

**Memorandum**

**Florida Department of  
Environmental Protection**

TO: Howard L. Rhodes

THRU: C. H. Fancy <sup>OK</sup>  
Al Linero *AL* 7/11

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

CLOCK STARTS JULY 26 (DAY 27)

TODAY JULY 15

DAY 90 SEPT 27

ACTUALLY PUBLISHED ON JUNE 10 - SINCE  
> 15 DAYS HAVE  
ELAPSED, WE CAN ISSUE

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 1. Applicant

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

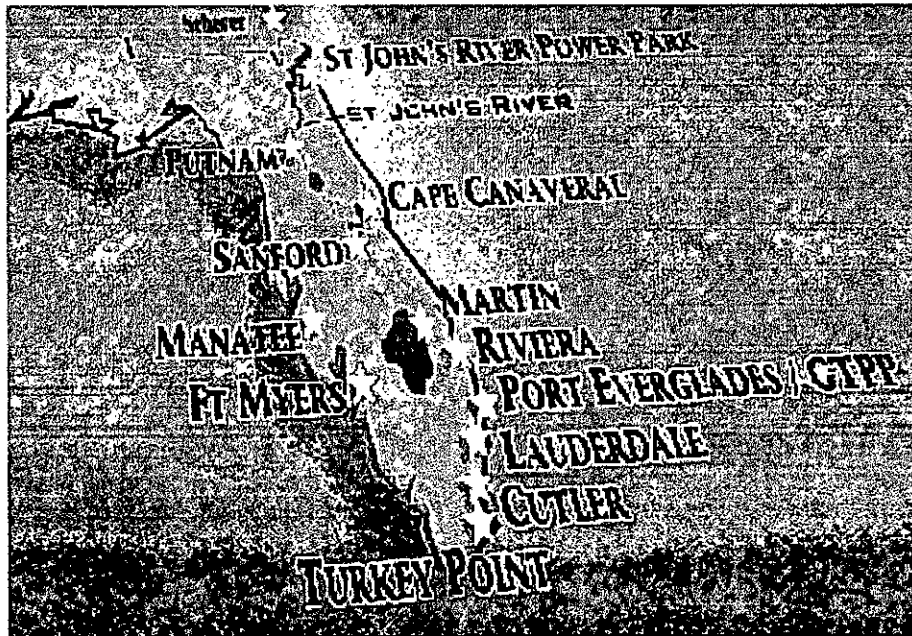
*Authorized Representative: Robert Bergstrom, FP&L Putnam Plant General Manager*

## 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.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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

1000  
900  
800  
700  
600  
500  
400  
300  
200  
100  
0

1000  
900  
800  
700  
600  
500  
400  
300  
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1000  
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1000  
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0

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

(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 <sub>x</sub>	0.44	0.698	3.60	36.0	39.6	40
PM/PM <sub>10</sub>	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 <sub>2</sub>	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:*

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

- (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.

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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These units have each operated approximately  $6500 \pm 1000$  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  $6500 \pm 1000$  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:

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

*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

*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

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Howard L. Rhodes, Director  
Division of Air Resources  
Management

# AIR CONSTRUCTION PERMIT 1070014-003-AC

## SECTION I – FACILITY DESCRIPTION

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### 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 mmBtu/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<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), 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**

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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**

- 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

- 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.]

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

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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.]

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

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**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.

PERMIT 1070014-003-AC

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

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]

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

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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<sub>2</sub>) 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 NO<sub>x</sub>. 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 NO<sub>x</sub> monitors installed and maintained pursuant to 40 CFR 75 satisfy the PPSC requirement to operate the CEMS for NO<sub>x</sub>.} [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.



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

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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 NO<sub>2</sub>) (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.
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{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<sub>2</sub> 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)]

# AIR CONSTRUCTION PERMIT 1070014-003-AC

## SECTION V – SPECIFIC CONDITIONS EU 011

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### 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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]

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- 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.

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

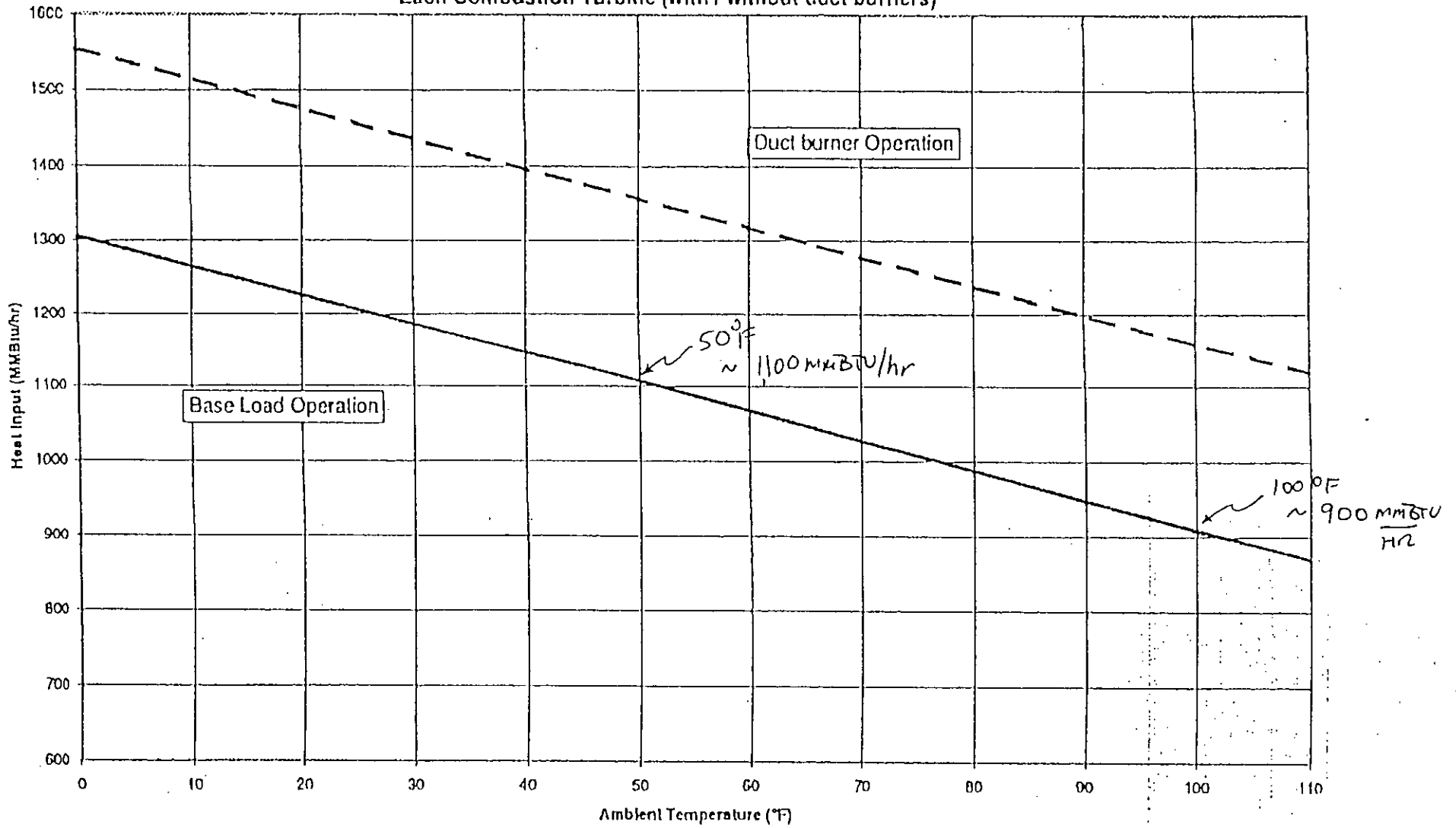
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The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

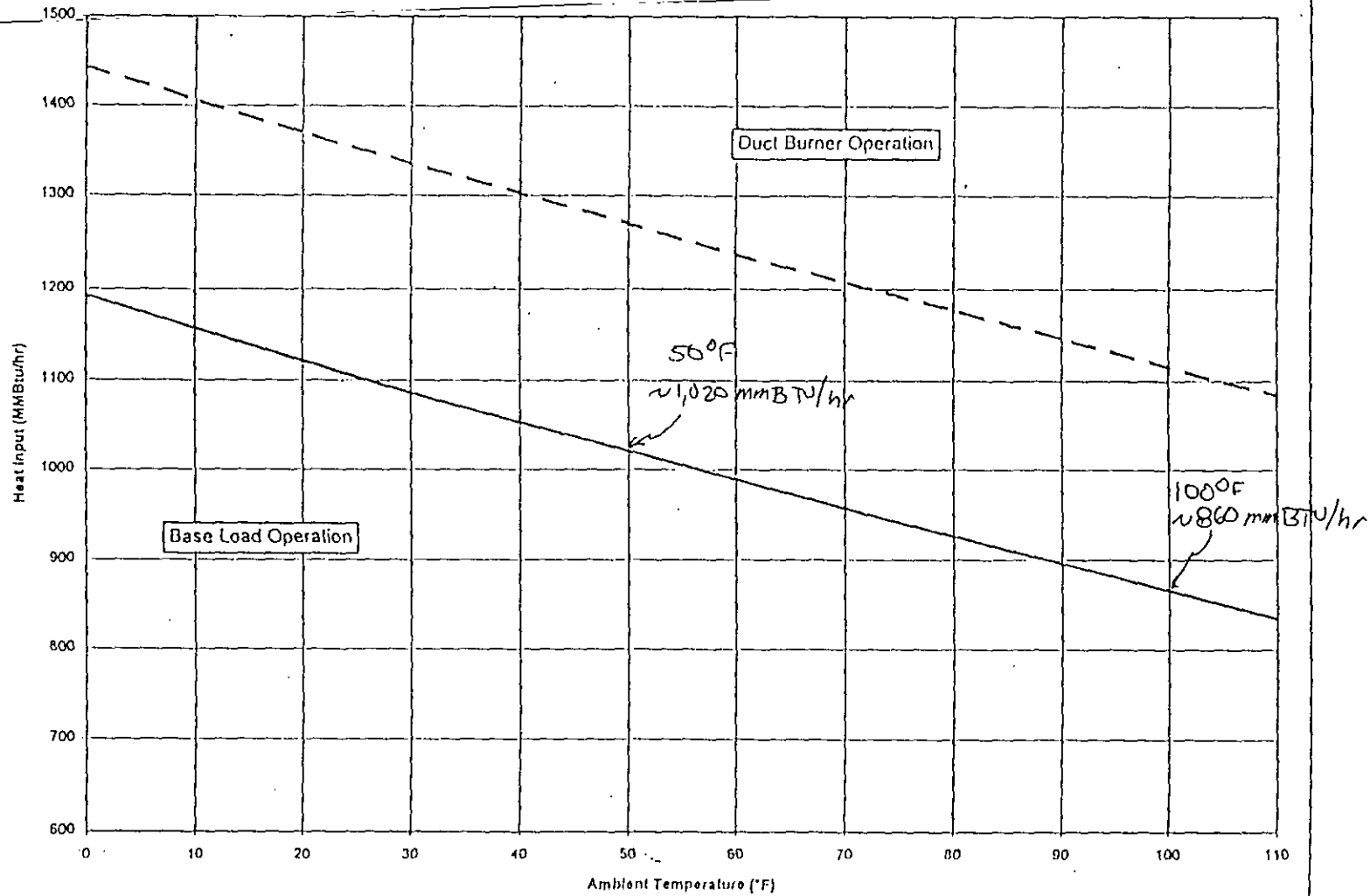
- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case 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 extent 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

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



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







**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

**RECEIVED**

**JUL 15 1999**

**BUREAU OF AIR REGULATION**

**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,

A handwritten signature in black ink that reads "Richard Piper". The signature is written in a cursive style with a large, prominent initial "R".

Richard Piper  
Repowering Licensing Manager  
Florida Power and Light Company



Richard Piper

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



**FPL**

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

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 described 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:

Personally known to me, or  
 Produced Identification:

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 <sub>10</sub>	2	25/15
SO <sub>2</sub>	4	40
NO <sub>x</sub>	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, or call 850/488-0114, for additional information.


**FPL**

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

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 (861) 691-7058.

Very truly yours,

Richard Piper  
 Repowering Licensing Manager  
 Florida Power and Light Company

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 #			

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 described 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:

Personally known to me, or  
 Produced Identification:

Did take an oath

OFFICIAL NOTARY SEAL  
JUDY C BAILEY  
NOTARY PUBLIC STATE OF FLORIDA  
COMMISSION NO. CC826591  
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 003-003 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 32931.

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 make the permit applicable. 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 <sub>10</sub>	2	25/15
SO <sub>x</sub>	4	40
NO <sub>x</sub>	39	40
VOC	2	40
CO	9	100

As 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 #5605, 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 procedure 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 435, 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 this 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 28-106.300.

Because the administrative hearing process is designed to formulate the 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 public file is available for public inspection during normal business hours, 9:00 a.m. to 5:00 p.m., Monday through Friday, except for holidays at:

Department of Environmental Protection  
Bureau of Air Regulation  
111 S. Magnolia Drive, Suite 400  
Tallahassee, Florida, 32301  
Telephone: 904/488-0114  
Fax: 904/222-6779

Department of Environmental Protection  
Northwest District Office  
7825 Baymeadows Way, Suite 200B  
Jacksonville, Florida 32256-7590  
Telephone: 904/448-4300  
Fax: 904/448-4363

The complete public file includes the application, technical evaluation, Draft Permit, and the information submitted by the responsible parties, 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 400, Tallahassee, Florida, 32301, or call 904/488-0114, 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



A. Linero 6/11

Post-it® Fax Note	7671	Date	6/11	# of pages	3
To	D. Mcneal	From	A. Linero		
Co./Dept.		Co.	DEP-Air		
Phone #		Phone #			
Fax #		Fax #			

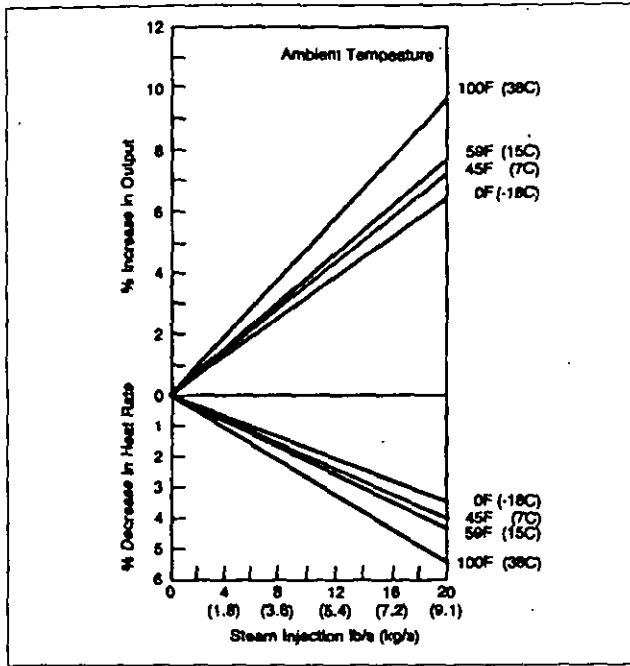


Figure 13. Effect of steam injection on output and heat rate

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.

### Diluent Injection

Since the early 1970s, GE has used water or steam injection for NO<sub>x</sub> 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<sub>x</sub> 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

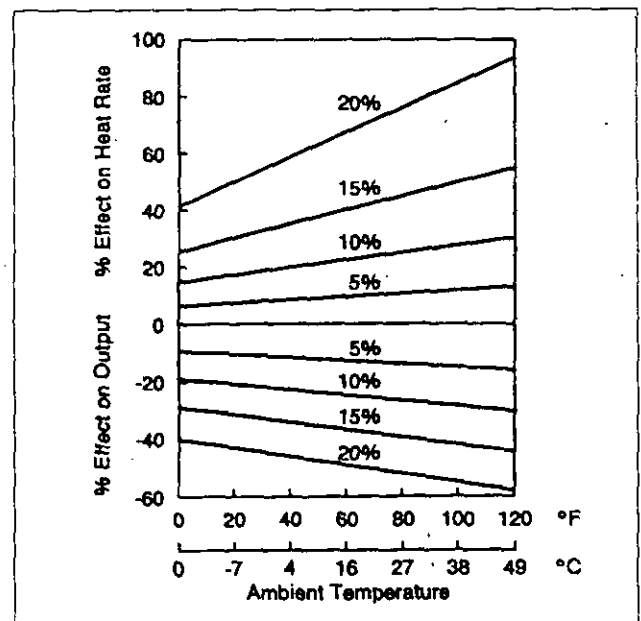


Figure 14. Effect of air extraction on output and heat rate

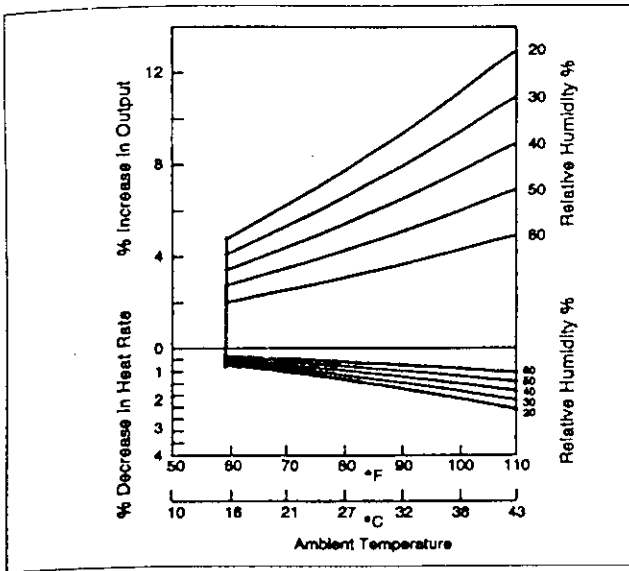


Figure 15. Effect of evaporative cooling on output and heat rate

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.

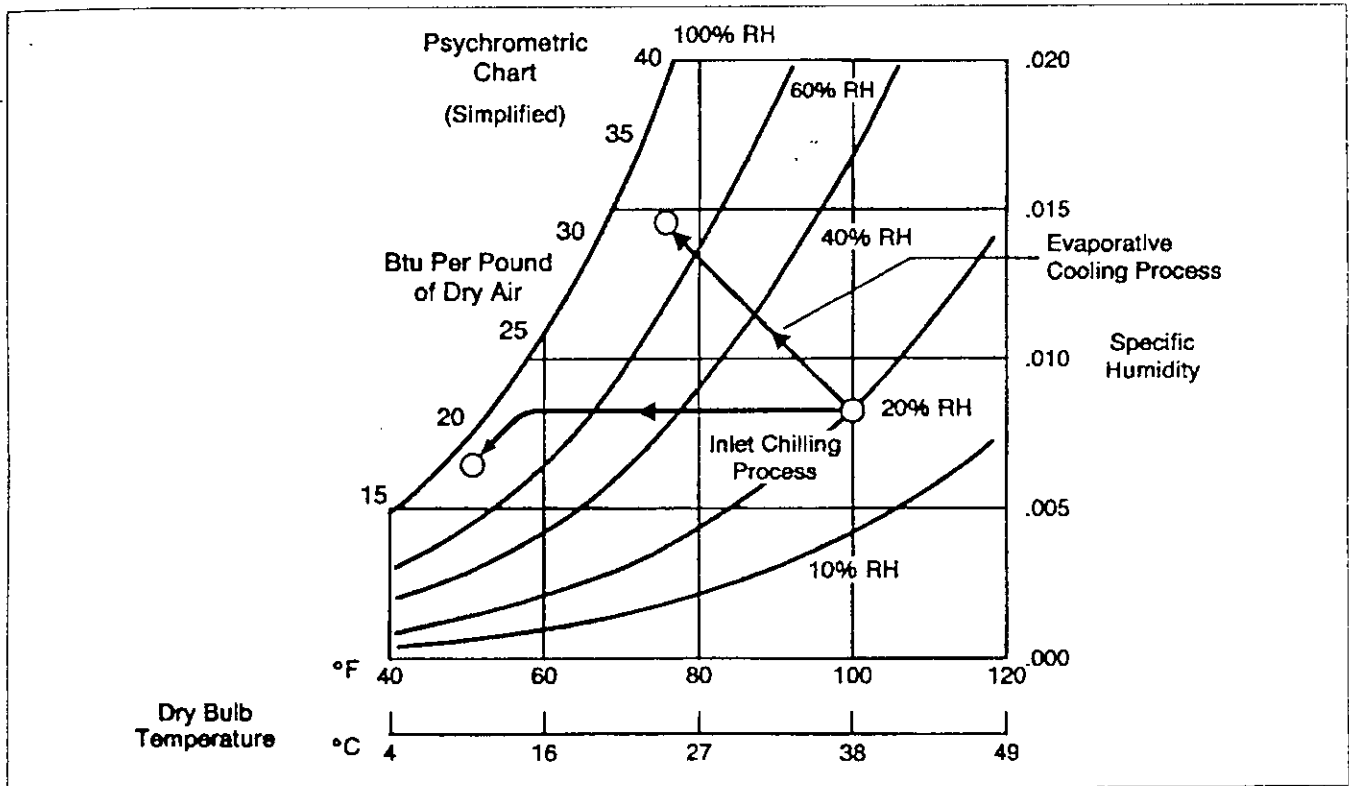


Figure 16. Inlet chilling process.

4 pages  
DAVID MCNEAL

1/4

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.

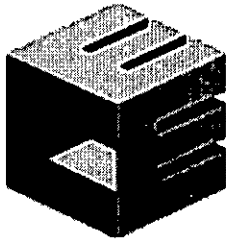
At very low temperatures, it might even  
be necessary to heat inlet air. So the  
heat input/temperature curve shouldn't change  
and emissions will still be at maximum  
under naturally-occurring low temp conditions.

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](mailto:mail@caldwellenergy.com)

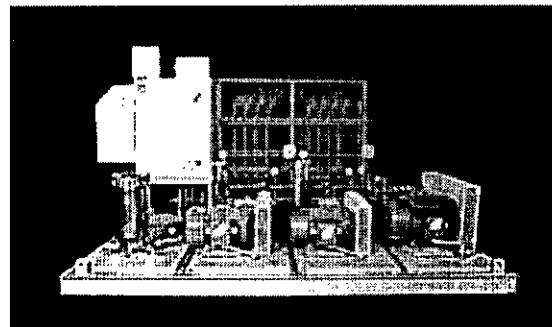
*I'll try to get something that talks about lower practical limit and will send it to you. Al*

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 therefore 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.

						
	<a href="#">Home</a>	<a href="#">Turbine Inlet Cooling</a>	<a href="#">Thermal Energy Storage</a>	<a href="#">News</a>	<a href="#">Library</a>	
	<a href="#">Contact Us</a>	<a href="#">About CE&amp;E</a>	<a href="#">Links</a>	<a href="#">Site Map</a>		

Copyright © 1998 Caldwell Energy. All rights reserved.  
Revised: February 6, 1999.

I'm sure this is impossible to read. I'll review ASHRAE book if I can find one.

4/9

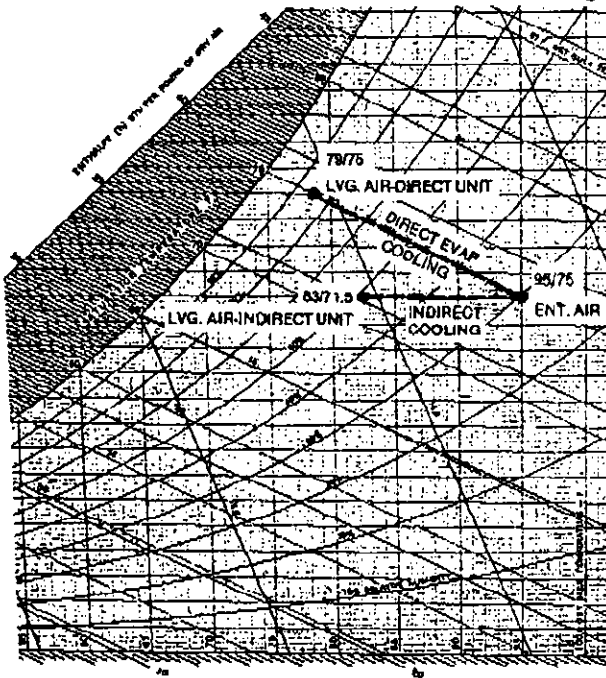


Fig. 1 Psychrometrics of Evaporative Cooling

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

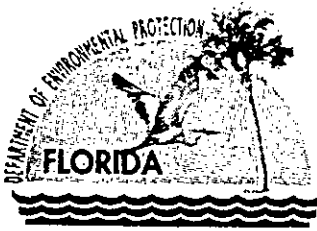


Company: \_\_\_\_\_ From: Don Shepherd  
Attn: Al Legre  
Fax: 850-922-6979 Pages(Including Cover): 2  
Phone: \_\_\_\_\_ Date: 6/10/97  
Re: \_\_\_\_\_ CC: \_\_\_\_\_  
EVAP-Cooling

Urgent     For Review     Please Comment     Please Reply     Please Recycle

• Comments:

See ASHRAE Limit



Jeb Bush  
Governor

# Department of Environmental Protection

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  
**Receipt for Certified Mail**  
No Insurance Coverage Provided.  
Do not use for International Mail (See reverse)

Sent to <i>Doug Nealey</i>	
Street & Number <i>EPA</i>	
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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 <i>Dufham 6-3-99</i>	
<i>1070014-003-AC</i>	

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):

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- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

*Doug Nealey, Chief  
Air Branch  
US EPA-Region 4  
61 Forsyth St.  
Atlanta, GA 30303*

4a. Article Number

*Z 333 618 159*

4b. Service Type

- Registered
- Express Mail
- Return Receipt for Merchandise
- Certified
- Insured
- COD

7. Date of Delivery

5. Received By: (Print Name)

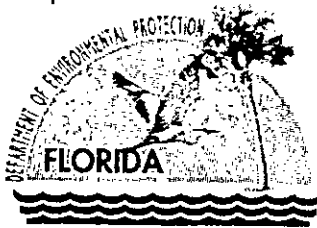
*JOYCE EVANS*

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.



Jeb Bush  
Governor

# Department of Environmental Protection

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

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

Printed on recycled paper.

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.

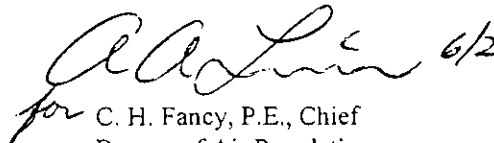
In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal 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.

Kemi Jaber      6-3-99  
(Clerk)                      (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.

<u>Pollutants</u>	<u>Annual Emission Increase</u>	<u>PSD Significant Levels</u>
PM/PM <sub>10</sub>	2	25/15
SO <sub>2</sub>	4	40
NO <sub>x</sub>	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.