Operations

10. Emission Tests Required - VE and NOx. Except as provided in Rule 62-297.310 (7) F.A.C., SIP Approved, emission testing shall be conducted as follows: Emission testing for visible emissions shall be performed annually. Emission testing for nitrogen oxides shall be performed prior to renewal, except that an annual test for nitrogen oxides shall be performed each year that fuel oil is fired in these units for more than 400 hours. Testing shall be completed no later than September 30th of each year required, except for units that are not operating because of scheduled maintenance outages and emergency repairs, which will be tested within thirty days of returning to service. [Rules 62-4.070(3) and 62-213.440, F.A.C.]

11. Emission Monitoring For VE. Prior to burning fuel oil in these emissions units, the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere and record the output of the system. This system shall thenceforth be operated whenever fuel oil is burned in these emissions units. [40 CFR 60.48b(a)]

12. CEMS Required by Power Plant Siting. The owner or operator shall maintain a continuous emission monitoring system (CEMS) for opacity and nitrogen oxides on one of the paired stacks for each combined cycle unit.

    {The PPSC requires monitors on one stack each of CT/HRSG 1x and 2x, for a total of two stacks that must be monitored. The owner currently operates opacity monitors to satisfy the PPSC requirement to operate the CEMS for opacity. The NOx monitors installed and maintained pursuant to 40 CFR 75 satisfy the PPSC requirement to operate the CEMS for NOx.} [Rule 62-213.440, F.A.C., PPSC PA 74-01 condition 4]

Reporting And Record Keeping Requirements

13. Pursuant to 40 CFR 60.49b Reporting And Record Keeping Requirements.

    The owner or operator of an affected facility shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for distillate oil and natural gas for each calendar quarter. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.

The owner or operator shall maintain records of opacity (required by NSPS whenever fuel oil is burned in these emissions units. See condition B.11 of this permit).

The owner or operator shall maintain records of the following information for each steam-generating unit operating day:

(1) Calendar date.
(2) The average hourly nitrogen oxides emission rates (expressed as NO2) (lb/million Btu heat input) measured or predicted.
(3) The 30-day average nitrogen oxides emission rates (lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxide emission rates for the preceding 30 steam generating unit operating days.
(4) Identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards under 40 CFR 60.44b, with the reasons for such excess emissions as well as a description of corrective actions taken.
(5) Identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.
(6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.
(7) Identification of "F" factor used for calculations, method of determination, and type of fuel combusted.

The owner or operator is required to submit excess emission reports for any calendar quarter during which there are excess emissions from the affected facility. If there are no excess emissions during the calendar quarter, the owner or operator shall submit a report semiannually stating that no excess emissions occurred during the semiannual reporting period. For the purpose of the opacity limitation, excess emissions are defined as all 6-minute periods during which the average opacity exceeds the opacity standards.
[40 CFR 60.49b(d), (f), (g)(1)-(7) and (h)]

14. Fuel Receipts Required. The owner or operator of an affected facility who elects to demonstrate that the affected facility combusts only very low sulfur oil shall obtain and maintain at the affected facility fuel receipts from the fuel supplier which certify that the oil meets the definition of distillate oil as defined in 40 CFR 60.41b:

    Distillate oil means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396-78, Standard Specifications for Fuel Oils (incorporated by reference-see 40 CFR 60.17).

    Very low sulfur oil means an oil that contains no more than 0.5 weight percent sulfur or that, when combusted without sulfur dioxide emission control, has a sulfur dioxide emission rate equal to or less than 215 ng/J (0.5 lb/million Btu) heat input.

    For the purposes of this section, the oil need not meet the fuel nitrogen content specification in the definition of distillate oil. Quarterly reports shall be submitted to the Department certifying that only very low sulfur oil meeting this definition was combusted in the affected facility during the preceding quarter.
    [40 CFR 60.45b, 60.47b and 60.49b(r)].

SECTION V – SPECIFIC CONDITIONS EU 011

This section addresses the following emissions unit.

011	This emissions unit consists of an auxiliary boiler is manufactured by VA-Power with a maximum heat input for natural gas and number 2 fuel oil of 16.275 mmBtu/hr and 14.28 mmBtu/hr, respectively.

{Permitting notes: This emissions unit is regulated under Rule 62-210.300, F.A.C., Permits Required. This emissions unit is subject to 40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Emissions unit 011 began commercial operation in 1993. The unit was previously regulated under Power Plant Siting Certification No. PA 74-01 ordered 10/16/74, and the modified conditions of PA 74-01 modified 5/20/80, 3/15/84, 7/16/91 and 5/28/92. However, the only applicable condition was in conflict with the NSPS and has been superseded by this permit.}

The following specific conditions apply to the emissions unit listed above:

Essential Potential to Emit (PTE) Parameters

1. Permitted Capacity. The maximum operation heat input rates are as follows:

Unit No.	mmBtu/hr Heat Input	Fuel Type
011	16.275	Natural Gas
	14.28	Number 2 Fuel Oil

[Rules 62-4.160(2) and 62-210.200(PTE), F.A.C.]

2. Emissions Unit Operating Rate Limitation After Testing. Per Requirements of Rule 62-297.310(2), F.A.C.

3. Methods of Operation - Fuels. The auxiliary boiler shall only be fired with number 2 fuel oil or with natural gas. [Rule 62-213.410, F.A.C.]

Emission Limitations and Standards

4. Pursuant to 40 CFR 60.42c Standard For Sulfur Dioxide.

The owner or operator shall not combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. Compliance with the fuel oil sulfur limit shall be determined based on a certification from the fuel supplier, as described under 40 CFR 60.48c(f)(1) (see specific condition 7.). The fuel oil sulfur limit applies at all times, including periods of startup, shutdown, and malfunction.
[40 CFR 60.42c(d), (h), (i) and (j)]

Monitoring of Operations

5. Emission Monitoring For Sulfur Dioxide.

As an alternative to operating a CEMS at the outlet of the steam generating unit, the owner or operator shall determine the average SO_2 emission rate by sampling the fuel prior to combustion. Fuel sampling shall be conducted as follows:

As an alternative fuel sampling procedure for affected facilities combusting oil, oil samples may be collected from the fuel tank for each steam generating unit immediately after the fuel tank is filled and before any oil is combusted. The owner or operator of the affected facility shall analyze the oil sample to determine the sulfur content of the oil. If a partially empty fuel tank is refilled, a new sample and analysis of the fuel in the tank would be required upon filling. Results of the fuel analysis taken after each new shipment of oil is received shall be used as the daily value when calculating the 30-day rolling average until the next shipment is received. If the fuel analysis shows that the sulfur content in the fuel tank is greater than 0.5 weight percent sulfur, the owner or operator shall ensure that the sulfur content of subsequent oil shipments is low enough to cause the 30-day rolling average sulfur content to be 0.5 weight percent sulfur or less. [40 CFR 60.46c(d)(2)]

Reporting And Record Keeping Requirements

6. Pursuant to 40 CFR 60.48c Reporting And Record Keeping Requirements.

For any period in which fuel oil is combusted, the owner or operator shall submit quarterly reports to the Department. Each subsequent quarterly report shall be postmarked by the 30th day following the end of the reporting period.

The owner or operator shall keep records and submit quarterly reports including the following information related to the combustion of fuel oil, as applicable.

(1) Calendar dates covered in the reporting period.
(2) Each 30-day average SO_2 emission rate (lb/million Btu), or 30-day average sulfur content (weight percent), calculated during the reporting period, ending with the last 30-day period in the quarter; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.
(3) Each 30-day average percent of potential SO_2 emission rate calculated during the reporting period, ending with the last 30-day period in the quarter; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.
(4) Identification of any steam generating unit operating days for which SO_2 or diluent (oxygen or carbon dioxide) data have not been obtained by an approved method for at least 75 percent of the operating hours; justification for not obtaining sufficient data; and a description of corrective actions taken.
(5) Identification of any times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and a description of corrective actions taken if data have been excluded for periods other than those during which oil was not combusted in the steam generating unit.
(6) Identification of the F factor used in calculations, method of determination, and type of fuel combusted.
(7) Identification of whether averages have been obtained based on CEMS rather than manual sampling methods.
(11) If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under paragraph (f)(1) of this section, as applicable. In addition to records of fuel supplier certifications, the quarterly report shall include a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.
[40 CFR 60.48c(d), (e)(1)-(7) and (e)(11)]

7. Fuel Supplier Certification and Fuel Records. The owner or operator shall maintain records of fuel supplier certification. Fuel supplier certification shall include the following information:

(i) The name of the oil supplier; and
(ii) A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil:

Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-78, "Standard Specification for Fuel Oils" (incorporated by reference-see 40 CFR 60.17).

The owner or operator of each affected facility shall record and maintain records of the amounts of each fuel combusted during each day. [40 CFR 60.48c(f)(1) and (g)]

APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a) Have access to and copy and records that must be kept under the conditions of the permit;
b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a) A description of and cause of non-compliance; and
b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extend it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.

G.13 This permit also constitutes:

a) Best Available Control Technology ( )
b) Prevention of Significant Deterioration ( ); and
c) New Source Performance Standards ( ).

G.14 The permittee shall comply with the following:

a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

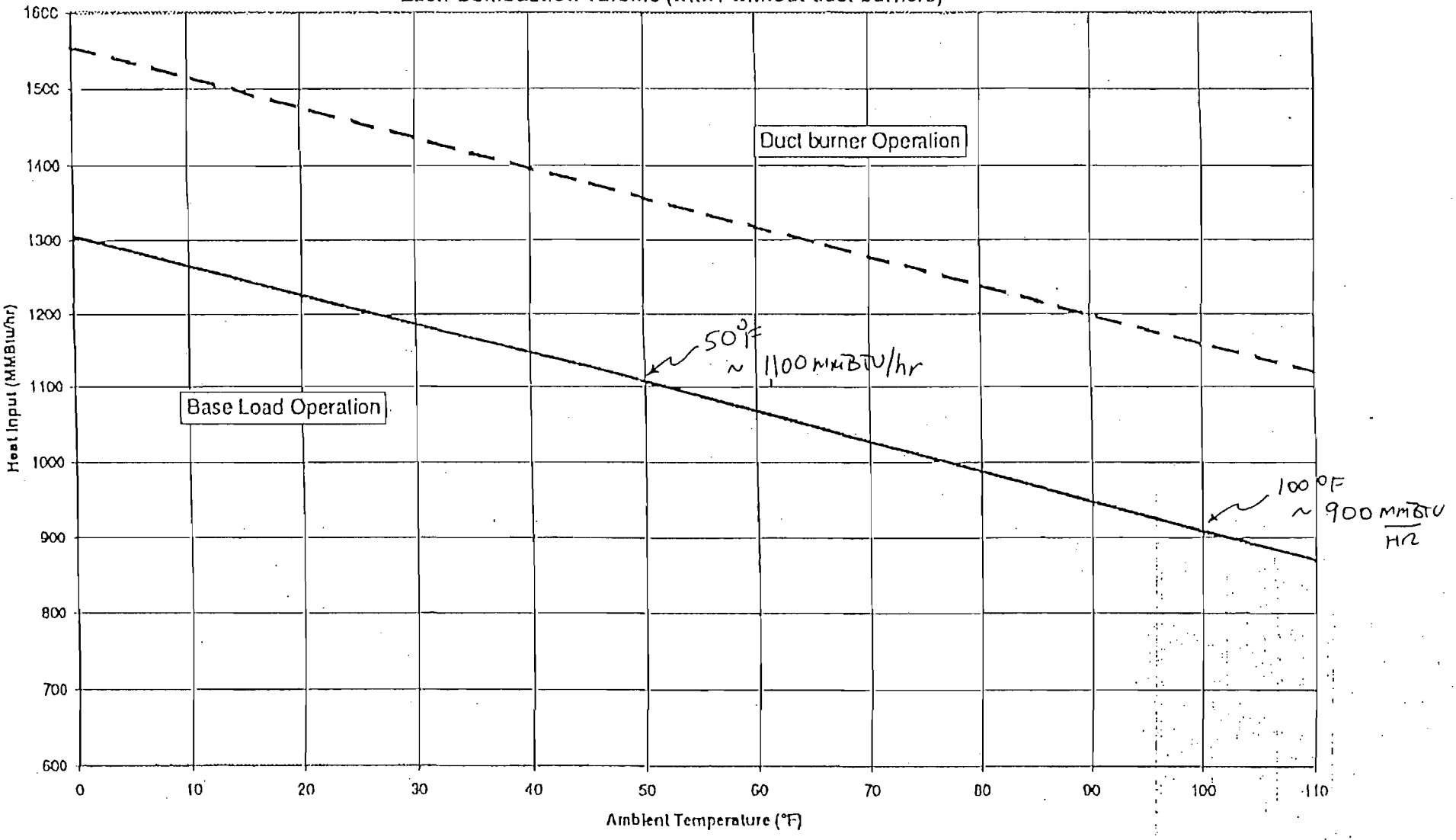
c) Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;
2. The person responsible for performing the sampling or measurements;
3. The dates analyses were performed;
4. The person responsible for performing the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

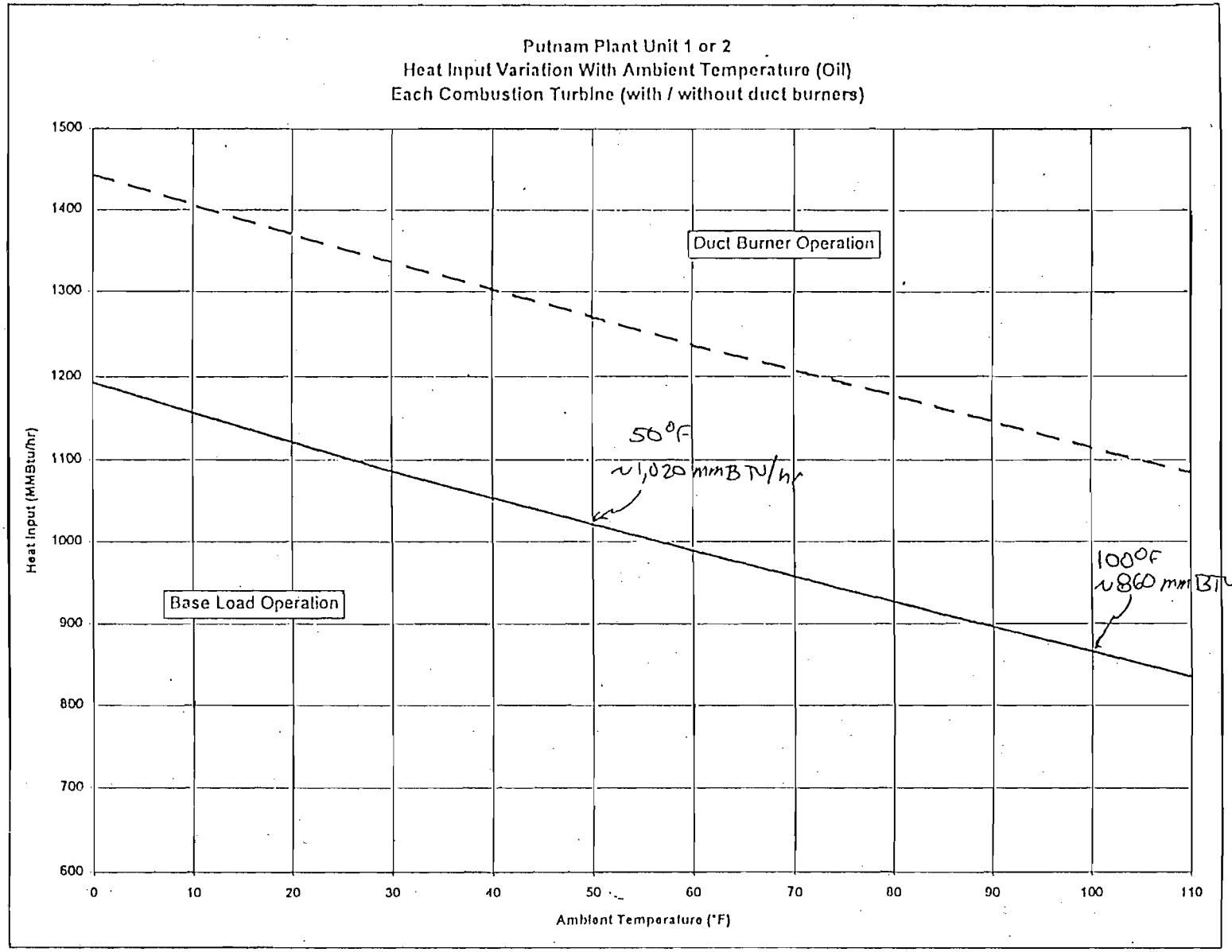
G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

APPENDIX W

Putnam Plant Unit 1 or 2
Heat Input Variation With Ambient Temperature
Each Combustion Turbine (with / without duct burners)



HI Limit Chart 1
9/12/97 2:32 PM


Putnam Plant Unit 1 or 2
Heat Input Variation With Ambient Temperature (Oil)
Each Combustion Turbine (with / without duct burners)
Heat Input (MMBtu/hr)
1500
1400
1300
1200
1100
1000
900
800
700
600
0
10
20
30
40
50
60
70
80
90
100
110
Ambient Temperature (°F)
Duct Burner Operation
Base Load Operation
50°F
~1,020 mmBTU/hr
100°F
~860 mmBTU/hr

Memorandum

Florida Department of
Environmental Protection

TO: ~~C. H. Fancy~~ aaf for CHF

THRU: Al Linero aa L 6/2

FROM: Teresa Heron T.H

DATE: June 2, 1999

SUBJECT: FP&L Putnam Spray Fogging Systems
DEP File No. 1070014-003-AC

Attached is the draft public notice package including the Intent to Issue and the Technical Evaluation and Preliminary Determination for the compressor inlet fogger project at the FP&L Putnam Plant. The application is to install inlet foggers ahead of the compressor inlets of four combined cycle combustion turbines. The foggers will operate on hot days and days of relatively low humidity. The evaporative cooling effected by the foggers will allow the units to operate closer to their rated capacity.

Both short-term and annual emissions will increase because the heat rate through the units will increase when the foggers. However, maximum short-term emissions will still occur during cold days when use of the foggers is not feasible anyway. For this reason, we believe that 40CFR60, Subpart GG will not be triggered. FP&L proposes to limit operation of the coolers to 1,280 hours per unit per year while firing gas and 100 hours per unit per year while firing fuel oil to insure PSD is not triggered by their use. The issue of making a future potential to past actual annual emission increase calculation is extensively addressed in the Technical Evaluation.

We recommend your signature and approval of the cover letter and Intent to Issue.

AAL/aal

Attachments

Golder Associates Inc.

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

May 6, 1999

9737572-0100

Mr. C.H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida department of Environmental Protection
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Attention: Ms. Teresa Heron

RE: Inlet Foggers – Putnam Plant Combustion Turbines DEP File 1070014-003-AC
Inlet Foggers – Martin Plant Combustion Turbines DEP File 0850001-005-AC
Florida Power & Light Company (FPL)

Dear Teresa:

This correspondence is submitted to address the Department's information request related to the installation of direct water spray fogging system to the inlet of the Putnam and Martin combustion turbines. The information requested is presented below and in the attachments to this correspondence.

1. Information Requested: Please submit additional data to support the statement that the emission rate does not change as a result of inlet fogging.

   Information Submitted: As discussed in the application, the use of the direct water spray fogging systems will increase the relative humidity of the gas stream while concomitantly reducing the temperature due to adiabatic cooling of the inlet air. This effect is no different than when the turbine is operated under the same ambient conditions that occurs during the normal course of operation in any year. However, it allows the turbine to operate under such ambient conditions more frequently and thus can effect annual emissions. The influence on the emission rate of increasing the relative humidity and temperature is explained in EPA's Alternative Control Techniques Document – NO_x Emissions from Stationary Gas Turbines (EPA-453/R-93-007, January 1993). In Section 4.2.1.3 the report provides information that indicates emissions of NO_x decrease with increasing relative humidity. Also, the mass emission of NO_x decreases per mass of fuel input. This is also the same as lower emissions per amount electric power generated (since power and fuel input are directly related). The lower NO_x emissions with increasing relative humidity and lower temperature can be shown using the equation in Section 4.2.1.3; the adjustment equation in 40 C.F.R. Part 60 Subpart GG, Section 60.335(c)(1).

Table 1 presents calculation of relative NO_x concentrations for various temperatures and relative humidity. As can be seen from the table the relative NO_x concentration decreases with increasing humidity and decreasing temperature. The combined effect can be seen in the last column. Please find attached relevant pages from the EPA cited document. This EPA information is supported by the results of the testing performed at the Putnam Plant that indicated no change in emission rate (concentration) when the fogging system was used. These data also demonstrated no statistical change in CO concentrations as well.

The potential applicability of New Source Performance Standards (NSPS) Subpart GG to the Putnam turbines would be dependant on whether the installation of a fogging system is considered a modification under Section 60.14 of 40 C.F.R. 60. (Note: The NSPS already apply to the Martin turbines; these turbines meet lower emission levels as BACT.) The determination is based on whether a physical change resulted in an increase in the emission rate that is expressed in kilograms per hour. The emission rate can be determined using AP-42, materials balance, CEMs or manual stack tests [see paragraphs (1) and (2) of Section 60.14]. The tests must conducted under representative performance of the facility and that all operating which can effect emissions must be held constant to the maximum degree feasible. As described above, the inlet foggers only changes the ambient conditions that do occur during the normal operation of the turbine. Testing under the requirement to maintain all operating which may effect emissions (i.e., in this case temperature and relative humidity) constant would produce the same result. Thus, the short-term emission rates do not change. Nonetheless, the fogging system does increase the long-term emissions for which a limit on the operation of the fogging system has been requested to keep the increase below the PSD significant emission rate.

2. Information Requested: In reference to Table 1 and 2. (Part II of the Supporting Information), indicate the nominal values for power out, heat rate and heat input.

Information Submitted: The information presented in Table 1 presents the *rate of change* of power, heat rate and heat input for the turbine. The basis of the information is the attached performance curves. As noted from the curves the performance (fuel input and power) is a linear function of inlet temperature. The primary purpose of using the performance curves is to determine the increase in heat rate as a function of temperature. This was determined from the performance curves as 4 mmBtu per °F for Putnam and as 4.7 mmBtu per °F shown in Table 1. Note that the Putnam calculations have been updated to reflect as 4 mmBtu per °F rather than 3 mmBtu per °F in the original submittal. This was then used with the hours of operation to calculate the tons per year. An example for Putnam: 4 mmBtu / °F x 0.44 lb/mmBtu x 8 °F/hour x 1,280 hours x 1 ton/2,000 lb = 9.01 tons/year for NO_x. As noted in the application, AP-42 emission factors were used which for NO_x are from 17 to 25 percent higher than the actual observed emissions. The 4 mmBtu / °F was determined from the performance curves as follows: At 50 °F the heat input is 1,100 mmBtu/hr based on high heating value (HHV). At 100 °F, the heat input is 900 mmBtu/hr (HHV). The difference is 200 mmBtu/hr (1,100 –

900) over 41 °F (100 – 59) or 4 mmBtu / °F. For oil firing the rate was determined to be 3.2 mmBtu / °F using the same procedure.

An example for Martin: 4.7 mmBtu / °F x 0.09 lb/mmBtu x 5.5 °F/hour x 6,240 hours x 1 ton/2,000 lb = 7.26 tons/year for NO_x. The Martin emission rates, as noted in Tables 1 and 2, are based on maximum potential rate in the PSD permit. For NO_x, the maximum emission rate is 177 lb/hour at maximum heat input of 1,966 mmBtu/hr which is 0.09 mmBtu/hr (177/1,966). The 4.7 mmBtu / °F was determined from the heat rate curves as follows: At 60 °F the heat input is 1,550 mmBtu/hr based on high heating value (HHV). At 90 °F, the heat input is 1,690 mmBtu/hr (HHV). The difference is 140 mmBtu/hr (1,690 – 1,550) over 30 °F (90 – 60) or 4.66 mmBtu / °F; this value was rounded to 4.7 mmBtu / °F. This rate was used for both gas and oil firing.

3. Information Requested: Submit the heat input curves for these units.

   Information Submitted: The heat input curves for the Martin Units are attached. The heat input curves for the Putnam Plant are attached.

4. Information Requested: Estimate actual emissions for each facility's turbines and worst case emission rate scenario.

   Information Submitted: The actual emission for each facility is presented in the Annual Operating Report (these will be forwarded separately). As noted in the information supplied in Item 2 above, the emission estimates are based the maximum potential emission rate based on either AP-42 in the case of Putnam and the PSD permit in the case of Martin. Since the requested is based on an incremental increase in annual emissions using the maximum potential emission rates and a maximum amount of fogging (°F-hours per year), the worst case emission estimate is presented in the application.

5. Information Requested: Submit hours of operation for each turbine.

   Information Submitted: The AOR contain the hours of operation.

Your prompt review of the application is appreciated. If there are any further questions, please call.

Sincerely,

GOLDER ASSOCIATES INC.

Kennard F. Kosky, P.E.
Principal
Professional Engineer No. 14996

SEAL

KFK/jkk

Enclosures

cc: Rich Piper, Repowering Licensing Manager
Robert Bergstrom, Putnam Plant General Manager
John Lindsay, Martin Plant General Manager
Bob Burgess, FPL
Jay Blum, FPL

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Table 1a Emission Estimates of the Putnam Facility Combined Cycle Combustion Turbines with Inlet Air Cooling System with Direct Water Spray Inlet Fogging (Natural Gas Combustion).

Performance Basis			
Temperature Decrease	°F (1)	8	
Power Increase		3.28%	PPN Charts
Heat Rate Decrease		1.06%	Westinghouse
Heat Input Increase		2.22%	
Heat Input Change	mmBtu/ °F	4	
Hours/year		1280 (2)	
Hours-°F/year		10,240	hours/year times temperature decrease

Pollutants	Units	Emissions (3)	Comments
PM	lb/MMBtu	0.0168	AP-42 Section 3.1
	TPY	0.34	per machine
NO_x	lb/MMBtu	0.44	AP-42 Section 3.1
	TPY	9.01	per machine
SO_2	lb/MMBtu	0.00286	1 grain/100 cf natural gas
	TPY	0.06	per machine
CO	lb/MMBtu	0.11	AP-42 Section 3.1
	TPY	2.25	per machine
VOC	lb/MMBtu	0.024	AP-42 Section 3.1
	TPY	0.49	per machine

Legend - TPY: tons per year

(1) Temperature decrease is annual average temperature differential of ambient temperature to compressor inlet temperature utilizing inlet fogger.

(2) Hours of fogger operation based on estimate of 8 hours per day and 160 days per year.

(3) Emission factor references - Title V Permit No. 1070014-001-AV, PPSC PA 74-0, EPA AP-42 Emission Factors Section 3.1 "Stationary Gas Turbines".

Table 2a Emission Estimates of the Putnam Facility Combined Cycle Combustion Turbines with Inlet Air Cooling System with Direct Water Spray Inlet Fogging (No. 2 Fuel Oil Combustion).

Performance Basis			
Temperature Decrease	°F (1)	8	
Power Increase		3.28%	PPN Charts
Heat Rate Decrease		1.06%	Westinghouse
Heat Input Increase		2.22%	
Heat Input Change	mmBtu/ °F	3.2	
Hours/year		100 (2)	
Hours-°F/year		800	hours/year times temperature decrease

Pollutants	Units	Emissions (3)	Comments
PM	lb/MMBtu	0.0293	AP-42 Section 3.1
	TPY	0.04	per machine
NO_x	lb/MMBtu	0.698	AP-42 Section 3.1
	TPY	0.89	per machine
SO_2	lb/MMBtu	0.7	Based on Title V Permit
	TPY	0.90	per machine
CO	lb/MMBtu	0.048	AP-42 Section 3.1
	TPY	0.06	per machine
VOC	lb/MMBtu	0.017	AP-42 Section 3.1
	TPY	0.02	per machine

Legend - TPY: tons per year

(1) Temperature decrease isannual average temperature differential of ambient temperature to compressor inlet temperature utilizing inlet fogger.

(2) Hours of fogger operation.

(3) Emission factor references - Title V Permit No. 1070014-001-AV, PPSC PA 74-01, EPA AP-42 Emission Factors Section 3.1 "Stationary Gas Turbines".

Part II

Application for Air Permit
Installation of Direct Water Spray Fogging Systems
Putnam Plant

Introduction

Florida Power & Light Company is proposing to install direct water spray fogging systems in the inlet ducts of the existing 4 combustion turbines in combined cycle configuration at the Putnam Plant. The purpose of the inlet foggers to provide adiabatic inlet air cooling which increase turbine output and decreases heat rate. The project is part of increasing capacity in a cost effective manner.

Description

The direct inlet fogging systems achieve adiabatic cooling using water to form fine droplets (fog). The fog is produced by injection grids placed in the turbine inlet duct that use nozzles that produce a fine spray. The small fog particles (about 10 to 20 microns) extract the latent heat of vaporization from the gas stream when the water droplet is converted to gas. Heat is removed at a rate of 1,075 Btu/lb of water. The result of the fogging is a cooler more moisture laden air stream. Figure 1 presents a schematic of a typical fogging system.

The amount of heat removed is highly dependent upon the ambient air conditions. The two most important parameters are the dry bulb temperature and relative humidity. As moisture is added to the inlet air by the fogging, the vaporization of the fog droplets cools the air toward the wet-bulb temperature. For the proposed project, the design condition is 95°F and 50 percent relative humidity. The resultant wet bulb temperature, based on psychrometric charts is 79°F. At 100 percent saturation the inlet cooling system would result in a 16°F decrease of the turbine inlet air.

While adiabatic cooling is most efficient for dry climates, adiabatic cooling in Florida can be an effective means of inlet air cooling during the late morning to evening hours. This period is typically 8 to 10 hours per day from about 10 am to 8 pm. In the early morning hours and

evening hours, the typical relatively humidity in Florida is 70 to 90 percent depending on the climatic conditions. Because of the highly variable nature of ambient air conditions, the annual average inlet cooling was assumed to be 8°F. This average was reviewed against a 30 year record of meteorological data for Jacksonville and found to be representative of the range in conditions that occur over an annual period. This includes cooling associated with the typical mid-afternoon summer days and early morning/evening periods that occur year-round. The typical mid-afternoon cooling for Jacksonville would be 14°F and would occur in July with a mid-afternoon temperature of 91°F and 58 percent relative humidity. During January, the mid-afternoon cooling would be about 7°F. The typical cooling that would occur in the early morning hours of evening hours with temperatures of about 80°F and a relative humidity of 80 percent would be 5°F. This cooling also assumes that the gas stream can be 100 percent saturated. The ambient air conditions that are modified by the fogging system occur naturally but are more frequent with the fogging system. For example, the average minimum temperatures for the months of November through April range from 41.7°F to 55.7°F with relative humidities ranging from 83 to 88 percent. The amount of adiabatic cooling would range from 1 to 2°F. For the Putnam Plant, an 8°F average reduction was assumed in the calculations for primarily daytime operation.

Turbine Performance and Emission Estimates

The effect of decreasing the turbine inlet air through the use of fogging will be to increase the mass flow of air that can go through the turbine which allows higher heat input and power output. The combustion turbine is also more efficient since the heat rate decreases with decreasing temperature. For the Westinghouse Model 501B5A combustion turbines at the Putnam plant, an 8°F average decrease in temperature would result in a 3.3 percent increase in power and an associated 1.1 percent decrease in heat rate. Thus, while power increases, the production of power is more efficient with concomitant lower emissions per MW-hr generated. The increase in heat rate as a function of temperature decrease is a linear function and for the Putnam turbines would be 4 mmBtu/hr/°F for gas firing and 3.2 mmBtu/hr/°F for oil firing. The data were determined using Westinghouse supplied data (see Attachment A).

Because the turbine is operating on its original power curve, the emission characteristics do not change from what would normally occur at that temperature and relative humidity. An evaluation of emissions from the fogging tests conducted at the FPL Putnam plant did not result in any statistically significant differences in emission rates (see Attachment B). The increase in emissions of criteria pollutants associated with fogging were determined using emission limits contained in the Title V Permit for the facility. This provides the maximum potential allowed and would conservatively estimate emission rates. Table 1 and 2 presents a summary of the operating conditions and emission increases resulting from fogging firing natural gas and distillate fuel oil, respectively. The annual emissions were determined by multiplying the heat input increase per degree Fahrenheit times the emissions rate in lb/mmBtu for the number of hours of proposed for the turbines. The degree F-hours/year is the total amount of annual temperature reduction proposed for fogging and was calculated by using the average temperature reduction multiplied by the hours of year assumed. For example, the degree F-hours for gas firing are calculated by multiplying 1,280 hours times 8°F or 10,240°F-hours. Each turbine inlet fogging system will be equipped with temperature probes to determine the amount of inlet cooling. This reduction will be recorded for each hour of fogger operation. For the Putnam turbines, a maximum of 10,240°F-hours of operation when firing natural gas and 800°F-hours of operation when firing distillate fuel oil was used as the basis for annual emission estimates for each turbine.

The use of AP-42 emission factors is appropriate for estimating maximum potential annual emissions since there are no emission limits for NO_x. This is especially conservative for NO_x since actual emissions are much lower. Over the last two years, quarterly emissions reported from CEM data ranged from 0.322 lb/mmBtu to 0.398 lb/mmBtu. The annual averages from CEM data ranged from 0.351 to 0.371 lb/mmBtu for 1997 and 0.354 to 0.375 lb/mmBtu for 1998. Using an emission factor of 0.44 lb/mmBtu to estimate maximum potential annual emissions, would overestimate annual emissions from 17 to 25 percent greater than that actual observed. Thus, the annual estimated emissions based on AP-42 emission factors are conservative.

Regulatory Applicability

A modification is defined in Rule 62-210.200 Florida Administrative Code (F.A.C.) as any physical change in, or a change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Clean Air Act. A modification to a major source of air pollution, such as the Putnam Plant, may be subject to review under the Department's Prevention of Significant Deterioration (PSD) rules codified in Rule 62-212.400 F.A.C.

The proposed installation of direct water spray fogging systems is a modification according to Rule 62-212.200 (188) F.A.C., since annual emissions will potentially increase as a result of the increased power and heat input. This has been confirmed by the Department in its December 31, 1998 correspondence to FPL.

Based on the available data, it is concluded that the emission rate does not change as a result of inlet fogging. Therefore, increase in annual potential emissions can be conservatively determined through the use of increases in heat input associated with the use of the fogging systems. For the 4 combustion turbines (CTs) the maximum potential annual increase in emissions is estimated as follows:

Summary of Maximum Annual Emissions - All Units

Pollutant	Gas Tons/Year	Oil Tons/Year	Oil & Gas Total
PM	1.38	0.15	1.53
NO_x	36.04	3.57	39.62
SO_2	0.23	3.58	3.82
CO	9.01	0.25	9.26
VOC	1.97	0.09	2.08
Degree Fahrenheit-Hours per year	10,240	800	
Additional Degree Fahrenheit-Hours on Gas	1,015	0	
Total Degree Fahrenheit-Hours Gas Only	11,255	0	

These maximum potential emission rates are less than the significant emission rates in Table 62-212.400-2 in Rule 62-212.400 F.A.C. and therefore PSD would not apply. The pollutant closest to the PSD significant emission rates when firing natural gas is NO_x. Emissions of SO_2 are primarily associated with distillate fuel oil which is only used a backup to natural gas. For natural gas only, the maximum potential NO_x emissions would be 39.62 tons/year at 11,255°F-hours per year per CT. This is equivalent to 1.6°F-hours of gas firing for each hour of oil firing (i.e., 1,015°F-hours/800°F-hours = 1.27°F-hours). The emissions of the other pollutants would be 1.52 tons/year for PM, 0.25 tons/year for SO_2, 9.9 tons/year for CO and 2.16 tons/year for VOC.

FPL proposes that the amount of fogging allowed by the Department be based on a cumulative amount of operating hours for the 4 combustion turbines. This would amount to 45,020°F-hours of operation when firing only natural gas. If only natural gas is fired, the proposed amount of hours would be decreased by 1.27°F-hours for each °F-hour when fuel oil was fired during an annual period. As described previously, the emission rates would not be affected. In addition, during periods when the fogging system is not used, the operation of the CTs will not be affected by this request and will be operated according to the Department's previous approvals (e.g., authorized to operate 8,760 hours/year/CT).

As described previously, the inlet fogging systems will have temperature monitoring equipment which will record the actual temperature reduction for each hour of operation. These data will be summarized monthly and reported to the Department with the Annual Operating Reports demonstrating that the annual period does not exceed 45,020°F-hours for the facility.

Attachment A

The following data were obtained from performance curves in the range that fogging would be most effective (gas firing shown).

Plant Site:	Putnam Plant; GTs 11, 12, 21 and 22	
Turbine Model:	Westinghouse 501B5A	
Turbine Inlet Temperature (°F)	100	50
Difference (°F)		50
Heat Input (mmBtu/hr)	900	1,100
Difference (mmBtu/hr)		200
Rate (mmBtu/hr/ °F)[a]		4.00

Note: [a] heat input difference divided by temperature difference.

PB93-156586

EPA-453/R-93-007

Alternative Control Techniques Document-- NO_x Emissions from Stationary Gas Turbines

Emission Standards Division

U. S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711
January 1993

substantially lower thermal NO_x emissions than natural gas or DF-2.[18] For fuels containing FBN, the fuel NO_x production increases with increasing levels of FBN.

4.2.1.3 Ambient Conditions. Ambient conditions that affect NO_x formation are humidity, temperature, and pressure. Of these ambient conditions, humidity has the greatest effect on NO_x formation.[19] The energy required to heat the airborne water vapor has a quenching effect on combustion temperatures, which reduces thermal NO_x formation. At low humidity levels, NO_x emissions increase with increases in ambient temperature. At high humidity levels, the effect of changes in ambient temperature on NO_x formation varies. At high humidity levels and low ambient temperatures, NO_x emissions increase with increasing temperature. Conversely, at high humidity levels and ambient temperatures above 10°C (50°F), NO_x emissions decrease with increasing temperature. This effect of humidity and temperature on NO_x formation is shown in Figure 4-4. A rise in ambient pressure results in higher pressure and temperature levels entering the combustor and so No_x production levels increase with increases in ambient pressure.[19]

The influence of ambient conditions on measured NO_x emission levels can be corrected using the following equation:[20]

$$NO_x = (NO_{xo})(P_r/P_o)^{0.5} e^{19(Ho-0.00633)} (288°K/T_a)^{1.53}$$

where:

NO_x = emission rate of NO_x at 15 percent O_2 and International Standards Organization (ISO) ambient conditions, volume percent;

NO_{xo} = observed NO_x concentration, parts per million by volume (ppmv) referenced to 15 percent O_2;

P_r = reference compressor inlet absolute pressure at 101.3 kilopascals ambient pressure, millimeters mercury (mm Hg);

P_o = observed compressor inlet absolute pressure at test, mm Hg;

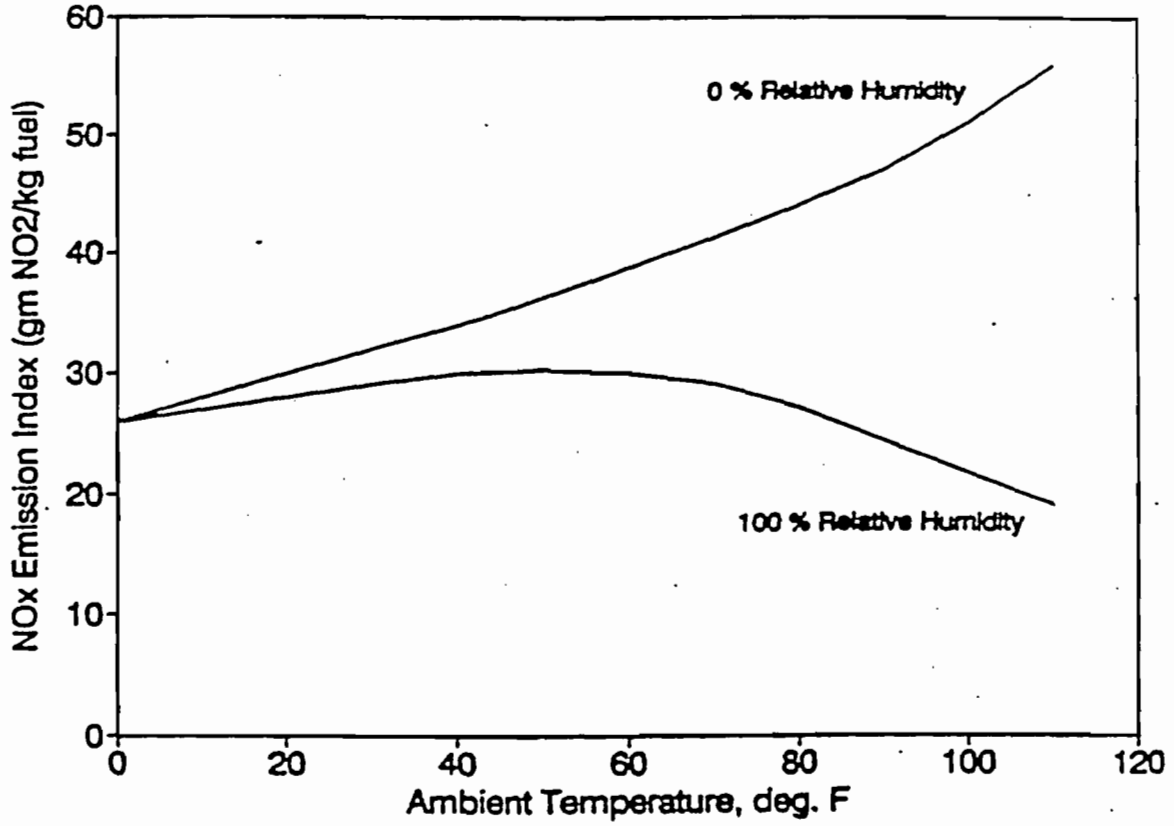

Figure 4-4. Influence of relative humidity and ambient temperature on NO_x formation.[19]

H_o = observed humidity of ambient air, g H_2O/g air;

e = transcendental constant, 2.718; and

T_a = ambient temperature, K.

At least two manufacturers state that this equation does not accurately correct NO_x emissions for their turbine models.[8,12] It is expected that these turbine manufacturers could provide corrections to this equation that would more accurately correct NO_x emissions for the effects of ambient conditions based on test data for their turbine models.

4.2.1.4 Operating Cycles. Emissions from identical turbines used in simple and cogeneration cycles have similar NO_x emissions levels, provided no duct burner is used in heat recovery applications. The NO_x emissions are similar because, as stated in Section 4.2, NO_x is formed only in the turbine combustor and remains at this level regardless of downstream temperature reductions. A turbine operated in a regenerative cycle produces higher NO_x levels, however, due to increased combustor inlet temperatures present in regenerative cycle applications.[21]

4.2.1.5 Power Output Level. The power output level of a gas turbine is directly related to the firing temperature, which is directly related to flame temperature. Each gas turbine has a base-rated power level and corresponding NO_x level. At power outputs below this base-rated level, the flame temperature is lower, so NO_x emissions are lower. Conversely, at peak power outputs above the base rating, NO_x emissions are higher due to higher flame temperature. The NO_x emissions for a range of firing temperatures are shown in Figure 4-3 for one manufacturer's gas turbine.[17]

4.2.2 NO_x Emissions From Duct Burners

In some cogeneration and combined cycle applications, the exhaust heat from the gas turbine is not sufficient to produce the desired quantity of steam from the HRSG, and a supplemental burner, or duct burner, is placed in the exhaust duct between the

Florida Power & Light Company, Environmental Services Dept., P.O. Box 14000, Juno Beach, FL 33408

FPL

September 18, 1997

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

Re: Draft Permit No. 1070014-001-AV
FPL Putnam Plant Initial Title V Permit

Dear Mr. Sheplak:

Enclosed for your use please find a copy of the heat input vs. ambient temperature graph for the subject facility.

If you have any questions, please do not hesitate to contact me at (561) 691-7058.

Very truly yours,

Richard Piper
Senior Environmental Specialist
Florida Power & Light Company

cc: Pat Wilson PPN / PPN

Florida Power & Light Company, Environmental Services Dept., P.O. Box 14000, Juno Beach, FL 33408

FPL

November 10, 1997

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

Re: Draft Permit No. 1070014-001-AV
Heat Input Information for Oil Firing
FPL Putnam Plant Initial Title V Permit

Dear Mr. Sheplak:

Attached for your use please find a graph of the ambient temperature vs. heat input data for the Putnam plant combustion turbine units for distillate oil firing.

If you have any questions, please do not hesitate to contact me at (561) 691-7058.

Very truly yours,

Rich Piper
Senior Environmental Specialist
Florida Power & Light Company

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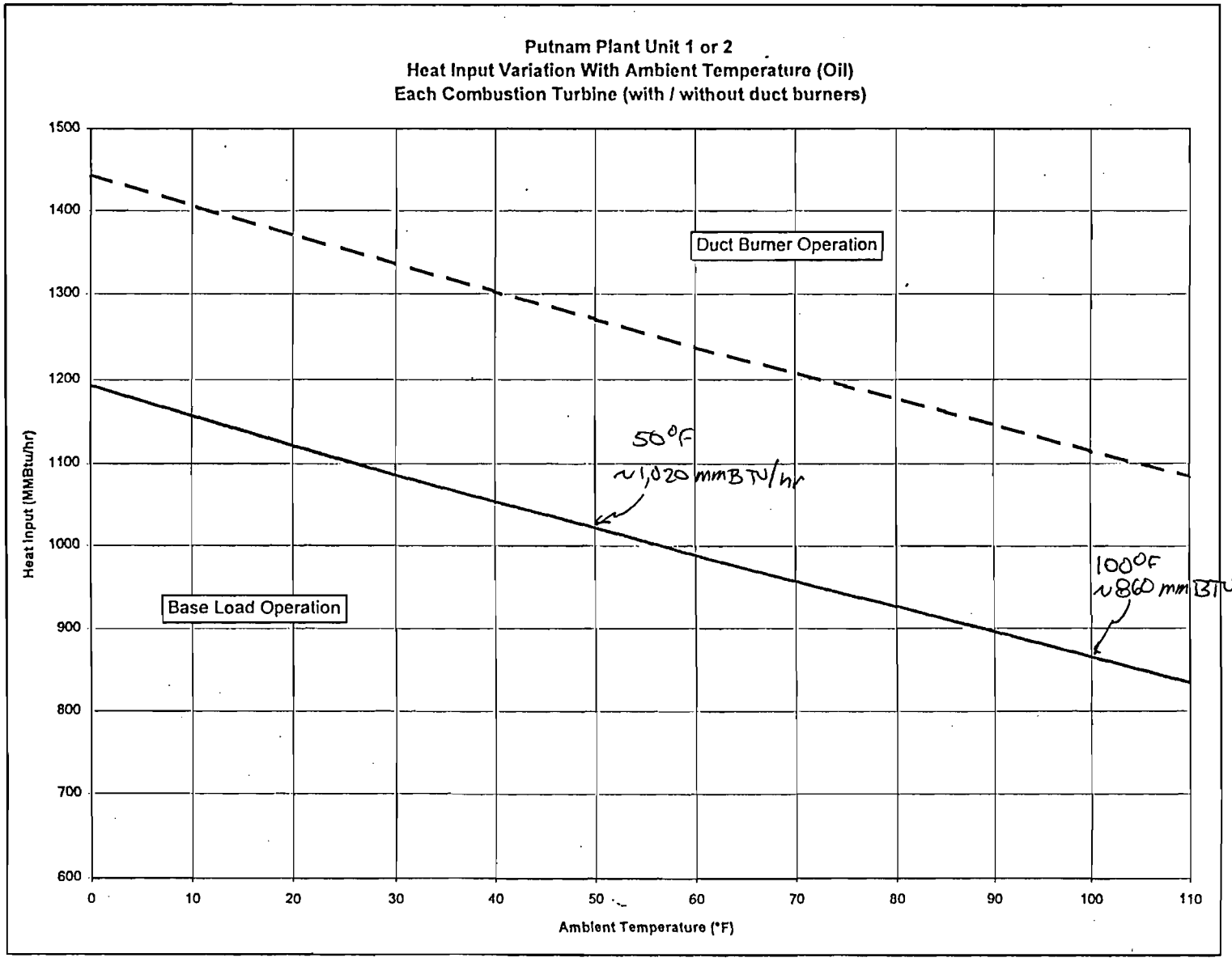
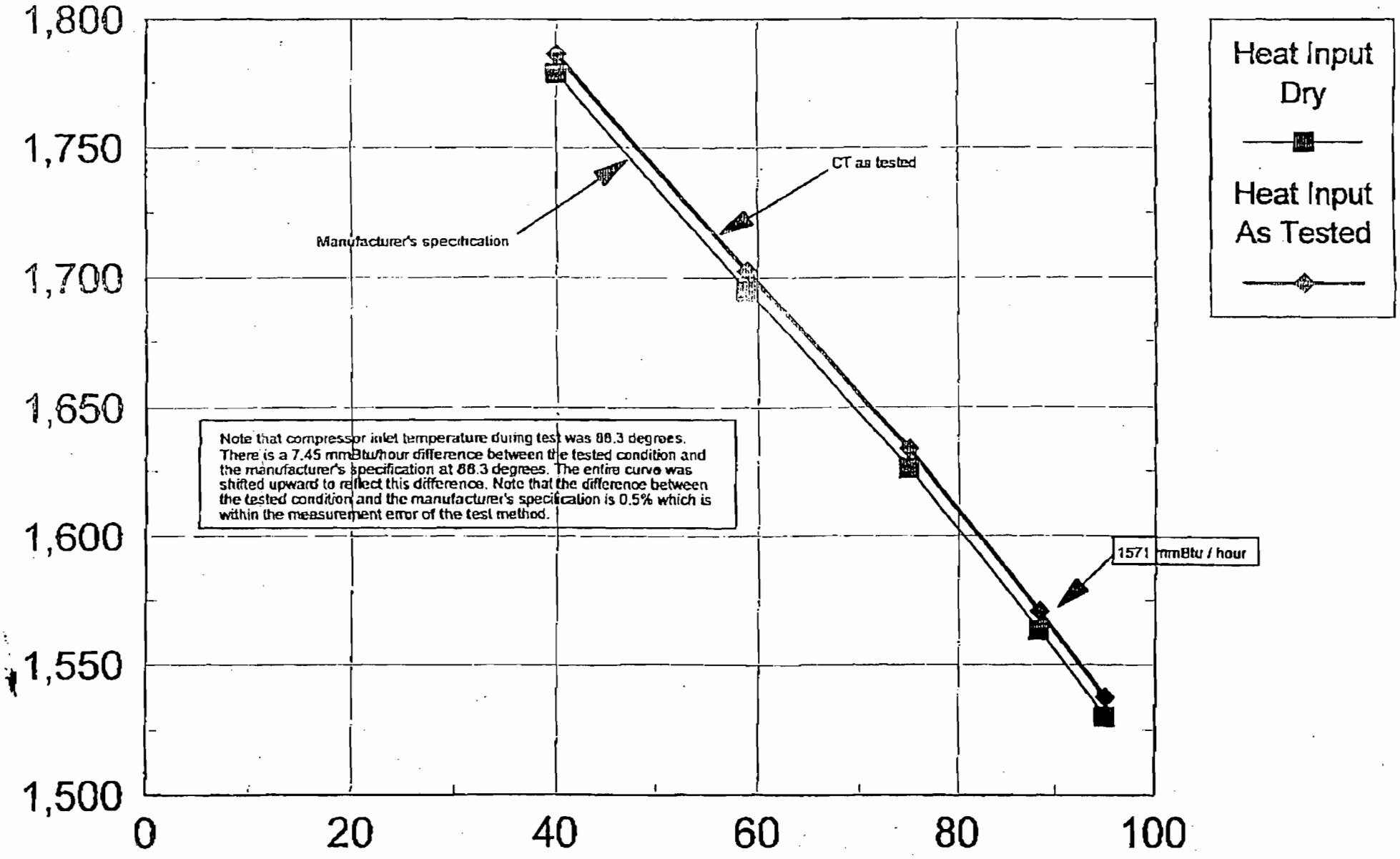

Putnam Plant Unit 1 or 2
Heat Input Variation With Ambient Temperature (Oil)
Each Combustion Turbine (with / without duct burners)
Heat Input (MMBtu/hr)
1500
1400
1300
1200
1100
1000
900
800
700
600
0
10
20
30
40
50
60
70
80
90
100
110
Ambient Temperature (°F)
Duct Burner Operation
Base Load Operation
50°F
~1,020 mmBTU/hr
100°F
~860 mmBTU/hr

Martin Unit 3B

Heat Input vs. Ambient Temperature Curve



Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

April 26, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Richard Piper
Repowering Licensing Manager
Florida Power & Light Company
Post Office Box 14000
Juno Beach, Florida 33408

Re: Inlet Foggers – Putnan Plant Combustion Turbines DEP File 1070014-003- AC
Inlet Foggers – Martin Plant Combustion Turbines DEP File 0850001-005- AC

Dear Mr. Piper:

The Department received your applications for the installation of the direct water spray fogging system at the FPL's Martin and Putnan Plants. Based on a technical review, the applications are incomplete. Pursuant to Rules 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C., please submit the following information, including all relevant reference materials and calculations:

1. Please submit additional data to support the statement that the emission rate does not change as a result of inlet fogging.
2. In reference to Table 1 and 2. (Part II of the Supporting Information), indicate the nominal values for power output, heat rate and heat input increase.
3. Submit the heat input curves for these units.
4. Estimate actual emissions for each facility's turbines and worst case emission rate scenario.
5. Submit hours of operations for each turbine.

Please contact Teresa Heron at 850/921-9529 if you have any questions.

Sincerely,

C. H. Fancy, P.E., Chief
Bureau of Air Regulation

CHF/th

cc: Ken Kosky, P.E
Chris Kirts, NED
Isidore Goldman, SED

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Putnam - 1070014-003 - AC
Martin - 0850001-05 - AC

PS Form **3800**, April 1995

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- Complete items 3, 4a, and 4b.
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- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
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Golder Associates

March 26, 1999

Project No. 9737572

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air regulation
Florida Department of Environmental Regulation
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Attention: Mr. A. A. Linero, P.E. Administrator; New Source Review Section

RE: Florida Power & Light Company Putnam - 1070014-003-AC
Spray Fogging Systems-Martin and Putnam Plants

Dear Al: 0850001-005-AC - Martin

On behalf of FPL, I am submitting air construction permit applications for the installation of direct fogging systems for the FPL Martin Plant, Units 3 and 4 and the Putnam Plant. As you will note from the discussion in Part II of the applications, the request will not trigger review under the Department's Prevention of Significant Deterioration Rules in Chapter 62-212 Florida adminsitrative Code.

The proposed method for assuring the Department that the PSD review is not required and to monitor operation is to record the degree Fahranheit-hours that actually occur. The degree F-hours will be recorded from temperature probes determining the turbine air inlet temperatures before and after the fogging systems. This will record data on the actual temperature decrease for the facility.

Please call me or Rich Piper of FPL (561-691-7058), if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Kennard F. Kosky, P.E.
Principal

KFK/jkk

Enclosures

cc: Rich Piper, FPL

9737572A/01.ltr

APPLICATION FOR AIR PERMIT
INSTALLATION OF DIRECT WATER SPRAY FOGGING SYSTEMS
PUTNAM PLANT

Prepared For:

Florida Power & Light, Inc.
700 Universe Blvd.
Juno Beach, Florida 33408

Prepared By:

Golder Associates Inc.
6241 NW 23rd Street, Suite 500
Gainesville, Florida 32653

March 1999
9737572Y/F2

NE District

DISTRIBUTION:

6 Copies - Florida Power & Light, Inc. (4 signatures, 2 photocopy signatures)
2 Copies - Golder Associates Inc.

PART I

APPLICATION FOR AIR PERMIT
LONG FORM

Department of
Environmental Protection

DIVISION OF AIR RESOURCES MANAGEMENT

APPLICATION FOR AIR PERMIT - LONG FORM

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

This section of the Application for Air Permit form identifies the facility and provides general information on the scope and purpose of this application. This section also includes information on the owner or authorized representative of the facility (or the responsible official in the case of a Title V source) and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department using ELSA, this section of the Application for Air Permit must also be submitted in hard-copy.

Identification of Facility Addressed in This Application

Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility site name, if any; and the facility's physical location. If known, also enter the facility identification number.

1. Facility Owner/Company Name: **Florida Power & Light Company**	
2. Site Name: **Putnam Plant**	
3. Facility Identification Number: **1070014**	[ ] Unknown
4. Facility Location Information: Street Address or Other Locator: **392 US Highway 17 South** City: **East Palatka** County: **Putnam** Zip Code: **32131**	
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [X] Yes [ ] No

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	March 29, 1999
2. Permit Number:	1070014-003-AC
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:

Robert Bergstrom, Plant General Manager

2. Owner/Authorized Representative or Responsible Official Mailing Address:

Organization/Firm: **FPL - Putnam Plant**
Street Address: **392 US Hwy 17 South**
City: **East Palatka** State: **FL** Zip Code: **32131**

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:

Telephone: **(941) 325-1206** Fax: **(904) 329-4699**

4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

Signature

3/17/99
Date

* Attach letter of authorization if not currently on file.

Scope of Application

This Application for Air Permit addresses the following emissions unit(s) at the facility. An Emissions Unit Information Section (a Section III of the form) must be included for each emissions unit listed.

Emissions Unit ID		Description of Emissions Unit	Permit Type
Unit #	Unit ID		
1	003	Gas Turbine 1GT Unit 1	AC1B
2	004	Gas Turbine 2GT Unit 1	AC1B
3	005	Gas Turbine 1GT Unit 2	AC1B
4	006	Gas Turbine 2GT Unit 2	AC1B

See individual Emissions Unit (EU) sections for more detailed descriptions.
Multiple EU IDs indicated with an asterisk (*). Regulated EU indicated with an "R".

Purpose of Application and Category

Check one (except as otherwise indicated):

Category I: All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: _____

[ ] Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed: _____

[ ] Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: _____

Operation permit to be renewed: _____

[ ] Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. Also check Category III.

Operation permit to be revised/corrected: _____

_____

[ ] Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit. Give reason for the revision e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit to be revised: _____

Reason for revision: _____

_____

Category II: All Air Construction Permit Applications Subject to Processing Under Rule 62-210.300(2)(b),F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s): _____

_____

[ ] Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed: _____

[ ] Air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g.; to address one or more newly constructed or modified emissions units.

Operation permit to be revised: _____

Reason for revision: _____

_____

Category III: All Air Construction Permit Applications for All Facilities and Emissions Units.

This Application for Air Permit is submitted to obtain:

[X] Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

Current operation permit number(s), if any: _____

1070014-001-AV

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s): _____

_____

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Application Processing Fee

Check one:

[ ] Attached - Amount: _____ [x] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations:

Installation of direct water spray inlet fogging systems. Since the facility holds a Title V permit pursuant to Chapter 62-213 F.A.C., a permit fee is not required. Refer to Part II for discussion.

2. Projected or Actual Date of Commencement of Construction :

3. Projected Date of Completion of Construction :

Professional Engineer Certification

1. Professional Engineer Name: **Kennard F. Kosky**
   Registration Number: **14996**

2. Professional Engineer Mailing Address:
   Organization/Firm: **Golder Associates Inc.**
   Street Address: **6241 NW 23rd Street, Suite 500**
   City: **Gainesville** State: **FL** Zip Code: **32653-1500**

3. Professional Engineer Telephone Numbers:
   Telephone: **(352) 336-5600** Fax: **(352) 336-6603**

4. Professional Engineer's Statement:

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

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

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

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

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

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

Thomas F. Kirby — 3/3/99

Signature — Date

(seal) PE

* Attach any exception to certification statement.

Application Contact

1. Name and Title of Application Contact:
   Mr. Richard G. Piper, Repowering Licensing Manager

2. Application Contact Mailing Address:

   Organization/Firm: **FPL Environmental Services Dep.**
   Street Address: **700 Universe Blvd.**
   City: **Juno Beach** State: **FL** Zip Code: **33408**

3. Application Contact Telephone Numbers:

   Telephone: **(561) 691-7058** Fax: **(561) 691-7070**

Application Comment

The existing 4 combustion turbines (GT 11,12,21 and 22) will be installed with direct water spray fogging systems that will reduce the turbine inlet air temperature. The temperature reduction will improve the heat rate and increase power due to the cooler-denser inlet air. The net emissions change from this project will not result in an increase of any regulated pollutant greater than the PSD significiant emission rates. PSD review does not apply to proposed project. Discussion in Part II.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates:
   Zone: 17 East (km): 443.3 North (km): 3277.80

2. Facility Latitude/Longitude:
   Latitude (DD/MM/SS): 29 / 37 / 44 Longitude: (DD/MM/SS): 81 / 35 / 6

3. Governmental Facility Code:	4. Facility Status Code:	5. Facility Major Group SIC Code:	6. Facility SIC(s):
0	A	49	4911

7. Facility Comment (limit to 500 characters):

The existing Putnam Plant consists of 2 combined cycle units. Each unit consists of 2 combustion turbines and associated heat recovery steam generators (HRSG). The HRSGs have duct burners. The primary fuel for the turbines and duct burners is natural gas. Distillate oil is used as back-up in the combustion turbines. Refer to Part II fo discussion.

Facility Contact

1. Name and Title of Facility Contact:
   Pat Wilson, Environmental Specialist

2. Facility Contact Mailing Address:
   Organization/Firm: **FPL - Putnam Plant**
   Street Address: **392 US Hwy 17 South**
   City: **East Paltka** State: **FL** Zip Code: **32131**

3. Facility Contact Telephone Numbers:
   Telephone: **(904) 329-4609** Fax: **(904) 329-4699**

Facility Regulatory Classifications

1. Small Business Stationary Source?	[ ] Yes [x] No [ ] Unknown
2. Title V Source?	[x] Yes [ ] No
3. Synthetic Non-Title V Source?	[ ] Yes [x] No
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?	[x] Yes [ ] No
5. Synthetic Minor Source of Pollutants Other than HAPs?	[ ] Yes [x] No
6. Major Source of Hazardous Air Pollutants (HAPs)?	[x] Yes [ ] No
7. Synthetic Minor Source of HAPs?	[ ] Yes [x] No
8. One or More Emissions Units Subject to NSPS?	[ ] Yes [x] No
9. One or More Emissions Units Subject to NESHAP?	[ ] Yes [x] No
10. Title V Source by EPA Designation?	[ ] Yes [x] No
11. Facility Regulatory Classifications Comment (limit to 200 characters):	

B. FACILITY REGULATIONS

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

Facility emissions covered under existing Title V permit, no additional facility or emission unit applicable requirements as a result of the proposed change.

C. FACILITY POLLUTANTS

Facility Pollutant Information

1. Pollutant Emitted	2. Pollutant Classification

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Detail Information:

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hr)	(tons/yr)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

Facility Pollutant Detail Information:

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hr)	(tons/yr)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

E. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location:
   [ ] Attached, Document ID: _____
   [X] Not Applicable [ ] Waiver Requested

2. Facility Plot Plan:
   [ ] Attached, Document ID: _____
   [X] Not Applicable [ ] Waiver Requested

3. Process Flow Diagram(s):
   [X] Attached, Document ID(s): Part II
   [ ] Not Applicable [ ] Waiver Requested

4. Precautions to Prevent Emissions of Unconfined Particulate Matter:
   [ ] Attached, Document ID: _____
   [X] Not Applicable [ ] Waiver Requested

5. Fugitive Emissions Identification:
   [ ] Attached, Document ID: _____
   [X] Not Applicable [ ] Waiver Requested

6. Supplemental Information for Construction Permit Application:
   [X] Attached, Document ID: Part II
   [ ] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

7. List of Proposed Exempt Activities:
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

8. List of Equipment/Activities Regulated under Title VI:
   [ ] Attached, Document ID: _____
   [ ] Equipment/Activities On site but Not Required to be Individually Listed
   [ ] Not Applicable

9. Alternative Methods of Operation:
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

10. Alternative Modes of Operation (Emissions Trading):
    [ ] Attached, Document ID: _____
    [ ] Not Applicable

11. Identification of Additional Applicable Requirements:
[ ] Attached, Document ID: _____
[ ] Not Applicable

12. Compliance Assurance Monitoring Plan:
[ ] Attached, Document ID: _____
[ ] Not Applicable

13. Risk Management Plan Verification:

[ ] Plan Submitted to Implementing Agency - Verification Attached
Document ID: _____

[ ] Plan to be Submitted to Implementing Agency by Required Date

[ ] Not Applicable

14. Compliance Report and Plan
[ ] Attached, Document ID: _____
[ ] Not Applicable

15. Compliance Statement (Hard-copy Required)
[ ] Attached, Document ID: _____
[ ] Not Applicable

PART II

SUPPORTING INFORMATION

Part II

Application for Air Permit
Installation of Direct Water Spray Fogging Systems
Putnam Plant

Introduction

Florida Power & Light Company is proposing to install direct water spray fogging systems in the inlet ducts of the existing 4 combustion turbines in combined cycle configuration at the Putnam Plant. The purpose of the inlet foggers to provide adiabatic inlet air cooling which increase turbine output and decreases heat rate. The project is part of increasing capacity in a cost effective manner.

Description

The direct inlet fogging systems achieve adiabatic cooling using water to form fine droplets (fog). The fog is produced by injection grids placed in the turbine inlet duct that use nozzles that produce a fine spray. The small fog particles (about 10 to 20 microns) extract the latent heat of vaporization from the gas stream when the water droplet is converted to gas. Heat is removed at a rate of 1,075 Btu/lb of water. The result of the fogging is a cooler more moisture laden air stream. Figure 1 presents a schematic of a typical fogging system.

The amount of heat removed is highly dependent upon the ambient air conditions. The two most important parameters are the dry bulb temperature and relative humidity. As moisture is added to the inlet air by the fogging, the vaporization of the fog droplets cools the air toward the wet-bulb temperature. For the proposed project, the design condition is 95°F and 50 percent relative humidity. The resultant wet bulb temperature, based on psychrometric charts is 79°F. At 100 percent saturation the inlet cooling system would result in a 16°F decrease of the turbine inlet air.

While adiabatic cooling is most efficient for dry climates, adiabatic cooling in Florida can be an effective means of inlet air cooling during the late morning to evening hours. This period is typically 8 to 10 hours per day from about 10 am to 8 pm. In the early morning hours and

evening hours, the typical relatively humidity in Florida is 70 to 90 percent depending on the climatic conditions. Because of the highly variable nature of ambient air conditions, the annual average inlet cooling was assumed to be 8°F. This average was reviewed against a 30 year record of meteorological data for Jacksonville and found to be representative of the range in conditions that occur over an annual period. This includes cooling associated with the typical mid-afternoon summer days and early morning/evening periods that occur year-round. The typical mid-afternoon cooling for Jacksonville would be 14°F and would occur in July with a mid-afternoon temperature of 91°F and 58 percent relative humidity. During January, the mid-afternoon cooling would be about 7°F. The typical cooling that would occur in the early morning hours of evening hours with temperatures of about 80°F and a relative humidity of 80 percent would be 5°F. This cooling also assumes that the gas stream can be 100 percent saturated. The ambient air conditions that are modified by the fogging system occur naturally but are more frequent with the fogging system. For example, the average minimum temperatures for the months of November through April range from 41.7°F to 55.7°F with relative humidities ranging from 83 to 88 percent. The amount of adiabatic cooling would range from 1 to 2°F. For the Putnam Plant, an 8°F average reduction was assumed in the calculations for primarily daytime operation.

Turbine Performance and Emission Estimates

The effect of decreasing the turbine inlet air through the use of fogging will be to increase the mass flow of air that can go through the turbine which allows higher heat input and power output. The combustion turbine is also more efficient since the heat rate decreases with decreasing temperature. For the Westinghouse Model 501B5A combustion turbines at the Putnam plant, an 8°F average decrease in temperature would result in a 3.3 percent increase in power and an associated 1.1 percent decrease in heat rate. Thus, while power increases, the production of power is more efficient with concomitant lower emissions per MW-hr generated. The increase in heat rate as a function of temperature decrease is a linear function and for the Putnam turbines would be 3 mmBtu/hr/°F. The data were determined using Westinghouse supplied data (see Attachment A).

Because the turbine is operating on its original power curve, the emission characteristics do not change from what would normally occur at that temperature and relative humidity. An evaluation of emissions from the fogging tests conducted at the FPL Putnam plant did not result in any statistically significant differences in emission rates (see Attachment B). The increase in emissions of criteria pollutants associated with fogging were determined using emission limits contained in the Title V Permit for the facility. This provides the maximum potential allowed and would conservatively estimate emission rates. Table 1 and 2 presents a summary of the operating conditions and emission increases resulting from fogging firing natural gas and distillate fuel oil, respectively. The annual emissions were determined by multiplying the heat input increase per degree Fahrenheit times the emissions rate in lb/mmBtu for the number of hours of proposed for the turbines. The degree F-hours/year is the total amount of annual temperature reduction proposed for fogging and was calculated by using the average temperature reduction multiplied by the hours of year assumed. For example, the degree F-hours for gas firing are calculated by multiplying 1,440 hours times 8°F or 11,520°F-hours. Each turbine inlet fogging system will be equipped with temperature probes to determine the amount of inlet cooling. This reduction will be recorded for each hour of fogger operation. For the Putnam turbines, a maximum of 11,520°F-hours of operation when firing natural gas and 1,920°F-hours of operation when firing distillate fuel oil was used as the basis for annual emission estimates for each turbine.

The use of AP-42 emission factors is appropriate for estimating maximum potential annual emissions since there are no emission limits for NO_x. This is especially conservative for NO_x since actual emissions are much lower. Over the last two years, quarterly emissions reported from CEM data ranged from 0.322 lb/mmBtu to 0.398 lb/mmBtu. The annual averages from CEM data ranged from 0.351 to 0.371 lb/mmBtu for 1997 and 0.354 to 0.375 lb/mmBtu for 1998. Using an emission factor of 0.44 lb/mmBtu to estimate maximum potential annual emissions, would overestimate annual emissions from 17 to 25 percent greater than that actual observed. Thus, the annual estimated emissions based on AP-42 emission factors are conservative.

Regulatory Applicability

A modification is defined in Rule 62-210.200 Florida Administrative Code (F.A.C.) as any physical change in, or a change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Clean Air Act. A modification to a major source of air pollution, such as the Putnam Plant, may be subject to review under the Department's Prevention of Significant Deterioration (PSD) rules codified in Rule 62-212.400 F.A.C.

The proposed installation of direct water spray fogging systems is a modification according to Rule 62-212.200 (188) F.A.C., since annual emissions will potentially increase as a result of the increased power and heat input. This has been confirmed by the Department in its December 31, 1998 correspondence to FPL.

Based on the available data, it is concluded that the emission rate does not change as a result of inlet fogging. Therefore, increase in annual potential emissions can be conservatively determined through the use of increases in heat input associated with the use of the fogging systems. For the 4 combustion turbines (CTs) the maximum potential annual increase in emissions is estimated as follows:

Summary of Maximum Annual Emissions - All Units

Pollutant	Tons/Year	Tons/Year	Total (Oil & Gas)
PM	1.16	0.34	1.50
NO_x	30.41	8.04	38.45
SO_2	0.20	8.06	8.26
CO	7.60	0.55	8.16
VOC	1.66	0.20	1.85
Degree Fahrenheit-Hours per year	11,520	1,920	
Additional Degree Fahrenheit-Hours on Gas	3,046	0	
Total Degree Fahrenheit-Hours Gas Only	14,566	0	

These maximum potential emission rates are less than the significant emission rates in Table 62-212.400-2 in Rule 62-212.400 F.A.C. and therefore PSD would not apply. The pollutant closest to the PSD significant emission rates when firing natural gas is NO_x. Emissions of SO_2 are primarily associated with distillate fuel oil which is only used a backup to natural gas. For natural gas only, the maximum potential NO_x emissions would be 38.45 tons/year at 14,566°F-hours per year per CT. This is equivalent to 1.6°F-hours of gas firing for each hour of oil firing (i.e., 3,046°F-hours/1,920°F-hours = 1.6°F-hours). The emissions of the other pollutants would be 1.47 tons/year for PM, 0.25 tons/year for SO_2, 9.61 tons/year for CO and 2.10 tons/year for VOC.

FPL proposes that the amount of fogging allowed by the Department be based on a cumulative amount of operating hours for the 4 combustion turbines. This would amount to 58,264°F-hours of operation when firing only natural gas. If only natural gas is fired, the proposed amount of hours would be decreased by 1.6°F-hours for each °F-hour when fuel oil was fired during an annual period. As described previously, the emission rates would not be affected. In addition, during periods when the fogging system is not used, the operation of the CTs will not be affected by this request and will be operated according to the Department's previous approvals (e.g., authorized to operate 8,760 hours/year/CT).

As described previously, the inlet fogging systems will have temperature monitoring equipment which will record the actual temperature reduction for each hour of operation. These data will be summarized monthly and reported to the Department with the Annual Operating Reports demonstrating that the annual period does not exceed 58,264°F-hours for the facility.

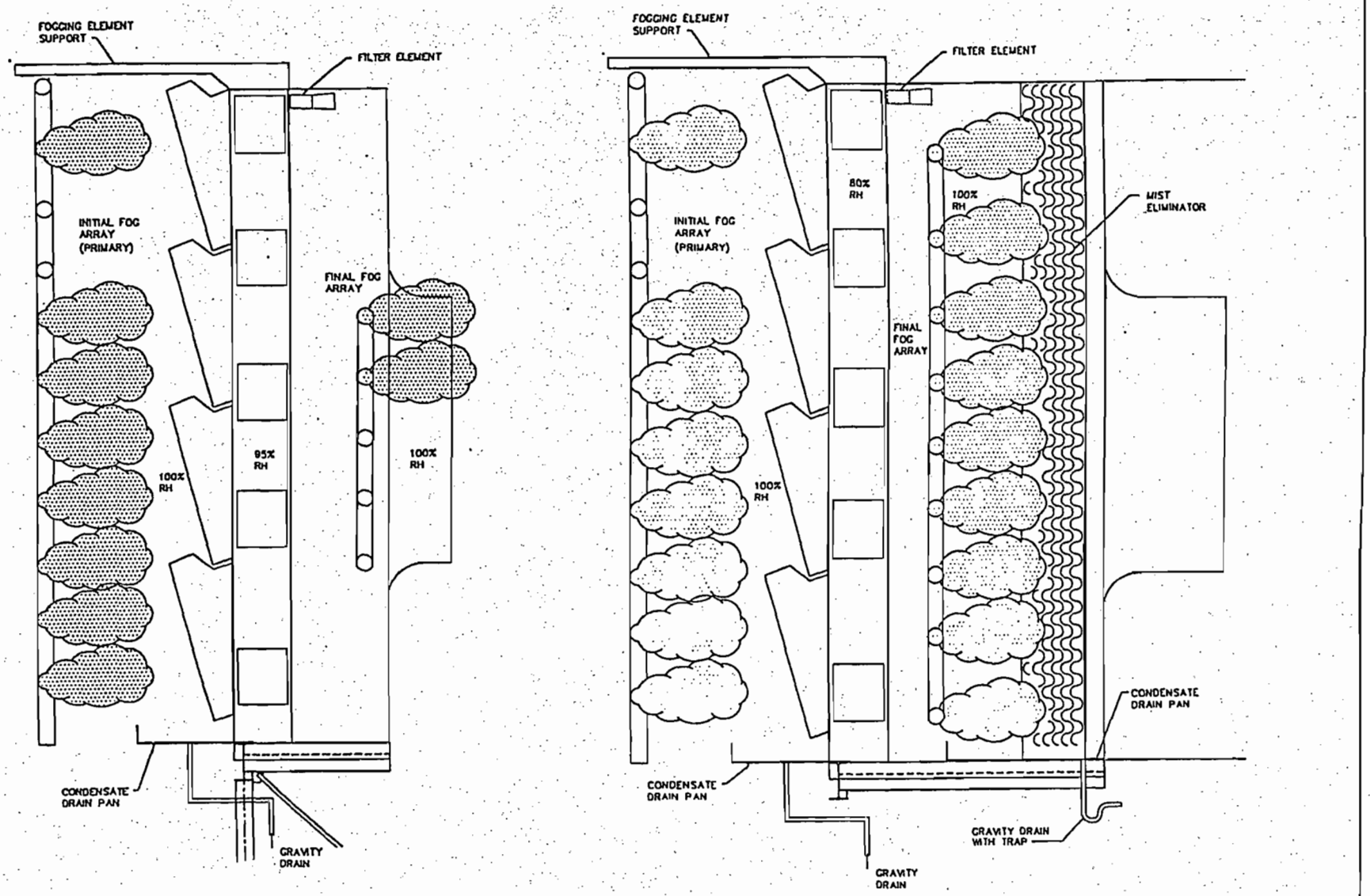

Figure 1. Illustrative Fogging System Schematic
Florida Power & Light, Inc.

Source: Caldwell Energy and Environmental, Inc.

Golder Associates

Table 1 Emission Estimates of the Putnam Facility Combined Cycle Combustion Turbines with Inlet Air Cooling System with Direct Water Spray Inlet Fogging (Natural Gas Combustion).

Performance Basis				
Temperature Decrease	°F (1)	8		
Power Increase		3.28%		PPN Charts
Heat Rate Decrease		1.06%		Westinghouse
Heat Input Increase		2.22%		
Heat Input Change	mmBtu/ °F	3		@ 85 °F
Hours/year		1,440	(2)	
°F-hours/year		11,520		hours/year times temperature decrease
Pollutants	**Units**	**Emissions (3)**		**Comments**
PM	lb/MMBtu	0.0168		AP-42 Section 3.1
	TPY	0.29		per machine
NOx	lb/MMBtu	0.44		AP-42 Section 3.1
	TPY	7.60		per machine
SO_2	lb/MMBtu	0.00286		1 grain/100 cf natural gas
	TPY	0.05		per machine
CO	lb/MMBtu	0.11		AP-42 Section 3.1
	TPY	1.90		per machine
VOC	lb/MMBtu	0.024		AP-42 Section 3.1
	TPY	0.41		per machine

Legend - TPY: tons per year

(1) Temperature decrease is annual average temperature differential of ambient temperature to compressor inlet temperature utilizing inlet fogger.

(2) Hours of fogger operation based on estimate of 8 hours per day and 180 days per year.

(3) Emission factor references - Title V Permit No. 1070014-001-AV, PPSC PA 74-0, EPA AP-42 Emission Factors Section 3.1 "Stationary Gas Turbines".

Table 2 Emission Estimates of the Putnam Facility Combined Cycle Combustion Turbines with Inlet Air Cooling System with Direct Water Spray Inlet Fogging (No. 2 Fuel Oil Combustion).

Performance Basis				
Temperature Decrease	°F (1)	8		
Power Increase		3.28%		PPN Charts
Heat Rate Decrease		1.06%		Westinghouse
Heat Input Increase		2.22%		
Heat Input Change	mmBtu/ °F	3		
Hours/year		240	(2)	
°F-hours/year		1,920		hours/year times temperature decrease

Pollutants	Units	Emissions (3)		Comments
PM	lb/MMBtu	0.0293		AP-42 Section 3.1
	TPY	0.08		per machine
NOx	lb/MMBtu	0.698		AP-42 Section 3.1
	TPY	2.01		per machine
SO_2	lb/MMBtu	0.7		Based on Title V Permit
	TPY	2.02		per machine
CO	lb/MMBtu	0.048		AP-42 Section 3.1
	TPY	0.14		per machine
VOC	lb/MMBtu	0.017		AP-42 Section 3.1
	TPY	0.05		per machine

Legend - TPY: tons per year

(1) Temperature decrease isannual average temperature differential of ambient temperature to compressor inlet temperature utilizing inlet fogger.

(2) Hours of fogger operation.

(3) Emission factor references - Title V Permit No. 1070014-001-AV, PPSC PA 74-01, EPA AP-42 Emission Factors Section 3.1 "Stationary Gas Turbines".

ATTACHMENT A

Attachment A

The following data were obtained from performance curves in the range that fogging would be most effective.

Plant Site:	Putnam Plant; GTs 11, 12, 21 and 22	
Turbine Model:	Westinghouse 501B5A	
Turbine Inlet Temperature (°F)	100	59
Difference (°F)		41
Heat Input (mmBtu/hr)	877	1,005
Difference (mmBtu/hr)		127.65
Rate (mmBtu/hr/ °F)[a]		3.11

Note: [a] heat input difference divided by temperature difference.

ATTACHMENT B

Golder Associates Inc.

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

December 15, 1998

9737572A/1

Florida Power & Light Company
700 Universe Blvd.
P.O. Box 14000
Juno Beach, Florida 33408

Attention: Mr. John Hampp, Environmental Specialist

RE: Putnam Inlet Fogging Emission Tests
Analysis of Data

Dear John:

Golder Associates Inc. has evaluated the emissions data taken during August 25 and 26, 1998 to determine the potential effect of inlet fogging on emission rates of nitrogen oxides (NO_x) and carbon monoxide (CO). The data were obtained at the Putnam Plant using various inlet fogging conditions while operating the unit at nearly constant heat input. The heat input during testing on August 25, 1998 varied by less than 1.5 percent while heat input during testing on August 26, 1998 varied by about 2.5 percent. The data evaluated represented 178 individual 3 minute readings using continuous emission monitoring equipment. There were 72 data points when the inlet foggers were not operating (i.e., "off") while there were 106 data points where the various foggers were operating (i.e., "on").

The data were evaluated using the procedures in Appendix C to 40 CFR Part 60; Determination of Emission Rate Change. The data were also evaluated in terms of the potential effect of inlet fogging. Tables 1.1a and 1.1b present the results of Appendix C evaluation for NO_x and CO, respectively for the data recorded on August 25, 1998. Tables 1.2a and 1.2b present the results of Appendix C evaluation for NO_x and CO, respectively for the data recorded on August 26, 1998. Taken together, the analysis suggests that NO_x concentrations may decrease slightly while CO may increase slightly with the operation of inlet foggers. However, the trend was not always consistent and the differences are small (i.e., up to a few ppm). Other factors also likely played a role in the variability of the data such as the response in continuous emission monitoring equipment, fuel input, ambient temperature and combustion turbine operation variability. Such changes, which cannot be completely accounted for in the data, would make it inappropriate to develop a specific relationships regarding emission rates at this time. Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Kennard F. Kosky, P.E.
Principal

KFK/arz

G:\DATA\DPW\PROJECTS\97\9737\9737572A\01\01-LTR.DOC

Table 1.1a Florida Power And Light (FP&L) Test data for the Combustion Turbine Inlet Air Cooling System with Direct Water Spray Inlet Fogging (8/25/98) NO_x Statistical Analysis (Unit 1GT2 - Putnam Plant, Palatka, Fl.)

Hour Range	Fogger on/off	n	v (n-1)	Mean	Std Dev	t	95% C.I.	Upper C.I.	Lower C.I.
1345-1421	off (baseline)	13	12	87.8	0.98	1.782	0.485	88.3	87.4
1424-1521	on	20	19	86.5	1.33	1.729	0.514	87.0	85.9
1524	off	1	0	-	-	-	-		
1527-1533	on	3	2	89.0	0.35	2.92	0.592	89.6	88.4
1536-1539	off	2	1	88.5	0.78	1.86	1.023	89.5	87.4

Legend: n= sample size, v = sample size -1, t=t distribution

Table 1.1b Florida Power And Light (FP&L) Test data for the Combustion Turbine Inlet Air Cooling System with Direct Water Spray Inlet Fogging (8/25/98) CO Statistical Analysis (Unit 1GT2 - Putnam Plant, Palatka, Fl.)

Hour Range	Fogger on/off	n	v (n-1)	Mean	Std Dev	t	95% C.I.	Upper C.I.	Lower C.I.
1345-1421	off (baseline)	13	12	75.9	2.90	1.782	1.433	77.4	74.5
1424-1521	on	20	19	81.0	1.43	1.729	0.554	81.5	80.4
1524	off	1	0	-	-	-	-		
1527-1533	on	3	2	78.0	2.00	2.92	3.372	81.4	74.6
1536-1539	off	2	1	79.5	2.12	1.86	2.790	82.3	76.7

Legend: n= sample size, v = sample size -1, t=t distribution

Table 1.2a Florida Power And Light (FP&L) Test data for the Combustion Turbine Inlet Air Cooling System with Direct Water Spray Inlet Fogging (8/26/98) NO_x Statistical Analysis (Unit 1GT2 - Putnam Plant, Palatka, Fl.)

Hour Range	Fogger on/off	n	v (n-1)	Mean	Std Dev	t	z	95% C.I.	Upper C.I.	Lower C.I.
1103-1227	off (baseline)	29	28	89.1	0.7	1.701	-	0.236	89.4	88.9
1230-1430	on	41	-	90.5	1.3	-	1.645	0.334	90.8	90.2
1433-1539	off	23		96.8	1.3	1.717		0.466	97.3	96.4
1542-1745	on	42		92.4	2.2		1.645	0.561	93.0	91.9
1748-1800	off	5	4	97.7	0.4	2.132	-	0.429	98.1	97.3

Legend: n= sample size, v = sample size -1, t=t distribution, z = z distribution (used when sample size is >30)

Table 1.2b Florida Power And Light (FP&L) Test data for the Combustion Turbine Inlet Air Cooling System with Direct Water Spray Inlet Fogging (8/26/98) CO Statistical Analysis (Unit 1GT2 - Putnam Plant, Palatka, Fl.)

Hour Range	Fogger on/off	n	v (n-1)	Mean	Std Dev	t		95% C.I.	Upper C.I.	Lower C.I.
1103-1227	off (baseline)	29	28	72.6	2.3	1.701	-	0.728	73.3	71.9
1230-1430	on	41	-	70.9	1.9	-	1.645	0.494	71.4	70.4
1433-1539	off	23		67.2	1.9	1.717		0.688	67.9	66.5
1542-1745	on	42		69.5	3.3		1.645	0.828	70.4	68.7
1748-1800	off	5	4	63.4	0.9	2.132	-	0.853	64.3	62.5

Legend: n= sample size, v = sample size -1, t=t distribution, z = z distribution (used when sample size is >30)

Check Sheet

Company Name: EP&L Portman 1070014
Permit Number: 1070014-00-3AC
PSD Number:
Permit Engineer:

Application:

- [x] Initial Application
  - [x] Incompleteness Letters
  - [ ] Responses
  - [ ] Waiver of Department Action
  - [ ] Department Response
  - [ ] Other

Cross References:

- [ ]
- [ ]
- [ ]

Intent:

- [x] Intent to Issue
- [x] Notice of Intent to Issue
- [x] Technical Evaluation
- [ ] BACT Determination
- [x] Unsigned Permit

Correspondence with:

- [ ] EPA
- [ ] Park Services
- [ ] Other

- [x] Proof of Publication
  - [ ] Petitions - (Related to extensions, hearings, etc.)
  - [ ] Waiver of Department Action
  - [ ] Other

Final Determination:

- [x] Final Determination
- [x] Signed Permit
- [ ] BACT Determination
  - [ ] Other

Post Permit Correspondence:

- [ ] Extensions/Amendments/Modifications
- [ ] Other

Florida Power & Light Company, Environmental Services Dept., P.O. Box 14000, Juno Beach, FL 33408

FPL

RECEIVED
JUL 16 1999
BUREAU OF AIR REGULATION

June 15, 1999

Ms. Teresa Heron, P.E.
New Source Review Section
Bureau of Air Regulation
Florida Department of Environmental Protection
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

RE: FPL Putnam Combustion Turbine Inlet Foggers
Proposed Permit 1070014-003-AC

Dear Teresa:

Enclosed pursuant to Clair Fancy's correspondence of June 2, 1999, please find one copy of the Proof of Publication for the subject inlet foggers at the Putnam facility. The Notice of Intent was published on June 10, 1999.

Teresa, should you have any questions, please do not hesitate to contact me at (561) 691-7058.

Very truly yours,

Richard Piper
Repowering Licensing Manager
Florida Power and Light Company

STATE OF FLORIDA \
| SS:
County of Putnam /

The undersigned personally appeared before me, a Notary Public for the State of Florida, and deposes that the Daily News is a daily; newspaper of general circulation, printed in the English Language and published in the City of Palatka, in said County and State; and that the attached order, notice, publication and/or advertisement of: **Public notice of intent to issue air construction permit**

was published in said newspaper **1** time(s), said publication being made on the following dates: **June 10, 1999**

The Daily News has been continuously published as a daily newspaper, and has been entered as second class mail matter at the post office at the City of Palatka, Putnam County, Florida, each for a period of more than one year next preceding the date of the first publication of the above descried order, notice, publication and/or advertisement.

Joyce Guthrie

Sworn to and subscribed before me this June 10, 1999
by Joyce Guthrie, Business Office Manager of the Daily News, a Florida corporation, on behalf of the corporation.

Judy C. Bailey

Judy C. Bailey, Notary Public, State of Florida

Notary Seal:

__X_Personally known to me, or
____Produced Identification:

_____

X Did take an oath

OFFICIAL NOTARY SEAL
JUDY C BAILEY
NOTARY PUBLIC STATE OF FLORIDA
COMMISSION NO. CC826581
MY COMMISSION EXP. MAY 3,2003

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 1070014-003-AC
Florida Power & Light - Putnam Plant
Emissions Units 003-006 Inlet Foggers Project
Putnam County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Power & Light (FP&L). The permit is to install inlet foggers at the compressor inlets of four 70-megawatt natural gas and No. 2 fuel oil-fired Westinghouse Model 501B5A combined cycle combustion turbine-electrical generators at the Putnam Power Plant in Putnam County. A Best Available Control Technology (BACT) determination was not required pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Florida Power & Light, 392 US Highway 17 South, East Palatka, Florida 32131.

These units achieve their maximum rated output on cold days because the greater compressor inlet air density allows greater throughput in the rotor or expansion section of the combustion turbine. The maximum power output is lower on hot days because of the lower compressor inlet air density. The foggers increase hot-day power output by approximately 4-6 MW through evaporative cooling compressor inlet air. The foggers provide no benefit on very humid or cold days and will not be used under those conditions. Maximum power production and emissions will continue to occur during cold days with the foggers turned off. The result is that maximum achievable power production and maximum achievable hourly emissions will not increase, although actual annual emissions will increase because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FPL proposes enforceable conditions to insure non-applicability. FPL asserts and the Department accepts that the modification will not cause any meaningful change in the actual hours of operation of these combined cycle units. They are allowed to operate continuously (8760 hours of operation per unit). The maximum increase in annual emissions caused by project in tons per year is summarized below along with the PSD-significant levels.

Pollutants	Annual Emission Increase	PSD Significant Levels
PM/PM_{10}	2	25/15
SO_2	4	40
NO_x	39	40
VOC	2	40
CO	9	100

An air quality impact analysis was not required or conducted. No significant impacts are expected to occur as a result of this project. It will not cause or contribute to a violation of any ambient air quality standard or increment.

The Department will issue the FINAL permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399 2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120. 569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in the proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen (14) days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of nay person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when 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, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

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

Because the administrative hearing process is designed to formulate 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
Northeast District Office
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256-7590
Telephone: 904/448-4300
Fax: 904/448-4363

The complete project file includes the application, technical evaluation, 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 Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

Z 333 618 158

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Robert Bergstrom	
Street & Number FP&L - Putnam	
Post Office, State, & ZIP Code E. Palatka FL	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 1070014-003-AC 6-3-99	

PS Form **3800**, April 1995

Is your **RETURN ADDRESS** completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Robert Bergstrom, PGM
FP&L - Putnam Plant
392 US HWY 17 South
East Palatka, FL
32131

4a. Article Number Z 333 618 158

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery 6-17-99

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

Z 333 618 159

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Doug Neeley	
Street & Number EPA	
Post Office, State, & ZIP Code Atlanta GA	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 6-3-99	

PS Form **3800**, April 1995

pisharn
1070014-003-AC

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
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- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Doug Neeley, Chief
Air Branch
US EPA-Region 4
61 Forsyth St.
Atlanta, GA 30303

4a. Article Number
Z 333 618 159

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5. Received By: *(Print Name)* JOYCE EVANS

6. Signature: *(Addressee or Agent)*
X JUN 7 - 1999

8. Addressee's Address *(Only if requested and fee is paid)*

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Z 333 618 110

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	Robert Bergstrom
Street & Number	FP&L
Post Office, State, & ZIP Code	East Palatka, Fl
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	Putnam
Return Receipt Showing to Whom & Date Delivered	PP
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	7-20-99
	1070014-003-AC

PS Form **3800**, April 1995

Is your **RETURN ADDRESS** completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Robert Bergstrom
FP&L
392 US Hwy 17 South
East Palatka, Fl
32131

4a. Article Number
Z 333 618 110

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
7-23-99

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X Jane Champion

PS Form **3811**, December 199 102595-98-B-0229 Domestic Return Receipt

Thank you for using Return Receipt Service.

FedEx. USA Airbill

FedEx Tracking Number: 811241472818

Form I.D. No. 0200

Sender's Copy

1 From (please print and press hard)

Date 7-20-99 Sender's FedEx Account Number

Sender's Name TERESA HERON or 921-9533 Phone (850) 921-9529

Company FLORIDA DEP - Div. of Air

Address 2600 BLAIR STONE ROAD Dept./Floor/Suite/Room

City TALLAHASSEE State FL ZIP 32399-2400

2 Your Internal Billing Reference Information (Optional) (First 24 characters will appear on invoice)

3 To (please print and press hard)

Recipient's Name RICHARD PIPER Phone (561) 691-7058

Company FPL - 1070014-003 AC - Putnam

☐ Check here if residence (Extra charge applies for FedEx Express Saver)

Address 700 UNIVERSE BLVD Dept./Floor/Suite/Room

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City JUNO BEACH State FL ZIP 33408

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☐ Hold Weekday (Not available with FedEx First Overnight)
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For WEEKEND Delivery check here (Extra Charge. Not available to all locations)

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4a Express Package Service *Packages under 150 lbs.* Delivery commitment may be later in some areas.

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☐ FedEx Standard Overnight (Next business afternoon)
☐ FedEx First Overnight (Earliest next business morning delivery to select locations) *(Higher rates apply)*
☐ FedEx 2Day (Second business day)
☐ FedEx Express Saver (Third business day)

FedEx Letter Rate not available. Minimum charge: One pound rate.

4b Express Freight Service *Packages over 150 lbs.* Delivery commitment may be later in some areas.

☐ FedEx Overnight Freight (Next business day)
☐ FedEx 2Day Freight (Second business day)
☐ FedEx Express Saver Freight (Up to 3 business days)

(Call for delivery schedule. See back for detailed descriptions of freight services.)

5 Packaging

☐ FedEx Letter (Declared value limit $500.)
☒ FedEx Pak
☐ FedEx Box
☐ FedEx Tube
☐ Other Pkg.

6 Special Handling (One box must be checked)

Does this shipment contain dangerous goods?*
☐ No
☐ Yes (As per attached Shipper's Declaration)
☐ Yes (Shipper's Declaration not required)

☐ Dry Ice, Dry Ice, 9, UN 1845 ____ x ____ kg.
☐ Cargo Aircraft Only

*Dangerous Goods cannot be shipped in FedEx packaging.

7 Payment

Bill to:
☐ Sender (Account No. in Section 1 will be billed)
☒ Recipient
☐ Third Party
☐ Credit Card
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(Enter FedEx Account No. or Credit Card No. below)

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Credit Card No. ____ Exp. Date ____

Total Packages	Total Weight	Total Declared Value*	Total Charges
		$ .00	$

* When declaring a value higher than $100 per shipment, you pay an additional charge. See **SERVICE CONDITIONS, DECLARED VALUE, AND LIMIT OF LIABILITY** section for further information.

8 Release Signature *Sign to authorize delivery without obtaining signature.*

Your signature authorizes Federal Express to deliver this shipment without obtaining a signature and agrees to indemnify and hold harmless Federal Express from any resulting claims.

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Rev. Date 3/98
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