



Jeb Bush
Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

October 26, 2000

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. William Reichel, General Manager
FPL Fort Myers Plant
Post Office Box 430
Fort Myers, Florida 33905

Re: DEP File No. 0710002-009-AC (PSD-FL-298)
340 MW Simple Cycle Combustion Turbine Project


Dear Mr. Reichel:

Enclosed is one copy of the Draft Air Construction Permit and the Technical Evaluation and Preliminary Determination for the referenced project at the FPL Fort Myers Plant, north of State Road 80, near Tice, Lee 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 the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication 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 other questions, please call Ms Teresa Heron at 850/921-9529 or Mr. Linero 850/921-9523.

Sincerely,


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

CHF/th
Enclosures

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U.S. Postal Service
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Article Sent To:
 Mr. William Reichel, Gen. Mgr.

Postage	\$	10/26/00 FPL, Ft. Myers Postmark Here
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. William Reichel, Gen. Mgr.
 Street, Apt. No., or PO Box No.
 PO Box 430
 City, State, ZIP+4
 Ft. Myers, FL 33905
 PS Form 3800, July 1999 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- 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.

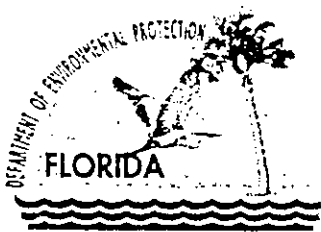
1. Article Addressed to:
 Mr. William Reichel, Gen. Mgr.
 FPL Fort Myers Plant
 PO Box 430
 Ft. Myers, FL 33905

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) _____ B. Date of Delivery 10-31-00
 C. Signature Mary K. Russell Agent Addressee
 D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type
 Certified Mail Express Mail
 Registered Return Receipt for Merchandise
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 4. Restricted Delivery? (Extra Fee) Yes

2. Article Number (Copy from service label)
 7099 3400 0000 1453 1583



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Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

P.E. Certification Statement

Permittee:

DEP File No. 0710002-009-AC

Florida Power & Light Company
FPL Fort Myers Plant
Lee County

Project type:

Project is construction of two 170-megawatt GE PG7241FA gas and oil-fired simple cycle combustion turbine-electrical generators with 80-foot stacks and gas heaters. Units will be permitted to operate (continuously) 8760 hours per year of which 500 hours per unit may be on No. 2 distillate fuel oil and 500 hours may be at high power modes.

Because of contemporaneous emissions reductions from an on-going repowering project at the site, the proposed project "nets out" of PSD for all pollutants except VOC. The BACT emission limits for VOC are 1.5 ppmvd while firing natural gas and 3.5 ppmvw while firing fuel oil. The continuous (30-day) NO_x limits are 10.5 ppmvd when operating on natural gas and 42 ppmvd by wet injection when burning fuel oil. Other pollutants, including particulate matter (PM/PM₁₀), carbon monoxide, volatile organic compounds, sulfur dioxide, and sulfuric acid mist will be controlled by good combustion and use of clean fuels.

Ambient air pollutant concentration increases caused by the project will be less than the respective "significant impact levels." Impacts due to the proposed project together with the repowering project all favorable and the net effect is a "creation of available SO₂ and NO_x increment" in the PSD Class I (Everglades) and Class II areas.

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

10/26/00

A. A. Linero, P.E.
Registration Number: 26032

Date

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

af

10/26

"More Protection, Less Process"

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In the Matter of an
Application for Permit by:

Mr. William Reichel, General Manager
FPL Fort Myers Plant
Post Office Box 430
Fort Myers, Florida 33905

DEP File No. 0710002-009-AC and PSD-FL-298
340 MW Simple Cycle Combustion Turbines Project
Lee 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 & Light Company (FPL), applied on August 10, 2000 to the Department to install two simple cycle gas and oil-fired simple cycle units and auxiliary equipment at the Fort Myers Plant near Tice, Lee 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, 62-213, 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 and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of Public Notice of Intent to Issue Air 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.


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

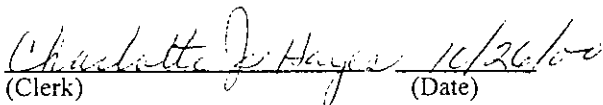
CERTIFICATE OF SERVICE

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 10/26/00 to the person(s) listed:

William Reichel, FPL*
Richard Piper, FPL
Ron Blackburn, DEP SD
Doug Neeley, EPA
John Bunyak, NPS
Chair, Lee County Commission*
Ken Kosky, P.E., Golder Associates

Clerk Stamp

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


(Clerk) 10/26/00 (Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0710002-009-AC (PSD-FL-298)

Florida Power & Light Fort Myers Plant
340 Megawatt Simple Cycle Project
Lee County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit under the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality to Florida Power & Light Company (FPL). The permit is to construct two 170 megawatt (MW) natural gas and distillate fuel oil-fired combustion turbine-electrical generators with 80-foot stacks and natural gas heaters at the Fort Myers Plant near Tice, Lee County. A Best Available Control Technology (BACT) determination was required only for emissions of volatile organic compounds (VOC) pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are Florida Power & Light, Fort Myers Plant, Post Office Box 430, Fort Myers, Florida 33905.

The new units will be nominal 170 MW General Electric PG7241FA combustion turbines-electrical generators operating in simple cycle. Each unit will be permitted to operate 8,760 hours per year while firing natural gas. Within the 8,760 hours, each unit will be permitted to burn maximum 0.05 percent sulfur distillate fuel oil for 500 hours and to operate in high power modes (peaking or power augmentation) for 500 hours.

The BACT emission limits for VOC are 1.5 parts per million, dry (ppmvd), when burning gas and 3.5 ppmv, wet, when burning fuel oil. A BACT determination was not required for the other key pollutants such as nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter (PM/PM₁₀), sulfuric acid mist (SAM), and sulfur dioxide (SO₂). Emissions of the non-BACT pollutants will be controlled to low levels by use of inherently clean fuels, combustion techniques such as Dry Low NO_x, or wet injection.

The maximum potential annual emissions in tons per year (tpy) are summarized below. Because of an ongoing repowering project involving shut down of existing residual oil-fired units, there will be net contemporaneous emission reductions for all pollutants except VOC and CO. PSD review was required only for VOC.

Pollutants	Project Increases (tpy)	Contemporaneous Changes (tpy)	Net Changes (tpy)
PM/PM ₁₀	91	-293	-202
SAM	4	-894	-890
SO ₂	91	-20,400	-20,309
NO _x	741	-5,217	-4,476
VOC	26	36	62
CO	280	-238	42

Ambient air pollutant concentration increases caused by the simple cycle project, irrespective of the repowering project, will be less than the applicable "significant impact levels."

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

This Fort Myers Project is not subject to review under Section 403.506 F.S. (Power Plant Siting Act), because it provides for no expansion in steam generating capacity.

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

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen 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.

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:

Florida Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida, 32301
Telephone: (850)488-0114
Fax: (850)922-6979

Florida Department of Environmental Protection
South District Office
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33902-2549
Telephone: (941)332-6975
Fax: (941)332-6969

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 www.dep.state.fl.us/air/permitting.htm by clicking on Construction Permits.

TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

(Including Draft BACT Determination)

Florida Power & Light Company

Fort Myers Power Plant
340 Megawatt Simple Cycle Project
Lee County

DEP File No. 0710002-009-AC (PSD-FL-298)

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

October 26, 2000

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. APPLICATION INFORMATION

1.1 Applicant Name and Address

Florida Power & Light Company (FPL)
 Fort Myers Power Plant
 Post Office Box 430
 Fort Myers, Florida 33905

Authorized Representative: William Reichel, Plant General Manager

1.2 Reviewing and Process Schedule

08-10-00: Date of Receipt of Application
 09-26-00: Application completed
 xx-xx-00: Intent Issued

2. FACILITY INFORMATION

2.1 Facility Location

Refer to Figures 1 and 2 below. The FPL Fort Myers Plant is located on 460 acres, north of State Road 80 and approximately 2.5 miles east of Tice, Lee County. This site is approximately 97 kilometers from Everglades National Park, a Class I PSD Area. The UTM coordinates of this facility are Zone 17; 422.3 km E; 2,952.9 km N.

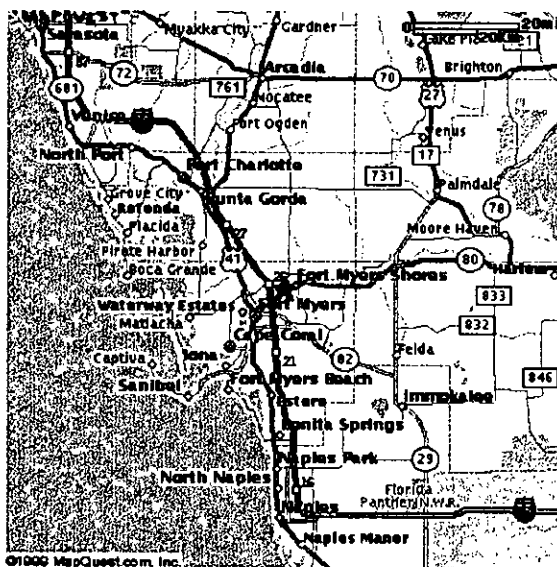


Figure 1 – Regional Location

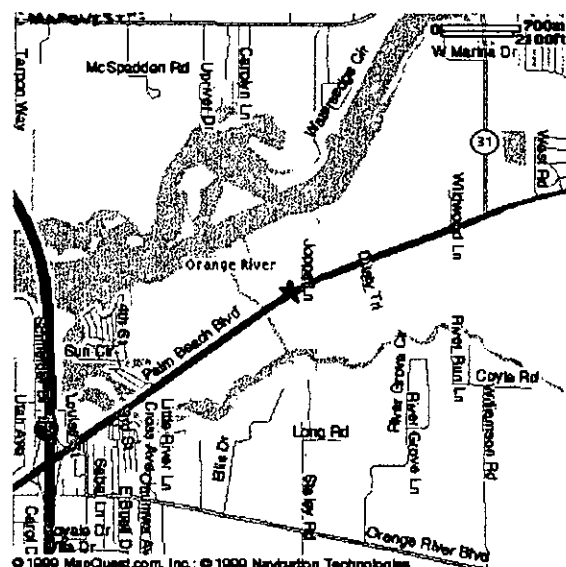


Figure 2 – Location of Plant

2.2 Standard Industrial Classification Codes (SIC)

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

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

2.3 Facility Category

The FPL Fort Myers Plant (Figure 3) generates electric power from two residual fuel oil-fired steam units with a combined generating capacity of 593 megawatts (MW) and 12 distillate fuel oil-fired simple cycle combustion turbines with a combined generating capacity of 708 MW. Six natural gas-fired combined cycle units are presently under construction. These will replace the two residual fuel oil-fired units and will repower the existing electrical generators associated with those units. The on-going project will increase the nominal capacity of the plant from 1305 MW to approximately 2208 MW.

This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a major facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD). Per Table 62-212.400-2, modifications at the facility resulting in emissions increases greater than 40 TPY of NO_x or SO_2 , 25/15 TPY of PM/PM_{10} , 7 TPY of SAM or 3 TPY of fluorides (F) require review per the PSD rules and a determination for Best Available Control Technology (BACT) per Rule 62-212.400, F.A.C.

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

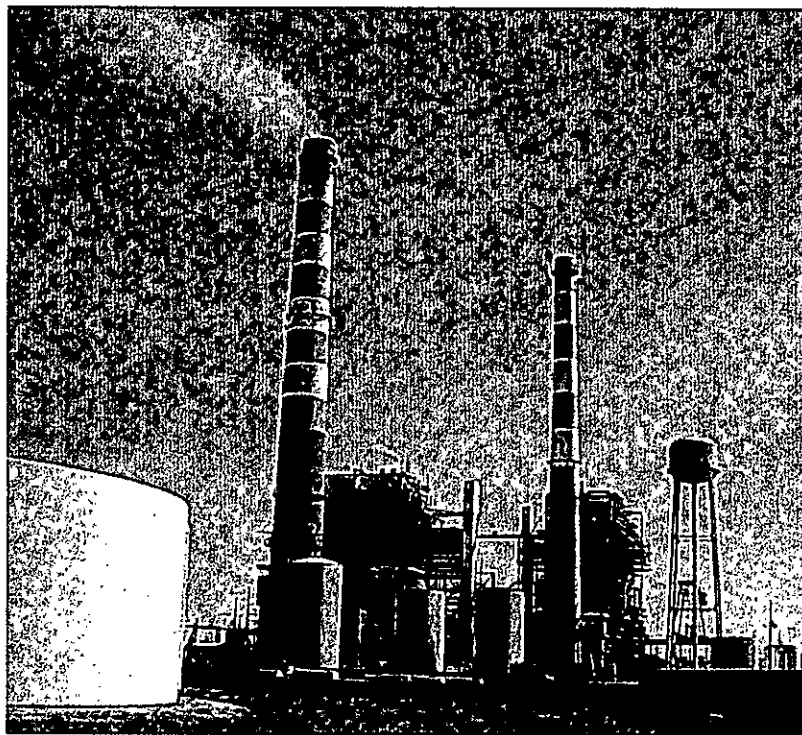


Figure 3 – Existing Residual Oil Fired Units to be Replaced

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

3. PROJECT DESCRIPTION

This permit addresses the following emissions units:

EMISSION UNIT NO.	SYSTEM	EMISSION UNIT DESCRIPTION
027 - 028	Power Generation	Combustion Turbine- Electrical Generators
029 - 030	Fuel Heating	Natural Gas Heater(s)

FPL proposes to construct two nominal 170 MW dual fuel simple cycle combustion turbine-electrical generators. An 80-foot stack will be installed for each combustion turbine. Two nominal 100 million Btu per hour (mmBtu/hr) natural gas fired heaters with 30-foot stacks will be included as part of this project.

The two proposed simple cycle turbines will be installed in addition to six combined cycle units permitted in 1998. Under the presently authorized project, the existing residual oil-fired units will cease operation on August 1, 2001, by which time the combined cycle units will be fully operational. The two simple cycle units are proposed to start up in late 2002.

Emissions increases due to the simple cycle project will occur. Estimated emissions are 280 tons per year of CO, 91 TPY of SO₂, 4 TPY of sulfuric acid mist (SAM), 91 TPY of PM/PM₁₀, 741 TPY of NO_x, and 26 TPY of VOC. Although emissions of all pollutants other than VOC will be greater than the significant emission rates (per Table 62-212.400-2, F.A.C., only VOC is subject to PSD review. The reasons are discussed below.

4. PROCESS DESCRIPTION

A gas turbine is an internal combustion engine that operates with rotary rather than reciprocating motion. Ambient air is drawn into the 18-stage compressor of the GE 7FA where it is compressed by a pressure ratio of about 15 times atmospheric pressure. The compressed air is then directed to the combustor section, where fuel is introduced, ignited, and burned. The combustion section consists of 14 separate can-annular combustors.

The key components of the GE MS 7001FA (a predecessor of the PG 7241FA) are identified in Figure 4 (Source GE brochures). An exterior view is also shown. Figure 5 is a photograph (source: GE website) of the internal components as viewed from the compressor section. Each unit will be delivered with the 14 can-annular design, DLN-2.6 combustors instead of the earlier-generation combustors supplied with the MS7001FA.

Flame temperatures in a typical combustor section can reach 3600 degrees Fahrenheit (°F). Units such as the 7FA operate at lower flame temperatures that minimize NO_x formation. The hot combustion gases are then diluted with additional cool air and directed to the turbine section at temperatures of approximately 2400 °F. Energy is recovered in the turbine section in the form of shaft horsepower, of which typically more than 50 percent is required to drive the internal compressor section. The balance of recovered shaft energy is available to drive the external load unit such as an electrical generator.

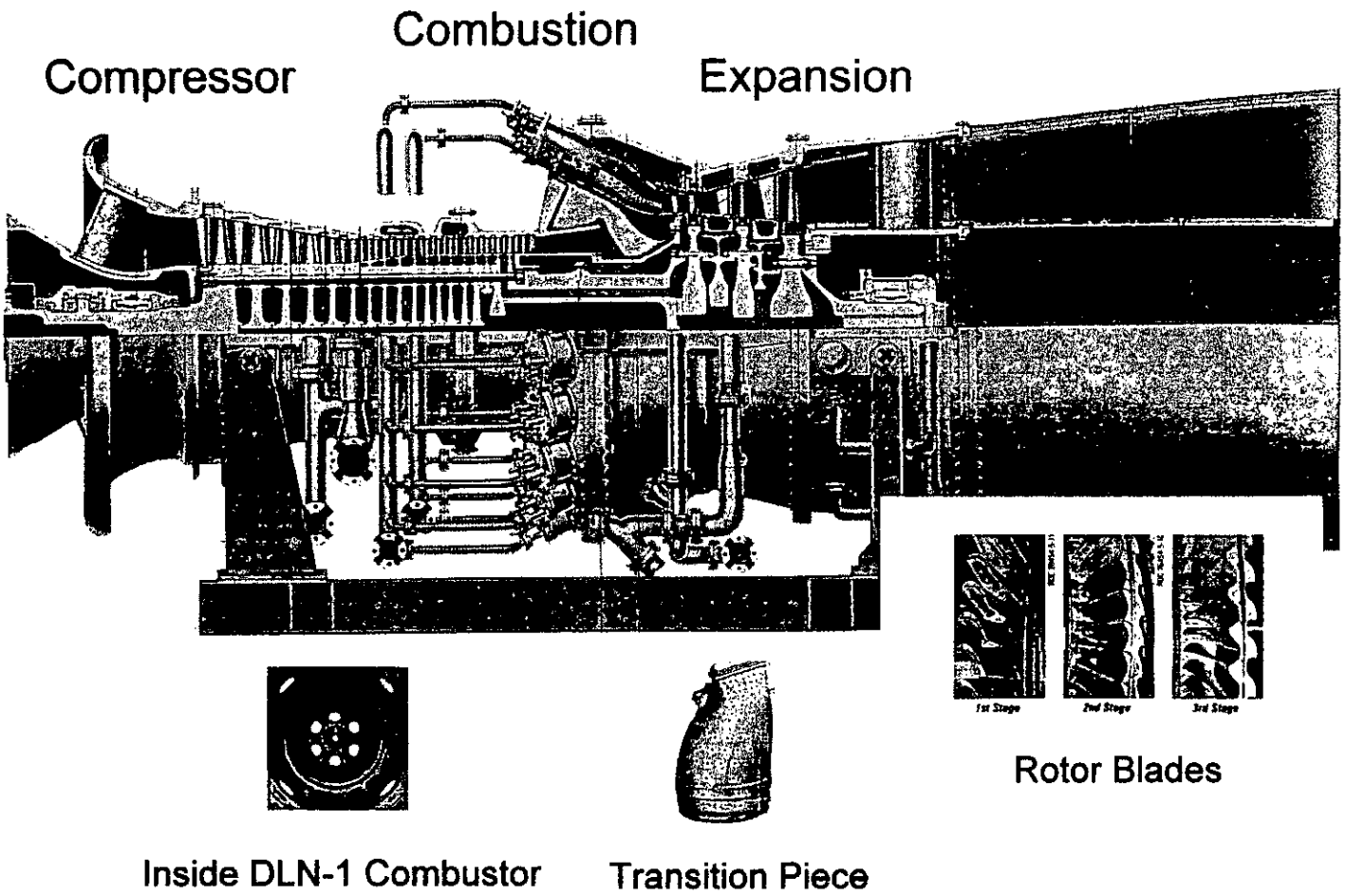


Figure 4 - Internal and External Views of GE MS7001FA

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

In this FPL project, the unit will operate only in simple cycle mode. Cycle efficiency, defined as a percentage of useful shaft energy output to fuel energy input, is approximately 35 percent for F-Class combustion turbines in simple cycle mode. In addition to shaft energy output, 1 to 2 percent of fuel input energy can be attributed to mechanical losses. The balance is exhausted from the turbine in the form of heat. In combined cycle mode, the thermal efficiency of the 7FA can exceed 56 percent.

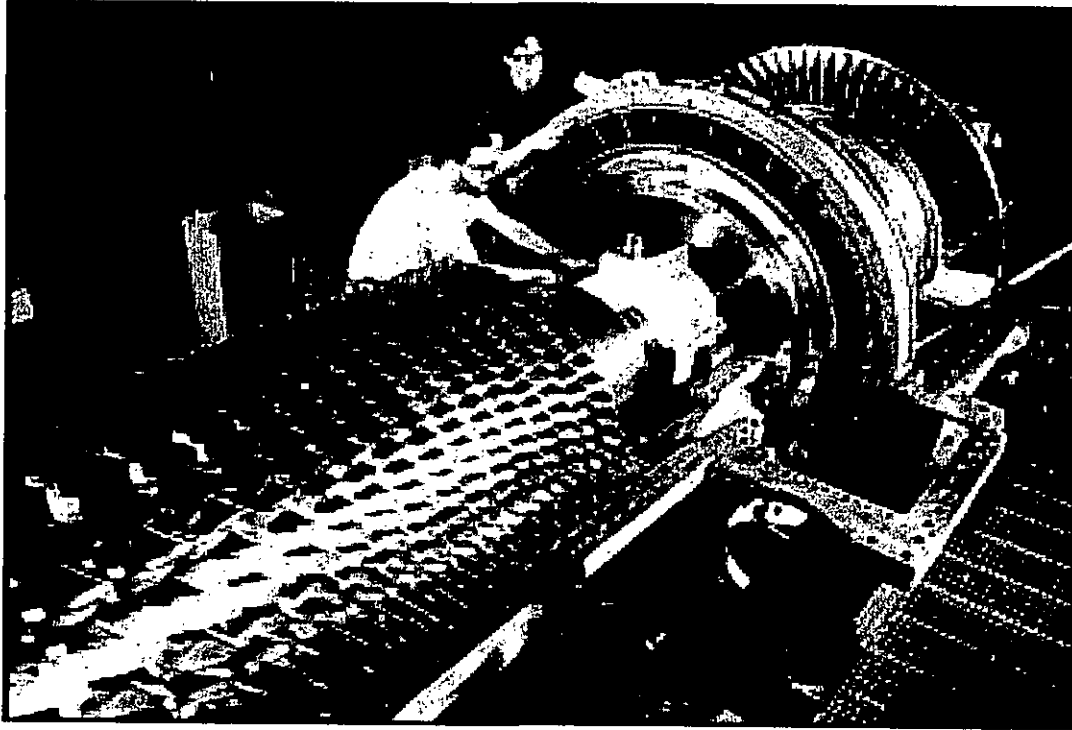


FIGURE 5 – Compressor Section of GE 7FA

At high ambient temperature, the units cannot generate as much power because of lower compressor inlet density. To compensate for a portion of the loss of output (which can be on the order of 20 MW compared to referenced temperatures), inlet foggers will be installed ahead of the combustion turbine inlet. At an ambient temperature of 95 °F, roughly 10 MW of power can be regained by using the foggers.

Other methods to increase power are peak firing and power augmentation (high power modes – HPM). Under HPM, operation at levels greater than full load is possible by increasing fuel input or injecting steam. For the proposed project, operation at HPM when firing natural gas, will not exceed 500 hours per year.

One consequence of HPM is higher NO_x emissions. FPL, for example requests an NO_x emission limit of 10.5 ppmvd under the natural gas base case and 15 ppmvd under HPM.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

5. 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.).

This facility is located in Lee County; an area designated as attainment for all criteria pollutants in accordance with Rule 62-204.360, F.A.C. The proposed project is subject to review under Rule 62-212.400., F.A.C., Prevention of Significant Deterioration (PSD) only for volatile organic compounds (VOCs). The proposed project is not subject to PSD review under Rule 62-212.400., F.A.C. for PM/PM₁₀, CO, SO₂, SAM and NO_x. The reason, as discussed below, is that after considering all emissions changes from other contemporaneous projects (the repowering and installation of foggers on old peaking units), the net potential emission increases do not exceed the significant emission rates given in Table 62-212.400-2, F.A.C.

This evaluation consists of a review of the control technology for PM/PM₁₀, CO, SO₂, SAM and NO_x for comparison with similar projects (where PSD actually applies for all of the pollutants) throughout Florida and the United States. A draft determination of best available control technology (BACT) for VOC is included. An analysis of the air quality impact from proposed project is required to insure that there are no exceedances of the National or State Ambient Air Quality Standards.

The emission units affected by this permit shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein) and, specifically, the following Chapters and Rules:

5.1 State Regulations

Chapter 62-4	Permits.
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.800	Federal Regulations Adopted by Reference
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions
Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-213	Operation Permits for Major Sources of Air Pollution
Rule 62-214	Requirements For Sources Subject To The Federal Acid Rain Program
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-297.310	General Test Requirements
Rule 62-297.401	Compliance Test Methods
Rule 62-297.520	EPA Continuous Monitor Performance Specifications

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

5.2 Federal Rules

40 CFR 60	NSPS Subparts GG
40 CFR 60	Applicable sections of Subpart A, General Requirements
40 CFR 72	Acid Rain Permits (applicable sections)
40 CFR 73	Allowances (applicable sections)
40 CFR 75	Monitoring (applicable sections including applicable appendices)
40 CFR 77	Acid Rain Program-Excess Emissions (future applicable requirements)

6. AIR POLLUTION CONTROL TECHNOLOGY

6.1 Applicant Control Technology Proposal

POLLUTANT	CONTROL TECHNOLOGY (CTs)	PROPOSED EMISSION LIMIT
NO _x	Dry Low NO _x for Natural Gas Wet Injection, limited Fuel Oil usage	10.5 ppmvd (Gas, Base) 15 ppmvd (Gas, HPM) 42 ppmvd (Fuel Oil)
PM/PM ₁₀ , VE	Pipeline Natural Gas, Low Sulfur Fuel Oil	10/17 lb/hr (Gas/Fuel Oil) 10 percent Opacity (Gas/Fuel Oil)
VOC (BACT)	As Above	1.5 ppmvd (Gas) 3.5 ppmvw (Fuel Oil)
CO	As Above	9 ppmvd (Gas, Base) 15 ppmvd (Gas, HPM) 20 ppmvd (Fuel Oil)
SO ₂ and Acid Mist	As Above	2 gr S/100 ft ³ (in Gas) 0.05% S (in Fuel Oil)

HPM: High Power Modes – (High Temperature Peaking or Steam Power Augmentation)

POLLUTANT	CONTROL TECHNOLOGY (Heaters)	PROPOSED EMISSION LIMIT
NO _x	Low NO _x Burners	0.10 lb/mmBtu
PM/PM ₁₀ , VE	Pipeline Natural Gas, Good Combustion	20 percent Opacity
VOC	As Above	
CO	As Above	0.075 lb/mmBtu
SO ₂ and Acid Mist	As Above	2 gr S/100 ft ³ (in Gas)

According to the application, the two new proposed units will emit approximately 741 tons per year (TPY) of NO_x, 280 TPY of CO, 26 TPY of VOC, 91 TPY of SO₂, and 91 TPY of PM/PM₁₀.

An evaluation of the HAP emissions, as presented by the applicant, indicates that emissions are less than 25 tons/year for all HAPs and less than 10 tons/yr for a single HAP.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

6.2 Standards of Performance for New Stationary Sources

The minimum project control technology basis is 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines (NSPS). Subpart GG was adopted by the Department by reference in Rule 62-204.800, F.A.C. The key emission limits required by Subpart GG are 75 ppm NO_x @15% O₂. (assuming 25 percent efficiency) and 150 ppm SO₂ @15% O₂ (or <0.8% sulfur in fuel). The proposal is consistent with the NSPS that allows NO_x emissions over 100 ppm for the high efficiency units to be purchased by FPL. No National Emission Standards for Hazardous Air Pollutants exist for stationary gas turbines.

There are currently no applicable NSPS standards for direct fired natural gas heaters (approximately 100 mmBtu/hr heat input).

6.3 Determinations by EPA and States

Tables 1 and 2 are samples of information on recent control technology determinations by EPA and the States for simple cycle projects.

6.4 Review of Combustion Turbine Control Technologies

A complete discussion of control options was not required because the project is not subject to a Best Available Control Technology Determination for NO_x, SO₂, PM/PM₁₀ and CO. However the applicant discussed the technology to be employed in order to comply with the New Source Performance Standards and the requested limits. The Department has included other information typically included in a complete BACT determination for comparison purposes. The BACT for VOC is included in Appendix BD attached to this Technical Evaluation and Preliminary Determination (TEPD).

6.4.1 Nitrogen Oxides Formation

Some of the discussion in this section is based on a 1993 EPA document on Alternative Control Techniques for NO_x Emissions from Stationary Gas Turbines. Project-specific information is included where applicable.

Nitrogen oxides form in the gas turbine combustion process as a result of the dissociation of molecular nitrogen and oxygen to their atomic forms and subsequent recombination into seven different oxides of nitrogen. Thermal NO_x forms in the high temperature area of the gas turbine combustor. Thermal NO_x increases exponentially with increases in flame temperature and linearly with increases in residence time. Flame temperature is dependent upon the ratio of fuel burned in a flame to the amount of fuel that consumes all of the available oxygen.

By maintaining a low fuel ratio (lean combustion), the flame temperature will be lower, thus reducing the potential for NO_x formation. Prompt NO_x is formed in the proximity of the flame front as intermediate combustion products. The contribution of Prompt to overall NO_x is relatively small in near-stoichiometric combustors and increases for leaner fuel mixtures. This provides a practical limit for NO_x control by lean combustion.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Table 1 – Nitrogen Oxides Controls and Limits for Recent Simple Cycle Projects

Project Location	Power Output (MW)	NO _x Limit ppmvd @ 15% O ₂ and Fuel	Technology	Comments
FPL Ft Myers, FL	340 CON	10.5 (Base), 15 (HPM) - NG 42 - No. 2 FO	DLN WI	2x170 MW GE 7FA CT's - Non BACT 500 hrs - oil, 500 hrs - HPM
FPL Martin, FL	340	9 (Base) 12 (PA) 15 (PK) -NG 42 - No. 2 FO	DLN WI	2x170 MW GE 7FA CT's Issued 8/00 500 hrs on oil
Granite Hardee, FL*	510	10.5 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CT's Issued 7/00, 500 hrs on oil
Granite Hardee, FL*	360 - 510	15 - NG	DLN WI	3x170 MW WH 501D5A or 501F CTs Issued 8/00. Fuel oil prohibited
Granite Hardee, FL*	540	5 - NG 10 - No. 2 FO	HSCR WI	3x180 MW ABB GT-24 CTs 8/00, 1 st 250 hrs of F.O. @42ppm
DeSoto Arcadia, FL	510	9 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE PG7241FA CTs 1000 hrs on oil
Vandolah Hardee, FL	680	9 - NG 42 - No. 2 FO	DLN WI	4x170 MW GE 7FA CT's Issued 11/99, 1000 hrs on oil
Oleander Brevard, FL	850	9 - NG 42 - No. 2 FO	DLN WI	5x170 MW GE 7FA CT's Issued 11/99, 1000 hrs on oil
JEA Baldwin, FL	510	10.5 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued 10/99, 750 hrs on oil
Reliant Osceola, FL	510	10.5 - NG 42 - No. 2 FO	DLN WI	3x170 MW GE 7FA CTs Issued 12/99, 750 hrs on oil
Dynegy, FL	510	15 - NG	DLN	3x170 MW WH 501F CTs Issued 3/00, Gas only
Dynegy Heard, GA	510	15 - NG	DLN	3x170 MW WH 501F CTs Issued 1999, Gas only
Tenaska Heard, GA	960	15 - NG 42 - No. 2 FO	DLN WI	6x170 MW GE 7FA CTs Issued 12/98, 720 hrs on oil
Calvert City, KY	340	25 - NG	WI	2x170 MW GE 7FA CTs Draft 1999, ?? hrs on oil
Mid-GA Cogen	308	9 NG 20 - FO	DLN & SCR	2x119 MW WH 501D5A CT's Achieves 15 ppmvd by DLN alone
Dynegy Reidsville, NC	900	15 - NG (by 2002) 42 - No. 2 FO	DLN WI	5x180 MW WH 501F CTs Initially 25 ppm NO _x limit on gas Draft 5/98, 1000 hrs on oil.
Lyondell Harris, TX	160	25 - NG	DLN	1x160 MW WH 501F CTs Issued 11/99, Gas only
Southern Energy, WI	525	15/12 - NG 42 - No. 2 FO	DLN WI	3x175 MW GE 7FA CTs 15/12 ppm are on 1/24 hr basis Issued 1/99, 800 hrs on oil
Carson Energy, CA	42	5 - NG (LAER)	Hot SCR	42 MW LM6000PA, Startup 1995. Ammonia limit is 20 ppmvd
McClelland AFB, CA	85	5 - NG (LAER)	Hot SCR	85 MW GE 7EA, Applied 1999 Ammonia proposal 10 ppmvd
Lakeland, FL	250 CON	9/9 - NG (by 2002) 42/15 - No. 2 FO	DLN/HSCR WI/HSCR	270 MW WH 501G CT Initially 25 ppm NO _x limit on gas Issued 7/98, 250 hrs on oil.
PREPA, PR	248 CON	10 - No. 2 FO	WI & HSCR	3x83 MW ABB GT11N CTs Issued 12/95.

CON = Continuous
SC = Simple Cycle
INT = Intermittent
PK = Peaking

DLN = Dry Low NO_x Combustion
SCR = Selective Catalytic Reduction
HSCR = Hot SCR
HPM = High Power Mode

FO = Fuel Oil
NG = Natural Gas
WI = Wet Injection
PA = Power Augmentation

GE = General Electric
WH = Westinghouse
ABB = Asea Brown Bovari

* Only one of these options will be constructed

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Table 2 – CO, VOC, and PM₁₀ Controls and Limits for Simple Cycle Projects

Project Location	CO – ppm (or as indicated)	VOC – ppm (or as indicated)	PM – lb/hr (or as indicated)	Technology and Comments
FPL, Ft Myers, FL	9- (Base), 15 (HPM) - NG 20- FO	1.5-NG 3.5-FO	10% Opacity	Clean Fuels Combustion
FPL Martin, FL	9 (Base) 15 (PA) - NG 20- FO	1.5-NG 3.5-FO	10% Opacity	Clean Fuels Good Combustion
Granite Hardec, FL GE	12 – NG 20 – FO	3 – NG 7.5 – FO	10% Opacity	Clean Fuels Good Combustion
Granite Hardec, FL 501F	16 – NG	3 – NG	10% Opacity	Clean Fuels Good Combustion
Granite Hardec, FL D5A	10 – NG	3 – NG	10% Opacity	Clean Fuels Good Combustion
Granite Hardec, FL ABB	6 – NG 25 – FO	3 – NG 7.5 – FO	10% Opacity	Clean Fuels Good Combustion
Shady Hills Pasco, FL	12 – NG 20 – FO	1.4 – NG 7 – FO	10 lb/hr – NG 17 lb/hr – FO	Clean Fuels Good Combustion
Vandolah Hardee, FL	12 – NG 20 – FO	1.4 – NG 7 – FO	10 lb/hr – NG 17 lb/hr – FO	Clean Fuels Good Combustion
Oleander Brevard, FL	12 – NG 20 – FO	3 – NG 6 – FO	10% Opacity	Clean Fuels Good Combustion
JEA Baldwin, FL	12 – NG 20 – FO	1.4 – NG/FO Not PSD	9/17 lb/hr – NG/FO 10% Opacity	Clean Fuels Good Combustion
Reliant Osceola, FL	10.5 – NG 20 – FO	2.8 lb/hr – NG 7.5 lb/hr – FO	9 lb/hr – NG 17 lb/hr – FO	Clean Fuels Good Combustion
TEC Polk Power, FL	15 – NG 33 – FO	7 – NG 7 – FO	10% Opacity	Clean Fuels Good Combustion
Dynegy, FL	25 – NG		8.2 lb/hr – NG 10% Opacity	Clean Fuels Good Combustion
Dynegy Heard Co., GA	25 – NG	? – NG	0.005 lb/mmBtu – NG 10% Opacity	Clean Fuels Good Combustion
Tenaska Heard Co., GA	15 – NG 20 – FO	? – NG ? – FO	? – NG ? lb/hr – FO	Clean Fuels Good Combustion
Calvert City, KY	30 – NG (full load) 90 – NG (other loads)	? – NG	? – NG	Clean Fuels Good Combustion
Mid-GA Cogen	10 – NG 30 – FO	6 – NG 30 – FO	18 – NG 55 lb/hr – FO	Clean Fuels Good Combustion
Dynegy Reidsville, NC	25 – NG 50 – FO	6 lb/hr – NG 8 lb/hr – FO	6 lb/hr – NG 23 lb/hr – FO	Clean Fuels Good Combustion
Lyondell Harris, TX	25 – NG			Clean Fuels Good Combustion
RockGen Cristiana, W1	12@>50% load – NG 15@>75% 24@<75% - FO	2 – NG 5 – FO	18 lb/hr – NG 44 lb/hr – FO	Clean Fuels Good Combustion
RockGen Cristiana, W1	12@>50% load – NG 15@>75% 24@<75% - FO	2 – NG 5 – FO	18 lb/hr – NG 44 lb/hr – FO	Clean Fuels Good Combustion
Carson Energy, CA	6 – NG			Oxidation Catalyst
McClelland AFB, CA	23 – NG	3.9 - NG	7 lb/hr	Clean Fuels Good Combustion
Lakeland, FL	25 - NG or 10 by Ox Cat 75 - FO @ 15% O ₂	4 – NG 10 – FO	10% Opacity	Clean Fuels Good Combustion
PREPA, PR	9 – FO @15% O ₂	11 – FO @15% O ₂	0.0171 gr/dscf	Clean Fuels Good Combustion

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

In all but the most recent gas turbine combustor designs, the high temperature combustion gases are cooled to an acceptable temperature with dilution air prior to entering the turbine (expansion) section. The sooner this cooling occurs, the lower the thermal NO_x formation. Cooling is also required to protect the first stage nozzle. When this is accomplished by air cooling, the air is injected into the component and is ejected into the combustion gas stream, causing a further drop in combustion gas temperature. This, in turn, lowers achievable thermal efficiency for the unit.

The relationship between flame temperature, firing temperature, unit efficiency, and NO_x formation can be appreciated from Figure 6 which is from a General Electric discussion on these principles.

By maintaining a low fuel ratio (lean combustion), the flame temperature will be lower, thus reducing the potential for NO_x formation. Prompt NO_x is formed in the proximity of the flame front as intermediate combustion products. The contribution of Prompt to overall NO_x is relatively small in near-stoichiometric combustors and increases for leaner fuel mixtures. This provides a practical limit for NO_x control by lean combustion.

Fuel NO_x is formed when fuels containing bound nitrogen are burned. This phenomenon is not important when combusting natural gas. It is not a significant issue for the Ft Myers project because these units will not be continuously operated while burning oil. Low sulfur fuel oil (which has more fuel-bound nitrogen than natural gas) is proposed to be used for no more than 500 hours per year (per CT).

Uncontrolled emissions range from about 100 to over 600 parts per million by volume, dry, corrected to 15 percent oxygen (ppmvd @15% O_2). The Department estimates uncontrolled emissions at approximately 200 ppmvd @15% O_2 for each turbine of the Ft Myers Project. The proposed NO_x controls will reduce these emissions significantly.

6.4.2 NO_x Control Techniques

Wet Injection

Injection of either water or steam directly into the combustor lowers the flame temperature and thereby reduces thermal NO_x formation. Typical emissions achieved by wet injection are in the range of 15–25 ppmvd when firing gas and 42 ppmvd when firing fuel oil in large combustion turbines. These values often form the basis, particularly in combined cycle turbines, for further reduction to BACT limits by other techniques. Carbon monoxide (CO) and hydrocarbon (HC) emissions are relatively low for most gas turbines. However steam and (more so) water injection may increase emissions of both of these pollutants.

Combustion Controls: Dry Low NO_x (DLN)

The excess air in lean combustion cools the flame and reduces the rate of thermal NO_x formation. Lean premixing of fuel and air prior to combustion can further reduce NO_x emissions. This is accomplished by minimizing localized fuel-rich pockets (and high temperatures) that can occur when trying to achieve lean mixing within the combustion zones.

Gas Turbine - Hot Gas Path Parts

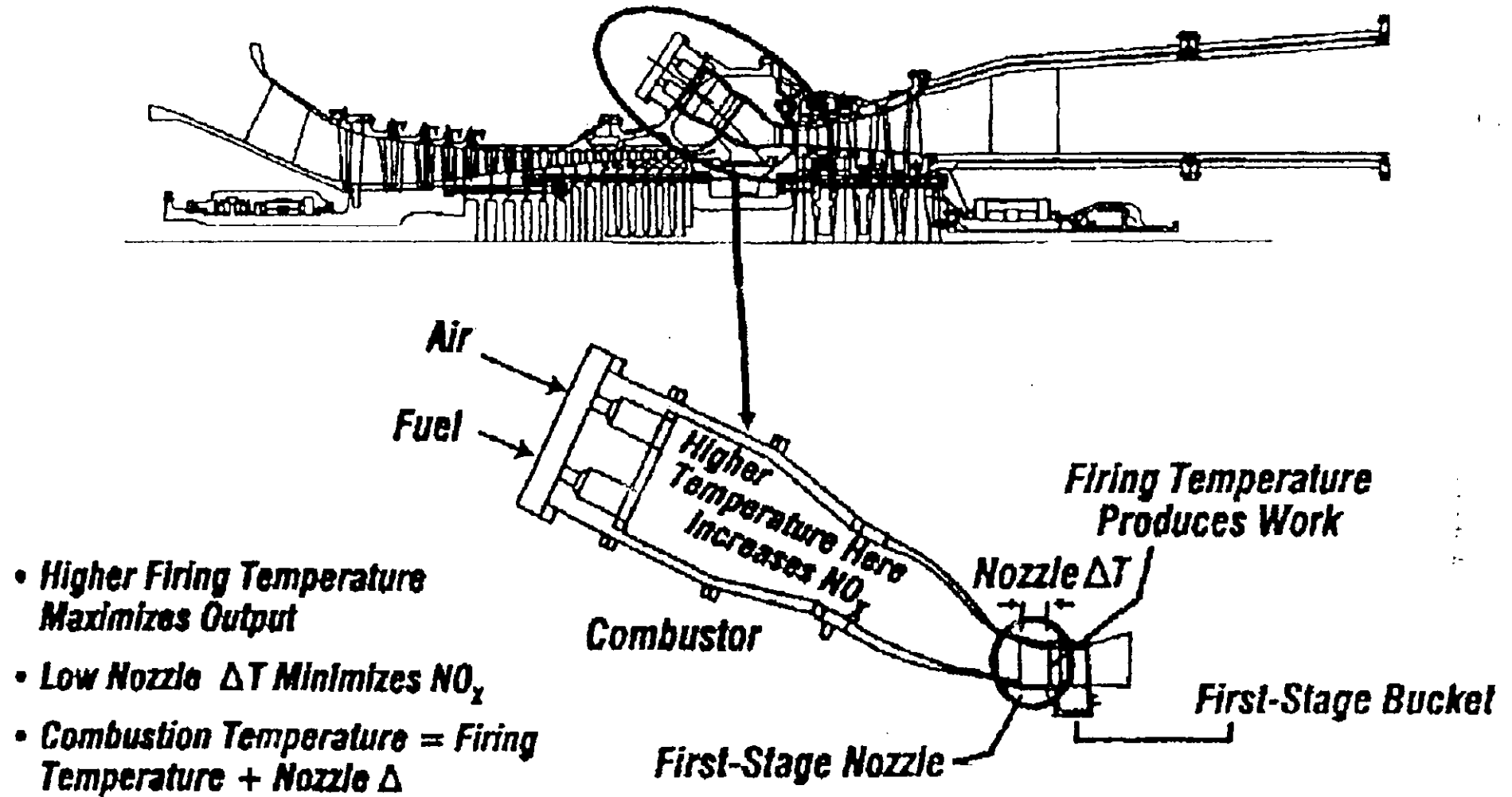


Figure 6 – Relation Between Flame Temperature and Firing Temperature

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

The above principle is depicted in Figure 7 for a General Electric DLN-1 can-annular combustor operating on gas. For ignition, warm-up, and acceleration to approximately 20 percent load, the first stage serves as the complete combustor. Flame is present only in the first stage, which is operated as lean stable combustion will permit. With increasing load, fuel is introduced into the secondary stage, and combustion takes place in both stages. When the load reaches approximately 40 percent, fuel is cut off to the first stage and the flame in this stage is extinguished. The venturi ensures the flame in the second stage cannot propagate upstream to the first stage. When the fuel in the first-stage flame is extinguished (as verified by internal flame detectors), fuel is again introduced into the first stage, which becomes a premixing zone to deliver a lean, unburned, uniform mixture to the second stage. The second stage acts as the complete combustor in this configuration.

To further reduce NO_x emissions, GE developed the DLN-2.0 (cross section shown in Figure 7) wherein air usage (other than for premixing) was minimized. The venturi and the centerbody assembly were eliminated and each combustor has a single burning zone. So-called "quaternary fuel" is introduced through pegs located on the circumference of the outward combustion casing.

GE has made further improvements in the DLN design. The most recent version is the DLN-2.6 (proposed for the Ft Myers project). The combustor is similar to the DLN-2 with the addition of a sixth (center) fuel nozzle. The emission characteristics of the DLN-2.6 combustor while firing natural gas are given in Figure 8 for a unit tuned to meet a 15 ppmvd NO_x limit (by volume, dry corrected to at 15 percent oxygen) at JEA's Kennedy Station.

NO_x concentrations are higher in the exhaust at lower loads because the combustor does not operate in the lean pre-mix mode. Therefore such a combustor emits NO_x at concentrations of 15 ppmvd at loads between 50 and 100 percent of capacity, but concentrations as high as 100 ppmvd at less than 50 percent of capacity. Note that VOC comprises a very small amount of the "unburned hydrocarbons" which in turn is mostly non-VOC methane.

The combustor can be tuned differently to achieve emissions as low as 9 ppm of NO_x and 9 ppm of CO. Emissions characteristics by wet injection NO_x control while firing oil are expected to be similar for the DLN-2.6 as they are for those of the DLN-2.0 shown in Figure 9. Simplified cross sectional views of the totally premixed (while firing natural gas) DLN-2.6 combustor to be installed at the Ft Myers project are shown in Figure 10.

Further NO_x reductions related to flame temperature control are possible such as closed loop steam cooling. This feature is available only in larger units (G or H Class technology) than the units planned by FPL. It is more feasible for a combined cycle unit with a heat recovery steam generator (HRSG). In simple cycle, a once-through steam generator would be required. Steam is circulated through the internal portion of the nozzle component, the transition piece between the combustor and the nozzle, or certain turbine blades.

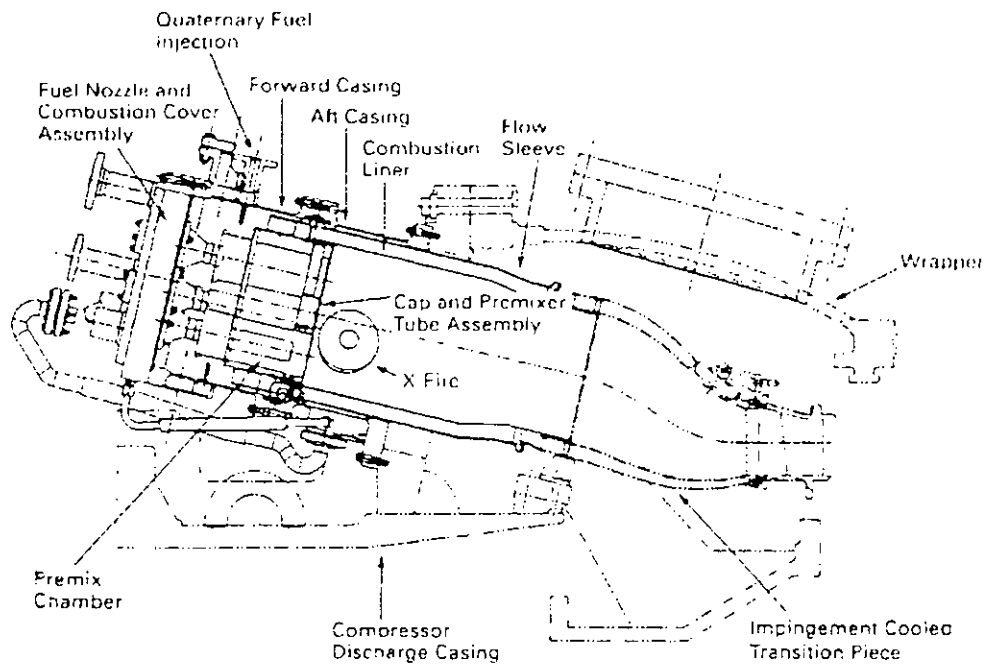
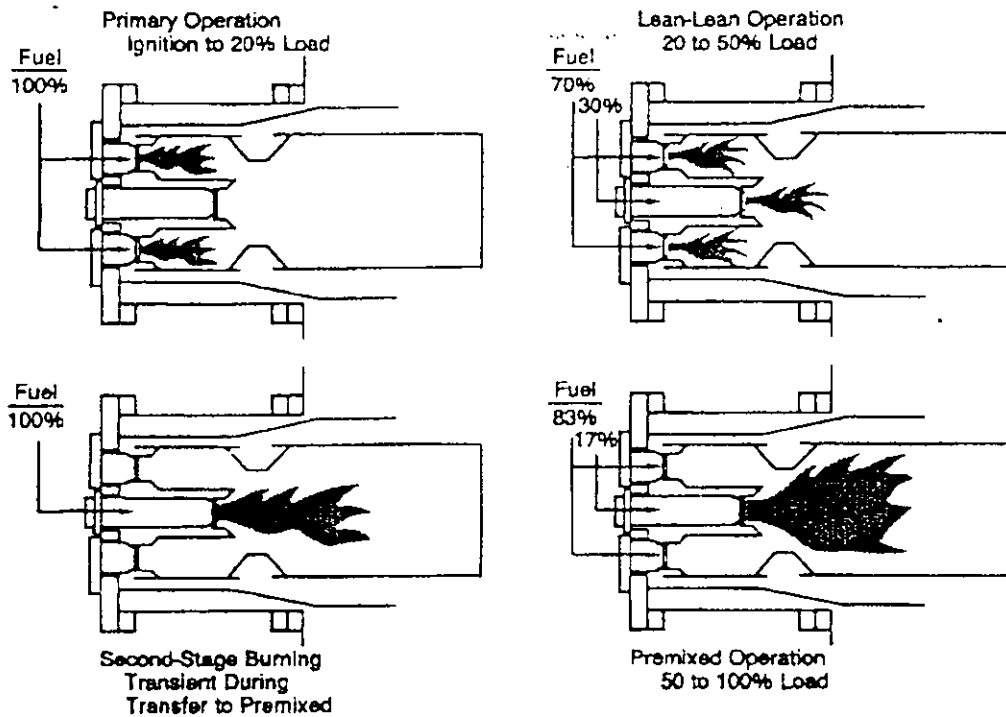


Figure 7 – Dry Low NO_x Operating Modes – DLN-1
 Cross Section of GE DLN-2

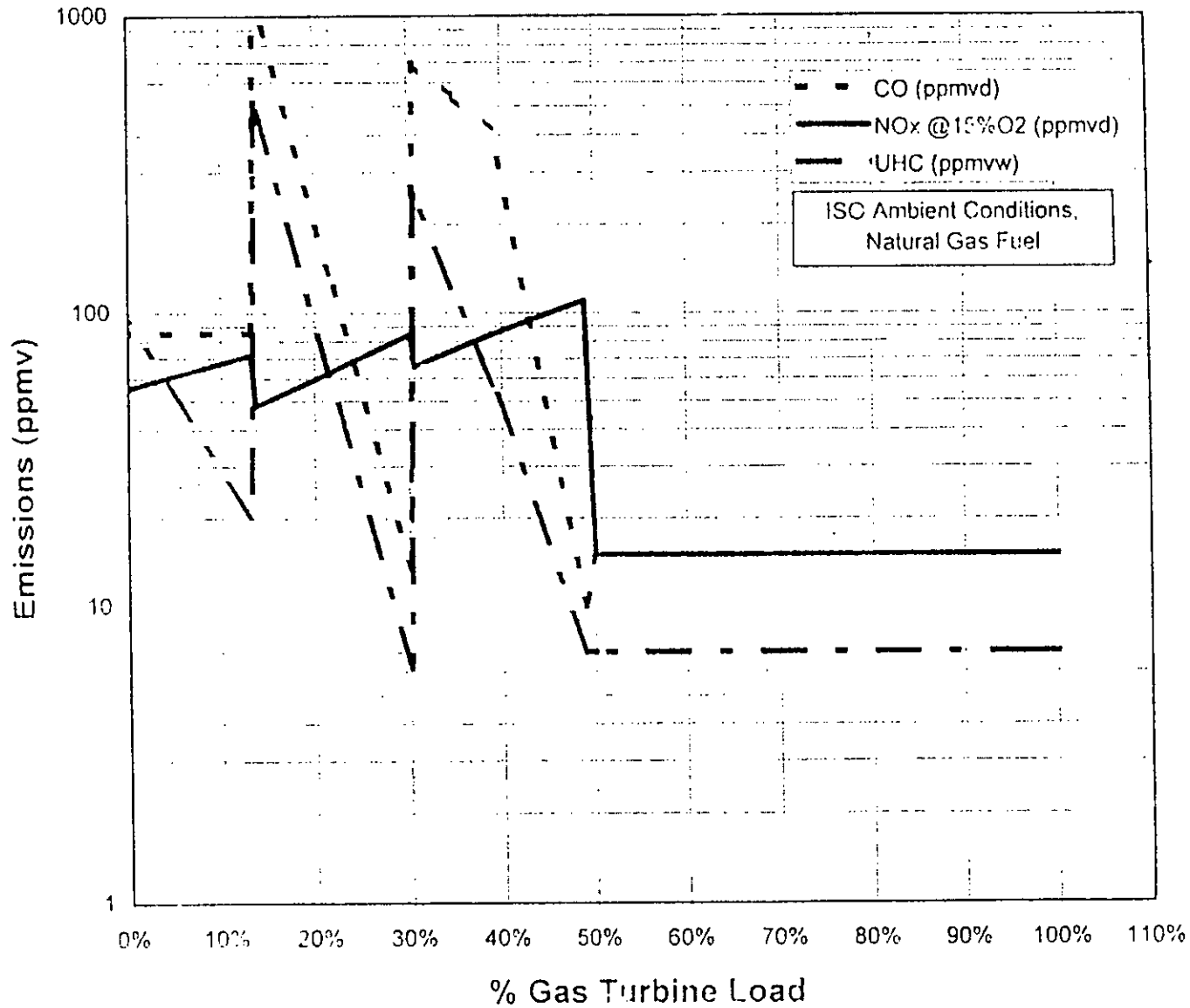


Figure 8 – Emissions Performance Curves for GE DLN-2.6 Combustor Firing Natural Gas in a Dual Fuel GE 7FA Combustion Turbine (Simple Cycle Intermittent Duty – If Tuned to 15 ppmvd NO_x)

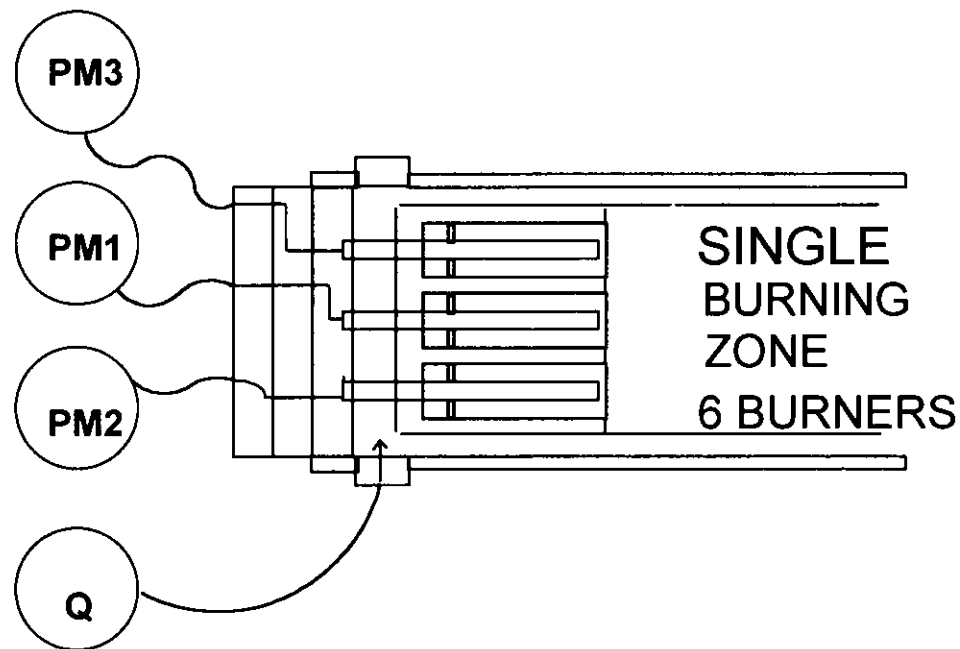
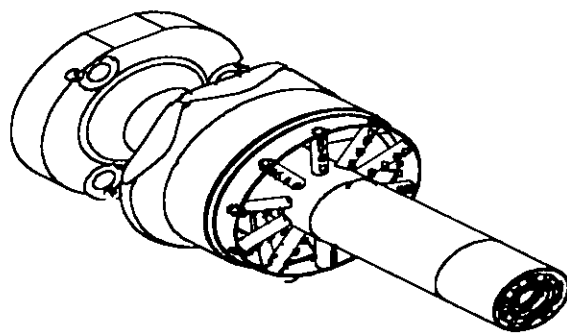
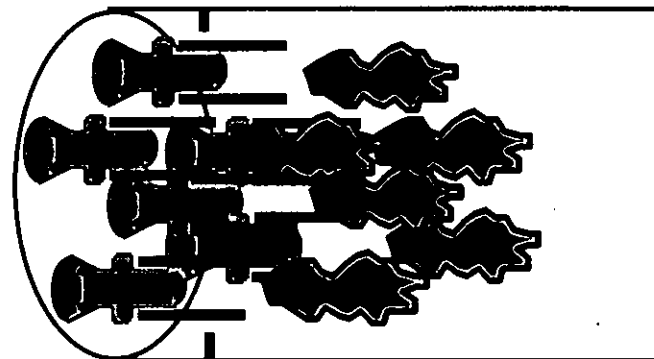
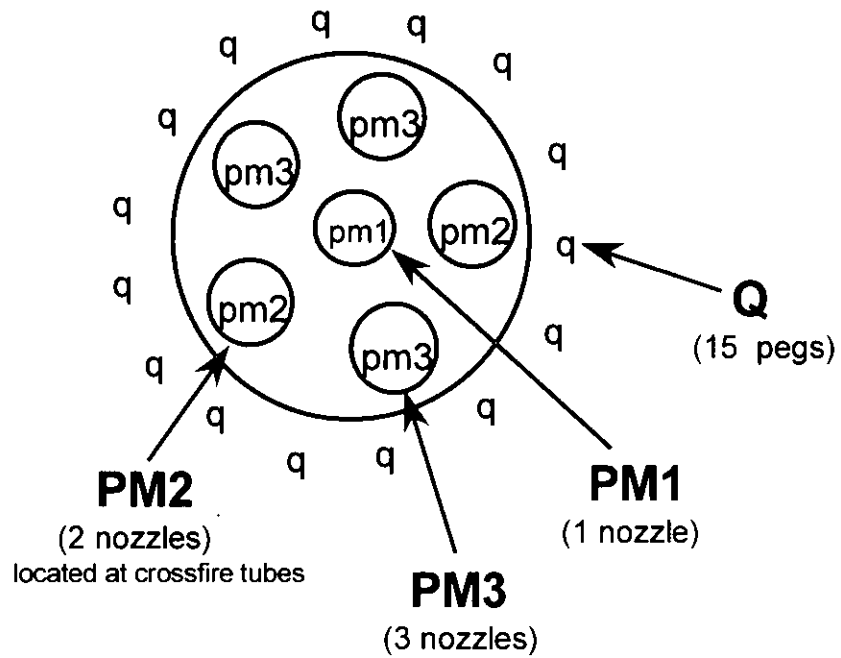


Figure 10 - DLN2.6 Fuel Nozzle Arrangement

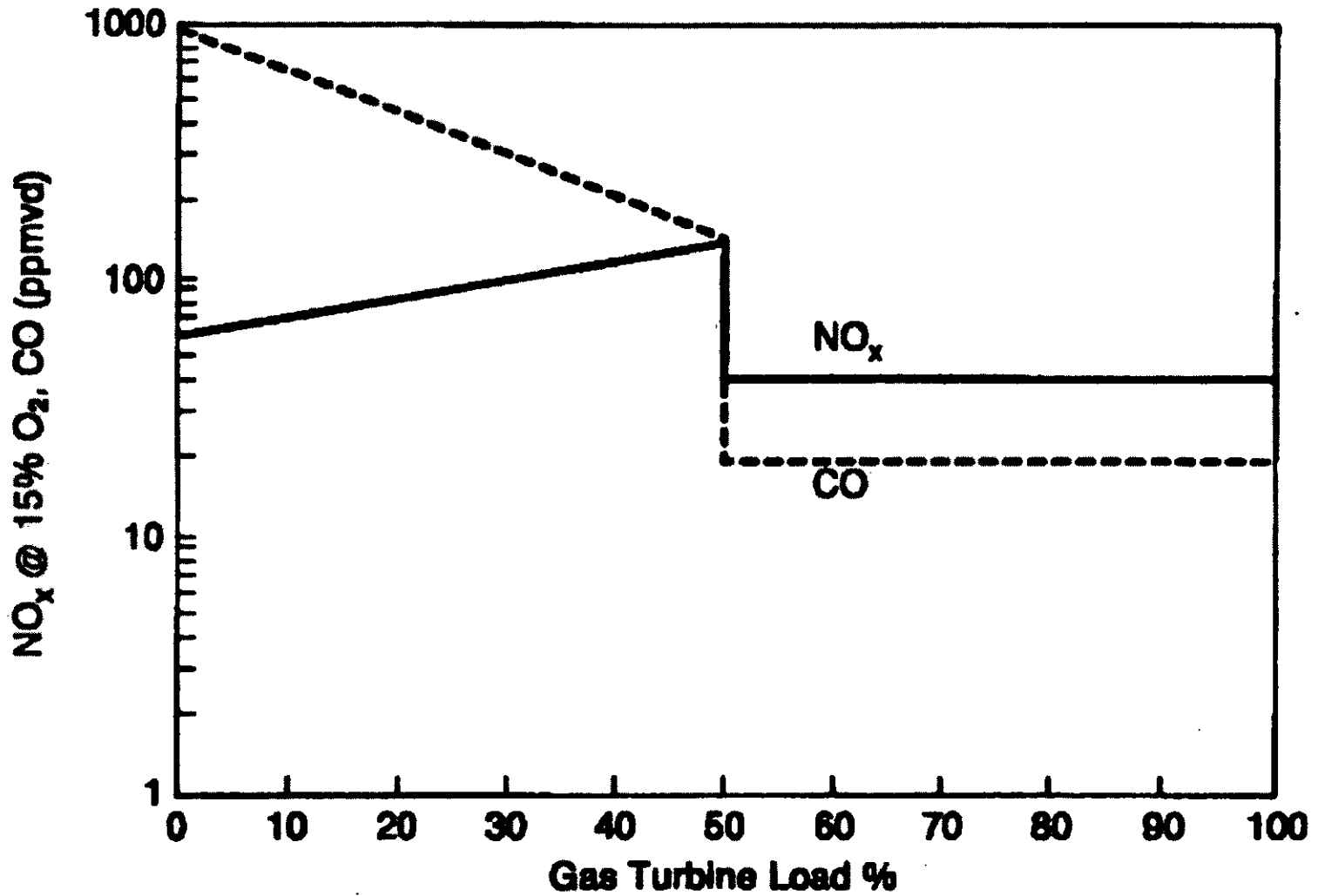


Figure 9 – Emissions Performance for DLN-2 Combustors
Firing Fuel Oil in Dual Fuel GE 7FA Turbine

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Through steam cooling, the difference between flame temperature and firing temperature into the first stage is minimized and higher efficiency is attained. Flame temperatures and NO_x emissions can therefore be maintained at comparatively low levels even at high firing temperatures (refer back to Figure 6). At the same time, thermal efficiency should be greater when employing steam cooling instead of air cooling.

At the present time, emissions achieved by combustion controls are as low as 9 ppmvd from large simple cycle gas turbines. Specialized dual fuel DLN burners were installed in a project in Israel¹ but their performance on fuel oil is not known to the Department. Mitsubishi is also developing a dual-fuel DLN. Optimization of premix fuel-air nozzle and performance was verified in high-pressure combustion tests. Commissioning tests on gas and oil burning were completed at an undesignated site.² The details are not yet available in English.

An important consideration is that power and efficiency are sacrificed in the effort to achieve low NO_x by combustion technology. This limitation is seen in Figure 11 from an EPRI report.³ Basically developments such as single crystal blading, aircraft compressor design, high technology blade cooling have helped to greatly increase efficiency and lower capital costs. Further improvements are more difficult in large part because of the competing demands for air to support lean premix combustion and to provide blade cooling. New concepts are under development by GE and the other turbine manufacturers to meet the challenges implicit in Figure 11.

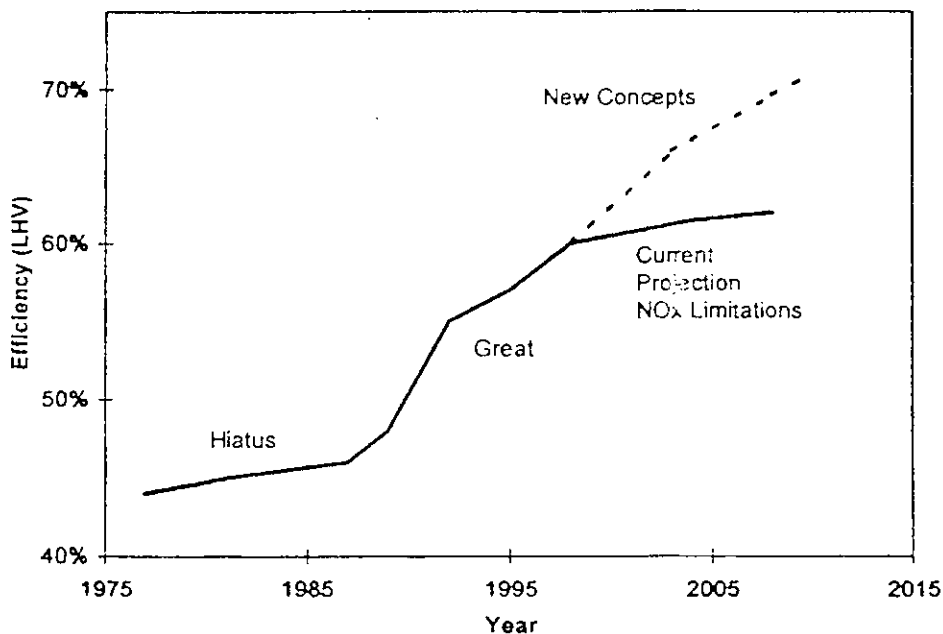


Figure 11 – Efficiency Increases in Combustion Turbines

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Selective Catalytic Combustion

Selective catalytic reduction (SCR) is an add-on NO_x control technology that is employed in the exhaust stream following the gas turbine. SCR reduces NO_x emissions by injecting ammonia into the flue gas in the presence of a catalyst. Ammonia reacts with NO_x in the presence of a catalyst and excess oxygen yielding molecular nitrogen and water. The catalysts used in combined cycle, low temperature applications (conventional SCR), are usually vanadium or titanium oxide and account for almost all installations. For high temperature applications (Hot SCR up to 1100 °F), such as simple cycle turbines, zeolite catalysts are available but used in few applications to-date. SCR units are typically used in combination with wet injection or DLN combustion controls.

In the past, sulfur was found to poison the catalyst material. Sulfur-resistant catalyst materials are now becoming more available. Catalyst formulation improvements have proven effective in resisting sulfur-induced performance degradation with fuel oil in Europe and Japan, where conventional SCR catalyst life in excess of 4 to 6 years has been achieved, while 8 to 10 years catalyst life has been reported with natural gas.

Excessive ammonia use tends to increase emissions of CO, ammonia (slip) and particulate matter (when sulfur-bearing fuels are used).

As of early 1992, over 100 gas turbine installations already used SCR in the United States. Only one combustion turbine project in Florida (FPC Hines Power Block 1) employs SCR. The equipment was installed on a temporary basis because Westinghouse had not yet demonstrated emissions as low as 12 ppmvd by DLN technology at the time the units were to start up in 1998. Seminole Electric will install SCR on a previously permitted 501F unit at the Hardee Unit 3 (Paynes Creek) project. The reasons are similar to those for the FPC Hines Power Block 1.

Permit limits as low as 2.0 to 3.5 ppmvd NO_x have been specified using SCR on combined cycle F Class projects throughout the country. The recently permitted Kissimmee Cane Island Unit 3 project is one example.⁴

Selective Non-Catalytic Combustion

Selective non-catalytic reduction (SNCR) reduction works on the same principle as SCR. The differences are that it is applicable to hotter streams than conventional or hot SCR, no catalyst is required, and urea can be used as a source of ammonia. No applications have been identified wherein SNCR was applied to a gas turbine because the exhaust temperature of 1100 °F is too low to support the NO_x removal mechanism.

The Department did, however, specify SNCR as one of the available options for the combined cycle Santa Rosa Energy Center. The project will incorporate a large 600 mmBtu/hr duct burner in the heat recovery steam generator (HRSG) and can provide the acceptable temperatures (between 1400 and 2000 °F) and residence times to support the reactions.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Catalytic Combustion: SCONOX

SCONOX is a catalytic add-on technology (and registered trademark) that achieves NO_x control by oxidizing and then absorbing the pollutant onto a honeycomb structure coated with potassium carbonate. The pollutant is then released as molecular nitrogen during a regeneration cycle that requires dilute hydrogen gas. The technology has been demonstrated on small units in California and has been purchased for a small source in Massachusetts.⁵

California regulators and industry sources have stated that the first 250 MW block to install SCONOX will be at PG&E's La Paloma Plant near Bakersfield.⁶ The overall project includes several more 250 MW blocks with SCR for control.⁷ USEPA has identified an "achieved in practice" BACT value of 2.0 ppmvd over a three-hour rolling average based upon the recent performance of a Vernon, California natural gas-fired 32 MW combined cycle turbine equipped with SCONOXTM.

SCONOX technology (at 2.0 ppmvd) is considered to represent LAER in non-attainment areas where cost is not a factor in setting an emission limit. It competes with less-expensive SCR in those areas, but has the advantages that it does not cause ammonia emissions in exchange for NO_x reduction. Advantages of the SCONOX process include in addition to the reduction of NO_x, the elimination of ammonia and the control of VOC and CO emissions.

Recently EPA Region IX acknowledged that SCONOX was demonstrated in practice to achieve 2.0 ppmv NO_x.⁸ Permitting authorities planning to issue permits for future combined cycle gas turbine systems firing exclusively on natural gas, and subject to LAER must recognize this limit which, in most cases, would result in a LAER determination of 2.0 ppmv.

According to a recent press release, the Environmental Segment of ABB Alstom Power offers the technology (with performance guarantees) to "all owners and operators of natural gas-fired combined cycle combustion turbines, regardless of size."⁹

SCONOX requires a much lower temperature regime that is not available in simple cycle units and is therefore not feasible for this project.

Catalytic Combustion: XONON

Catalytic combustion involves using a catalytic bed to oxidize a lean air and fuel mixture within a combustor instead of burning with a flame as described above. In a catalytic combustor the air and fuel mixture oxidizes at lower temperatures, producing less NO_x.¹⁰ In the past, the technology was not reliable because the catalyst would not last long enough to make the combustor economical.

There has been increased interest in catalytic combustion as a result of technological improvements and incentives to reduce NO_x emissions without the use of add-on control equipment and reagents. Westinghouse is working to replace the central pilot in its DLN technology with a catalytic pilot in a project with Precision Combustion Inc.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Catalytica has developed a system known as XONON (registered trademark), which works by partially burning fuel in a low temperature pre-combustor and completing the combustion in a catalytic combustor. The overall result is low temperature partial combustion (and thus lower NO_x combustion) followed by flameless catalytic combustion to further attenuate NO_x formation.

In 1998, Catalytica announced the startup of a 1.5 MW Kawasaki gas turbine equipped with XONON.¹¹ The turbine is owned by Catalytica and is located at the Gianera Generating Station of Silicon Valley Power, a municipally owned utility serving the City of Santa Clara, California. Previously, this turbine and XONON system had successfully completed over 1,200 hours of extensive full-scale tests at a project development facility in Oklahoma which documented XONON's ability to limit emissions of NO_x to less than 3 ppmvd.

Recently, Catalytica and GE announced that the XONON combustion system has been specified as the preferred emissions control system with GE 7FA turbines that have been ordered for Enron's proposed 750 MW Pastoria Energy Facility.¹² The project will enter commercial operation by the summer of 2001.

In principle, XONON will work on a simple cycle project. However, the Department does not have information regarding the status of the technology for fuel oil firing and cycling operations. XONON appears to be an up-and-coming technology, the development of which will be watched closely by the Department for future applications.

6.4.3 Particulate Matter (PM/PM₁₀) Control

Particulate matter is generated by various physical and chemical processes during combustion and will be affected by the design and operation of the NO_x controls. The particulate matter emitted from this unit will mainly be less than 10 microns in diameter (PM₁₀).

Natural gas and low sulfur fuel oil (0.05% S content) will be the only fuels fired and are efficiently combusted in gas turbines. Clean fuels are necessary to avoid damaging turbine blades and other components already exposed to very high temperature and pressure. Natural gas is an inherently clean fuel and contains no ash.

A technology review indicated that the top control option for PM₁₀ is a combination of good combustion practices, fuel quality, and filtration of inlet air. Annual emissions of PM/PM₁₀ are expected to be less than 91 tons per year (two combustion turbines and heaters). PM testing will be required for initial and upon permit renewal. Annual compliance will be demonstrated by VE testing (VE is surrogate).

6.4.4 Carbon Monoxide (CO) Control

CO is emitted from combustion turbines due to incomplete fuel combustion. Combustion design and catalytic oxidation are the control alternatives that are viable for the project. The most stringent control technology for CO emissions is the use of an oxidation catalyst.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Most installations using catalytic oxidation are located in the Northeast. Among them are the 272 Berkshire, Massachusetts facility, 240 MW Brooklyn Navalyard Facility, the 240 MW Masspower facility, the 165 MW Pittsfield Generating Plant in Massachusetts, and the 345 MW Selkirk Generating Plant in New York. Catalytic oxidation was recently installed at a cogeneration plant at Reedy Creek (Walt Disney World), Florida to avoid PSD review which would have been required due to increased operation at low load.

Most combustion turbines incorporate good combustion to minimize emissions of CO. These installations typically achieve CO emissions between 10 and 30 ppm at full load, even as they achieve relatively low NO_x emissions by SCR or dry low NO_x means. By comparison, the value of 9 (gas) and 20 (oil) ppmvd proposed by FPL appear relatively low, but consistent with the capabilities of the DLN-2.6 technology as discussed above.

6.4.5 Draft BACT Analysis for Volatile Organic Compound (VOC) Control

Volatile organic compound (VOC) emissions, like CO emissions, are formed due to incomplete combustion of fuel. There are no viable add-on control techniques as the combustion turbine itself is very efficient at destroying VOC. The applicant has proposed good combustion practices to control VOC to 1.5 ppmvd (gas) and 3.5 ppmvw (oil). This value is less than or equal to most BACT-based VOC limits listed above. According to GE, even lower VOC emissions were achieved during recent tests of the DLN-2.6 technology when firing natural gas.¹³

Annual emissions of VOC are expected to be approximately 26 TPY from the simple cycle units. This is less than significant with respect to PSD applicability. However, the difference between future emissions and past actual emissions (when considering contemporaneous emissions from the repowering and fogger projects) is more than the 40 ton per year (PSD). Therefore, this pollutant has been reviewed under PSD regulations and the Draft BACT emission limits are proposed to be 1.5 ppmvd (gas) and 3.5 ppmvw (oil).

6.5 Background on Selected Gas Turbine

FPL plans to purchase two (2) 170 MW General Electric MS7241FA simple cycle gas turbines.

The first commercial GE 7F Class unit was installed at the Virginia Power Chesterfield Station in 1990.¹⁴ The initial units had a firing temperature of 2300°F and a combined cycle efficiency exceeding 50 percent. By the mid-90s, the line was improved by higher combustor pressure, a firing temperature of 2400°F, and a combined cycle efficiency of approximately 56 percent based on a 167 MW combustion turbine. The line was redesignated as the 7FA Class.

The first GE 7F/FA project in Florida was at the FPL Martin Plant in 1993 and entered commercial service in 1994.¹⁵ The units were equipped with DLN-2 combustors with a permitted NO_x limit of 25 ppm. These actually achieve less than 25 ppm of NO_x and 15 ppm of CO. The City of Tallahassee recently received approval to install a GE 7FA Class unit at its Purdom Plant.¹⁶ Although permitted emissions are 12 ppm of NO_x, the City obtained a performance guarantee from GE of 9 ppm.¹⁷

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

General Electric, other manufacturers, and their customers are relying on further advancement and refinement of DLN technology to provide sufficient NO_x control for their combined cycle turbines in Florida. Where required by BACT determinations of certain states, General Electric incorporates SCR in combined cycle projects.¹⁸

The approach of progressively refining such technology is a proven one, even on some relatively large units. Basically this was the strategy adopted in Florida throughout the 1990's. Recently GE Frame 7 FA units met performance guarantees of 9 ppm with DLN-2.6 burners at Fort St. Vrain, CO and Clark County, WA.¹⁹ GE has already achieved emissions of approximately 6 ppm on gas at a dual-fuel MW 7EA (120 MW combined cycle) unit at Cane Island Power Park in Kissimmee, FL.²⁰ The Cane Island unit is equipped with DLN-2 combustors. According to GE, similar performance is expected soon on the 7FA line and performance guarantees less than 9 ppm can be expected using the DLN-2.6 combustors for units delivered in a couple of years.²¹

The 10.5 ppm (base-gas), 15 ppm (HPM-gas) and the 42 ppmvd (oil) NO_x limits requested by FPL is comparable with some recent BACT determinations for F Class simple cycle units, such as those previously listed. However, as previously mentioned, the project is not subject to BACT for NO_x.

6.6 Control Technology Determination

Following are the emission limits determined for this FPL project assuming full load. Values for NO_x are corrected to 15% O₂. These limits or their equivalents in terms of pounds per hour, as well as the applicable averaging times, are given in the permit Specific Conditions 15 and 16.

POLLUTANT	CONTROL TECHNOLOGY	EMISSION LIMIT
NO _x	Dry Low NO _x for Natural Gas Wet Injection and limited Fuel Oil usage	10.5 ppmvd (Gas, Base) 15 ppmvd (Gas, HPM) 42 ppmvd (Fuel Oil)
PM/PM ₁₀ , VE	Pipeline Natural Gas, Low Sulfur Fuel Oil	10/17 lb/hr (Gas/Fuel Oil) 10 percent Opacity (Gas/Fuel Oil)
VOC (BACT)	As Above	1.5 ppmvd (Gas) 3.5 ppmvw (Fuel Oil)
CO	As Above	9 ppmvd (Gas, Base) 15 ppmvd (Gas, HPM) 20 ppmvd (Fuel Oil)
SO ₂ and Acid Mist	As Above	2 gr S/100 ft ³ (in Gas) 0.05% S (in Fuel Oil)

HPM: High Power Modes – (High Temperature Peaking or Steam Power Augmentation)

6.7 Rationale for Control Technology Determination

- FPL obtained a guarantee from GE for DLN-2.6 combustors which have been demonstrated to meet all of the above limits on "7FA" Class gas turbines.
- FPL specifically requested that these limits be incorporated into the permit. The project could "net out" of PSD review and BACT with higher limits (except for VOC).

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

- All of the combustion turbine emission limits comply with the NSPS and are comparable or equal to recent Department BACT determinations applicable to new units at start-up.
- PM₁₀ emissions will be very low and difficult to measure. The Department, with FPL's concurrence, will set a visible emission standard of 10 percent opacity.
- CO emissions from FPL's project are low (approximately 9 ppmvd). With FPL's concurrence, the Department will set CO limits achievable by good combustion equal to 9 ppmvd for the natural gas base case. The limits for the HPM and oil cases will be 15 and 20 ppmvd respectively. For reference, CO limits for the Lakeland and Tallahassee projects are 25 ppm on gas.
- VOC emissions of 1.5 ppmvd (gas) and 3.5 ppmvw (oil) proposed by FPL as BACT are at the lower end of values determined as BACT. Good Combustion is sufficient to achieve these low levels with the DLN-2.6 combustors while firing natural gas.
- The heater for gas heating during startup and simple cycle operation is not subject to any applicable NSPS.

6.8 Compliance Procedures

Pollutant	Compliance Procedure
Visible Emissions	Method 9
Volatile Organic Compounds	Method 18, 25, or 25A (as required by permit)
Carbon Monoxide	Annual Method 10 (can use RATA if at capacity)
NO _x (base-30-day average)	NO _x CEMS, O ₂ or CO ₂ diluent monitor, and flow device as needed
NO _x (HPM-24-hr average)	NO _x CEMS, O ₂ or CO ₂ diluent monitor, and flow device as needed
NO _x (NSPS initial performance)	Method 20 (can use RATA if at capacity)

6.9 Excess Emissions

Allowable Excess Emissions: Pursuant to Rule 62-210.200 F.A.C., excess emissions are allowable under the following scenarios: Valid hourly emission rates shall not include periods of startup, shutdown, or malfunction as defined in Rule 62-210.200 F.A.C., where emissions exceed the applicable NO_x standard. These excess emissions periods shall be reported as required in permit Specific Condition 23. A valid hourly emission rate shall be calculated for each hour in which at least two NO_x concentrations are obtained at least 15 minutes apart. [Rules 62-4.070 F.A.C., 62-210.700 F.A.C and applicant request]

7. SOURCE IMPACT ANALYSIS

7.1 Emission Limitations

The proposed combustion turbines and heaters will primarily emit the following PSD pollutants (Table 212.400-2): particulate matter, sulfur dioxide, nitrogen oxides, volatile organic compounds, carbon monoxide, and sulfuric acid mist. The applicant's proposed annual emissions for criteria pollutants are summarized in the Table below and form the basis of the source impact review.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

7.2 Emission Summary and Contemporaneous Emission Evaluation

The proposed 340 MW Simple Cycle project netted out of PSD review pursuant to Rule 62.212.400(2) (e) F.A.C., Net Emissions Increases. The net emissions increase/decrease for all PSD criteria pollutants as a result of this modification are calculated below:

CONTEMPORANEOUS CREDITABLE CHANGES (TPY)

Pollutants	Past Changes (Repowering & Foggers) (a)	Future Changes (Two turbines SC) (b)	Total Changes All projects (c)	PSD Significance	PSD Review?
PM/PM ₁₀	-293	91	-202	25/15	No
SAM	-894	4	-890	7	No
SO ₂	-20,400	91	-20,309	40	No
NO _x	-5,217	741	-4,476	40	No
VOC	36	26	62	40	Yes
CO	-238	280	42	100	No

(a) Past Emissions Decreases: Repowering, Foggers Projects

(b) Future Potential Emissions: 340 MW Simple Cycle Project Potential Emissions

(c) Total Changes: Repowering, Foggers, Simple Cycle CTs Projects

7.3 Air Quality Analysis

The proposed project (when considering contemporaneous changes) will not result in the increase of emissions of any PSD pollutants at levels in excess of significant amounts with the exception of VOC emissions. FPL, however, conducted a significant impact analysis of the project without taking credit for the emissions reductions. According to the modeling, all impacts are less than the respective Class II significant impact levels that would otherwise require more refined modeling. These analyses are shown in the following table.

MAXIMUM PROJECT AIR QUALITY IMPACTS FOR COMPARISON TO THE PSD CLASS II SIGNIFICANT IMPACT LEVELS IN THE VICINITY OF THE FACILITY

Pollutant	Averaging Time	Max Predicted Impact (ug/m ³)	Significant Impact Level (ug/m ³)	Significant Impact?
PM ₁₀	Annual	0.013	1	NO
	24-hour	0.15	5	NO
CO	8-hour	1.46	500	NO
	1-hour	5.62	2000	NO
NO ₂	Annual	0.16	1	NO
SO ₂	Annual	0.049	1	NO
	24-hour	0.68	5	NO
	3-hour	2.50	25	NO

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Potential emissions of VOC are only 26 TPY but greater than 40 TPY when considering contemporaneous increases. The Applicant presented the potential increases to the Department and EPA, and discussed options available to predict potential impacts associated with the emissions of VOC and formation of ozone. Based on the available information, the Department has determined that the use of regional models which incorporate the complex chemical mechanisms for predicting ozone formation are not feasible for this project.

7.4 Analysis Impacts On Soils, Vegetation, And Wildlife

The maximum ground-level concentration increases predicted to occur for PM₁₀, CO, SO₂, and NO_x as a result of the proposed project, are all less than the Class II significant impact levels. The beneficial effects of the contemporaneous repowering project far exceed the insignificant impacts of this project. Additionally the additional emissions of VOC are not expected to impact these parameters in any meaningful manner.

7.5 Impact On Visibility

The project will have some effect on visibility. However visibility should greatly improve as a result of the contemporaneous repowering project. The stack visible emissions limits of 10 percent opacity for the repowering project and the simple cycle project compared with present limits as high as 40 percent (refer back to Figure 3) will further insure an improvement.

7.6 Growth-Related Air Quality Impacts

The proposed project is being constructed to meet current and future statewide electric demands. Additional significant growth in the immediate area as a direct result of the additional electric power provided by the project is not expected. The project will be constructed and operated with minimum labor and associated facilities and is not expected to significantly affect growth in the local area. Obviously any increase in highly efficient electric power capacity promotes or accommodates further statewide growth.

8. CONCLUSION

Based on the foregoing technical evaluation of the application 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.

Teresa Heron, Review Engineer

A. A. Linero, P.E.

Chris Carlson, Meteorologist

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

REFERENCES

- ¹ Telecom. Linero, A.A., FDEP and Chalfin, J., GE. NO_x control technology for fuel oil.
- ² Paper. Mandai, S., et. al., MHI. "Development of Low NO_x Combustor for Firing Dual Fuel." Mitsubishi Juko Giho, Vol.36 No.1 (1999).
- ³ Paper. Cohn, A. and Scheibel, J., EPRI. Current Gas Turbine Developments and Future Projects. October 1997.
- ⁴ Permit. Florida DEP. KUA Cane Island Unit 3. File PSD-FL-254. November, 1999.
- ⁵ News Release. Goaline. Genetics Institute Buys SCONO_x Clean Air System. August 20, 1999.
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- ¹⁰ Compliance Manual. California EPA, CARB Compliance Division. Gas Turbines. June 1996.
- ¹¹ News Release. Catalytica. First Gas Turbine with Catalytica's XONON installed to Produce Electricity at a Utility. October 8, 1998.
- ¹² News Release. Catalytica. XONONTM Specified With GE 7FA Gas Turbines For Enron Power Project. December 15, 1999.
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- ¹⁴ Brochure. General Electric. "GE Gas Turbines - MS7001FA." Circa 1993.
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- ¹⁶ Florida DEP. PSD Permit, City of Tallahassee Purdom Unit 8. May, 1998.
- ¹⁷ City of Tallahassee. PSD/Site Certification Application. April, 1997.
- ¹⁸ State of Alabama. PSD Permit, Alabama Power/Barry Sithe/IPP (GE 7FA).
- ¹⁹ Telecom. Schorr, M., GE, and Costello, M., Florida DEP. March 31, 1998. Status of DLN-2.6 Program.
- ²⁰ Florida DEP. Bureau of Air Regulation Monthly Report. June, 1998.
- ²¹ Telecom. Schorr, M., GE, and Linero, A. A., Florida DEP. August, 1998. Cost effectiveness of DLN versus SCR.

PERMITTEE:

Florida Power & Light Company
Fort Myers Power Plant
Post Office Box 430
Fort Myers, Florida 33905

Permit No.	0710002-009AC and PSD-FL-298
Project:	340 MW Simple Cycle Project
SIC No.	4911
Expires:	December 31, 2002

Authorized Representative:

William Reichel
Plant General Manager

PROJECT AND LOCATION:

Permit to install two dual fuel simple cycle units to generate additional power. Each unit is a 170-megawatt General Electric MS7241FA gas-fired combustion turbine-generator with an 80-foot stack. The project also includes two natural gas heaters with 30-foot stacks.

This facility is located at 10650 State Road 80 near Tice, Lee County. UTM coordinates are: Zone 17; 422.3 km E and 2,952.9 km N.

STATEMENT OF BASIS:

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

ATTACHED APPENDICES MADE A PART OF THIS PERMIT:

- Appendix GC Construction Permit General Conditions
- Appendix BD BACT Determination

Howard L. Rhodes, Director
Division of Air Resources
Management

AIR CONSTRUCTION PERMIT PSD-FL-298 (0710002-009-AC)
SECTION I. FACILITY INFORMATION

FACILITY DESCRIPTION

Currently, this facility generates electric power from two residual fuel oil-fired steam units with a combined generating capacity of 593 megawatts (MW) and 12 distillate fuel oil-fired simple cycle combustion turbines with a combined generating capacity of 708 MW. A permit was issued in 1998 to install six combined cycle units and ancillary equipment to replace the above mentioned existing residual oil-fired steam generating units (nominal 1500 MW Repowering Project).

The proposed new project is to install two simple cycle units with 80-foot stacks. Each unit is a 170-megawatt General Electric PG7241FA gas-fired combustion turbine-generator to be operated on a continuous basis (8760 hours per year). The project also includes two heaters with 30-foot stacks to heat the natural gas. Inherently clean fuels and good combustion practices will be employed to control all pollutants.

This project is subject to the requirements of Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD) only for volatile organic compounds (VOC) as discussed in the Technical Evaluation and Preliminary Determination dated October 26, 2000.

EMISSION UNITS

This permit addresses the following emission units:

EMISSION UNIT NO.	SYSTEM	EMISSION UNIT DESCRIPTION
027 - 028	Power Generation	Two Simple Cycle Combustion Turbine-Generators
029 - 030	Fuel Heating	Two Natural Gas Heaters

REGULATORY CLASSIFICATION

This facility, FPL Fort Myers Power Plant, is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), or volatile organic compounds (VOC) exceeds 100 tons per year (TPY).

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

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

PERMIT SCHEDULE

- X/XX/00 Notice of Intent published in the Fort Myers News-Press
- 10/26/00 Distributed Intent to Issue Permit
- 09/26/00 Application completed
- 08/10/00 Received Application

AIR CONSTRUCTION PERMIT PSD-FL-298 (0710002-009-AC)
SECTION I. FACILITY INFORMATION

RELEVANT DOCUMENTS:

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

- Application received on August 10, 2000
- Department's letter dated August 24, 2000
- Department's Intent to Issue and Public Notice Package dated October 26, 2000.
- EPA comments dated _____, 2000.
- FPL's comments dated _____, 2000.
- FPL's submittal of revised Phase II Acid Rain application dated _____, 2000

AIR CONSTRUCTION PERMIT PSD-FL-298 and 0710002-009-AC
SECTION II. COMMON CONDITIONS

GENERAL AND ADMINISTRATIVE REQUIREMENTS

1. Regulating Agencies: All documents related to applications for permits to construct, operate or modify an emissions unit should be submitted to the *Permitting Authority*: Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (DEP), at 2600 Blirstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114. All documents related to reports, tests, and notifications should be submitted to the *Compliance Authority*: DEP South District office, 2295 Victoria Avenue, Suite 364, Ft. Myers, Florida 33902-3381 and phone number 941/332-6975.
2. 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.]
3. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
4. 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.]
5. 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.]
6. 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.]
7. Permit Expiration Date Extension: This permit expires on December 31, 2002. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. [Rule 62-4.080, F.A.C.]
8. PSD Approval to Construct Expiration: Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. [40 CFR 52.21(r)(2)]
9. BACT Determination: In accordance with Rule 62-212.400(6)(b), F.A.C. (and 40 CFR 51.166(j)(4)), the Best Available Control Technology (BACT) determination shall be reviewed and modified as appropriate in the event of a plant conversion. This paragraph states: "For phased construction project, the determination of best available control technology shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source." This reassessment will also be conducted for this project if

AIR CONSTRUCTION PERMIT PSD-FL-298 and 0710002-009-AC SECTION II. COMMON CONDITIONS

there are any increases in heat input limits, hours of operation, oil firing, low or baseload operation (e.g. conversion to combined-cycle operation) short-term or annual emission limits, annual fuel heat input limits or similar changes. [40 CFR 51.166(j)(4) and Rule 62-212.400(6)(b), F.A.C.]

10. Application for Title IV Permit: At least 24 months before the date on which the new unit begins serving an electrical generator greater than 25 MW, the permittee shall submit an application for a Title IV Acid Rain Permit to the Region 4 office of the U.S. Environmental Protection Agency in Atlanta, Georgia and a copy to the Department's Bureau of Air Regulation in Tallahassee. [40 CFR 72]
11. Title V Permit: This permit authorizes construction of the permitted emissions unit and initial operation to determine compliance with Department rules. A Title V operation permit is required for routine operation of the permitted emissions units. The permittee shall apply for and obtain a Title V operation permit in accordance with Rule 62-213.420, F.A.C. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Department's Bureau of Air Regulation and a copy to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

EMISSIONS AND CONTROLS

12. Unconfined Particulate 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.]
13. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
14. Excess Emissions Allowed and Prohibited: Refer to Section III, Specific Conditions 22-24. [Rule 62-210.700(4), F.A.C.]
15. 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 the 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.]
16. Operating Procedures: All operators and supervisors shall be properly trained to operate and maintain the combustion turbine and pollution control system in accordance with the guidelines and procedures established by the manufacturer. The training shall include good operating practices as well as method of minimizing excess emissions. [Rule 62-4.070(3) F.A.C.]

TESTING REQUIREMENTS

17. Test Notification: The permittee shall notify the 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. [Rule 62-297.310(7)(a)9., F.A.C. and 40 CFR 60.7, 60.8]

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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.]
22. Stack Testing Facilities: Stack sampling facilities shall be installed in accordance with Rule 62-297.310(6), F.A.C.

RECORDS

23. 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.]

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REPORTS

24. Emissions Performance Test Results Reports: A report indicating the results of any required emissions performance test shall be submitted to the *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.].
25. Annual Reports: Pursuant to Rule 62-210.370(2), F.A.C., Annual Operation Reports, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. Annual operating reports shall be sent to the *Compliance Authority*: DEP's South District office by March 1st of each year. [Rule 62-210.370(2), F.A.C.]
26. Quarterly Reports: Quarterly excess emission reports, in accordance with 40 CFR 60:7 (a)(7) (c) and 60.334 (2000 version), shall be submitted to the *Compliance Authority*: DEP's South District office.

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APPLICABLE STANDARDS AND REGULATIONS:

1. **Regulations:** Unless otherwise indicated in this permit, the construction and operation of the subject emission unit(s) shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S. and Florida Administrative Code Chapters 62-4, 62-103, 62-204, 62-210, 62-212, 62-213, 62-214, 62-296, and 62-297; and the applicable provisions of the Code of Federal Regulations Section 40, Parts 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 state, federal or local requirement applies. [Rules 62-204.800; 62-4.070(3), and Rule 62-210.300, F.A.C.]
3. **NSPS Requirement - Subpart A:** These emission units shall comply with all applicable provisions of 40CFR60, Subpart A, General Provisions including:
 - 40CFR60.7, Notification and Recordkeeping
 - 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
4. **NSPS Requirement - Subpart GG :** ARMS Emission Units 027 and 028, Power Generation, consisting of two (nominal) 170 MW combustion turbines (340 MW in Simple cycle operation), shall comply with all applicable provisions of 40CFR60, Subpart GG, Standards of Performance for Stationary Gas Turbines, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The Subpart GG requirement to correct test data to ISO conditions applies. However, such correction is not required to demonstrate compliance with non-NSPS permit standard(s).
5. **Applicable Requirements for ARMS Emission Unit 029 and 030:** Natural Gas Heater (s), shall comply with applicable specific conditions as stated below.

GENERAL OPERATION REQUIREMENTS AND CONTROL TECHNOLOGY

6. **Fuels:** Only pipeline natural gas (sulfur content of 2 grain per 100 standard cubic foot) and No. 2 Fuel oil (0.05% S content) or superior grade fuel oil shall be fired in these units. [Applicant Request, Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]
7. **Turbine Capacity:** The maximum heat input rates, based on the lower heating value (LHV) of the fuel to *each* combustion turbine at compressor inlet conditions of 59°F, 60% relative humidity and 14.7 psia shall not exceed: 1,600 (gas-baseload), 1,680 [(gas-high power mode (HPM))], 1,811 (oil-baseload) million Btu per hour (mmBtu/hr).

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This maximum heat input rate will vary depending upon turbine inlet conditions and the combustion turbine characteristics. Manufacturer's curves corrected for site conditions or equations for correction to other compressor inlet conditions shall be provided to the Department of Environmental Protection (DEP) within 45 days of completing the initial compliance testing.

[Design, Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]

8. Gas-Fired Heaters: The maximum heat input rate, based on the lower heating value (LHV) of the fuel to the gas-fired heaters at ambient conditions of 59°F, 60% relative humidity, 100% load, and 14.7 psia shall not exceed 100 mmBtu per hour.
9. Simple Cycle Mode Operation Only: Each combustion turbine shall operate only in simple cycle mode. Any request to convert these units to combined cycle operation or increase the allowable hours of operation in any other mode of operation shall be approved by the Department through a permit modification in accordance with Chapters 62-210 and 62-212, F.A.C.
[Applicant Request; Rules 62-210.300 and 62-212.400, F.A.C.]
10. Alternate Gas Firing Methods of Operation: High Power Mode (HPM)
 - a. Power Augmentation Mode: In accordance with the manufacturer's recommendations, steam may be injected into each combustion turbine when firing natural gas to provide additional peaking power during periods of high electrical power demand. Each unit shall not exceed 440 hours of power augmentation during any consecutive 12 months. To qualify as "power augmentation mode", the combustion turbine must operate at a load of 95% or greater than that of the manufacturer's maximum base load rate adjusted for the compressor inlet air conditions. Prior to activating and after deactivating the power augmentation mode, the operator shall log the date, time, and new mode of operation. Power augmentation when firing distillate oil is prohibited.
 - b. High Temperature Peaking Mode: In accordance with the manufacturer's recommendations, each combustion turbine may be operated in a high temperature peaking mode when firing natural gas to provide additional power during periods of peak electrical power demands. Peaking is achieved through the automated gas turbine control system by allowing slightly higher exhaust temperatures, calculating a new combustion reference temperature for the peak load, and adjusting the fuel distribution between the fuel nozzles to maintain lean pre-mix firing. During the transfer from base load to peak load and during peak load operation, each unit will remain in the per-mix steady state mode. Each unit shall not exceed 60 hours of peaking during any consecutive 12 months. To qualify as "peaking mode", the combustion turbine must operate at a load of 95% or greater than that of the manufacturer's maximum base load rate adjusted for the compressor inlet air conditions. Prior to activating and after deactivating the peaking mode, the operator shall log the date, time, and new mode of operation. Peaking when firing distillate oil is prohibited.
11. Hours of Operation: Each unit is allowed to operate continuously or 8760 hours per year. However each unit is limited to 500 hours per year operation on 0.05 % S (by weight) fuel oil or superior grade oil and 500 hours on high power mode (HPM). [Design, Rules 62-4.070(3) and 62-210.200, F.A.C. (Definitions - Potential Emissions)]
12. Control Technology Dry Low NO_x: Dry Low NO_x (DLN) combustors shall be installed on each stationary combustion turbine to control nitrogen oxides (NO_x) emissions.

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13. Emissions Performance Diagrams: The permittee shall provide manufacturer's emissions performance versus load diagrams for the DLN systems prior to their installation. DLN systems shall each be tuned upon initial operation to optimize emissions reductions consistent with normal operation and maintenance practices and shall be maintained to minimize NO_x and CO emissions, consistent with normal operation and maintenance practices. Operation of the DLN systems in the diffusion-firing mode shall be minimized when firing natural gas. [Rule 62-4.070, and 62-210.650 F.A.C.]
14. Control Technology Wet Injection: A wet injection system shall be installed for use when firing No. 2 or superior grade distillate fuel oil for control of NO_x emissions. [Design, Rules 62-4.070 F.A.C.]

EMISSIONS LIMITS AND STANDARDS

15. Following are the emission limits determined for this project assuming full load. Values for NO_x are corrected to 15% O₂ on a dry basis. These limits or their equivalents in terms of pounds per hour, as well as the applicable averaging times, are followed by the applicable specific conditions. [Applicant Requests, Rules 62-204.800(7)(b) (Subparts GG), 62-210.200 (Definitions-Potential Emissions), F.A.C.].

POLLUTANT	CONTROL TECHNOLOGY	EMISSION LIMIT
NO _x	Dry Low NO _x for Natural Gas Wet Injection and limited Fuel Oil usage	10.5 ppmvd (Gas, Base) 15 ppmvd (Gas, HPM) 42 ppmvd (Fuel Oil)
PM/PM ₁₀ , VE	Pipeline Natural Gas, Low Sulfur Fuel Oil	10/17 lb/hr (Gas/Fuel Oil) 10 percent Opacity (Gas/Fuel Oil)
VOC (BACT)	As Above	1.5 ppmvd (Gas) 3.5 ppmvw (Fuel Oil)
CO	As Above	9 ppmvd (Gas, Base) 15 ppmvd (Gas, HPM) 20 ppmvd (Fuel Oil)
SO ₂ and Acid Mist	As Above	2 gr S/100 ft ³ (in Gas) 0.05% S (in Fuel Oil)

HPM: High Power Modes – (High Temperature Peaking or Steam Power Augmentation)

16. Nitrogen Oxides (NO_x) Emissions:
- a. *Gas Firing Base Case*: The concentration of NO_x concentrations in the exhaust gas of each combustion turbine (CT) shall not exceed 10.5 ppmvd at 15%O₂ on a 30-day rolling average basis as measured by the CEMS (maintained in accordance with 40 CFR 75). In addition, NO_x emissions calculated as NO₂ (at ISO conditions) shall exceed neither 10.5 ppmvd @15% O₂ nor 69 lb/hr to be demonstrated by stack test as required in Specific Conditions 25 to 30.
 - b. *Gas Firing High Power Modes (HPM)*: The concentration of NO_x concentrations in the exhaust gas of each CT shall not exceed 15 ppmvd at 15%O₂ on a 24-hour rolling average basis as measured by the CEMS (maintained in accordance with 40 CFR 75). In addition, NO_x emissions calculated as NO₂ (at ISO conditions) shall exceed neither 15 ppmvd @15% O₂ nor 102 lb/hr to be demonstrated by stack test conducted as required in Specific Condition 25 to30.

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- c. *Fuel Oil Firing Operation*: The concentration of NO_x concentrations in the exhaust gas of each CT shall not exceed 42 ppmvd at 15%O₂ on a 24-hour rolling average basis as measured by the CEMS (maintained in accordance with 40 CFR 75). In addition, NO_x emissions calculated as NO₂ (at ISO conditions) shall exceed neither 42 ppmvd @15% O₂ nor 320 lb/hr to be demonstrated by stack test conducted as required in Specific Condition 25 to 30.
- d. *Gas Fired Heaters*: NO_x emission limit from each gas heater shall not exceed 0.010 lb/mmBtu to be demonstrated by stack test as required in Specific Condition 25 to 30.
17. Visible Emissions (VE): VE emissions from each turbine shall not exceed 10 percent opacity while operating in gas or fuel oil. Visible emissions from the gas heaters shall not exceed 10 percent opacity. Stack test shall be conducted as required in Specific Condition 25 to 30.
18. Particulate Matter (PM/PM₁₀): PM/PM₁₀ emissions shall not exceed 10 lb/hr when operating on natural gas and shall not exceed 17 lb/hr when operating on fuel oil. [Rule 62-4.070 (3) F.A.C.]. Stack test shall be conducted as required in Specific Condition 25 to 30.
19. Carbon Monoxide (CO) emissions :
- a. *Gas Firing Base Case*: The concentration of CO concentrations in the exhaust gas of each CT shall not exceed 9 ppmvd. In addition, CO emissions (at ISO conditions) shall exceed neither 9 ppmvd nor 29 lb/hr to be demonstrated by stack test conducted as required in Specific Condition 25 to 29.
- b. *Gas Firing High Power Mode (HPM) Operation*: The concentration of CO concentrations in the exhaust gas of each CT shall not exceed 15 ppmvd. In addition, CO emissions (at ISO conditions) shall exceed neither 15 ppmvd nor 48 lb/hr to be demonstrated by stack test conducted as required in Specific Condition 25 to 30.
- c. *Fuel Oil Firing*: The concentration of CO concentrations in the exhaust gas of each CT shall not exceed 20 ppmvd. In addition, CO emissions (at ISO conditions) shall exceed neither 20 ppmvd nor 65 lb/hr to be demonstrated by stack test conducted as required in Specific Condition 25 to 30.
- d. *Gas Fired Heaters*: CO emission limit from each gas heater shall not exceed 0.075 lb/mmBtu to be demonstrated by stack test as required in Specific Condition 25 to 30.
20. Volatile Organic Compounds (VOC) Emissions: The concentration of VOC in the exhaust gas shall not exceed 1.5 ppmvd (gas) 3.5 ppmvw (oil) as determined by EPA Methods 18, 25 or 25 A. VOC emissions (at ISO conditions) shall not exceed 2.8 (gas), 7.3 (oil) lb/hr per CT to be demonstrated by stack test conducted as required in Specific Condition 25 to 30.
21. Sulfur Dioxide (SO₂) and Sulfuric Acid Mist (SAM) Emissions: SO₂ and SAM emissions shall be limited by firing pipeline natural gas (sulfur content less than 2 grain per 100 standard cubic foot) or by firing No. 2 or superior grade distillate fuel oil with a maximum 0.05 percent sulfur. [40CFR60 Subpart GG and Rules 62-4.070, and 62-204.800(7), F.A.C.]

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EXCESS EMISSIONS

22. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown, or malfunction shall be permitted provided that best operational practices are adhered to and the duration of excess emissions shall be minimized. Excess emissions occurrences shall in no case exceed two hours in any 24-hour period for other reasons unless specifically authorized by DEP for longer duration. Operation below 50% output shall be limited to two hours in any 24-hour period, regardless of unit cycles (breaker closed to breaker open) [Rules 62-210.700, 62-4.130 F.A.C.].
23. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, power augmentation, high temperature peaking or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction, shall be prohibited pursuant to Rule 62-210.700, F.A.C. All such emissions shall be included in the 30-day rolling average (gas-base case) or the 24-hr average (oil or HPM) to demonstrate compliance with the continuous NO_x standard. [Rules 62-210.700 (4) F.A.C.].
24. Excess Emissions Report: If excess emissions occur for more than two hours due to malfunction, the owner or operator shall notify DEP's South District office within (1) working day 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. Pursuant to the New Source Performance Standards, all excess emissions shall also be reported in accordance with 40 CFR 60.7, Subpart A. Following this format, 40 CFR 60.7, periods of startup, shutdown, malfunction, and fuel switching shall be monitored, recorded, and reported as excess emissions when emission levels exceed the permitted standards listed in Specific Condition No. 15 and 16. [Rules 62-4.130, 62-204.800, 62-210.700(6), F.A.C., and 40 CFR 60.7 (2000 version)].

COMPLIANCE DETERMINATION

25. Test Compliance Schedule: Compliance tests with the allowable emission limiting standards shall be determined within 60 days after achieving the maximum production rate at which each unit will be operated, but not later than 180 days following initial operation of the unit, and annually thereafter as indicated in this permit or as required by the *Compliance Authority*. [40CFR 60.8 and Rule 62-4.070(3) F.A.C.]
26. Initial Performance and Annual Compliance Tests: Initial (I) performance tests (for both fuels) for each unit shall be conducted as indicated in Specific Conditions 29 and 30. Annual (A) compliance tests for each unit shall be conducted during every federal fiscal year (October 1 - September 30) pursuant to Rule 62-297.310(7), F.A.C., on each CT as indicated in Specific Conditions 29 and 30. Where *initial test only* are indicated, these tests shall be repeated prior to renewal of each operation permit.
27. Test After Substantial Modifications: Initial tests for each unit shall also be conducted after any substantial modifications and appropriate shake down period of air pollution control equipment such as change or tuning of combustors. Shakedown periods shall not to exceed 100 days after re-starting the combustion turbine. This does not apply to routine maintenance. [Rules 62-297.310(7)(a)4 and 62-4.070(3), F.A.C.]
28. Tests Prior to Permit Renewal: Prior to renewing air operation permits, performance tests shall be conducted for each combustion turbine to demonstrate compliance with the CO, NO_x, PM, VOC and visible emissions standards for normal gas firing, gas firing with power augmentation, gas firing with high temperature peaking, and backup oil firing. Tests for CO, NO_x, and VOC emissions shall be

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conducted concurrently. Tests for PM and visible emissions shall be conducted concurrently. All tests shall be conducted within the 12 months prior to renewing the air operation permit.
[Rule 62-297.310(7)(a)3., F.A.C.]

29. Test Methods: The following reference methods as described in 40 CFR 60, Appendix A (2000 version), and adopted by reference in Chapter 62-204.800, F.A.C., shall be used. No other test methods may be used for compliance testing unless prior DEP approval is received in writing pursuant to Rule 62-297.310 (6), F.A.C.

- EPA Reference Method 5 or 17. "Determination of Particulate Emissions from Stationary Sources" (I)
- Method 7E, "Determination of Nitrogen Oxides Emissions from Stationary Sources" or RATA test data may be used to demonstrate compliance for annual (A) test requirements.
- EPA Reference Method 9, "Visual Determination of the Opacity of Emissions from Stationary Sources" (I, A).
- EPA Reference Method 10, "Determination of Carbon Monoxide Emissions from Stationary Sources" (I, A).
- EPA Reference Method 20, "Determination of Oxides of Nitrogen Oxide, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines." Initial test only for compliance with 40CFR60 Subpart GG.
- EPA Reference Method 18, 25 or 25A, "Determination of Volatile Organic Concentrations." Initial test only.
- EPA Reference Method 19. "Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates". Method 19 shall be used only for the calculation of lb/mmBtu and 40CFR75 shall be used to calculate mmBtu/hr and lb/hr emissions rates from stack tests. Initial test only.

30. Combustion Turbine Testing Capacity Procedures:

- a. *Initial performance tests* shall be conducted in accordance with 40CFR 60.8 and 40 CFR60.335 for pollutants subject to New Source Performance Standards (NSPS) in Subpart GG for gas turbines.
- b. *Other required performance tests* for compliance with standards specified in this permit shall be conducted with the combustion turbine operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the maximum heat input rate allowed by the permit, corrected for the average compressor inlet temperature during the test (with 100 percent represented by a curve depicting heat input vs. compressor inlet temperature). If it is impracticable to test at permitted capacity, the source may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the entire heat input vs. compressor inlet temperature curve downward by an increment equal to the difference between the maximum permitted heat input (corrected for compressor inlet temperature) and 110 percent of the value reached during the test 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 purposes of additional compliance testing to regain the permitted capacity. Test procedures shall meet all applicable requirements (i.e., testing time frequency, minimum compliance duration, etc.) of Chapter 62-204 and 62-297 F.A.C.

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- c. *For higher operating mode performance tests* conducted when gas firing under the power augmentation mode and under the high temperature peaking mode, the permittee shall document that the combustion turbine was operating under "peak load" for the given ambient conditions. For power augmentation, the steam injection rate shall be no less than 100,000 pounds of steam per hour.

[Rule 62-297.310(2), F.A.C.; 40 CFR 60.335]

31. Compliance with the SO₂ and PM/PM₁₀ emission limits: Notwithstanding the requirements of Rule 62-297.340, F.A.C., the use of pipeline natural gas as the primary fuel and restricted use of No.2 distillate oil (or superior grade) is the method for determining continuous compliance for SO₂ and PM/PM₁₀. Initial PM and upon permit renewal tests are required. VE shall serve as a surrogate for PM/PM₁₀ annual compliance test. Test for PM and visible emissions shall be conducted concurrently.
32. Test Methods for Natural Gas and Fuel Oil Sulfur Content: For the purposes of demonstrating compliance with the 40 CFR 60.333 SO₂ standard, ASTM D 2880-71 (or equivalent) for sulfur content of liquid fuel and ASTM methods D4084-82 or D3246-81 (or equivalent) for sulfur content of gaseous fuel and shall be utilized in accordance with the EPA-approved custom fuel monitoring schedules. Natural gas supplier data or the natural gas sulfur content referenced in 40 CFR 75 Appendix D may be submitted when demonstrating compliance for this fuel. However, the applicant is responsible for ensuring that the procedures in 40 CFR 60.335 or 40 CFR 75 are used when determination of fuel sulfur content is made. 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 pursuant to 40 CFR 60.335(e) (2000 version)
33. Compliance with Visible Emissions (VE) limits: Initial and annual test is required for visible emissions. Test for PM and visible emissions shall be conducted concurrently.
34. Compliance with CO emission limits: An initial test for CO, shall be conducted concurrently with the initial VOC and NO_x tests while operating at permitted capacity. These initial VOC, NO_x and CO test results shall be the average of three runs. Annual compliance testing for CO may be conducted at less than capacity when compliance testing is conducted concurrent with the annual NO_x RATA testing which is performed pursuant to 40 CFR 75.
35. Compliance with the VOC emission limits: Initial and permit renewal compliance stack tests are required to demonstrate compliance with the VOC emission limit. CO emission limit and periodic tuning data will be employed as a surrogate and no annual testing is required.
36. Compliance with the NO_x limits: Compliance with emissions the NO_x emissions limits shall be determined by stack tests and a CEMS as specified in specific conditions No. 29, 44, and 45.

NOTIFICATION, REPORTING, AND RECORDKEEPING

37. Notifications: All notifications and reports required by any applicable requirements of 40 CFR Subpart A and GG shall be submitted to the DEP's South District office.
38. Reports and Records: These units facility shall also comply with all the record and report requirements specified in Section II, Specific Conditions No 23 through 26.

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39. Monthly Operations Record Summary: By the fifth calendar day of each month, the permittee shall record the hours of each mode of operation and the fuel consumption for each combustion turbine. The information shall be recorded in a written or electronic log 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 from the DEP South District Office. [Rule 62-4.160(15), F.A.C.]
40. Fuel Records: The permittee shall demonstrate compliance with the fuel sulfur limits specified in this permit by maintaining the following records of the sulfur contents.
- a The permittee shall obtain data sheets from the vendor indicating the average sulfur content of the natural gas being supplied by the pipeline for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D3246-81 or equivalent methods as specified in Specific Condition 32.
 - b The permittee shall obtain data sheets from the vendor indicating the quantity and sulfur content of the distillate oil for each shipment delivered. Methods for determining the sulfur content of distillate oil shall be ASTM D 2880-71 or equivalent methods as specified in Specific Condition 32.

MONITORING REQUIREMENTS

41. Continuous Monitoring System Procedures: The permittee shall install, calibrate, maintain, and operate a continuous emission monitor in the stack to measure and record the NO_x emissions from each CT. Each device shall properly function prior to the initial performance tests and comply with the applicable monitoring system requirements of 40 CFR 75.62. Upon request from DEP, the CEMS emission rates for NO_x on each CT shall be corrected to ISO conditions to demonstrate compliance with the NO_x standard established in 40 CFR 60.332.
[Rules 62-4.070 F.A.C., 62-210.700, F.A.C., 62-4.130, F.A.C and 40CFR75]
42. Continuous Monitoring Certification and Quality Assurance Requirements: The monitoring devices shall comply with the certification and quality assurance, and any other applicable requirements of Rule 62-297.520, F.A.C., 40 CFR 60.13, including certification of each device in accordance with 40 CFR 60, Appendix B, Performance Specifications and 40 CFR 60.7(a)(5) or 40 CFR Part 75. Quality assurance procedures must conform to all applicable sections of 40 CFR 60, Appendix F or 40CFR75. The monitoring plan, consisting of data on CEM equipment specifications, manufacturer, type, calibration and maintenance needs, and its proposed location shall be provided to the DEP Emissions Monitoring Section Administrator and EPA for review no later than 45 days prior to the first scheduled certification test pursuant to 40 CFR 75.62
43. Continuous Monitoring System Operation: The continuous monitoring systems (CEMS) for NO_x shall be in continuous operation except for breakdowns, repairs, calibration checks, and zero and span adjustments. Emissions shall be monitored and recorded at all times including startup, operation, shutdown, and malfunction. Data recorded during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data average. These CEMS shall meet minimum frequency of operation requirements: one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. Valid hourly emission rates shall not include periods of startup, shutdown, or malfunction unless prohibited by 62-210.700 F.A.C. These excess emissions periods shall be reported as require in Specific Conditions 24 and 46. [Rules 62-4.130, 62-4.160(8), 62-204.800, 62-210.700, 62-4.070 (3), and 62-297.520, F.A.C.; 40 CFR 60.7; 40 CFR 60.13, 40 CFR 75]

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44. Continuous Compliance with the NO_x Emission Limits – Base Case Operation: Continuous compliance with the NO_x emission limits shall be demonstrated with the CEM system based on a 30-day rolling average. Based on CEMS data, a separate compliance determination is conducted at the end of each operating day and a new 30 day average emission rate is calculated from the arithmetic average of all valid hourly emission rates during the previous 30 operating days. A valid hourly emission rate shall be calculated for each hour in which at least two NO_x concentrations are obtained at least 15 minutes apart. [Rules 62-4.130, 62-4.160(8), 62-204.800, 62-210.700, 62-4.070 (3), and 62-297.520, F.A.C.; 40 CFR 60.7; 40 CFR 75]
45. Continuous Compliance with the NO_x Emission Limits - Alternate Methods of Operation: Each 1-hour monitoring average consisting of any data collected during an alternate method of operation (*oil firing, power augmentation, or peaking*) shall be attributed entirely to the alternate method of operation. For each 24-hour average consisting of more than one method of operation, compliance shall be determined by prorating each emission standard based on the number of 1-hour averages represented. In event of a CEMS malfunction or occurrence of excess emissions while operating in the power augmentation or peaking modes, the permittee shall immediately cease power augmentation or peaking and revert to normal gas firing or shut down the combustion turbine. A valid hourly emission rate shall be calculated for each hour in which at least two NO_x concentrations are obtained at least 15 minutes apart. [Rules 62-4.130, 62-4.160(8), 62-204.800, 62-210.700, 62-4.070 (3), and 62-297.520, F.A.C.; 40 CFR 60.7; 40 CFR 75]
46. CEMS for Reporting Excess Emissions: The NO_x CEMS may be used in lieu of the requirement for reporting excess emissions in 40 CFR 60.334(c)(1), Subpart GG (2000 version). Excess Emissions and Monitoring System Performance Reports shall be submitted as specified in 40 CFR 60.7(c). CEM monitor downtime shall be calculated and reported according to the requirements of 40 CFR 60.7(c)(3) and 40 CFR 60.7(d)(2). Periods when NO_x emissions (ppmvd @ 15 % oxygen) are above the permit limits listed in Specific Conditions 15 and 16, shall be reported to the DEP South District office as required in Specific Condition 24.
47. CEMS in lieu of Water to Fuel Ratio: The NO_x CEMS shall be used in lieu of the water/fuel monitoring system for reporting excess emissions in accordance with 40 CFR 60.334(c)(1), Subpart GG (2000 version). The calibration of the water/fuel monitoring device required in 40 CFR 60.335 (c)(2) (2000 version) will be replaced by the 40 CFR 75 certification tests of the NO_x CEMS.
48. Natural Gas Monitoring Schedule: The following custom monitoring schedule for natural gas is approved in lieu of the daily sampling requirements of 40 CFR 60.334 (b)(2):
- The permittee shall apply for an Acid Rain permit within the deadlines specified in 40 CFR 72.30.
 - The permittee shall submit a monitoring plan, certified by signature of the Designated Representative (DR), that commits to using a primary fuel of pipeline supplied natural gas (sulfur content less than 20 gr/100 scf pursuant to 40 CFR 75.11(d)(2)).
 - Each unit shall be monitored for SO₂ emissions using methods consistent with the requirements of 40 CFR 75 and certified by the USEPA.
49. Fuel Oil Monitoring Schedule: The following monitoring schedule for No. 2 or superior grade fuel oil shall be followed: For all bulk shipments of No. 2 fuel oil received at this facility an analysis which reports the sulfur content and nitrogen content of the fuel shall be provided by the fuel vendor. The analysis shall also specify the methods by which the analyses were conducted and shall comply with the requirements of 40 CFR 60.335(d).

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.

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

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

- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
- G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- a) Determination of Best Available Control Technology ()
 - b) Determination of Prevention of Significant Deterioration non-applicability (X); and
 - c) Compliance with New Source Performance Standards (X).
- G.14 The permittee shall comply with the following:
- a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
 - c) Records of monitoring information shall include:
 - 1. The date, exact place, and time of sampling or measurements;
 - 2. The person responsible for performing the sampling or measurements;
 - 3. The dates analyses were performed;
 - 4. The person responsible for performing the analyses;
 - 5. The analytical techniques or methods used; and
 - 6. The results of such analyses.
- G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Memorandum

Florida Department of Environmental Protection

TO: ~~C. H. Fancy~~

THRU: A. A. Linero *AA Linero* 10/25

FROM: Teresa Heron *TH*

DATE: October 24, 2000

SUBJECT: FPL Ft. Myers 340 MW Simple Cycle Project
DEP File No. 0710002-009-AC and PSD-FI-298

Attached is the draft public notice package including the Intent to Issue and the Technical Evaluation and Preliminary Determination for the Ft. Myers Simple Cycle Combustion Turbine Project. The application is for installation of two simple cycle units to provide additional power at the Fort Myers Plant.

Each unit is a 170 MW General Electric MS7241FA gas-fired combustion turbine-generator. The project also includes two heaters to heat the natural gas prior to use and individual stacks for each emission unit.

Each unit will be allowed to operate 8760 hours per year including 500 hours in high power mode (HPM) and 500 hours on fuel oil. NOX and CO emissions will be controlled by DLN-2.6 combustors capable of achieving 9 ppmvd for each pollutant while firing natural gas. Permitted emissions will be as follows in ppmvd.

Case	NO _x	CO	VOC (BACT)
Base (natural gas)	10.5	9	1.5
High Power Mode	15	15	1.5
Fuel Oil	42	20	3.5

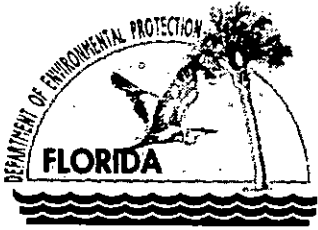
Emissions of sulfur dioxide (SO₂), sulfuric acid mist (SAM), and particulate matter (PM/PM₁₀) will be very low because of the inherently clean pipeline quality natural gas and few hours of operation on fuel oil.

We have determined on a preliminary basis that the project nets out of PSD for all pollutants (except for VOC) because of the very substantial emissions reductions resulting from the on-going repowering project at the site.

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

AAL/th

Attachments



Jeb Bush
Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

P.E. Certification Statement

Permittee:

DEP File No. 0710002-009-AC

Florida Power & Light Company
FPL Fort Myers Plant
Lee County

Project type:

Project is construction of two 170-megawatt GE PG7241FA gas and oil-fired simple cycle combustion turbine-electrical generators with 80-foot stacks and gas heaters. Units will be permitted to operate (continuously) 8760 hours per year of which 500 hours per unit may be on No. 2 distillate fuel oil and 500 hours may be at high power modes.

Because of contemporaneous emissions reductions from an on-going repowering project at the site, the proposed project "nets out" of PSD for all pollutants except VOC. The BACT emission limits for VOC are 1.5 ppmvd while firing natural gas and 3.5 ppmvw while firing fuel oil. The continuous (30-day) NO_x limits are 10.5 ppmvd when operating on natural gas and 42 ppmvd by wet injection when burning fuel oil. Other pollutants, including particulate matter (PM/PM₁₀), carbon monoxide, volatile organic compounds, sulfur dioxide, and sulfuric acid mist will be controlled by good combustion and use of clean fuels.

Ambient air pollutant concentration increases caused by the project will be less than the respective "significant impact levels." Impacts due to the proposed project together with the repowering project all favorable and the net effect is a "creation of available SO₂ and NO_x increment" in the PSD Class I (Everglades) and Class II areas.

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

10/26/00

A. A. Linero, P.E.

Date

Registration Number: 26032

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

asf 10/26
10/26/00

"More Protection, Less Process"