

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. 	A. Received by (Please Print Clearly) B. Date of Delivery APR 23 2001
1. Article Addressed to: Mr. Kris Edmondson Plant Manager - FPC PO Box 112295 Gainesville, FL 32611-2295	C. Signature <i>Carl Williams</i> <input checked="" type="checkbox"/> Agent <input type="checkbox"/> Addressee
2. Article Number (Copy from service label) 7099 3400 0000 1450 2798	D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No
PS Form 3811, July 1999	3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D. 4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes
Domestic Return Receipt	102595-00-M-0952

U.S. Postal Service
CERTIFIED MAIL RECEIPT
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Article Sent To:		Postmark Here
Postage	\$	
Certified Fee		
Return Receipt Fee (Endorsement Required)		
Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees	\$	

Name (Please Print Clearly) (to be completed by mailer)
 Mr. Kris Edmondson, Plant Mgr.-FPC
 Street, Apt. No., or PO Box No.
 PO Box 112295
 City, State, ZIP+4
 Gainesville, FL 32611-2295

PS Form 3800, July 1999 See Reverse for Instructions



Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

April 18, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kris Edmondson, Plant Manager
Florida Power Corporation
Post Office Box 112295
Gainesville, Florida 32611-2295

Re: DEP File No. 0010001-003-AC
University of Florida Cogeneration Facility
Combustion Turbine Project

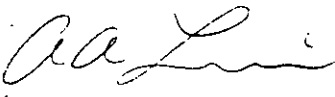
Dear Mr. Edmonson:

Enclosed is one copy of the Draft Permit and Technical Evaluation and Preliminary Determination for the replacement of the combustion turbine at the University of Florida Cogen Plant located at Mowry Road, Building 82, Gainesville, Alachua 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" 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 John Reynolds at 850/921-9530.

Sincerely,


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

CHF/JR

Enclosures

In the Matter of an
Application for Permit by:

Mr. Kris Edmondson
Florida Power Corporation
Post Office Box 112295
Gainesville, Florida 32611-2295

DEP File No. 0010001-003-AC
University of Florida Cogen Plant
Alachua County

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit (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 Corporation, applied on January 29, 2001 to the Department to replace a combustion turbine at the University of Florida combined cycle electrical power generating plant. The project involves replacing the existing 43 MW combustion turbine with a more efficient unit rated at approximately 48 MW. The project will be located at Mowry Road, Building 82 at the University of Florida, Alachua County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210, and 62-212 of the Florida Administrative Code (F.A.C.). The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit is required to perform proposed work. The Department intends to issue this air construction permit based on the belief that the applicant has provided reasonable assurances 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. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. 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. 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). 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. 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 14 (fourteen) days from the date of publication of Public Notice of Intent to Issue Air Construction Permit. Written comments and requests for public meetings 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.

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. Mediation is not available in this proceeding. 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.

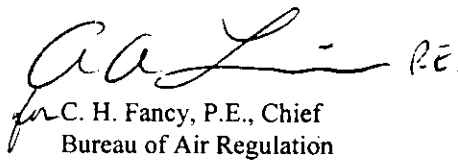
The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number 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.

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

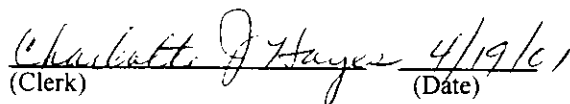
CERTIFICATE OF SERVICE

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 4/19/01 to the person(s) listed:

Kris Edmondson, FPC*
Scott Osborn, ENSR
Gregg Worley, EPA
John Bunyak, NPS
Chris Kirts, DEP NED
Pat Reynolds, DEP NED Gainesville
Chris Bird, Alachua County EPD*
Blair Burgess, P.E., ENSR

Clerk Stamp

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


(Clerk) 4/19/01 (Date)

**NOTICE TO BE PUBLISHED
IN THE NEWSPAPER**

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0010001-003-AC

University of Florida Cogen Facility

Alachua County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Power Corporation. The permit is for the replacement of a 43 MW combustion power turbine at the University of Florida with a more efficient unit rated at 48 MW. A Best Available Control Technology (BACT) determination was not required. The applicant's name and address are Florida Power Corporation, Post Office Box 112295, Gainesville, Florida 32611-2295.

The existing unit is a General Electric LM6000 PA aeroderivative combustion turbine with a supplementally-fired heat recovery steam generator. The unit was installed in 1994 and will be replaced with the larger and more efficient LM6000 PC ESPRINT.

Nitrogen Oxides (NO_x) emissions will be controlled by steam injection to achieve 25 parts per million by volume (dry) at 15 percent oxygen (ppmvd) while burning natural gas and 42 ppmvd while burning distillate fuel oil. Emissions of carbon monoxide (CO) will be controlled to 36 and 75 ppmvd while burning gas and fuel oil respectively. Emissions of particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), sulfuric acid mist, volatile organic compounds (VOC), and hazardous air pollutants (HAP) will be controlled to very low levels by good combustion and use of inherently clean pipeline quality natural gas and No. 2 distillate fuel oil.

The Department determined that the Rules for the Prevention of Significant Deterioration of Air Quality (PSD) do not apply to this project because the modification will not result in emissions increases greater than the significant emission rates given in Table 212.400-2, F.A.C. An air quality impact analysis was not required.

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 fourteen (14) 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

**NOTICE TO BE PUBLISHED
IN THE NEWSPAPER**

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; (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:

Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida, 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Dept. of Environmental Protection Northeast District Office 7825 Baymeadows Way, Suite 200B Jacksonville, Florida 32256-7590 Telephone: 904/448-4300 Fax: 904/448-4363	Dept. of Environmental Protection Northeast District Branch Office 101 NW 75 Street, Suite 3 Gainesville, FL 32607 Telephone: 352/333-2850 Fax: 352/333-2856
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The complete project file includes the application, technical evaluations, 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. The Department's technical evaluations and Draft Permit can be viewed at the following Internet address: www8.myflorida.com/licensingpermitting/learn/environment/air/airpermits.html by clicking on "Utility and Other Facility Permits".

**TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION**

**FLORIDA POWER CORPORATION
University of Florida Cogen Plant
Gainesville, Alachua County**

**48 MW GE LM6000-PC-ESPRINT
TURBINE REPLACEMENT**

**Facility I.D. No. 0010001
Permit No. 0010001-003-AC**

**Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation**

April 18, 2001

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

APPLICATION INFORMATION

Applicant Name and Address

Florida Power Corporation
University of Florida Cogen Plant
Mowry Road, Bldg. 82
University of Florida
Gainesville, Florida 32611-2295

Authorized Representative: Kris Edmondson – Plant Manager

Reviewing and Process Schedule

Date of receipt of application: 01-29-01
BAR incompleteness letter: 02-09-01
Received response to incompleteness letter: 03-08-01
Application deemed complete: 03-08-01

FACILITY INFORMATION

Facility Location

Florida Power Corporation's University of Florida Cogen Plant is located at Mowry Road, Bldg. 82 near the university's medical school in Gainesville, Alachua County. This site is approximately 100 kilometers (km) south of Okefenokee National Wildlife Refuge (NWR), a PSD Class I Area and approximately 100 km northeast of the Chassahowitzka NWR Class I PSD Area. The UTM coordinates of this facility are Zone 17; 369.4.0 km E; 3,279.3 km N.

Standard Industrial Classification Codes (SIC)

Industry Group No.	49	Electric, Gas, and Sanitary Services
Industry No.	4911	Electric Services

Facility Category

The facility 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/PM₁₀), sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), or volatile organic compounds (VOC) exceeds 100 TPY. The facility is within an industry included in the list of the 28 Major Facility Categories per Table 212.400-1, F.A.C. Since present emissions are greater than 100 TPY for NO_x, the facility is also a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD).

As a Major Facility, project emissions greater than the significant emission rates given in Table 212.400-2 (100 TPY of CO; 40 TPY of NO_x, SO₂, or VOC, 25/15 TPY of PM/PM₁₀) require review per the PSD rules and a determination of Best Available Control Technology (BACT). This facility underwent PSD review and a BACT determination in 1994 (PSD-FL-181). This facility is also subject to the Title IV Acid Rain Program, 40 CFR 72.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

PROJECT DESCRIPTION

The applicant proposes to install a 48 megawatt (MW) combustion turbine (GE LM6000-PC-ESPRINT) to replace an existing 43 MW combustion turbine (GE LM6000-PA) that has been operated continuously at the facility since 1994. The existing turbine is in need of a significant amount of repair/maintenance. General Electric does not support the older "PA" model. FPC determined that the economics of the new engine vs. repair of the existing unit are favorable, and concluded that the replacement with the updated "PC ESPRINT" model is the best alternative.

This emissions unit (EU001) is indicated in the table below listing each emissions unit at the facility. The new model will utilize spray intercooling to maximize throughput thus reducing supplementary firing in the duct burner for meeting steam and power requirements.

E.U. No.	EMISSION UNIT DESCRIPTION
001	GE LM6000-PC-ESPRINT Combustion Turbine
002	Duct Burner System/HRSG
003	No. 4 Boiler
004	No. 5 Boiler

According to information available from General Electric, the LM6000-PC-ESPRINT replacement turbine is a more fuel-efficient version of the existing GE LM6000 turbine presently installed. The GE SPRINT^(R) technology selected for this project is based on an atomized water spray injected through spray nozzles located between the high-pressure and low-pressure compressors. Water is atomized using high-pressure air taken off of eighth-stage bleed. The water-flow rate is metered, using the appropriate engine control schedules. On high-pressure ratio gas turbines, such as the LM6000, the compressor discharge temperature is controlled because compressed air is used to cool the hot section components. By injecting an atomized water spray in front of the LM6000 high-pressure compressor, the compressor inlet temperature is significantly reduced. Utilizing the same compressor discharge temperature control limit, the compressor is able to pump more air, achieving a higher-pressure ratio. The result is higher output and better efficiency. It is estimated that GE SPRINT technology will increase the maximum power output at ISO conditions from the current 43 MW to about 48 MW.

CURRENT COMBUSTION TURBINE/DUCT BURNER EMISSION LIMITS (TITLE V PERMIT)

Pollutant	Fuel Type	Basis of Limit (CT/DB)	CT/DB	
			lbs/hr	TPY
NO _x ¹	Natural Gas	25 ppmvd/0.1 lb per MMBtu	39.6/18.7	142.7/24.6
	No.2 Fuel Oil	42 ppmvd/Not Applicable	66.3 ² /Not Applicable	7.3 ^{1,2} /Not Applicable
SO ₂	No.2 Fuel Oil	BACT	0.5% (wt.) Sulfur	
CO	Natural Gas	42 ppmvd/0.15 lb per MMBtu	38.8/28.1	158.0/36.9
	No.2 Fuel Oil	75 ppmvd/Not Applicable	70.5/Not Applicable	7.7/Not Applicable
VE	Natural Gas		10% opacity	
VE	No. 2 Fuel Oil		20% opacity, except for one 6-min. period per hour of not more than 27% opacity	

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

AIR POLLUTION EMISSIONS AND CONTROL TECHNIQUES

Regulated air pollutants of most concern that are emitted from natural gas-fired turbines include nitrogen oxides (NO_x) and carbon monoxide (CO), while particulate matter (PM/PM₁₀), sulfur dioxide (SO₂) and volatile organic compounds (VOC) are typically emitted in less significant amounts. As described below, water injection is the method used to control NO_x emissions. Emissions of other pollutants are limited through combustion design and proper operation and maintenance, and by limiting hours of operation.

NITROGEN OXIDES (NO_x) EMISSIONS

Oxides of nitrogen (NO and NO₂) are formed in the high temperature environment of the turbine combustion zone due to oxidation of molecular nitrogen in the combustion air. About 90-95% of the NO_x is formed as nitric oxide (NO). Although some of the NO is subsequently oxidized in the exhaust environment and the atmosphere to nitrogen dioxide (NO₂), the residence time in the combustion zone is too short for significant amounts of NO to be oxidized to NO₂. An alternate source of nitrogen is the chemically bound nitrogen in the fuel. Thermal NO_x forms in the high temperature area of the combustion zone, and increases exponentially with increasing flame temperature and linearly with increasing residence time. Flame temperature is dependent upon the ratio of fuel to air in the combustion zone. Prompt NO_x forms near the flame front as an intermediate combustion product and is a relatively small fraction of the NO_x formed under near-stoichiometric conditions. Fuel NO_x is formed from the nitrogen content in the fuel and is not a significant contributor to total NO_x when combusting natural gas or distillate fuel oil which contain little fixed nitrogen.

Actual emissions of NO_x will vary with operating load and ambient (inlet) air conditions. Increasing the operating load increases the fuel requirement, so mass emissions will increase as operation increases. Because of the increased density of colder air, higher mass throughput can be achieved which requires more fuel resulting in higher emissions. Ambient humidity will also affect mass flow, fuel requirements and emissions, but to a lesser extent.

This type of combustion turbine is designed to control NO_x emissions through the injection of water into the combustion zone. The injected water, through consumption of heat for vaporization, reduces the temperature in the combustion zone, thus controlling thermal NO_x. There is a practical limit to the amount of water that may be injected before flame instability or poor combustion conditions result. The monitoring of the water injection and fuel consumption rates is required in order to properly maintain the water to fuel ratio at a constant level. The system is operated so that as more fuel is fired at higher loads or cooler ambient conditions, more water is injected to maintain NO_x emissions at a constant exhaust concentration.

The turbine is designed to maintain an exhaust gas concentration of 25 ppmvd NO_x while firing gas, or 42 ppmvd while firing oil (corrected to 15% oxygen at ISO conditions). This is equivalent to 39.6 lb/hr while burning gas and 66.3 lb/hr while burning oil. While NO_x concentration is maintained at a near-constant level, mass emissions will vary with load and ambient temperature as discussed previously.

The permit will require that compliance be demonstrated annually with the total NO_x emissions from the combustion turbine (EU001), duct burner (EU002), and the two boilers used for backup only (EU003 and EU004), being limited to 194.3 tons per year. Also required is that the water-to-fuel ratio be maintained at a level necessary to demonstrate compliance with the concentration standard during the latest annual compliance test (40 CFR 60, Subpart GG). Annual operation and compliance will be effected through the use of a NO_x continuous emission monitor (CEMS).

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

CARBON MONOXIDE (CO) & VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS

CO and VOC emissions are formed in the combustion process as a result of incomplete fuel combustion. In general, CO emissions are inversely proportional to NOx emissions for turbines. The water injection system used to control NOx could, if not properly operated and maintained, increase CO emissions if combustion temperatures are quenched so that cold spots form in the combustion zone. Combustion design and proper operation and maintenance are the air pollution control techniques. The permit requires that facility staff are trained in proper operation and maintenance of the turbines, so that emissions are kept to a minimum. The permit requires that compliance be demonstrated annually with the maximum CO emission rate of 36 ppmvd @ 15% O₂, and 35.8 pounds per hour, and 127.5 tons per year. VOC emissions vary similarly with CO, although potential emissions of VOC are considerably lower than CO.

PARTICULATE MATTER (PM/PM₁₀) EMISSIONS

Particulate matter is generated by various physical and chemical processes during combustion and will be affected by the fuel type and the design and operation of the combustion system. The fuel fired will be primarily natural gas with distillate fuel oil used for backup (maximum sulfur content of 0.5%, by weight). Since natural gas is a very clean-burning fuel, it generates very little particulate matter. Likewise, distillate fuel oil with its low ash and sulfur content generates very low quantities of particulate matter. According to worst case estimates by the applicant, PM/PM₁₀ emissions will be less than 10 tons per year.

SULFUR DIOXIDE (SO₂) & SULFURIC ACID MIST EMISSIONS

Emissions of sulfur dioxide and sulfuric acid mist vary with the sulfur content of the fuel. Fuel sulfur is oxidized during combustion to sulfur dioxide. Through further reaction with oxygen and the water vapor in the inlet air, some of the SO₂ is further oxidized to sulfur trioxide (SO₃) and the exhaust gas leads to the formation of sulfuric acid. Limiting the hours of operation on fuel oil and the sulfur content of the fuel are the most effective control measures. The sulfur content of the fuel oil is limited by this permit as well as the applicant's Title V permit to 0.5 % (wt.). Since annual emissions will not increase as a result of this project and therefore PSD does not apply, the current BACT limit of 0.05% sulfur for distillate fuel oil fired in gas turbines will not be required.

RULE APPLICABILITY

The proposed project is subject to preconstruction review requirements under the provisions of Chapter 403, Florida Statutes, and Chapters 62-4, 62-204, 62-210, 62-212, 62-214, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The Department determined that the Rules for the Prevention of Significant Deterioration of Air Quality (PSD) do not apply to this project because the modification will not result in emissions increases greater than the significant emission rates given in Table 212.400-2, F.A.C. Additionally, annual facility emissions after replacement of the turbine will be capped at currently permitted levels. These caps, in addition to other conditions, were imposed during the permitting of the original combustion turbine to avoid PSD applicability.

The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). This project is subject to the following applicable requirements of the rules and regulations of the Florida Administrative Code as follows:

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Chapter 62-4	Permitting Requirements
Chapter 62-204	Ambient Air Quality Protection and Standards, PSD Increments, and Federal Regulations Adopted by Reference
Chapter 62-210	Required Permits, Public Notice and Comments, Reports, Stack Height Policy, Circumvention, Excess Emissions, Forms and Instructions
Chapter 62-212	Preconstruction Review, PSD Requirements, BACT Determinations
Chapter 62-213	Operation Permits for Major Sources of Air Pollution
Chapter 62-214	Acid Rain Program Requirements
Chapter 62-296	Emission Limiting Standards
Chapter 62-297	Test Requirements, Test Methods, Supplementary Test Procedures, Capture Efficiency Test Procedures, Continuous Emissions Monitoring Specification and Alternate Sampling Procedures

The project is also subject to federal air pollution control rules including the applicable provisions of 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The duct burner (EU 002) shall comply with the applicable provisions of 40 CFR 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The Emissions Units subject to a specific NSPS subpart shall also comply with the applicable requirements of 40 CFR 60, Subpart A, General Provisions including:

- 40CFR60.7 Notification and Record Keeping
- 40CFR60.8 Performance Tests
- 40CFR60.11 Compliance with Standards and Maintenance Requirements
- 40CFR60.12 Circumvention
- 40CFR60.13 Monitoring Requirements
- 40CFR60.19 General Notification and Reporting requirements

SOURCE IMPACT ANALYSIS

An impact analysis was not required for this project because it is not subject to the requirements of PSD.

CONCLUSION

Based on the foregoing technical evaluation of the application and additional information submitted by the applicant and other available information, the Department has made a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations.

DEPARTMENT CONTACT FOR ADDITIONAL INFORMATION

John Reynolds, Permit Engineer
New Source Review Section
Bureau of Air Regulation, MS 5505
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Phone: 850-921-9530
Fax: 850-921-6979

PERMITTEE:

Florida Power Corporation/UF Cogen Plant
Mowry Road, Building 82
University of Florida
Gainesville, Florida 32611-2295

Permit No.	0010001-003-AC
File No.	0010001-003-AC
SIC No.	4911
Expires:	December 31, 2002

Authorized Representative:

Kris Edmondson – Plant Manager

PROJECT AND LOCATION:

This Air Construction Permit is pursuant to the requirements for the installation of a nominal 48 megawatt (MW) combustion turbine (GE LM6000-PC-ESPRINT) to replace the existing 43 MW combustion turbine (GE LM6000-PA) that has been operated at the permittee's facility since 1994. The new model will utilize spray intercooling to maximize throughput thus reducing supplementary firing in the duct burner for meeting steam and power requirements. This unit will be located at the University of Florida Cogen Plant, Mowry Road, Building 82, UF, Gainesville, Alachua County. UTM coordinates are: Zone 17; 369.4 km E; 3,279.3 km N.

STATEMENT OF BASIS:

This Air 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 and Tables made a part of this permit:

- Appendix GC - Construction Permit General Conditions
- Appendix GG - NSPS Subpart GG Requirements

Howard L. Rhodes, Director
Division of Air Resources
Management

AIR CONSTRUCTION PERMIT 0010001-003-AC

SECTION 1 - FACILITY INFORMATION

FACILITY DESCRIPTION

This existing University of Florida Cogen Plant consists of a single combustion turbine (CT), heat recovery steam generator (HRSG), duct burners (DB) located between the CT and the HRSG, and Boilers Nos. 4 and 5 utilized for backup only. This facility was permitted originally in 1992 to provide power and steam for the University of Florida. That project (PSD-FL-181) involved the construction of the cogen facility along with the permanent shutdown of Boilers Nos. 1, 2 and 3. This project is for the replacement of the original 43 Megawatt CT with a more efficient model that is moderately higher in capacity (48 MW).

EMISSIONS UNITS

This permit addresses the following emissions units:

E.U. NO.	EMISSION UNIT DESCRIPTION
001	GE LM6000-PC-ESPRINT Combustion Turbine
002	Duct Burner System/HRSG
003	No. 4 Boiler
004	No. 5 Boiler

REGULATORY CLASSIFICATION

The facility is classified as a Major or Title V Source of Air Pollution as defined in Rule 62-210.200. It is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. and is a Major Facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD).

PSD review and a Best Available Control Technology (BACT) determination are not required for this project since the net emissions increases are less than PSD-significant levels for all pollutants. The new CT is subject to the New Source Performance Standard for Stationary Gas Turbines at 40CFR60, Subpart GG.

This facility is also subject to certain Acid Rain provisions of Title IV of the Clean Air Act.

PERMIT SCHEDULE/RELEVANT DOCUMENTS:

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

- Application received January 29, 2001
- Department's letter to the applicant dated February 9, 2001
- Applicant's response letter dated March 5, 2001
- Public Notice Package including Technical Evaluation and Preliminary Determination, April 18, 2001
- Department's Final Determination and BACT determination issued XX-XX-2001.

AIR CONSTRUCTION PERMIT 0010001-003-AC

SECTION II – ADMINISTRATIVE REQUIREMENTS

GENERAL AND ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: 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 (FDEP), at 2600 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114.
2. Compliance Authority: All documents related to reports, tests, and notifications should be submitted to the DEP Northeast District Office, 7825 Baymeadows Way, Suite 200B, Jacksonville, Florida 32256-7590, phone 904/448-4300 and Northeast District Branch Office, 101 NW 75th Street, Suite 3, Gainesville, Florida, phone 352/333-2850.
3. 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.]
4. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
5. 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.]
6. 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, F.A.C.]
7. 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.]
8. Completion of Construction: The permit expiration date is December 31, 2002. Physical construction shall be complete by September 30, 2002. The additional time provides for testing, submittal of results, and submittal of the Title V permit to the Department.
9. Permit Expiration Date Extension: The permittee, for good cause, may request that this PSD 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.).

SECTION II – ADMINISTRATIVE REQUIREMENTS (CONT'D)

10. **BACT Determination:** In conjunction with extension of the 18 month periods to commence or continue construction, the extension of the permit expiration date, or any increases in MW generated by steam, heat input limits, hours of operation, oil firing, low or baseload operation, short-term or annual emission limits, annual fuel heat input limits or similar changes; the permittee may be required to demonstrate the adequacy of any previous determination of best available control technology for the source. [Note: Pursuant to PSD-FL-181, the permittee requested and received a 39.7 TPY net increase in NO_x emissions. Therefore, any net increase in NO_x emissions of 0.3 TPY above the allowable limitation established in PSD-FL-181 will initiate preconstruction review requirements pursuant to Rule 62-212.400(5), F.A.C., for NO_x as if construction of these emissions units had not yet begun. [Rules 62-212.400(2)(g) and 62-212.400(5), F.A.C.]
11. **Application for Title IV Permit:** An application for a Title IV Acid Rain Permit must be submitted to the U.S. Environmental Protection Agency Region IV office in Atlanta, Georgia and a copy to the Department's Bureau of Air Regulation in Tallahassee at least 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW. [40 CFR 72]
12. **Application for Title V Permit:** An application for a Title V operating permit, pursuant to Chapter 62-213, F.A.C., must be submitted to the Department's Bureau of Air Regulation, and a copy to the Department's Southeast District Office. [Chapter 62-213, F.A.C.]

OPERATIONAL REQUIREMENTS

13. **Plant Operation - Problems:** If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
14. **Operating Procedures:** Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All plant operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.]
15. **Circumvention:** The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without the applicable air control device operating properly. [Rule 62-210.650, F.A.C.]
16. **Unconfined Particulate Matter Emissions:** During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

SECTION II – ADMINISTRATIVE REQUIREMENTS (CONT'D)

TESTING REQUIREMENTS

17. Test Notification: The permittee shall notify each Compliance Authority in writing at least 30 days prior to any initial NSPS performance tests and at least 15 days prior to any other required tests. Notification shall include the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and conducting the test. [Rule 62-297.310(7)(a)9., F.A.C. and 40 CFR 60.7, 60.8]
18. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]
19. Applicable Test Procedures
- (a) Required Sampling Time. Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes. The minimum observation period for a visible emissions compliance test shall be sixty (60) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur. [Rule 62-297.310(4)(a)1. and 2., F.A.C.]
 - (b) Minimum Sample Volume. Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet. [Rule 62-297.310(4)(b), F.A.C.]
 - (c) Calibration of Sampling Equipment. Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C. [Rule 62-297.310(4)(d), F.A.C.]
20. Determination of Process Variables
- (a) Required Equipment. The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards. [Rule 62-297.310(5)(a), F.A.C.]
 - (b) Accuracy of Equipment. Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value. [Rule 62-297.310(5)(b), F.A.C.]
21. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

SECTION II – ADMINISTRATIVE REQUIREMENTS (CONT'D)

22. Stack Testing Facilities: Stack sampling facilities shall be installed in accordance with Rule 62-297.310(6), F.A.C. [Rule 62-297.310]
23. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2)(b), F.A.C.]

RECORDS

24. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2., F.A.C.]

REPORTS

25. Emissions Performance Test Results Reports: A report indicating the results of any required emissions performance test shall be submitted to each Compliance Authority no later than 45 days after completion of the last test run. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8)(c), F.A.C. [Rule 62-297.310(8), F.A.C.]
26. Annual Operating 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 Department's Northeast District Office by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

SECTION III – EMISSIONS UNITS SPECIFIC CONDITIONS

APPLICABLE STANDARDS AND REGULATIONS

1. Regulations: Unless otherwise indicated in this permit, the construction and operation of the subject emission units 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, 62-17, 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 52, 60, 72, 73, and 75.
2. Applicable Requirements: Issuance of a permit does not relieve the owner or operator of an emissions unit from complying with any applicable requirements, any emission limiting standards or other requirements of the air pollution rules of the Department or any other such requirements under federal, state, or local law, notwithstanding that these applicable requirements are not explicitly stated in this permit. In cases where there is an ambiguity or conflict in the specific conditions of this permit with any of the above-mentioned regulations, the more stringent local, state, or federal requirement applies. [Rules 62-204.800 and Rules 62-210.300 and 62-4.070 (3) F.A.C.]
3. NSPS Requirements: The combustion turbine (EU 001) shall comply with the applicable provisions of 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The duct burner (EU 002) shall comply with the applicable provisions of 40 CFR 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The Emissions units subject to a specific NSPS subpart shall also comply with the applicable requirements of 40 CFR 60, Subpart A, General Provisions including:
 - 40CFR60.7 Notification and Record Keeping
 - 40CFR60.8 Performance Tests
 - 40CFR60.11 Compliance with Standards and Maintenance Requirements
 - 40CFR60.12 Circumvention
 - 40CFR60.13 Monitoring Requirements
 - 40CFR60.19 General Notification and Reporting requirements

GENERAL OPERATION REQUIREMENTS

4. Authorized Fuels: The combustion turbine shall fire only pipeline-quality natural gas or No. 2 distillate oil (or a superior grade) containing no more than 0.5% sulfur by weight. The permittee shall monitor sulfur content and nitrogen content of No. 2 fuel oil. The frequency of determinations of these values shall be as follows: (a) If the emissions unit is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source (b) If the emissions unit is supplied its fuel oil without intermediate bulk storage the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom fuel monitoring schedule requests shall be substantiated with data and submitted to the Department. The Department will submit the request to the Administrator, who must approve the custom fuel monitoring schedule before it can be used to comply with 40 CFR 60.334(b). [40 CFR 60.334(b)(1) and (2)]
5. Combustion Turbine/Duct Burner Capacity: The heat input to the combustion turbine shall not exceed 392 million Btu per hour (mmBtu/hr) when firing natural gas and 384 mmBtu/hr when firing

SECTION III – EMISSIONS UNITS SPECIFIC CONDITIONS (CONT'D)

fuel oil. The heat input to the duct burner system shall not exceed 188 mmBtu/hr on natural gas (no oil firing). The maximum heat input limits are based on the lower heating value (LHV) of each fuel, 100% load, and ambient conditions of 25°F temperature, 60% relative humidity, and 14.7 psia. These maximum heat input rates will vary depending upon ambient conditions and the combustion turbine characteristics. Manufacturer's curves corrected for site conditions or equations for correction to other ambient conditions shall be provided to the Department within 45 days of completing the initial compliance testing. [Rule 62-210.200, F.A.C. (Definitions - Potential Emissions), Permit 0010001-001-AV]

6. Hours of Operation/Fuel Usage Limitations: Combustion turbine/duct burner operation at maximum firing rates shall be limited to 7,211 hours per year (to prevent retroactive PSD applicability for NO_x under PSD-FL-181, pursuant to Rule 62-212.400(5), F.A.C., by reaching the 40 tons per year PSD applicability threshold). The turbine/duct burner may operate at lower than maximum rates for more hours per year provided that the following annual fuel consumption limitations are not exceeded and that the following annual fuel consumption limitations do not result in NO_x emissions greater than 194.3 TPY:

Combustion Turbine (EU 001) – 2.99 billion ft³ natural gas and 635,100 gallons No. 2 fuel oil
Duct Burner (EU 002) – 519.5 million ft³ natural gas

EU 003 and 004 (Boilers Nos. 4 and 5) shall be allowed to operate as required for backup only as long as the facility-wide NO_x cap of 194.3 TPY is not exceeded for any federal fiscal year. AP-42 NO_x emission factors shall be applied to the fuel consumed by Boilers Nos. 4 and 5 to determine compliance with the facility cap. The NO_x emissions calculations shall be submitted to the Compliance Authority with the Annual Operating Report. The permittee shall install and operate a continuous monitoring system to monitor and record fuel consumption as required by 40 CFR 60.334. [Applicant Request, Rules 62-210.200 (Definitions), 62-212.400(5), F.A.C., 40 CFR 60 Subpart GG]

CONTROL TECHNOLOGY

7. Wet Injection: A wet injection system shall be installed to reduce NO_x emissions from the combustion turbine exhaust. The permittee shall install and operate a continuous monitoring system to monitor and record the ratio of water to fuel being fired in the combustion turbine. [Rule 62-212.400, F.A.C., 40 CFR 60, Subpart GG]
8. Nitrogen Oxides (NO_x): [The NO_x emissions limits include oxides of nitrogen consisting of both Nitric Oxide (NO) and Nitrogen Dioxide (NO₂). By convention, total NO_x on a mass basis is expressed as equivalent NO₂. NO_x concentration (ppm) is measured as NO by EPA stack sampling methods 7E and 20 and as NO₂ by the CEM analyzer. The NO_x concentration is converted to mass emissions by applying the molecular weight of NO₂ to the total flow rate.]
- a. Combustion Turbine (EU 001):
1. When firing natural gas, NO_x emissions from the combustion turbine shall not exceed any of the following: 25 ppmvd (corrected to 15% oxygen), 39.6 pounds per hour, 141* tons per year. [Applicant Request*, Rule 62-212.400, F.A.C., Permit 0010001-001-AV]
 2. When firing distillate oil, NO_x emissions from the combustion turbine shall not exceed any of the following: 42.0 ppmvd corrected to 15% oxygen, 66.3 pounds per hour, 7.3 tons per year. The nitrogen content of the fuel oil shall be monitored in accordance with 40 CFR 60.334(b). [40 CFR 60 Subpart GG, Rule 62-212.400, F.A.C., Permit 0010001-001-AV]

AIR CONSTRUCTION PERMIT 0010001-003-AC

SECTION III – EMISSIONS UNITS SPECIFIC CONDITIONS (CONT'D)

3. The performance test shall be determined in accordance with EPA Method 7E or EPA Method 20. Ongoing and annual compliance thereafter shall be determined by the existing NO_x CEM system using hourly heat input rates applied to actual operating hours according to the procedures outlined in the facility's current Title V permit. [40 CFR 60, Subpart GG, Permit 0010001-001-AV]

b. Duct Burner (EU 002):

1. NO_x emissions from firing natural gas in the duct burner shall not exceed any of the following: 0.1 lb/MMBtu, 18.7 pounds per hour, 24.6 tons per year. [Rule 62-212.400, F.A.C., Permit 0010001-001-AV]

2. The initial performance test and annual compliance tests shall be conducted as required in Specific Condition 12.a.3. above for EU 001 [40CFR60, Subpart GG]

c. CEM System (EU 001 and 002):

1. When firing natural gas, NO_x emissions from the combustion turbine/duct burner shall not exceed 25.0 ppmvd corrected to 15% oxygen. [40CFR60, Subpart GG]

2. When firing distillate oil, NO_x emissions from the combustion turbine/duct burner shall not exceed 42.0 ppmvd corrected to 15% oxygen. [40CFR60, Subpart GG]

3. Ongoing and annual compliance for EU 001 and 002 shall be determined by the existing NO_x CEM system on a 30-day rolling average basis and reported as required by the current Title V permit, except for the following addition/revision: *To verify facility-wide compliance with the 194.3 TPY cap for NO_x emissions including EU 003 and 004 (Boilers Nos. 4 and 5), and to provide reasonable assurance that NO_x emissions will not be PSD-significant, CEM records along with cumulative fuel consumption records for EU 003 and 004 shall be kept and maintained by the permittee. Total NO_x emissions for the calendar year shall be reported in the facility's annual operating report.* [PSD-FL-181, Rule 62-212.400, F.A.C., Permit 0010001-001-AV]

9. Carbon Monoxide (CO) Emissions:

a. Combustion Turbine (EU 001):

1. When firing natural gas, CO emissions from the combustion turbine shall not exceed any of the following: 36 ppmvd (corrected to 15% oxygen), 35.8 pounds per hour, 127.5 tons per year. [Applicant Request, Rule 62-212.400, F.A.C.]

2. When firing distillate oil, CO emissions from the combustion turbine shall not exceed any of the following: 75.0 ppmvd (corrected to 15% oxygen), 70.5 pounds per hour, 7.7 tons per year. [Rule 62-212.400, F.A.C.]

3. Performance and annual compliance shall be determined in accordance with EPA Method 10. [40CFR60, Subpart GG and Appendix A]

b. Duct Burner (EU 002):

1. When firing natural gas, CO emissions from the duct burner shall not exceed any of the following: 0.15 lb/MMBtu, 28.1 pounds per hour, 36.9 tons per year. [Rule 62-212.400, Permit 0010001-001-AV]

2. Performance and annual compliance with the above limits shall be determined in accordance with EPA Method 10. [40CFR60, Subpart GG and Appendix A]

SECTION III – EMISSIONS UNITS SPECIFIC CONDITIONS (CONT'D)

10. Sulfur Dioxide (SO₂) Emissions:

a. SO₂ emissions from the combustion turbine shall not exceed 0.015 percent by volume at 15 percent oxygen and on a dry basis. [40 CFR 60.333(a), Subpart GG]

b. The SO₂ performance test shall be conducted using EPA Method 20 in accordance with 40 CFR 60.335. [40 CFR 60, Subpart GG]

c. In lieu of an annual compliance test for SO₂, the fuels fired in the combustion turbine and/or duct burner shall have the following sulfur limits:

Natural Gas – 1.0 grain sulfur per 100 standard cubic feet

Fuel Oil – 0.5 percent (wt.) sulfur [PSD-FL-181], 0.8 percent (wt.) sulfur [40 CFR 60.333, Subpart GG]

d. Ongoing compliance with the fuel sulfur limit for natural gas and fuel oil shall be demonstrated by the fuel supplier's analysis reports containing the sulfur content of the fuel being supplied. Methods for determining the sulfur content of natural gas shall be ASTM methods D4084-82, D3246-81 or more recent versions. Ongoing compliance with the fuel oil sulfur limits shall be demonstrated by fuel analyses certified according to the provisions of 40 CFR 75 Appendix D by the fuel supplier. At the request of the Compliance Authority, the permittee shall perform additional sampling and analysis for the fuel sulfur content. [40 CFR 60, Subpart Db, Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

a. Visible Emissions (VE):

b. When firing natural gas in the combustion turbine (EU 001) and/or duct burner (EU 002), visible emissions shall not exceed 10 percent opacity as determined by EPA Method 9. [Permit 0010001-001-AV, Rule 62-212.400, F.A.C.]

c. When firing fuel oil in the combustion turbine (EU 001), visible emissions shall not exceed 20 percent opacity as determined by EPA Method 9. [Permit 0010001-001-AV, Rule 62-212.400, F.A.C.]

d. Ongoing compliance with the above visible emissions limits shall be determined in accordance with EPA Method 9. [40 CFR 60, Appendix A]

11. Performance Tests: The combustion turbine and duct burner shall be stack-tested as required above when firing each authorized fuel to demonstrate compliance with the emission standards for NO_x, SO₂, CO and visible emissions. The tests must be conducted within 60 days after achieving at least 90% of the maximum permitted capacity, but not later than 180 days after initial operation of the emissions units. Tests for NO_x, SO₂ and CO shall be conducted concurrently. [Rule 62-297.310(7)(a)1., F.A.C.; 40 CFR 60.335]

12. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), the combustion turbine/duct burner shall be tested when firing natural gas to demonstrate compliance with the emission limits for NO_x, CO and visible emissions. If the combustion turbine fires fuel oil more than 400 hours during the federal fiscal year, it shall also be tested for visible emissions when firing oil. [Rule 62-212.400, F.A.C.; Permit 0010001-001-AC]

SECTION III – EMISSIONS UNITS SPECIFIC CONDITIONS (CONT'D)

EXCESS EMISSIONS

13. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction are prohibited. These emissions shall be included in the 24-hour compliance averages for NO_x and for CO emissions. [Rule 62-210.700(4), F.A.C.]
14. Excess Emissions Defined: During startup, shutdown, and documented unavoidable malfunction of the combined cycle gas turbine, the following permit conditions allow excess emissions or the exclusion of monitoring data for specifically defined periods of operation. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of excess emissions during such incidents. If a CEM system reports emissions in excess of the standard, the permittee shall notify the Compliance Authority within (1) working day with a preliminary report of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. [Turbine Manufacturer Data; Rule 62-210.700, F.A.C.]
15. Best operational practices: Best operational practices shall be used to minimize hourly emissions that occur during episodes of startup, shutdown and malfunction. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented, shall be prohibited. [Rule 62-210.700, F.A.C.]

MONITORING REQUIREMENTS

16. Continuous Emission Monitoring System: The owner or operator shall install, calibrate, maintain, and operate a continuous emission monitoring (CEM) system in the stack to measure and record the emissions of NO_x from these emissions units in a manner sufficient to demonstrate compliance with the CEM emission limits of this permit. The oxygen content or the carbon dioxide (CO₂) content of the flue gas shall also be monitored at the location where NO_x is monitored to correct the measured NO_x emissions rates to 15% oxygen. [Rule 62-210.700, F.A.C., 40 CFR 60, Subpart GG]
17. Fuel Consumption Monitoring of Operations: To demonstrate compliance with the fuel consumption limits, the permittee shall monitor and record the rates of consumption of each allowable fuel in accordance with the provisions of 40 CFR 75 Appendix D. To demonstrate compliance with the turbine capacity requirements, the permittee shall monitor and record the operating rate of the combustion turbine on a daily average basis, considering the number of hours of operation during each day (including the times of startup, shutdown and malfunction). Such monitoring shall be made using a monitoring component of the CEM system required above, or by monitoring daily rates of consumption and heat content of each allowable fuel in accordance with the provisions of 40 CFR 75 Appendix D. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]
18. Fuel Consumption Rates Monthly Monitoring: By the fifth calendar day of each month, the permittee shall record the monthly fuel consumption and hours of operation for the combustion turbine. The information shall be recorded in a verifiable manner and shall summarize the previous month of operation and the previous 12 months of operation. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department or the Compliance Authority. [Rule 62-4.070(3), F.A.C.]

SECTION III – EMISSIONS UNITS SPECIFIC CONDITIONS (CONT'D)

NOTIFICATION, REPORTING, AND RECORDKEEPING

19. Records: All measurements, records, and other data required to be maintained shall be recorded in a permanent form and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. These records shall be made available upon request. [Rules 62-4.160 and 62-213.440, F.A.C]
20. NSPS Notifications: All applicable notifications and reports required by 40 CFR 60, Subpart A shall be submitted to the Compliance Authority. [40 CFR 60, Subpart A]
21. Semi-Annual Reports: Semi-annual excess emission reports, in accordance with 40 CFR 60.7 (a)(7)(c) (2000 version), shall be submitted to each Compliance Authority. [40 CFR 60.7]
22. Addresses: The permittee shall submit all compliance related notifications and reports required of this permit to the Department's Northeast District Office and Branch Office: Department of Environmental Protection, Northeast District Office, 825 Baymeadows Way, Suite 200-B, Jacksonville, FL 32256-7590, Telephone: 904/448-4300, Fax: 904/448-4363, and Department of Environmental Protection, Northeast District Branch Office, 5700 Southwest 34th Street, Suite 1204, Gainesville, FL 32608, Telephone: 352/955-2095, Fax: 352/377-5671.

AIR CONSTRUCTION PERMIT 0010001-003-AC

TITLE V EMISSION LIMITS

(Summary of Emission Limits in Current Title V Permit 0010001-001-AV)

Pollutant	Fuel Type	Basis of Limit (CT/DB)	CT/DB	
			lbs/hr	TPY
NO _x ¹	Natural Gas	25 ppmvd/0.1 lb per MMBtu	39.6/18.7 ³	142.7/24.6 ^{1,2}
	No.2 Fuel Oil	42 ppmvd/Not Applicable	66.3 ³ /Not Applicable	7.3 ^{1,2} /Not Applicable
SO ₂	No.2 Fuel Oil	BACT	0.5% (wt.) Sulfur	
CO	Natural Gas	42 ppmvd/0.15 lb per MMBtu	38.8/28.1	158.0/36.9
	No.2 Fuel Oil	75 ppmvd/Not Applicable	70.5/Not Applicable	7.7/Not Applicable
VE	Natural Gas		10% opacity ⁴	
VE	No. 2 Fuel Oil		20% opacity, except for one 6-min. period per hour of not more than 27% opacity ⁴	

The NO_x limit was accepted by the applicant to escape PSD New Source Review.

² Any net increase in NO_x emissions of 0.3 TPY above the combined allowable limits of the CT and DB (174.6 TPY; and, see Specific Conditions B.4. and D.2.b.) will initiate preconstruction review requirements pursuant to Rule 62-212.400(5), F.A.C., for NO_x for the CT and DB as if construction of these emissions units had not yet begun.

³ 30-day rolling average, compliance timeframe. (See Specific Condition A.6.)

⁴ Since the CT and DB are in series, the opacity standard is applicable when the CT or the CT and DB are in operation, except when the CT is firing No. 2 distillate fuel oil, at which time the CT's opacity standard for fuel oil will be in effect. See Specific Condition B.4.

The permittee has elected to demonstrate compliance with the NO_x emissions limits using a continuous emissions monitor system (CEMS). Since the CT and DB are in series, the allowable emissions for both emissions units shall be combined for ongoing compliance demonstration purposes. For the purpose of demonstrating ongoing compliance with the applicable combined emissions limits for both the CT and DB, using the stack CEMS, compliance is considered to occur when the NO_x emissions are less than or equal to (1) 39.6 lbs/hr or 66.3 lbs/hr when only the CT is operating and firing natural gas or No. 2 distillate fuel oil, respectively; (2) 58.3 lbs/hr when both the CT and DB are operating and firing natural gas; or, (3) 85.0 lbs/hr when both the CT and DB are operating and the CT is firing No. 2 distillate fuel oil and the DB is firing natural gas. The daily rolling average compliance value shall be calculated based on the proportion of hours operated in a day (midnight to midnight) that the CT or both the CT and DB are operating. Any portion of an hour that the DB operates shall be recognized as an hour-period on the daily operation. For example, in a given daily timeframe, with 20 hours of CT operation only while firing natural gas and 4 hours of CT-DB operation while firing natural gas:

$$\begin{aligned} \text{Calculated Daily NO}_x \text{ Emissions Value} &= \\ &= [(39.6 \text{ lbs/hr} \times 20\text{-hrs}) + (58.3 \text{ lbs/hr} \times 4\text{-hrs})] / 24\text{-hrs} = \\ &= 42.72 \text{ lbs/day NO}_x \text{ emissions value} \end{aligned}$$

For the 30-day rolling average, this daily calculated emissions value will then be added to the previous 29-day period of daily calculated emission values and divided by 30 (days) to establish the 30-day average emissions value for comparing to the CEMS data over the same 30-day period.

$$\begin{aligned} \text{Calculated 30-Day Average NO}_x \text{ Emissions Value} &= \\ &= [42.72 \text{ lbs/day} + \text{"previous 29-daily emission values (lbs/day) summation"}] / 30\text{-days} = \\ &= \# \text{ lbs/30-day average NO}_x \text{ emissions value} \end{aligned}$$

Compliance with the permitted NO_x emission limitation is considered satisfied as long as the NO_x emissions value from the stack CEMS is less than or equal to the calculated NO_x emissions value, averaged over the same 30-day period.

[AC 01-204652/PSD-FL-181/PSD-FL-181(A); 40 CFR 60.44b(i); and, Rule 62-212.400(2)(g), F.A.C.]

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]

- 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 ()
 - b) Determination of Prevention of Significant Deterioration (); 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 GG
40 CFR 60 NSPS REQUIREMENTS FOR GAS TURBINES

NSPS SUBPART GG REQUIREMENTS

[Note: Inapplicable provisions have been deleted in the following conditions, but the numbering of the original rules has been preserved for ease of reference to the original rules. The term "Administrator" when used in 40 CFR 60 shall mean the Department's Secretary or the Secretary's designee. Department notes and requirements related to the Subpart GG requirements are shown in **bold** immediately following the section to which they refer. The rule basis for the Department requirements specified below is Rule 62-4.070(3), F.A.C.]

Pursuant to 40 CFR 60.332 Standard for Nitrogen Oxides:

- (a) On and after the date of the performance test required by § 60.8 is completed, every owner or operator subject to the provisions of this subpart as specified in paragraph (b) of this section shall comply with:
- (1) No owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine, any gases which contain nitrogen oxides in excess of:

$$STD = 0.0075 \frac{(14.4)}{Y} + F$$

where:

- STD = allowable NOx emissions (percent by volume at 15 percent oxygen and on a dry basis).
- Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.
- F = NOx emission allowance for fuel-bound nitrogen as de-fined in paragraph (a)(3) of this section.

- (3) F shall be defined according to the nitrogen content of the fuel as follows:

Fuel-bound nitrogen (percent by weight)	F (NOx percent by volume)
N ≤ 0.015	0
0.015 < N ≤ 0.1	0.04(N)
0.1 < N ≤ 0.25	0.004 + 0.0067(N - 0.1)
N > 0.25	0.005

Where, N = the nitrogen content of the fuel (percent by weight).

Department requirement: While firing gas, the "F" value shall be assumed to be 0.

[Note: This is required by EPA's March 12, 1993 determination regarding the use of NOx CEMS. The "Y" value for the LM6000 SPRINT is approximately 8.8. The equivalent emission standard is 123 ppmvd at 15% oxygen. The emissions standards of this permit are more stringent than this requirement.]

- (b) Electric utility stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired shall comply with the provisions of paragraph (a)(1) of this section.

Pursuant to 40 CFR 60.333 Standard for Sulfur Dioxide:

On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, every owner or operator subject to the provision of this subpart shall comply with:

- (b) No owner or operator subject to the provisions of this subpart shall burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight.

APPENDIX GG
40 CFR 60 NSPS REQUIREMENTS FOR GAS TURBINES

Pursuant to 40 CFR 60.334 Monitoring of Operations:

- (b) The owner or operator of any stationary gas turbine subject to the provisions of this subpart shall monitor sulfur content and nitrogen content of the fuel being fired in the turbine. The frequency of determination of these values shall be as follows:
- (1) If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.

Department requirement: The owner or operator is allowed to use vendor analyses of the fuel as received to satisfy the sulfur content monitoring requirements of this rule for fuel oil. Alternatively, if the fuel oil storage tank is isolated from the combustion turbines while being filled, the owner or operator is allowed to determine the sulfur content of the tank after completion of filling of the tank, before it is placed back into service.

[Note: This is consistent with guidance from EPA Region 4 dated May 26, 2000 to Ronald W. Gore of the Alabama Department of Environmental Management.]

- (2) If the turbine is supplied its fuel without intermediate bulk storage the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator before they can be used to comply with paragraph (b) of this section.

Department requirement: The requirement to monitor the nitrogen content of pipeline quality natural gas fired is waived. The requirement to monitor the nitrogen content of fuel oil fired is waived because a NO_x CEMS shall be used to demonstrate compliance with the NO_x limits of this permit. For purposes of complying with the sulfur content monitoring requirements of this rule, the owner or operator shall obtain a monthly report from the vendor indicating the sulfur content of the natural gas being supplied from the pipeline for each month of operation.

[Note: This is consistent with EPA's custom fuel monitoring policy and guidance from EPA Region 4.]

- (c) For the purpose of reports required under 40 CFR 60.7(c), periods of excess emissions that shall be reported are defined as follows:
- (1) *Nitrogen oxides.* Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with 40 CFR 60.332 by the performance test required in § 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in § 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under 40 CFR 60.335(a).

Department requirement: NO_x emissions monitoring by CEM system shall substitute for the requirements of paragraph (c)(1) because a NO_x monitor is required to demonstrate compliance with the standards of this permit. Data from the NO_x monitor shall be used to determine "excess emissions" for purposes of 40 CFR 60.7 subject to the conditions of the permit.

[Note: As required by EPA's March 12, 1993 determination, the NO_x monitor shall meet the applicable requirements of 40 CFR 60.13, Appendix B and Appendix F for certifying, maintaining, operating and assuring the quality of the system; shall be capable of calculating NO_x emissions concentrations corrected to 15% oxygen; shall have no less than 95% monitor availability in any given calendar quarter; and shall provide a minimum of four data points for each hour and calculate an hourly average. The requirements for the CEMS specified by the specific conditions of this permit satisfy these requirements.]

- (2) *Sulfur dioxide.* Any daily period during which the sulfur content of the fuel being fired in the gas turbine exceeds 0.8 percent.

APPENDIX GG
40 CFR 60 NSPS REQUIREMENTS FOR GAS TURBINES

Pursuant to 40 CFR 60.335 Test Methods and Procedures:

- (a) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 per-cent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.
- (b) In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as pro-vided for in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section.
- (c) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in 40 CFR 60.332 and 60.333(a) as follows:
 - (1) The nitrogen oxides emission rate (NO_x) shall be computed for each run using the following equation:

$$\text{NO}_x = (\text{NO}_{x0}) (\text{Pr}/\text{Po})^{0.5} e^{19(\text{Ho}-0.00633)} (288^\circ\text{K}/\text{Ta})^{1.53}$$

where:

NO_x = emission rate of NO_x at 15 percent O₂ and ISO standard ambient conditions; volume percent.

NO_{x0} = observed NO_x concentration, ppm by volume.

Pr = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg.

Po = observed combustor inlet absolute pressure at test, mm Hg.

Ho = observed humidity of ambient air, g H₂O/g air.

e = transcendental constant, 2.718.

Ta = ambient temperature, °K.

Department requirement: The owner or operator is not required to have the NO_x monitor required by this permit continuously calculate NO_x emissions concentrations corrected to ISO conditions. However, the owner or operator shall keep records of the data needed to make the correction, and shall make the correction when required by the Department or Administrator.

[Note: This is consistent with guidance from EPA Region 4.]

- (2) The monitoring device of 40 CFR 60.334(a) shall be used to determine the fuel consumption and the water-to-fuel ratio necessary to comply with 40 CFR 60.332 at 30, 50, 75, and 100 percent of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load. All loads shall be corrected to ISO conditions using the appropriate equations supplied by the manufacturer.

Department requirement: The owner or operator is allowed to conduct initial performance tests at a single load because a NO_x monitor shall be used to demonstrate compliance with the BACT NO_x limits of this permit.

[Note: This is consistent with guidance from EPA Region 4.]

- (3) Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NO_x emissions shall be determined at each of the load conditions specified in paragraph (c)(2) of this section.

Department requirement: The owner or operator is allowed to make the initial compliance demonstration for NO_x emissions using certified CEM system data, provided that compliance be based on a minimum of three test runs representing a total of at least three hours of data, and that the CEMS be calibrated in accordance with the procedure in section 6.2.3 of Method 20 following each run. Alternatively, initial compliance may be demonstrated using data collected

APPENDIX GG
40 CFR 60 NSPS REQUIREMENTS FOR GAS TURBINES

during the initial relative accuracy test audit (RATA) performed on the NO_x monitor. The span value specified in the permit shall be used instead of that specified in paragraph (c)(3) above.

[Note: These initial compliance demonstration requirements are consistent with guidance from EPA Region 4. The span value is changed pursuant to Department authority and is consistent with guidance from EPA Region 4.]

- (d) The owner or operator shall determine compliance with the sulfur content standard in 40 CFR 60.333(b) as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference – see 40 CFR 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.

Department requirement: The permit specifies sulfur testing methods and allows the owner or operator to follow the requirements of 40 CFR 75 Appendix D to determine the sulfur content of liquid fuels.

[Note: This requirement establishes different methods than provided by paragraph (d) above, but the requirements are equally stringent and will ensure compliance with this rule.]

- (e) To meet the requirements of 40 CFR 60.334(b), the owner or operator shall use the methods specified in paragraphs (a) and (d) of this section to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

[Note: The fuel analysis requirements of the permit meet or exceed the requirements of this rule and will ensure compliance with this rule.]