

Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

February 14, 2000

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. W. Jeffrey Pardue, CEP  
Director Environmental Services  
Florida Power Corporation  
Post Office Box 14042, MAC BB1A  
St. Petersburg, Florida 33733

Re: DEP File No. 1270028-004-AC (PSD-FL-167 C)-<sup>A</sup>  
DeBary City Plant Units 7-10  
Inlet Foggers

Dear Mr. Pardue:

Enclosed is one copy of the Draft Permit and Technical Evaluation and Preliminary Determination, for the referenced project in Osceola County. The Department's Intent to Issue Air Construction Permit Modification and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION" are also included.

The Public Notice must be published one time only as soon as possible in a newspaper of general circulation in the area affected, pursuant to 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 or Teresa Heron at 850/921-9529.

Sincerely,

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

CHF/aal

Enclosures

In the Matter of an  
Application for Permit by:

Mr. W. Jeffrey Pardue, CEP  
Director Environmental Services  
Florida Power Corporation  
Post Office Box 14042, MAC BB1A  
St. Petersburg, Florida 33733

DEP File No. 1270028-004-AC  
Permit Modification No. PSD-FL-167(C)  
Simple Cycle Peaking Units 7-10  
Inlet Fogger Project  
Volusia County

### INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification (copy of DRAFT Permit Modification 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 Corporation (FPC), applied on January 31, 2000 to the Department to add inlet foggers to four simple cycle combustion turbine-electrical generators (Units 7-10) at the DeBary City Plant in Volusia 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 modification is required to conduct the work.

The Department intends to issue this air construction permit modification 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 Modification." 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 Modification." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public 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, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

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

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.



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 MODIFICATION (including the PUBLIC NOTICE, Technical Evaluation and Preliminary Determination, and the DRAFT Permit Modification) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 2-14-00 to the person(s) listed:

W. Jeffrey Pardue, FPC\*  
Jennifer A. Stenger P.E., FPC  
Len Kozlov, DEP CD  
Gregg Worley, EPA  
John Bunyak, NPS

Clerk Stamp

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

  
(Clerk)

2-14-00  
(Date)

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1.  Addressee's Address
- 2.  Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Jeffrey Pardue, CEP  
 FPC  
 PO Box 14042, MAC BBA  
 St. Pete, FL  
 33733

4a. Article Number

Z 031 391 862

4b. Service Type

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

7. Date of Delivery

PETERSBURG, FL 337  
 FEB 16 2000

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Addressee or Agent)

X *[Signature]*

PS Form 3811, December 1994

102595-98-B-0229

Domestic Return Receipt

Thank you for using Return Receipt Service.

Z 031 391 862

US Postal Service  
**Receipt for Certified Mail**

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

Sent to	Jeffrey Pardue
Street & Number	FPC
Post Office, State, & ZIP Code	St. Pete, FL
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	1270028-004-AL 2-14-00 PSD-FI-167C

PS Form 3800 April 1995

**PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 1270028-004-AC (PSD-FL-167 C)

Florida Power Corporation DeBary Plant  
Units 7-10 Inlet Fogger Project  
Volusia County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Florida Power Corporation (FPC). The permit is to install foggers at the compressor inlets of four 93-megawatt natural gas and No. 2 fuel oil-fired General Electric PG7111EA combustion turbine-electrical generators at the DeBary Plant in Volusia 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 Corporation, Post Office Box 14042, MAC BB1A, St. Petersburg, Florida 33733.

These units normally 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 although maximum output over all temperatures will remain 93 MW or below. The foggers provide no benefit on very humid or cold days and will not be used under those conditions. The result is that maximum hourly air pollution emissions will not increase although actual annual emissions will increase within their permitted limits because more fuel will be used on hot, relatively dry days.

Although the number of days during which the foggers can economically operate probably limits emissions increases to levels below significance for the purposes of PSD applicability, FPC proposes enforceable conditions to insure non-applicability. FPC asserts and the Department accepts that the modification will not cause any meaningful change in the hours of operation of these simple cycle peaking units. They are already limited to 3390 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>	2.2	25/15
SAM	2.5	7
SO <sub>2</sub>	39.9	40
NO <sub>x</sub>	28.1	40
VOC	0.5	40
CO	7.4	100

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

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

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit Modification." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public 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, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

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

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  
Central District Office  
3319 Maguire Boulevard, Suite 232  
Orlando, Florida 32803-3767  
Telephone: 407/894-7555  
Fax: 407/897-5963

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

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 1. Applicant

Florida Power Corporation  
P.O. Box 14042, MAC BB1A  
St. Petersburg, Florida 33733

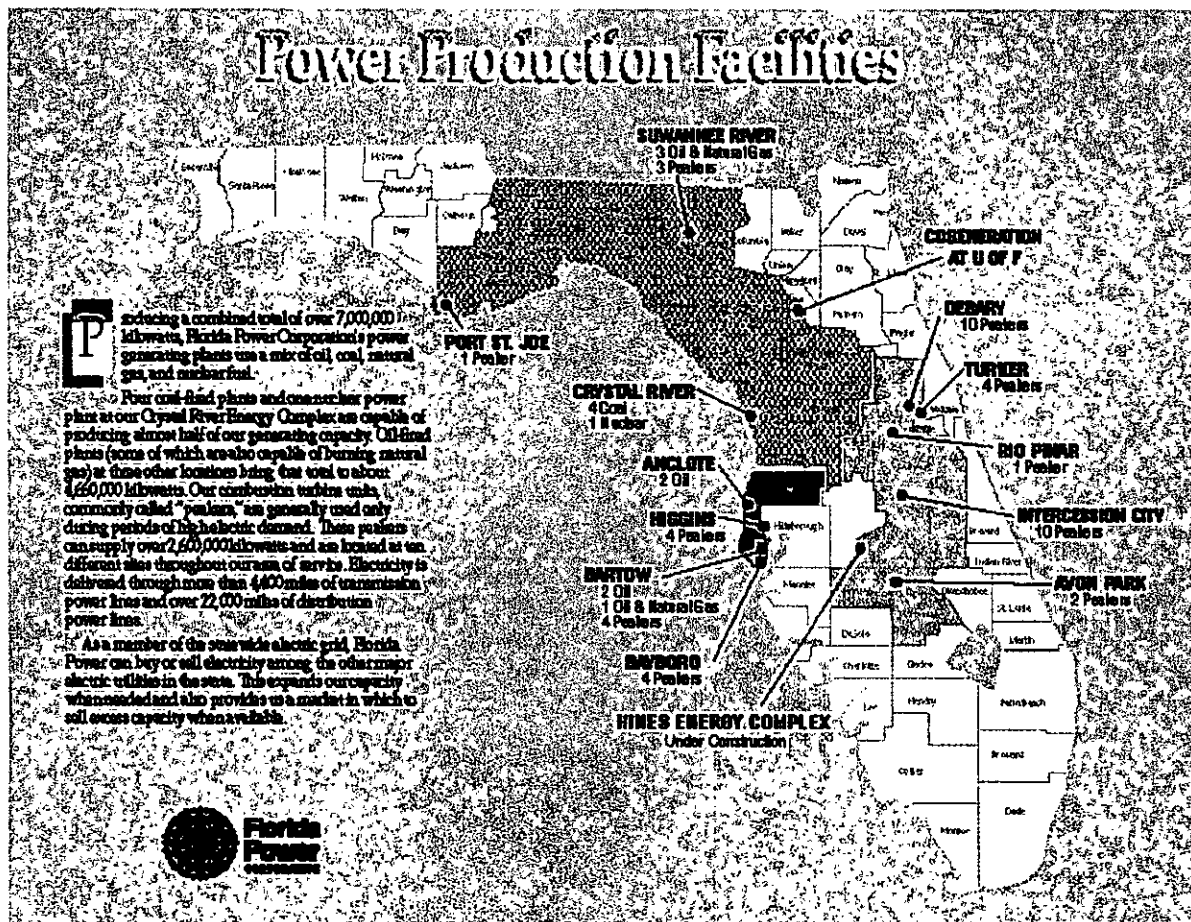
Authorized Representative: W. Jeffrey Pardue, CEP

## 2. Source Name and Location

DeBary Plant  
Units P7, P8, P9, P10  
DeBary, Volusia County

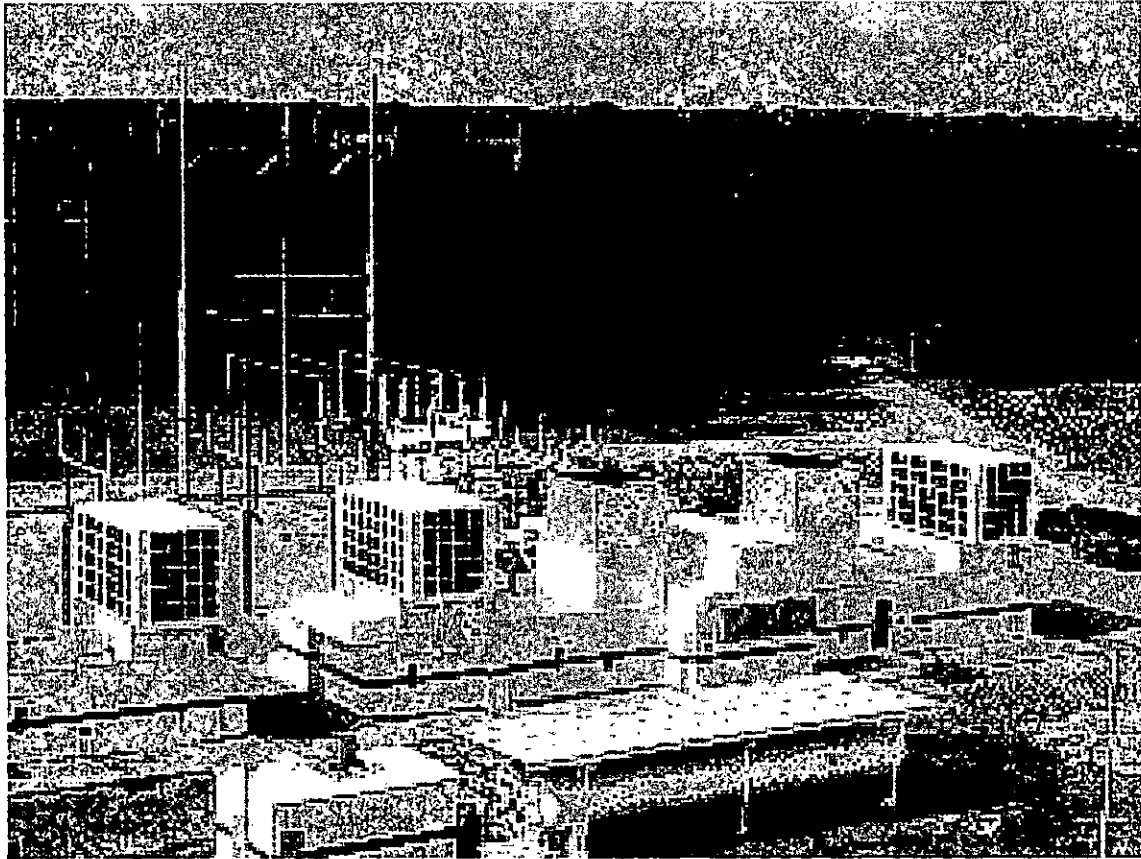
UTM Coordinates: Zone 17, 467.5 km East and 3197.2 km North

The location of the DeBary Plant within the FPC system is shown below followed by a photograph of the site downloaded from the FPC website:





# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION



### **3. Source Description**

The Florida Power Corporation (FPC) DeBary Plant consists of ten combustion turbine peaking units. Units Nos. P7, P8, P9, and P10 (designated in the ARMS database as E.U.: 015, 016, 017, and 018) are each 92.9 megawatt simple cycle General Electric PG7111EA combustion turbine-electrical generators. The units are fired with pipeline natural gas or No. 2 fuel oil containing 0.3 percent (%) or less sulfur. Annual hours of operation per unit are limited to 3,390 or less based on a sliding scale related to the fuel sulfur content. Control measures and equipment consist of firing clean fuels, good combustion practices, and wet injection.

### **4. Current Permit and Major Regulatory Program Status**

Construction of Units P7-P10 was authorized by the Department's Prevention of Significant Deterioration (PSD) Permit No. PSD-FL-167 and Air Construction Permit AC 64-191015 issued in October 1993. A modification of this permit was issued in May 7, 1997 (PSD-FL-167 B and 1270028-002 AC). The four units along with six other units at the plant are operated under Title V Air Operation Permit No. 1270028-001-AV issued in June 1999.

The initial construction of Units P7-P10 was authorized pursuant to the Department's Preconstruction Review and Permitting requirements in Rules 62-210 and 62-212, F.A.C. The units were also reviewed in accordance with the New Source Performance Standard (NSPS) Subpart GG - Standards of Performance for Stationary Gas Turbines, adopted by reference in Rule 62-204.800, F.A.C.

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 5. Permit Modification Request

On January 31, 2000 the Department received a request from FPC for modification of its permits to install inlet foggers at the compressor inlets of Units P7-P10. 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 93 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

Because the main components of the units, including the compressors, combustors, rotors, fuel system, etc., will not be modified, it is arguable that the inlet foggers are not physical modification of the units. However 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.

FPC estimated the maximum emissions increases by using the heat-input increase associated with a 20 degree F decrease in compressor inlet temperature. Using the heat input curve, a 20-degree F temperature decrease results in an increase in heat input of 60 mmBtu per hour. This value is multiplied by the emission rate in lb/mmBtu to obtain hourly emissions increases. The results are summarized below together with annual emission increase estimates, based on 1, 225 hours of operation per fogger per year. The estimates are based on fuel oil firing and would be substantially less when firing natural gas.

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

Pollutant	Emission Rate lb/mmBtu	Emission Increase lb/hr	Annual Increase tons/yr	PSD Threshold tons/yr
NO <sub>x</sub>	See Curve	11	28.1	40
PM/PM <sub>10</sub>	0.015	0.9	2.2	25/15
CO	0.05	3	7.4	100
VOC	0.004	0.2	0.5	40
SO <sub>2</sub>	0.27	16.2	39.9	40
SAM	0.016	1	2.5	7

The emissions increases calculated are the direct result from the modification or change in method of operation. These assume that the ability to achieve greater power output when the foggers are used does not result in the increased usage of the peaking units. The rationale is discussed below.

## 7. Evaluation of PSD Applicability

As a major source, a modification or change in method of operation of Units P7-P10 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:

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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

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

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

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

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

- (a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit. Actual emissions shall be calculated using the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.*
- (b) The Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that, for any regulated air pollutant, such unit-specific allowable emissions limits are federally enforceable.*
- (c) For any emissions unit (other than an electric utility steam-generating unit specified in subparagraph (d) of this definition) which has not begun **normal operations** on a particular date, actual emissions shall equal the **potential emissions** of the emissions unit on that date.*

The term normal operations appears to be undefined and subject to some interpretation. Potential emissions are defined as follows:

*Potential Emissions or Potential to Emit - The maximum capacity of an emission unit or facility to emit a pollutant under its physical and operational design. Any enforceable physical or operational limitation on the capacity of the emission unit or facility to emit a pollutant, including any air pollution control equipment and any restrictions on hours of operation or on the type or amount of material combusted, stored, or processed shall be treated as part of its design provided that, for any regulated air pollutant, such physical or operational limitation is federally enforceable.*

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Actual hours of operation over the last 6 years are as follows:

Unit/Year	Annual Operating Hours 1994 - 1999					
	1994	1995	1996	1997	1998	1999
P-7	499	438	663	1817	2563	1980
P-8	492	371	711	870	1114	1746
P-9	426	439	763	1722	2418	1969
P-10	382	379	630	822	1145	1019

There has been a steady increase in annual hours of operation since these units were installed in 1993. During 1998 and 1999, these units were each utilized between 1019 and 2563 hours per year or more than half of the 3,390 permitted hours of operation per unit per year.

Although recent hours of operation are well below the permitted limits, they are actually fairly high compared with the typically low levels of operation characteristic of peaking units. Among the reasons for the relatively high levels are the prolonged shutdown of the baseloaded Crystal River Nuclear Unit 3 in 1997, the very hot summer of 1998, and the recognized low electrical power reserve margin in the State.

If these peaking units were being entirely replaced by larger units, it would be clear that they have not begun normal operations. In such a case, a comparison of future to past actual emissions would be based on a comparison of potential emissions to past actual emissions. Such a comparison would undoubtedly result in a determination that PSD is applicable unless the company took an extreme limitation in hours of operation.

If a like-kind replacement was being made, the same comparison would also result in a determination that PSD is applicable. That particular case was addressed for the purposes of comparison to the specific case addressed in the Puerto Rican Cement Decision. This is the watershed Federal Circuit Court of Appeals decision that upheld the past actual-to-potential emission comparison applicable to (at least) modernization projects. The comments of interest for the purposes of the present review are as follows:

*"One can imagine circumstances that might test the reasonableness of EPA's regulation. An electricity company, for example, might wish to replace a peak load generator -- one that operates only a few days per year -- with a new peak load generator that the firm could, but almost certainly will not, operate every day. And, uncertainties about the precise shape of future electricity peak demand might make the firm hesitate to promise EPA it will never increase actual emissions (particularly since EPA insists, as a condition of accepting the promise and issuing the NAD, that the firm also promise not to apply for permission for an actual increase under the PSD review process). Whatever the arguments about the "irrationality" of EPA's interpretation in such circumstances, however, those circumstances are not present here. The Company is not interested in peak load capacity; it operated its old kilns at low levels in the past; its new, more efficient kiln might give it the economic ability to increase production; consequently, EPA could plausibly fear an increase in actual emissions were it to provide the NAD. Thus, this seems the very type of case for which the regulations quoted above were written. We can find nothing arbitrary or irrational about EPA applying those regulations to the Company's proposal."*

## **TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION**

The FPC inlet fogger project is yet another step removed from a modernization project than the like-kind replacement example. The units will not be replaced at all. The modification and its effects can be isolated and directly estimated. The Department believes that the peaking units have begun normal operation. The addition of the inlet foggers will not change that fact or cause an increase in hours of operation. The modification itself (i.e. installation and operation of the foggers), however, has not yet begun normal operation and its future actual emissions based on potential to emit should be initially estimated assuming usage of the units at full capacity during the permitted 3,390 hours per unit per year.

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, FPC proposes to limit operation of the foggers to an equivalent of 1225 hours per unit per year. This value is approximately equal to the recent historical hours of operation for the four peaking units. It is also a clear indication that compressor air inlet cooling will not cause the units to operate all of the permitted hours. Emissions will increase under these limitations (as previously tabulated) by levels less than the significant emissions rates. The Department concludes, therefore that PSD does not apply to this project.

### **8. Proposed Addition of New Conditions to Permit PSD-FL-167**

The construction permit has expired for the DeBary Project to construct Units P7 through P10. The Department will re-issue the permit incorporating all other previously approved revisions and modifications to-date and will add a further condition authorizing installation and operation of the inlet foggers.

The new condition applicable to the inlet foggers proposed for Units P7 through P10 are shown in the draft re-issued and modified permit. It limits operation of the inlet foggers to 4900 hours per year, based on 1,225 hours per unit per year.

### **9. Conclusions**

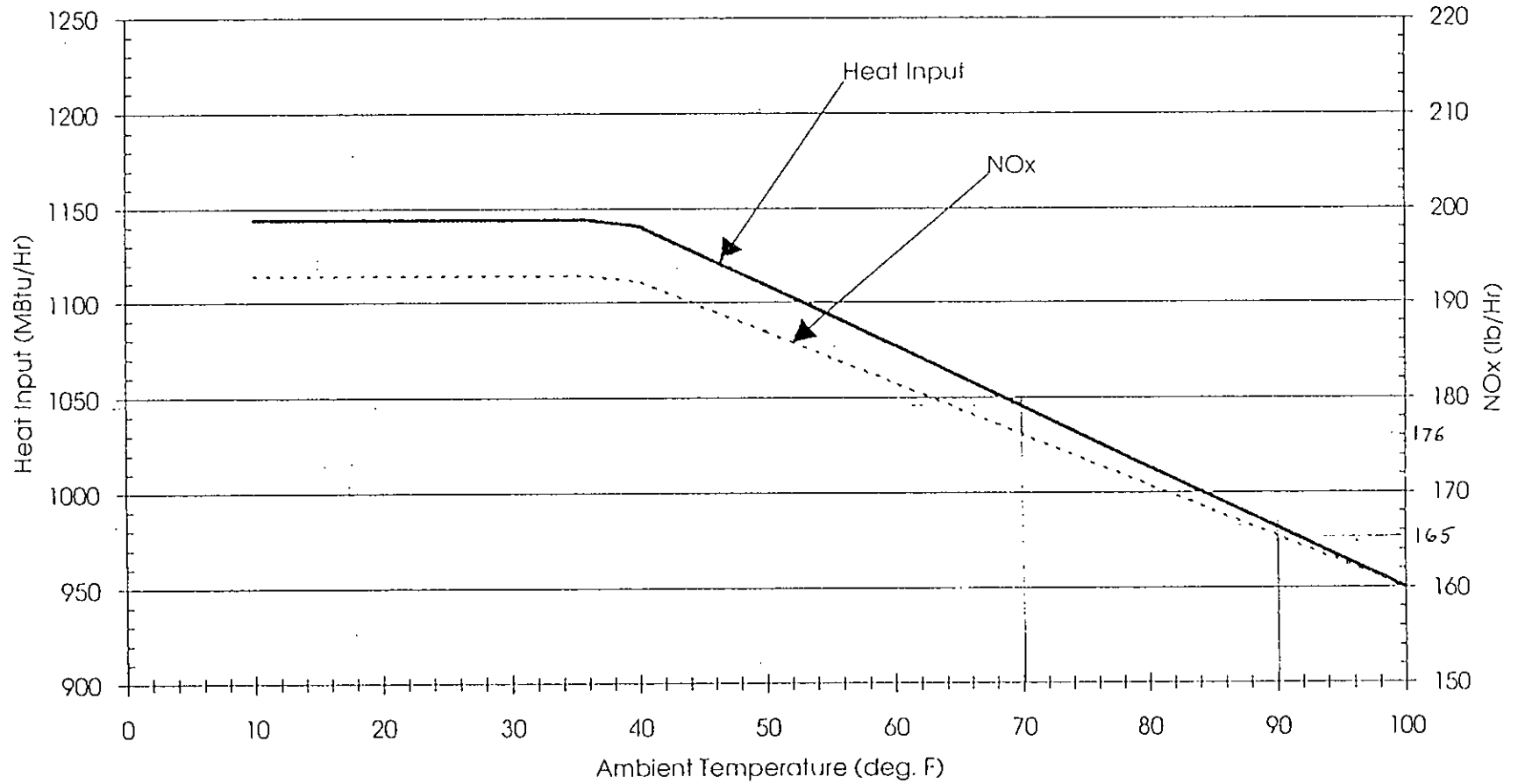
The changes authorized by this permit modification will not cause increases in hours of operation and will not result in significant net emissions increases. The project will not increase the maximum short-term emission rates as these are already achieved under natural conditions of low ambient temperatures without the use of the foggers.

The Department concludes that PSD is not applicable to this project. 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 simple cycle peaking units. It does not set precedents related to any physical changes within the compressors, combustors, rotors, 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, New Source Performance Standards.

# Florida Power Corporation

## GE Frame 7EA Combustion Turbines



Note: Curves based on General Electric's (GE's) expected performance data.

**PERMITTEE:**

Florida Power Corporation  
Post Office Box 14042 MAC BB1A  
St. Petersburg, Florida 33733

DEP File No.	1270028-004-AC
Permit No.	PSD-FL-167 C
Project	Peaking Unit Nos. 7-10
SIC No.	4911
Expires:	December 31, 2000

*Authorized Representative:*

W. Jeffrey Pardue, CEP  
Director, Environmental Services

**PROJECT AND LOCATION:**

Re-issued and modified permit for the construction of four simple cycle combustion turbine-electrical generators (Peaking Units Nos. 7-10). This action also provides for installation of inlet foggers on the four 92.9 megawatt simple cycle General Electric PG7111EA combustion turbine-electrical generators units (Peaking Units 7-10), identified in the Department's ARMS database as E.U.Nos. 015 - 018.

The units are located at the FPC DeBary City Plant, 788 West Highbanks Rd, Volusia County. The UTM coordinates are: Zone 17; 467.5 km E and 3197.2 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 SC Specific Conditions (including Permit 1270028-002-AC and PSD-FL-167B)

---

Howard L. Rhodes, Director  
Division of Air Resources  
Management

**APPENDIX SC**  
SPECIFIC CONDITIONS

---

1. The original permit for six simple cycle combustion turbine-electrical generators, AC 64-191015 and PSD-FL-167, dated October 18, 1991 was incorporated and modified into air construction permit 1270028-002-AC (PSD-FL-167 B) on May 6, 1997.

The provisions of air construction permit, 1270028-002-AC (PSD-FL-167 B) to install four simple cycle combustion turbine-electrical generators, dated May 6, 1997 are attached and incorporated into the new air construction permit identified as 1270028-004-AC (PSD-FL-167 C).

This new permit, 1270028-004-AC (PSD-FL-167 C), supersedes permit 1270028-002-AC (PSD-FL-167 B) to install four simple cycle combustion turbine-electrical generators

2. Inlet foggers may be installed at the compressor inlet to each of the four simple cycle General Electric PG7111EA combustion turbine-electric generators. The four foggers may operate up to 4900 hours per year in aggregate (average 1225 hours per unit per year).



STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NOTICE OF FINAL PERMIT MODIFICATION

In the Matter of an  
Application for Permit Modification

Mr. W. Jeffrey Pardue, C.E.P.  
Director, Environmental Services Dept.  
Florida Power Corp.  
3201 34th Street South  
St. Petersburg, FL 33711

DEP File No. 1270028-002-AC  
PSD-FL-167(B)  
DeBary Power Plant  
Volusia County

Enclosed is Permit Modification Number PSD-FL-167(B) to add natural gas firing capability to four existing oil-fired peaking units at the DeBary Power Plant. This permit modification is issued pursuant to Section 403, Florida Statutes.

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

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL PERMIT MODIFICATION (including the FINAL permit Modification) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 5-6-97 to the person(s) listed:

Mr. W. Jeffrey Pardue, FPC \*  
Mr. Ken Kosky, P.E.  
Mr. Brian Beals, EPA  
Mr. John Bunyak, NPS  
Mr. Len Koslov, CD

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date,  
pursuant to §120.52(7), Florida Statutes, with the designated  
Department Clerk, receipt of which is hereby acknowledged.

Leni Jaber      5-6-97  
(Clerk)                      (Date)

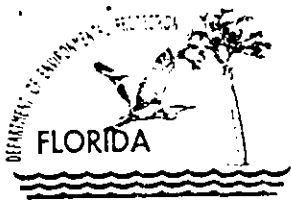
## FINAL DETERMINATION

Florida Power Corporation

Permit No. PSD-FL-167(B), File No. 1270028-002-AC  
DeBary Facility, Peaking Units P7, P8, P9, and P10

An Intent to Issue a permit modification for Florida Power Corporation (FPC), DeBary Facility, Peaking Units P7, P8, P9, and P10 was distributed on February 14, 1997. The facility is located on West Highbanks Road, Volusia County. The Public Notice of Intent to Issue was published in the Volusia County News-Journal on March 25, 1997. No comments were received in response to the public notice or from agencies reviewing the proposed action.

The final action of the Department will be to issue the permit as proposed.



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

## PERMITTEE:

Florida Power Corporation  
3201 34th Street South  
St. Petersburg, Florida 33711

Permit No.	AC64-191015(B)
PSD No.	PSD-FL-167(B)
File No.	1270028-002-AC
Expires:	December 31, 1997
Facility	DeBary

*Authorized Representative:*  
Mr. W. Jeffrey Pardue, C.E.P.  
Director, Environmental Services Department

## LOCATED AT:

UTM: Zone 17, 467.5 km East and 3197.2 km North

Directions: *West Highbanks Road, DeBary, Volusia County*

## STATEMENT OF BASIS:

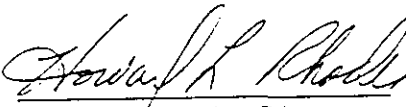
This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.) and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297. The above named permittee is authorized to construct or modify the facility in accordance with the 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) and made a part hereof and specifically described as follows:

For four 92.9 MW simple cycle combustion turbines (CT's - P7, P8, P9, and P10) with maximum heat input of 1.144 (oil) and 1,159 (gas) MMBtu/hr/unit at 20°F to be located at the DeBary Facility in DeBary, Volusia County. The turbines are GE PG7111EA equipped with wet injection capability. The source shall be constructed in accordance with the permit application, plans, documents, amendments, and drawings, except as otherwise noted in the General and Specific Conditions.

## Attached appendices made a part of this permit:

Appendix GC  
Appendix SC

Construction Permit General Conditions  
Specific Conditions

  
Howard L. Rhodes, Director  
Division of Air Resources  
Management

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

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

- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
- (a) Have access to and copy and records that must be kept under the conditions of the permit;
  - (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and;
  - (c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

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

- G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
- (a) A description of and cause of non-compliance; and
  - (b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

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

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

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- 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) Determination of Best Available Control Technology (X)
  - (b) Determination of Prevention of Significant Deterioration (X); and
  - (c) Compliance with New Source Performance Standards (X).
- 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 SC**  
**SPECIFIC CONDITIONS**

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1. This permit supersedes permit AC64-191015 (PSD-FL-167), dated October 18, 1991, and its revisions dated:

June 30, 1993 - Change Method 3 to Method 3A

August 11, 1993 - Replace trace element limits with use of low sulfur oil

August 30, 1993 - Correct PM basis and SAM limit

September 21, 1994 - Incorporate heat input curves

The provisions of the air construction permit AC64-191015 (PSD-FL-167), dated October 18, 1991 and the revisions to that permit, attached and listed above, are incorporated into this air construction permit except for the changes that follow in Specific Conditions 2. through 6, below.

2. Table 1 from Previous Specific Condition 1 is changed per the previous modifications listed above and the present modification to read as shown in revised Table 1, attached.
3. Previous Specific Condition 3 is changed as follows:

FROM

These sources are allowed to use only No. 2 fuel oil with a 0.30% average and 0.5% sulfur content maximum, by weight. The sulfur content is based upon a weighted 12 month rolling average of fuel oil analysis from delivery receipts.

TO:

These units are allowed to use No. 2 fuel oil with a 0.30% average and 0.5% maximum sulfur content, by weight, as well as natural gas. The sulfur content is based upon a weighted 12-month rolling average of fuel oil analysis from delivery receipts.

4. Previous Specific Condition 4 is changed as follows:

FROM

The permitted materials and utilization rates for the combined cycle gas turbines shall not exceed: (a) the maximum heat input of 1,144 MMBtu/hr/unit at 20° F. (b) maximum No. 2 fuel oil consumption shall not exceed 7,826 (at 59° F) gal/hr/unit or 159,200,000 gal/yr for 6 CT's. (c) SO<sub>2</sub> emissions for the six combustion turbines not exceed 2,888 tons/year. (d) the maximum capacity factor shall be limited to 38.7%.

**APPENDIX SC**  
**SPECIFIC CONDITIONS**

---

TO

The permitted materials and utilization rates for the combined cycle gas turbines shall not exceed: (a) the maximum heat input of 1,144 (oil) and 1,159 (gas) MMBtu/hr/unit at 20° F. (b) maximum No. 2 fuel oil consumption shall not exceed 106,133,333 gal/yr for 4 CT's. (c) SO<sub>2</sub> emissions for the four combustion turbines not exceed 1925 tons/year. (d) the maximum capacity factor shall be limited to 38.7% (equivalent to 3,390 hours per year).

5. The first paragraph of Previous Specific Condition 8 is changed as follows:

FROM

Compliance with the NO<sub>x</sub>, SO<sub>2</sub>, CO, PM, PM<sub>10</sub> and VOC standards shall be determined (on each unit within 10% maximum heat rate input) within 180 days of initial operation and annually thereafter, by the following reference methods as described in 40CFR60, Appendix A (July, 1990 version) and adopted by reference in F.A.C. Rule 17-2.700.

TO

Testing of emissions of NO<sub>x</sub>, SO<sub>2</sub>, CO, PM, PM<sub>10</sub> and VOC shall be conducted with the source operating at capacity. Capacity is defined as 95-100 percent of the manufacturer's rated heat input achievable for the average ambient (or conditioned) air temperature during the test. If it is impracticable to test at capacity, then sources may be tested at less than capacity. In such cases, the entire heat input vs. inlet temperature curve will be adjusted by the increment equal to the difference between the design heat input value and 105 percent of the value reached during the test. Data, curves, and calculations necessary to demonstrate the heat input rate correction at both design and test conditions shall be submitted to the Department with the compliance test report.

6. Previous Specific Condition 14 is changed as follows:

FROM

Test results will be the average of 3 valid runs. The Central District office will be notified at least 15 days in writing in advance of the compliance test(s). The sources shall operate between 90% and 100% of permitted capacity during the compliance test(s) as adjusted for ambient temperature. Compliance test results shall be submitted to the Central District office no later than 45 days after completion.

TO

Test results will be the average of 3 valid runs. The Central District office shall be notified at least 15 days in writing in advance of the compliance test(s). Compliance test results shall be submitted to the Central District office no later than 45 days after completion.

**APPENDIX SC**  
**SPECIFIC CONDITIONS**

TABLE 1 (Revised)  
 ALLOWABLE EMISSION LIMITS  
 Simple Cycle Combustion Turbine

Pollutant	Standard Oil Firing	Each Unit lb/hr <sup>(a)</sup>	Total 4 Units	Basis
NO <sub>x</sub>	42 ppm at 15% oxygen dry basis	182	1,234 <sup>(b)</sup>	BACT
NO <sub>x</sub>	25 ppm at 15% oxygen dry basis (gas firing)	107	726 <sup>(b)</sup>	FPC
SO <sub>2</sub>	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	555	1,925 <sup>(c)</sup>	BACT
PM/PM <sub>10</sub>	0.015 lb/MMBtu	15	102 <sup>(b)</sup>	BACT
VOC	-	5	34 <sup>(b)</sup>	BACT
CO	-	54	365 <sup>(b)</sup>	BACT
Sulfuric Acid Mist	No. 2 fuel oil with 0.3% avg. and 0.5% max. sulfur	69	469 <sup>(b)</sup>	BACT

<sup>(a)</sup> Emission rates based on 59°F and 15% O<sub>2</sub>.

<sup>(b)</sup> Equivalent to 3390 hours per year at peak load and 38.7% capacity factor.

<sup>(c)</sup> Total TPY CAP for SO<sub>2</sub> assumes 33% capacity factor and fuel sulfur content of 0.30%.



Florida Department of  
Environmental Protection

Memorandum

---

TO: C. H. Fancy

THRU: Al Linero *AL*

FROM: Teresa Heron *TH*

DATE: February 11, 2000

SUBJECT: FPC DeBary Plant Inlet Fogger Project  
DEP File No. 1270028-004-AC

Attached is the draft public notice package including the Intent to Issue and the Technical Evaluation and Preliminary Determination for the inlet fogger project. The application is to install inlet foggers ahead of the compressor inlets of four simple 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.

Emissions will increase because the heat rate through the units will increase when the foggers are used and effectively cool the inlet air. FPC proposes to limit operation of the coolers to 1,225 hours per unit per year to insure PSD is not triggered by their use. The issue of making a future potential to past actual annual emission increase calculation is extensively addressed in the Technical Evaluation.

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

AAL/aal

Attachments



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

## P.E. Certification Statement

**Permittee:**

DEP File No. 1270028-004-AC

Florida Power Corporation (FPC)  
DeBary Generating Station  
Volusia County

**Project type:**

Project to install inlet foggers ahead of the compressor inlets of four simple 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.

Emissions will increase because the heat rate through the units will increase when the foggers are used and effectively cool the inlet air. FPC proposes to limit operation of the coolers to 1,225 hours per unit per year to insure PSD is not triggered by their use. Project is not subject to PSD review.

*I HEREBY CERTIFY that the engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).*

A. A. Linero, P.E.

2/11/00  
Date

Registration Number: 26032

Bureau of Air Regulation  
New Source Review Section  
111 South Magnolia Drive, Suite 4  
Tallahassee, Florida 32301  
Phone (850) 921-9523  
Fax (850) 922-6979

2/11

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 1. Applicant

Florida Power Corporation  
~~3201 34th Street South~~ P.O. Box 14042  
St. Petersburg, Florida 337133

Authorized Representative: W. Jeffrey Pardue, CEP

## 2. Source Name and Location

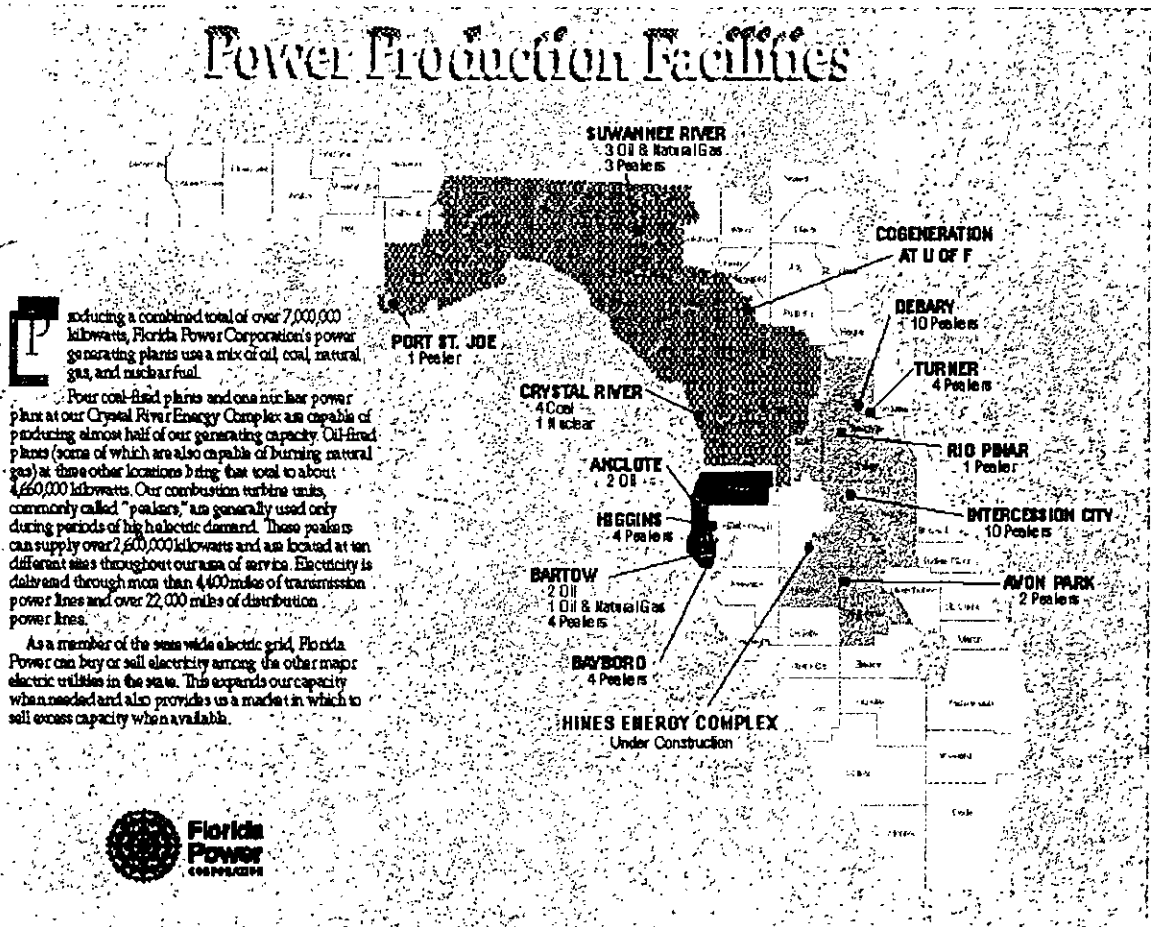
~~Intercession City~~ <sup>DeBary</sup> Plant  
Units P7, P8, P9, P10  
~~Intercession City, Osceola County~~ <sup>DeBary, Volusia</sup> 467.5 3197  
UTM Coordinates: Zone 17, 446.3 km East and 3126 km North

The location of the ~~Intercession City~~ <sup>DeBary</sup> Plant within the FPC system is shown below followed by a photograph of the site downloaded from the FPC website:

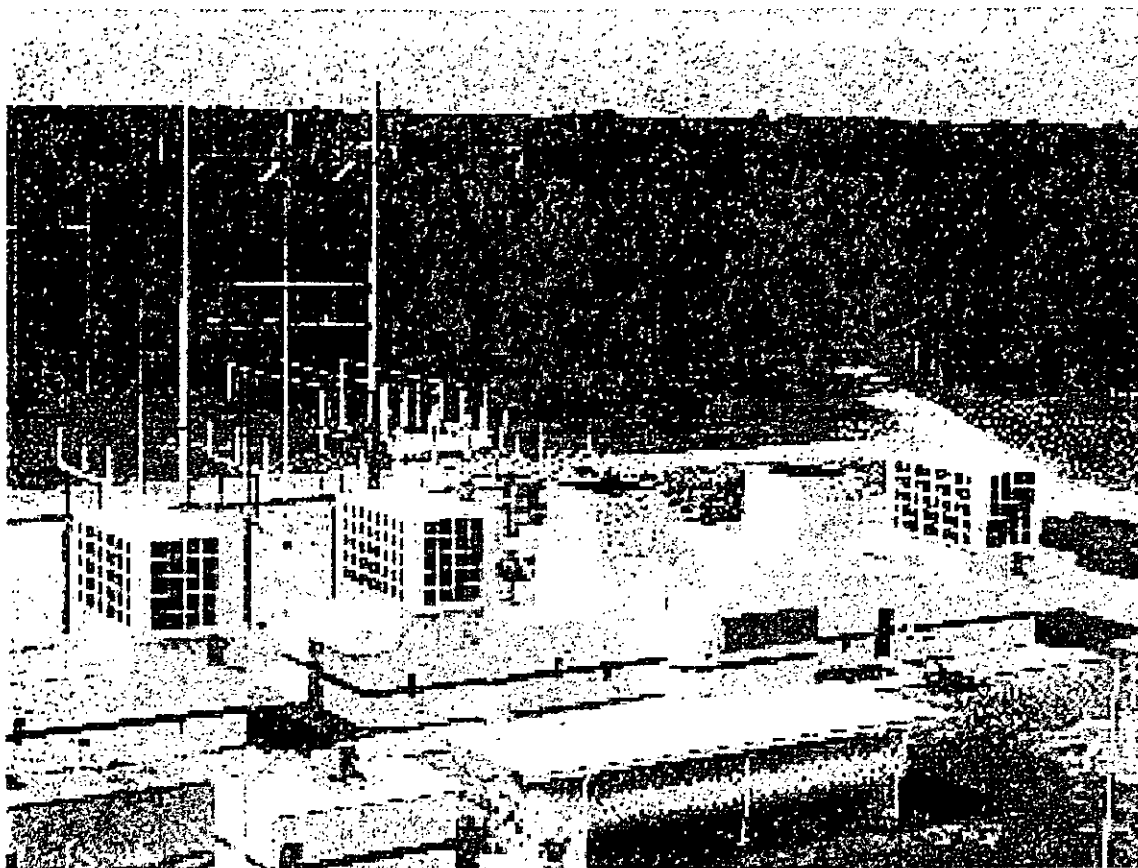
RECEIVED

JAN 31 2000

BUREAU OF AIR REGULATION



# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION



### 3. Source Description

The Florida Power Corporation (FPC) <sup>DeBary</sup> ~~Intercession City~~ Plant consists of ten combustion turbine peaking units. Units Nos. P7, P8, P9, and P10 (designated collectively as Emission Unit 002) are each 92.9 megawatt simple cycle General Electric PG7111EA combustion turbine-electrical generators. The units are fired with pipeline natural gas or No. 2 fuel oil containing 0.2 percent (%) or less sulfur. Annual hours of operation per unit are limited to 3,390 or less based on a sliding scale related to the fuel sulfur content. Control measures and equipment consist of firing clean fuels, good combustion practices, and wet injection.

### 4. Current Permit and Major Regulatory Program Status

Construction of Units P7-P10 was authorized by the Department's Prevention of Significant Deterioration (PSD) Permit No. PSD-FL-180 <sup>762</sup> and Air Construction Permit AC <sup>89-191915</sup> ~~49-203114~~ issued in October 1993. ~~Two other larger units were also authorized but only one was constructed.~~ The four units along with six other units at the plant are operated under Title V Air Operation Permit No.

~~0970014-001-AV~~ issued in <sup>January 1998</sup> ~~June 1999~~ <sup>1270028-</sup>

The initial construction of Units P7-P10 ~~(and P11)~~ was authorized pursuant to the Department's Preconstruction Review and Permitting requirements in Rules 62-210 and 62-212, F.A.C. The units were also reviewed in accordance with the New Source Performance Standard (NSPS) Subpart GG - Standards of Performance for Stationary Gas Turbines, adopted by reference in Rule 62-204.800, F.A.C.

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

## 5. Permit Modification Request

On ~~February 24, 1998~~ <sup>January 22, 2000</sup> the Department received a request from FPC for modification of its permits to install inlet foggers at the compressor inlets of Units P7-P10. 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 93 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

Because the main components of the units, including the compressors, combustors, rotors, fuel system, etc., will not be modified, it is arguable that the inlet foggers are not physical modification of the units. However 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.

FPC estimated the maximum emissions increases by using the heat-input increase associated with a 20 degree F decrease in compressor inlet temperature. Using the heat input curve, a 20-degree F temperature decrease results in an increase in heat input of 60 mmBtu per hour. This value is multiplied by the emission rate in lb/mmBtu to obtain hourly emissions increases. The results are summarized below together with annual emission increase estimates, based on ~~1,750~~ <sup>1,225</sup> hours of operation per fogger per year. The estimates are based on fuel oil firing and would be substantially less when firing natural gas.

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

Pollutant	Emission Rate lb/mmBtu	Emission Increase lb/hr	Annual Increase tons/yr	PSD Threshold tons/yr
NO <sub>x</sub>	See Curve	11	<del>28</del> 28.1	40
PM/PM <sub>10</sub>	0.015	0.9	<del>2</del> 2.2	25/15
CO	0.05	3	<del>1</del> 2.4	100
VOC	0.004	0.2	<del>1</del> 0.5	40
SO <sub>2</sub>	<del>0.18</del> 0.27	<del>1</del> 16.2	<del>48</del> 39.9	40
SAM	0.016	1	<del>2</del> 2.5	7

The emissions increases calculated are the direct result from the modification or change in method of operation. These assume that the ability to achieve greater power output when the foggers are used does not result in the increased usage of the peaking units. The rationale is discussed below.

## 7. Evaluation of PSD Applicability

As a major source, a modification or change in method of operation of Units P7-P10 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:

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

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

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

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

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

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

- (a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit. Actual emissions shall be calculated using the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.*
- (b) The Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that, for any regulated air pollutant, such unit-specific allowable emissions limits are federally enforceable.*
- (c) For any emissions unit (other than an electric utility steam-generating unit specified in subparagraph (d) of this definition) which has not begun **normal operations** on a particular date, actual emissions shall equal the **potential emissions** of the emissions unit on that date.*

The term normal operations appears to be undefined and subject to some interpretation. Potential emissions are defined as follows:

*Potential Emissions or Potential to Emit - The maximum capacity of an emission unit or facility to emit a pollutant under its physical and operational design. Any enforceable physical or operational limitation on the capacity of the emission unit or facility to emit a pollutant, including any air pollution control equipment and any restrictions on hours of operation or on the type or amount of material combusted, stored, or processed shall be treated as part of its design provided that, for any regulated air pollutant, such physical or operational limitation is federally enforceable.*

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

*over the last 3 years*

Actual hours of operation ~~since the start of operations~~ are as follows:

Unit/Year	Annual Operating Hours 1993 - 1998					
	<del>1993</del>	<del>1994</del>	<del>1995</del>	<del>1996</del>	<del>1997</del>	<del>1998</del>
P-7	193	873	649	<del>1251,817</del>	1996 <sup>2,563</sup>	<del>1927</del> <sup>1,980</sup>
P-8	222	724	562	<del>1269</del> <sup>870</sup>	1974 <sup>1,114</sup>	<del>1796</del> <sup>1,716</sup>
P-9	68	697	715	<del>1177</del> <sup>1,722</sup>	2031 <sup>2,418</sup>	<del>1981</del> <sup>1,969</sup>
P-10	155	579	512	<del>1186</del> <sup>822</sup>	1893 <sup>1,145</sup>	<del>2015</del> <sup>1,019</sup>

There has been a steady increase in annual hours of operation since these units were installed in 1993. During 1998 and 1997, these units were each utilized between 1,796 and 2,563 hours per year or more than half of the 3,390 permitted hours of operation per unit per year.

Although recent hours of operation are well below the permitted limits, they are actually fairly high compared with the typically low levels of operation characteristic of peaking units. Among the reasons for the relatively high levels are the prolonged shutdown of the baseloaded Crystal River Nuclear Unit 3 in 1997, the very hot summer of 1998, and the recognized low electrical power reserve margin in the State.

If these peaking units were being entirely replaced by larger units, it would be clear that they have not begun normal operations. In such a case, a comparison of future to past actual emissions would be based on a comparison of potential emissions to past actual emissions. Such a comparison would undoubtedly result in a determination that PSD is applicable unless the company took an extreme limitation in hours of operation.

If a like-kind replacement was being made, the same comparison would also result in a determination that PSD is applicable. That particular case was addressed for the purposes of comparison to the specific case addressed in the Puerto Rican Cement Decision. This is the watershed Federal Circuit Court of Appeals decision that upheld the past actual-to-potential emission comparison applicable to (at least) modernization projects. The comments of interest for the purposes of the present review are as follows:

*"One can imagine circumstances that might test the reasonableness of EPA's regulation. An electricity company, for example, might wish to replace a peak load generator -- one that operates only a few days per year -- with a new peak load generator that the firm could, but almost certainly will not, operate every day. And, uncertainties about the precise shape of future electricity peak demand might make the firm hesitate to promise EPA it will never increase actual emissions (particularly since EPA insists, as a condition of accepting the promise and issuing the NAD, that the firm also promise not to apply for permission for an actual increase under the PSD review process). Whatever the arguments about the "irrationality" of EPA's interpretation in such circumstances, however, those circumstances are not present here. The Company is not interested in peak load capacity; it operated its old kilns at low levels in the past; its new, more efficient kiln might give it the economic ability to increase production; consequently, EPA could plausibly fear an increase in actual emissions were it to provide the NAD. Thus, this seems the very type of case for which the regulations quoted above were written. We can find nothing arbitrary or irrational about EPA applying those regulations to the Company's proposal."*

## TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

The FPC inlet fogger project is yet another step removed from a modernization project than the like-kind replacement example. The units will not be replaced at all. The modification and its effects can be isolated and directly estimated. The Department believes that the peaking units have begun normal operation. The addition of the inlet foggers will not change that fact or cause an increase in hours of operation. The modification itself (i.e. installation and operation of the foggers), however, has not yet begun normal operation and its future actual emissions based on potential to emit should be initially estimated assuming usage of the units at full capacity during the permitted 3,390 hours per unit per year.

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, FPC proposes to limit operation of the foggers to ~~3,390~~ <sup>1,750</sup> hours per unit per year. This value is approximately equal to the recent historical hours of operation for the four peaking units. It is also a clear indication that compressor air inlet cooling will not cause the units to operate all of the permitted hours. Emissions will increase under these limitations (as previously tabulated) by levels less than the significant emissions rates. The Department concludes, therefore that PSD does not apply to this project.

### 8. Proposed Addition of New Conditions to Permit PSD-FL-180

<sup>167</sup>  
The construction permit has expired for the ~~Intercession City~~ <sup>DeBary</sup> Project to construct Units P7 through P10. The Department will re-issue the permit incorporating all other previously approved revisions and modifications to-date and will add a further condition authorizing installation and operation of the inlet foggers.

The new condition applicable to the inlet foggers proposed for Units P7 through P10 are shown in the draft re-issued and modified permit. It limits operation of the inlet foggers to ~~1,750~~ <sup>1,225</sup> hours per unit per year, based on ~~1,225 hrs./unit.~~ <sup>4,900</sup>

### 9. Conclusions

The changes authorized by this permit modification will not cause increases in hours of operation and will not result in significant net emissions increases. 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.

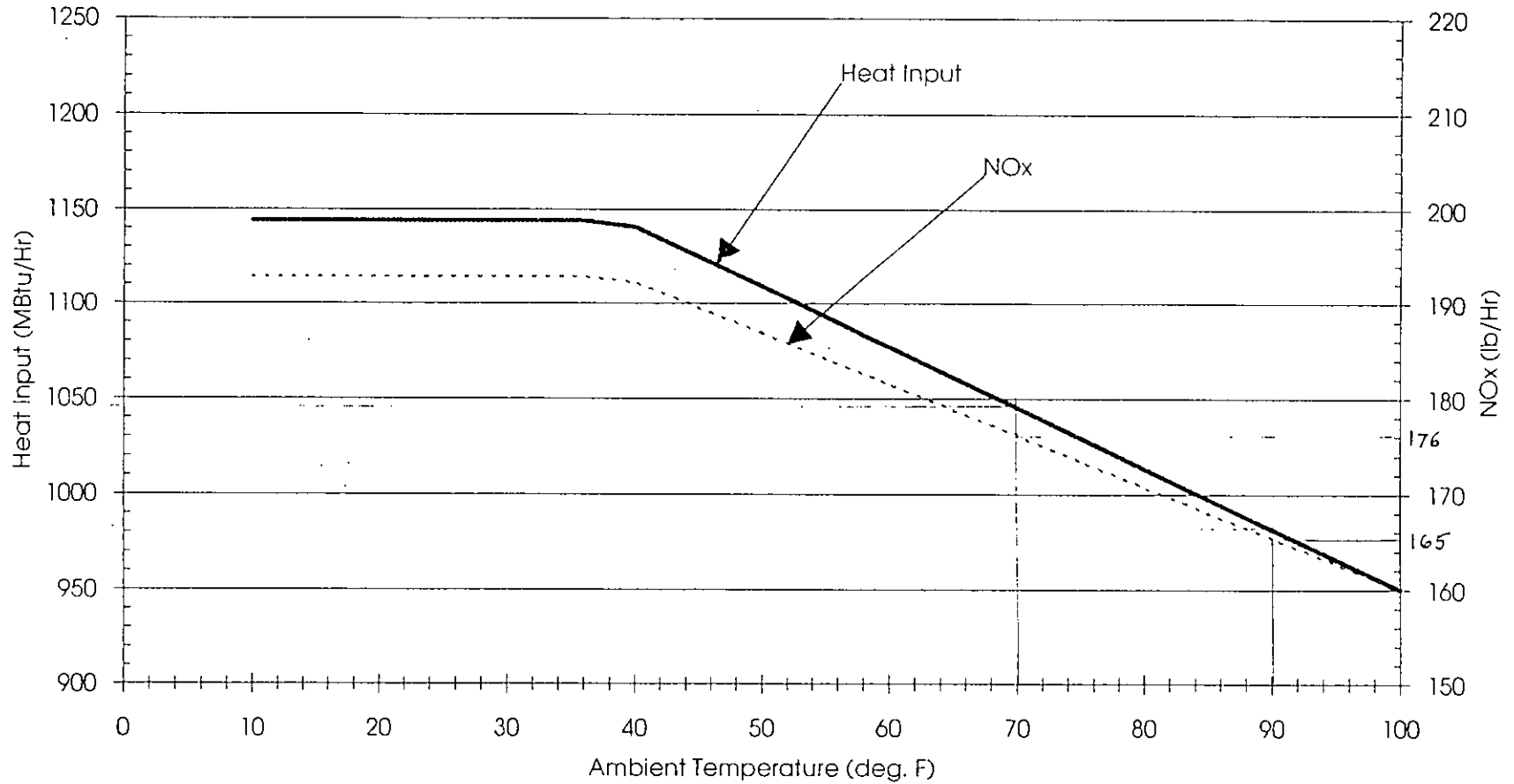
The Department concludes that PSD is not applicable to this project. The changes will not cause a significant impact or cause or contribute to a violation of any ambient air quality standard or PSD increment.

The Department's conclusion does not set a precedent for projects implemented at any facilities other than simple cycle peaking units. It does not set precedents related to any physical changes within the compressors, combustors, rotors, 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, New Source Performance Standards.



# Florida Power Corporation

## GE Frame 7EA Combustion Turbines



Note: Curves based on General Electric's (GE's) expected performance data.

6/10/94