



# Florida Department of Environmental Protection

## Memorandum

---

TO: Michael G. Cooke, Division of Air Resource Management  
THRU: Trina Vielhauer, Bureau of Air Regulation   
Al Linero, Air Permitting South Program  
FROM: Jeff Koerner, Air Permitting South Program   
DATE: November 29, 2004  
SUBJECT: Air Permit No. 0950190-006-AC  
Florida Gas Transmission Company  
Compressor Station 18 - Orlando  
Increase in Heat Input Rate for Engine 1806

The Final Permit for this project is attached for your approval and signature, which modified the existing air construction permit to increase the maximum heat input rate for Engine 1806 by approximately 8%. Engine 1806 is part of Compressor Station 18, which is located in Orange County at 7990 Steer Lake Road, Orlando, Florida. Based on actual performance tests, the installed Cooper-Rolls Royce Model KC7-DLE gas turbine is not as efficient as believed and additional fuel must be fired to achieve the design power output. Initial compliance test results show that the unit is well below the permitted emission rates and the change is not expected to significantly increase emissions. The revised permit also allows component replacements. Although the project is minor with respect to PSD, the Bureau of Air Regulation agreed to process all air construction permits related to Florida Gas Transmission Company's Phase V and Phase VI expansion projects.

The Department distributed an "Intent to Issue Permit" package on November 3, 2004. The applicant published the "Public Notice of Intent to Issue" in the Orlando Sentinel on November 13, 2004. No petitions for administrative hearings or extensions of time to petition for an administrative hearing were filed.

Day #90 is February 4, 2004. I recommend your approval of the attached Final Permit for this project.

Attachments

**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. Richard Craig  
 Florida Gas Transmission Company  
 Post Office Box 4657  
 Houston, TX 77101-4657

2. Article Number (Transfer from service label) 7000 1670 0013 3110 2011

PS Form 3811, August 2001

Domestic Return Receipt

102595-02-M-1540

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  Agent  
 Addressee

B. Received by (Printed Name) C. Date of Delivery

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  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

*[Handwritten Signature]*  
*[Handwritten Name]* DEC 13 2004

7000 0013 3110 1670 0002

U.S. Postal Service	
CERTIFIED MAIL RECEIPT	
(Domestic Mail Only; No Insurance Coverage Provided)	
Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$
Postmark Here	
Sent To: Mr. Richard Craig	
Florida Gas Transmission	
Post Office Box 4657	
Houston, Texas 77101-4657	

# FINAL DETERMINATION

## PERMITTEE

Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

## PERMITTING AUTHORITY

Florida Department of Environmental Protection  
Division of Air Resource Management  
Bureau of Air Regulation, Air Permitting South Program  
2600 Blair Stone Road, MS #5505  
Tallahassee, Florida, 32399-2400

## PROJECT

Air Permit No. 0950190-006-AC  
Compressor Station 18 - Orlando

This permitting action is a modification of the existing air construction permit to: authorize an 8% increase in the maximum heat input rate for Engine 1806; include notification and recordkeeping requirements for functionally equivalent component replacements on Engine 1806; and revise the fuel nitrogen and sulfur monitoring requirements to be consistent with recent amendments to NSPS Subpart GG for gas turbines. Engine 1806 is part of Compressor Station 18, which is located in Orange County at 7990 Steer Lake Road, Orlando, Florida.

## NOTICE AND PUBLICATION

The Department distributed an "Intent to Issue Permit" package on November 3, 2004. The applicant published the "Public Notice of Intent to Issue" in the Orlando Sentinel on November 13, 2004. No petitions for administrative hearings or extensions of time to petition for an administrative hearing were filed.

## COMMENTS

No comments on the Draft Permit were received from the public, the Department's Central District Office, the Orange County Environmental Protection Division, or the applicant.

## CONCLUSION

To afford sufficient time to revise the Title V air operation permit, the Department changed the expiration date from July 1, 2005 to September 1, 2005. Other than this change, only minor revisions were made to correct typographical errors. The final action of the Department is to issue the permit with the changes described above.

**STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**NOTICE OF FINAL PERMIT**

In the Matter of an  
Application for Permit by:

Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

Air Permit No. 0950190-006-AC  
Orlando Compressor Station 18  
Engine 1806, Heat Input Increase

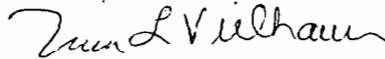
*Authorized Representative:*

Mr. Richard Craig, V.P. of Southeastern Operations

Enclosed is Final Air Permit No. 0950190-006-AC, which: authorizes a nominal increase in the maximum heat input rate for Engine 1806; includes notification and recordkeeping requirements for functionally equivalent component replacements on Engine 1806; and revises the fuel nitrogen and sulfur monitoring requirements to be consistent with recent amendments to NSPS Subpart GG for gas turbines. Engine 1806 is installed at Compressor Station 18 located in Orange County at 7990 Steer Lake Road, Orlando, Florida. As noted in the attached Final Determination, only minor changes and clarifications were made. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty (30) days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.



Trina Vielhauer, Chief  
Bureau of Air Regulation

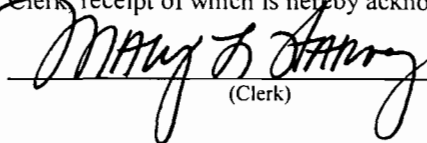
**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit (including the Final permit) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 12/7/04 to the persons listed:

Mr. Richard Craig, FGTC\*  
Mr. James Fleak, FGTC  
Mr. David H. Parham, P.E., FGTC  
Mr. V. Duane Pierce, AQMCs  
Mr. Len Kozlov, CD  
Ms. Marie Driscoll, OCEPD

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)

12/7/04  
(Date)



# Department of Environmental Protection

Jeb Bush  
Governor

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

Colleen M. Castille  
Secretary

## PERMITTEE:

Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

### Authorized Representative:

Mr. Richard Craig, V.P. of Southeastern Operations

Orlando Compressor Station 18  
Air Permit No. 0950190-006-AC  
Facility ID No. 0950190  
SIC No. 4922  
Expires: September 1, 2005

## PROJECT DESCRIPTION

Engine 1806 was installed under original air construction Permit No. 0950190-004-AC as a new 7200 bhp gas turbine to be used as a compressor engine at existing Compressor Station 18. That permit also included a revision of the particulate matter emissions standard for Engine 1805, an existing reciprocating internal combustion engine used as a compressor engine at Station 18. Air Permit No. 0950190-006-AC is issued as a revision of the original air construction permit to: authorize a nominal increase in the maximum heat input rate for Engine 1806; include notification and recordkeeping requirements for functionally equivalent component replacements on Engine 1806; and revise the fuel nitrogen and sulfur monitoring requirements to be consistent with recent amendments to NSPS Subpart GG for gas turbines.

Compressor Station 18 is located at 7990 Steer Lake Road in Orlando, Florida. The UTM coordinates are Zone 17, 451.86 km East, and 3154.79 km North.

## STATEMENT OF BASIS

This air pollution 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.) and Title 40, Part 60 of the Code of Federal Regulations. The permittee is authorized to perform the work and make the proposed changes 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.

## CONTENTS

- Section 1. General Information
- Section 2. Administrative Requirements
- Section 3. Emissions Units Specific Conditions
- Section 4. Appendices

Michael G. Cooke, Director  
Division of Air Resource Management

1

(Effective Date)

## SECTION 2. ADMINISTRATIVE REQUIREMENTS

---

1. Permitting Authority: All documents related to applications for permits to construct or modify a PSD-major source shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. All documents related to applications for operation permits shall be submitted to the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to: Air Quality Management, Orange County Environmental Protection Division, 800 Mercy Drive, Suite 4, Orlando, FL 32808.
3. Appendices: The following Appendices are attached as part of this permit: Appendix CF (Citation Format); Appendix GC (General Conditions); Appendix GG (NSPS Subpart GG Requirements for Gas Turbines); and Appendix SC (Standard Conditions).
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit 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.; Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, F.A.C.; and Title 40, Part 60 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. 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. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
5. New or Additional Conditions: 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.]
6. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
7. Authority to Construct: The emissions units regulated by this air construction permit have been constructed and are in operation. No further construction is authorized.
8. Title V Permit: Pursuant to Rule 62-213.420(1)(a)2, F.A.C., the permittee shall submit an application for a revised Title V air operation permit at least ninety (90) days before the expiration of this permit, but no later than 180 days after commencing operation. In accordance with Rule 62-213.412(2), F.A.C., the permittee may immediately implement the changes authorized by this air construction permit after submitting the application for a revised Title V air operation permit to the Permitting Authority and providing copies of the application to EPA Region 4 and each Compliance Authority. To apply for a revised 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 Central District Office with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, 62-213.412, and 62-213.420, F.A.C.]

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

#### A. EU-005 - 2700 bhp Compressor Engine No. 1805

This section of the permit addresses the following existing emissions unit.

<b>Emissions Unit No. 005 - Compressor Engine No. 1805</b>
--

The existing compressor engine is a 2700 bhp reciprocating internal combustion engine fired exclusively with pipeline natural gas.
--

#### APPLICABLE REQUIREMENT

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit. Except for the change noted below, the unit remains subject to the conditions of all other valid air construction and operations permits. [Rule 62-4.070, F.A.C.]
2. Particulate Matter: For Compressor Engine No. 1805 (EU-005), particulate matter emissions are minimized by good combustion design with the firing of natural gas as the exclusive fuel. This requirement supersedes the particulate matter standards (TSP and PM<sub>10</sub>) in Condition No. 1 of Air Permit No. PSD-FL-163, as amended. *{Permitting Note: This change does not result in any increases in actual or potential emissions of particulate matter. All other standards of Air Permit No. PSD-FL-163 remain unaffected.}*

## SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

### B. EU-006 - 7200 bhp Compressor Engine No. 1806

This section of the permit addresses the following new emissions unit.

#### Emissions Unit No. 006 - 7200 bhp Compressor Engine No. 1806

*Description:* The compressor engine is a 7200 bhp (ISO) gas turbine consisting of a Cooper-Rolls Royce Model No. 501-KC7 DLE with lean premix combustor design.

*Fuel:* The gas turbine fires pipeline natural gas (SCC No 2-02-002-01) at a maximum firing rate of approximately 65,100 cubic feet per hour based on a heat content of 1040 BTU per SCF of gas.

*Capacity:* At 68 MMBtu per hour of heat input, the gas turbine produces approximately 7200 bhp (ISO). The gas turbine typically operates near capacity.

*Controls:* The lean premix combustor design minimizes NO<sub>x</sub> emissions. The efficient combustion of natural gas at high temperatures minimizes emissions of CO, PM/PM<sub>10</sub>, SO<sub>2</sub>, and VOC.

*Stack Parameters:* When operating at capacity, exhaust gases exit a 6.0 feet diameter stack that is 61.2 feet tall at 964° F with a flow rate of approximately 97,500 acfm.

#### APPLICABLE STANDARDS AND REGULATIONS

1. NSPS Requirements: The gas turbine shall comply with the New Source Performance Standards (NSPS) of Subpart GG in 40 CFR 60. The applicable NSPS requirements are provided in Appendix GG of this permit. The Department believes that the conditions in this section are at least as stringent as, or more stringent than, the NSPS requirements of Subpart GG. [Rule 62-4.070(3), F.A.C.; 40 CFR 60, Subpart GG]

#### EQUIPMENT

2. Compressor Engine No. 1806: The permittee is authorized to install one 7200 bhp (ISO) gas turbine compressor engine consisting of a Cooper-Rolls Royce Model No. 501-KC7 DLE. The permittee shall tune, operate and maintain the gas turbine's lean premix combustor design to reduce emissions of nitrogen oxides below the permitted limits. Ancillary equipment includes the automated gas turbine control system, an inlet air filtration system, and an exhaust stack. [Applicant Request; Design]

#### PERFORMANCE RESTRICTIONS

3. Permitted Capacities: The maximum heat input rate to the gas turbine shall not exceed 68 MMBtu per hour (24-hour average) while producing approximately 7200 bhp (ISO) based on a compressor inlet air temperature of 59° F, 100% load, and a higher heating value (HHV) of 1040 BTU per SCF for natural gas. Heat input rates will vary depending upon gas turbine characteristics, load, and ambient conditions. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial testing. Performance data shall be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. Compliance with this equipment specification shall be demonstrated based on the information required in Condition 13 of this subsection. [Rule 62-210.200(PTE), F.A.C.]
4. Authorized Fuel: The gas turbine shall fire only natural gas with a maximum of 10 grains of sulfur per 100 standard cubic feet of natural gas. [Applicant Request; Rule 62-210.200(PTE), F.A.C.]
5. Restricted Operation: The hours of operation for the gas turbine are not limited (8760 hours per year). Except for startup and shutdown, operation below 50% base load is prohibited. [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]



**SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS**

**B. EU-006 - 7200 bhp Compressor Engine No. 1806**

**EMISSIONS STANDARDS**

6. Emissions Standards: Emissions from the gas turbine shall not exceed the following standards for carbon monoxide (CO), nitrogen oxides (NOx), opacity, particulate matter (PM), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOC).

Pollutant	Standards	Equivalent Maximum Emissions <sup>f</sup>		Rule Basis <sup>g</sup>
		lb/hour	TPY	
CO <sup>a</sup>	50.0 ppmvd @ 15% O <sub>2</sub>	6.9	30.22	Avoid Rule 62-212.400, F.A.C.
NOx <sup>b</sup>	25.0 ppmvd @ 15% O <sub>2</sub>	5.7	24.97	Avoid Rule 62-212.400, F.A.C. 40 CFR 60.332
SO <sub>2</sub> <sup>c</sup>	10.0 grains of sulfur per 100 SCF of gas	1.9	8.15	Avoid Rule 62-212.400, F.A.C. 40 CFR 60.333
Opacity <sup>d</sup>	10% opacity, 6-minute average	Not Applicable		Rule 62-4.070(3), F.A.C.
PM <sup>e</sup>	Efficient combustion of natural gas	0.5	1.96	Rule 62-4.070(3), F.A.C.
VOC <sup>e</sup>	Efficient combustion of natural gas	0.2	0.88	Rule 62-4.070(3), F.A.C.

- a. The CO standards are based on the average of three test runs as determined by EPA Method 10.
- b. The NOx standards are based on the average of three test runs as determined EPA Method 20.
- c. The fuel sulfur specification is based on the maximum limit specified by Federal Energy Regulatory Commission (FERC) and effectively limits the potential SO<sub>2</sub> emissions. Expected fuel sulfur levels are less than 1 grain per 100 SCF of natural gas from the pipeline.
- d. The opacity standard is based on a 6-minute average, as determined by EPA Method 9.
- e. For both PM and VOC, the efficient combustion of natural gas is indicated by compliance with opacity and CO standards. Equivalent maximum PM emissions are based on a factor of 0.0066 lb/MMBtu heat input from AP-42 Table 3.1-2a. Equivalent maximum VOC emissions are based on a total hydrocarbon factor of 1.58 lb/eng-hr from the vendor and the conservative assumption that 10% the hydrocarbons are regulated (non-methane) VOC. No testing is required.
- f. Equivalent maximum emissions are based on the maximum expected emissions, permitted capacity, a compressor inlet air temperature of 59° F, and 8760 hours of operation per year. For comparison purposes, the permittee shall provide a reference table with the initial compliance test report of mass emission rates versus the compressor inlet temperatures. Each test report shall include measured mass emission rates for CO, NOx and SO<sub>2</sub>. Mass emission rates for SO<sub>2</sub> shall be calculated based on actual fuel sulfur content and fuel flow rate. For tests conducted at 59° F or greater, measured mass emission rates shall be compared to the equivalent maximum emissions above. For tests conducted below 59° F, measured mass emission rates shall be compared to the tabled mass emission rates provided by the manufacturer based on compressor inlet temperatures.
- g. Compliance with the emissions standards of this permit ensures that the project remains a minor source of air pollution with respect to PSD.

## SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

### B. EU-006 - 7200 bhp Compressor Engine No. 1806

#### EMISSIONS PERFORMANCE TESTING

7. **Test Methods:** Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content <i>{Permitting Note: These methods shall be used as necessary to support other required methods.}</i>
9	Determination of Opacity
10	Determination of Carbon Monoxide Emissions <i>{Permitting Note: This method shall be based on a continuous sampling train.}</i>
19	Determination of Sulfur Dioxide and Nitrogen Oxides Emission Rates <i>{Permitting Note: This method shall be used as necessary to support other required methods.}</i>
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Gas Turbines

Tests shall be conducted in accordance with the requirements specified in Appendix SC of this permit. The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

8. **Initial Tests:** The gas turbine shall be tested to demonstrate initial compliance with the emission standards for CO, NO<sub>x</sub>, and visible emissions. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the gas turbine. The initial NO<sub>x</sub> performance tests shall be conducted at approximately four evenly spaced points between the minimum normal operating load and 100% of peak load. Each of the three low-load NO<sub>x</sub> performance tests shall consist of three, 20-minute test runs. The peak load NO<sub>x</sub> performance test shall consist of three, 1-hour test runs. The CO performance tests shall be conducted concurrently with the NO<sub>x</sub> performance tests at peak load. SO<sub>2</sub> emissions shall be calculated and reported based on fuel flow and vendor analysis of fuel sulfur content. *{Permitting Note: Initial tests have already been performed for this unit and are not required to be repeated as part of this permit revision.}* [Rule 62-297.310(7)(a)1, F.A.C.; 40 CFR 60.8 and 60.335]
9. **Annual Tests:** During each federal fiscal year (October 1 - September 30), the gas turbine shall be tested to demonstrate compliance with the emission standards for CO, NO<sub>x</sub>, and visible emissions. CO and NO<sub>x</sub> emissions shall be tested concurrently at permitted capacity. SO<sub>2</sub> emissions shall be calculated and reported based on fuel flow and vendor analysis of fuel sulfur content. In addition to the test results, each report shall include a general description of the maintenance activities and operation of this facility since the last test. [Rule 62-297.310(7)(a)4, F.A.C.]
10. **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 subsequently required tests. [Rule 62-297.310(7)(a)9, F.A.C.; 40 CFR 60.7 and, 60.8]

#### RECORDS, REPORTS, AND NOTIFICATIONS

11. **Test Reports:** The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix SC of this permit. In addition, NO<sub>x</sub> emissions shall be corrected to ISO ambient atmospheric conditions and compared to the NSPS Subpart GG standard identified in Appendix GG of this permit for each required test. For each test run, the report shall also indicate the natural gas firing rate (cubic feet per hour), heat input rate (MMBtu per hour), the power output (bhp), percent peak load, and the inlet compressor temperature. [Rule 62-297.310(8), F.A.C.; 40 CFR 60.334]

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

#### B. EU-006 - 7200 bhp Compressor Engine No. 1806

12. **Fuel Monitoring:** The gas turbine shall fire only pipeline natural gas with a maximum fuel sulfur content of no more than 10 grains of sulfur per 100 cubic feet of gas. The permittee shall take no allowance for fuel bound nitrogen (F-value = 0) when demonstrating compliance with the NSPS Subpart GG NO<sub>x</sub> standard. Based on these restrictions, no monitoring for the fuel nitrogen and sulfur contents is required. This is also described in Appendix GG of this permit. [Rule 62-4.070(3), F.A.C.; 40 CFR 60.334, as amended]
13. **Operational Data:** Using the automated gas turbine control system, the permittee shall monitor and record heat input (MMBtu), power output (bhp), and hours of operation for the gas turbine. Within the 10 days of a request by the Department or the Compliance Authority, the permittee shall be able to summarize the following information for a given day: heat input (MMBtu per hour, daily average); power output (bhp, daily average); and total hours of gas turbine operation. This information shall also be used for submittal of the required Annual Operating Report. [Rule 62-4.070(3), F.A.C.]
14. **Component Replacements:** For the replacement of gas turbine components to facilitate prompt repair and return the unit to its original specifications, the permittee shall comply with the following notification and testing requirements.
  - a. Components shall only be replaced with functionally equivalent “like-kind” equipment. Replacement components may consist of improved or newer equipment, but such components shall not change operation or increase the capacity (heat input and power output rates) of the gas turbine. Replacement components that affect emissions shall be designed to achieve the emissions standards specified in all valid air permits and shall achieve these standards or better. After a component replacement, the gas turbine compressor engine remains subject to the standards of all valid air permits. [Rule 62-210.200(169), F.A.C.]
  - b. The permittee shall notify the Compliance Authority within seven days after beginning any replacement of the gas generator component of the compressor engine. Within seven days of first fire on a replacement gas generator, the permittee shall submit the following information to the Compliance Authority: date of first fire and certification from the vendor that the replacement gas generator is a functionally equivalent “like-kind” component. The vendor certification shall also identify the make, model number, maximum heat input rate (MMBtu/hour), power output (bhp) at ISO conditions, and that the permitted emission rates are achievable with the replacement component. This notification may be made by letter, fax, or email. A copy of the information shall be kept on site at the compressor station. Within 60 days of restarting the unit after a gas generator replacement, the permittee shall conduct stack tests to demonstrate compliance with the applicable emission standards. The permittee shall notify the Compliance Authority in writing at least 15 days prior to conducting these tests. The permittee shall comply with all permit requirements for test notification, test methods, test procedures, and reporting. [Rules 62-4.130, 62-4.160(2), (6), and (15) and 62-297.310(7)(b), F.A.C.]
  - c. After investigation and for good cause, the Department may require special compliance tests pursuant to Rule 62-297.310(7)(b), F.A.C.

Filename: 0950190-006-AC - Final Permit

**SECTION 4. APPENDICES**  
**CONTENTS**

---

- Appendix CF. Citation Format
- Appendix GC. General Conditions
- Appendix GG. NSPS Subpart GG Requirements for Gas Turbines
- Appendix SC. Standard Conditions

---

**SECTION 4. APPENDIX CF**  
**CITATION FORMAT**

---

*The following examples illustrate the format used in the permit to identify applicable permitting actions and regulations.*

**REFERENCES TO PREVIOUS PERMITTING ACTIONS**

Old Permit Numbers

*Example:* Permit No. AC50-123456 or Air Permit No. AO50-123456

*Where:* “AC” identifies the permit as an Air Construction Permit  
“AO” identifies the permit as an Air Operation Permit  
“123456” identifies the specific permit project number

New Permit Numbers

*Example:* Permit Nos. 099-2222-001-AC, 099-2222-001-AF, 099-2222-001-AO, or 099-2222-001-AV

*Where:* “099” represents the specific county ID number in which the project is located  
“2222” represents the specific facility ID number  
“001” identifies the specific permit project  
“AC” identifies the permit as an air construction permit  
“AF” identifies the permit as a minor federally enforceable state operation permit  
“AO” identifies the permit as a minor source air operation permit  
“AV” identifies the permit as a Title V Major Source Air Operation Permit

PSD Permit Numbers

*Example:* Permit No. PSD-FL-317

*Where:* “PSD” means issued pursuant to the Prevention of Significant Deterioration of Air Quality  
“FL” means that the permit was issued by the State of Florida  
“317” identifies the specific permit project

**RULE CITATION FORMATS**

Florida Administrative Code (F.A.C.)

*Example:* [Rule 62-213.205, F.A.C.]

*Means:* Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

*Example:* [40 CFR 60.7]

*Means:* Title 40, Part 60, Section 7

**SECTION 4. APPENDIX GC**  
**GENERAL CONDITIONS**

---

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

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.
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, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
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.
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.
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.
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.
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.

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

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

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

**SECTION 4. APPENDIX GC**  
**GENERAL CONDITIONS**

---

Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

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.
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.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
  - a. Determination of Best Available Control Technology (NA);
  - b. Determination of Prevention of Significant Deterioration (NA); and
  - c. Compliance with New Source Performance Standards (X).
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.
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.

**SECTION 4. APPENDIX GG**

**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

The following emissions unit is subject to the applicable requirements of Subpart A (General Provisions) and Subpart GG (Stationary Gas Turbines) established as New Source Performance Standards in 40 CFR 60 and adopted by reference in Rule 62-204.800(7)(b), F.A.C.

ID	Emission Unit Description
006	Compressor Engine No. 1806 consisting of a 7200 bhp gas turbine

**NSPS GENERAL PROVISIONS**

In addition to the specific conditions of the permit and NSPS Subpart GG, the emissions unit is subject to the applicable General Provisions of the New Source Performance Standards including 40 CFR 60.7 (Notification and Record Keeping), 40 CFR 60.8 (Performance Tests), 40 CFR 60.11 (Compliance with Standards and Maintenance Requirements), 40 CFR 60.12 (Circumvention), 40 CFR 60.13 (Monitoring Requirements), and 40 CFR 60.19 (General Notification and Reporting Requirements). The General Provisions are not included in this permit, but can be obtained from the Department upon request.

**40 CFR 60, SUBPART GG - STANDARDS OF PERFORMANCE FOR STATIONARY GAS TURBINES**

Each gas turbine shall comply with all applicable requirements of 40 CFR 60, Subpart GG adopted by reference in Rule 62-204.800(7)(b), F.A.C. Inapplicable provisions have been deleted in the following conditions, but the numbering of the original rules has been preserved for ease of reference. The term "Administrator" when used in 40 CFR 60 shall mean the Department's Secretary or the Secretary's designee. Department notes and requirements related to the Subpart GG requirements are shown immediately following the section to which they refer. The rule basis for the Department requirements specified below is Rule 62-4.070(3), F.A.C.

Section 60.330 Applicability and Designation of Affected Facility.

- (a) The provisions of this subpart are applicable to the following affected facilities: All stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour), based on the lower heating value of the fuel fired.

Section 60.331 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

- (g) ISO standard day conditions means 288 degrees Kelvin, 60 percent relative humidity and 101.3 kilopascals pressure.
- (i) Peak load means 100 percent of the manufacturer's design capacity of the gas turbine at ISO standard day conditions.
- (j) Base load means the load level at which a gas turbine is normally operated.

Section 60.332 Standard for Nitrogen Oxides.

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

$$STD = 0.0150 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NOx emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt-hour.



SECTION 4. APPENDIX GG

NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES

F = NOx emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of this section.

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

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

where: N=the nitrogen content of the fuel (percent by weight).

**Department Requirement:** When firing natural gas, the “F” value shall be assumed to be “0”.

*{Permitting Note: The “Y” value when firing natural gas as provided by the manufacturer is approximately “11.4”. The equivalent NOx emission standard is 190 ppmvd at 15% oxygen. The emissions standards in Section 3 of the permit are much more stringent than this requirement.}*

(c) Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour) but less than or equal to 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired, shall comply with the provisions of paragraph (a)(2) of this section.

Section 60.333 Standard for Sulfur Dioxide.

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

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

Section 60.334 Monitoring of Operations.

(c) For the purpose of reports required under Section 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) Nitrogen oxides. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with Section 60.332 by the performance test required in Section 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in Section 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under Section 60.335(a).

*{Permitting Note: Excess NOx emissions reporting requirements do not apply. The gas turbine uses “dry” lean premix combustors and not wet injection to control NOx emissions. As indicated above, the Subpart GG NOx standard is 190 ppmvd @ 15% oxygen. This is nearly eight times the NOx standard specified in the permit and would be nearly impossible for this lean premix combustion turbine to exceed. As stated in the preamble to the July 2004 amendments, the rule changes do not impose any additional monitoring requirements for existing units.}*

(h) The owner or operator of any stationary gas turbine subject to the provisions of this subpart:

(2) Shall monitor the nitrogen content of the fuel combusted in the turbine, if the owner or operator claims an allowance for fuel bound nitrogen (i.e., if an F-value greater than zero is being or will be used by the owner or operator to calculate STD in §60.332).

*{Permitting Note: Because the nitrogen content of pipeline natural is negligible, the permittee does not claim an allowance for fuel bound nitrogen and will use “0” for the F-value when calculating the NOx standard in §60.332. The permit prohibits the permittee from claiming the allowance for fuel nitrogen. Therefore, no fuel nitrogen monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}*

**SECTION 4. APPENDIX GG**

**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

- (3) May elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in §60.331(v), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring.

§60.331(v) states, “Natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth’s surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions. Natural gas contains 20.0 grains or less of total sulfur per 100 standard cubic feet. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1100 Btu per standard cubic foot. Natural gas does not include the following gaseous fuels: Landfill gas, digester gas, refinery gas, sour gas, blast furnace gas, coal-derived gas, producer gas, coke oven gas, or any gaseous fuel produced in a process which might result in highly variable sulfur content or heating value.”

The permittee elects not to monitor the sulfur content of natural gas based on §60.334(h)(3)(i), which states that, “The gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less.” The current tariff sheet specifies that natural gas delivered by the pipeline system shall contain not more than 10 grains of total sulfur per 100 cubic feet of gas. Therefore, the pipeline natural gas meets the above definition.

*{Permitting Note: The permit requires the gas turbine to fire only pipeline natural gas with a maximum sulfur content of 10 grains of sulfur per 100 cubic feet of gas. Therefore, no fuel sulfur monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}*

**Section 60.335 Test Methods and Procedures.**

- (a) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.
- (b) In conducting the performance tests required in Section 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided for in Section 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section.
- (c) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in Sections 60.332 and 60.333(a) as follows:

- (1) The nitrogen oxides emission rate (NO<sub>x</sub>) shall be computed for each run using the following equation:

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

where:

- NO<sub>x</sub> = emission rate of NO<sub>x</sub> at 15 percent O<sub>2</sub> and ISO standard ambient conditions, volume percent.  
NO<sub>x0</sub> = observed NO<sub>x</sub> concentration, ppm by volume.  
Pr = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg.  
Po = observed combustor inlet absolute pressure at test, mm Hg.  
Ho = observed humidity of ambient air, g H<sub>2</sub>O/g air.  
e = transcendental constant, 2.718.  
Ta = ambient temperature, °K.

**Department Requirement:** NO<sub>x</sub> emissions shall be corrected to ISO ambient atmospheric conditions for each required emissions performance test and compared to the NO<sub>x</sub> standard specified in 40 CFR 60.332.

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

## SECTION 4. APPENDIX GG

### NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES

---

**Department Requirement:** The initial NOx performance tests shall be conducted at approximately four evenly spaced points between the minimum normal operating load and 100% of peak load.

*{Permitting Note: The dry low-NOx controls are only effective above a minimum load, which will be identified during initial testing.}*

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

**Department Requirement:** The span value shall be no greater than 75 ppm of nitrogen oxides due to the low NOx emission levels of the gas turbine.

- (d) The owner or operator shall determine compliance with the sulfur content standard in Section 60.333(b) as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference - see Section 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.
- (e) To meet the requirements of Section 60.334(b), the owner or operator shall use the methods specified in paragraphs (a) and (d) of this section to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

*{Permitting Note: The permit prohibits the permittee from claiming the allowance for fuel nitrogen. The permit also requires the gas turbine to fire only pipeline natural gas with a maximum sulfur content of 10 grains of sulfur per 100 cubic feet of gas. Therefore, no fuel nitrogen or fuel sulfur monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}*

**SECTION 4. APPENDIX SC**  
**STANDARD CONDITIONS**

---

Unless otherwise specified in the permit, the following conditions apply to all emissions units and activities at this facility.

**EMISSIONS AND CONTROLS**

1. **Plant Operation - Problems**: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
2. **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.]
3. **Excess Emissions Allowed**: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]
4. **Excess Emissions Prohibited**: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
5. **Excess Emissions - Notification**: In case of excess emissions resulting from malfunctions, the permittee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
6. **VOC or OS Emissions**: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
7. **Objectionable Odor Prohibited**: No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and 62-210.200(203), F.A.C.]
8. **General Visible Emissions**: No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. [Rule 62-296.320(4)(b)1, F.A.C.]
9. **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.]

**TESTING REQUIREMENTS**

10. **Required Number of Test Runs**: For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

**SECTION 4. APPENDIX SC**  
**STANDARD CONDITIONS**

---

11. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2), F.A.C.]
12. 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.]
13. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.
  - 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 thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.
  - 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.
  - 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), F.A.C.]
14. 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.
  - 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), F.A.C.]
15. Sampling Facilities: The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C.
16. Test Notification: The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator. [Rule 62-297.310(7)(a)9, F.A.C.]
17. 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.]
18. Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide

**SECTION 4. APPENDIX SC**  
**STANDARD CONDITIONS**

---

sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information:

1. The type, location, and designation of the emissions unit tested.
2. The facility at which the emissions unit is located.
3. The owner or operator of the emissions unit.
4. The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
5. The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.
6. The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
7. A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
8. The date, starting time and duration of each sampling run.
9. The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
10. The number of points sampled and configuration and location of the sampling plane.
11. For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
12. The type, manufacturer and configuration of the sampling equipment used.
13. Data related to the required calibration of the test equipment.
14. Data on the identification, processing and weights of all filters used.
15. Data on the types and amounts of any chemical solutions used.
16. Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17. The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18. All measured and calculated data required to be determined by each applicable test procedure for each run.
19. The detailed calculations for one run that relate the collected data to the calculated emission rate.
20. The applicable emission standard, and the resulting maximum allowable emission rate for the emissions unit, plus the test result in the same form and unit of measure.
21. A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-210.310(8), F.A.C.]

**RECORDS AND REPORTS**

19. **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.]
20. **Annual Operating Report:** The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]



**Florida Gas Transmission Company**

601 South Lake Destiny Road, Suite 450, Maitland, FL 32751  
Post Office Box 945100, Maitland, FL 32794-5100  
407.838.7000 Fax 407.838.7001

November 19, 2004

Mr. Jeff Koerner  
Bureau of Air Regulation  
Florida Dept. of Environmental Protection  
Twin Towers Office Building  
2600 Blairstone  
Tallahassee, FL 32399-2400

RECEIVED

NOV 23 2004

BUREAU OF AIR REGULATION

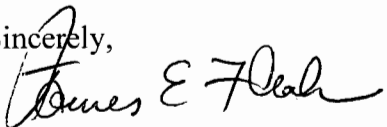
RE: Proof of Publication Notice Affidavit  
Unit 1806, Orlando Compressor Station No. 18  
Air Construction Permit No. 0950190-006-AC

Dear Mr. Koerner:

Florida Gas Transmission Company (FGT) submits the required proof of publication affidavit for the draft construction permit 0950190-006-AC related to Unit 1806 located at FGT's Orlando Compressor Station No. 18.

The required notice was published Nov. 13, 2004 in the Orlando Sentinel. The original affidavit and legal notice column is enclosed.

If you have any questions or need further information, please call me at (407)838-7057.

Sincerely,  


James Fleak, P.E.  
Sr. Environmental Specialist

Cc: Orlando Team, Envision 203.2.30  
Alan Zahm, P.E., FDEP Central District, 3319 Maguire Blvd., Suite 232, Orlando, FL 32803  
Marie Driscoll, Orange County Environmental Protection Division, Air Quality Management, 800 Mercy Drive, Suite 4, Orlando, FL 32808

State of Florida } S.S.  
COUNTY OF ORANGE }

Before the undersigned authority personally appeared DEBORAH M. TONEY, who on oath says that he/she is the Legal Advertising Representative of Orlando Sentinel, a daily newspaper published at ORLANDO in ORANGE County, Florida; that the attached copy of advertisement, being a PUBLIC NOTICE OF I n the matter of #0950190-006-AC n the ORANGE Court, was published in said newspaper in the issue; of 11/13/04

Affiant further says that the said Orlando Sentinel is a newspaper published at ORLANDO in said ORANGE County, Florida, and that the said newspaper has heretofore been continuously published in said ORANGE County, Florida, each Week Day and has been entered as second-class mail matter at the post office in ORLANDO in said ORANGE County, Florida, or a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

The foregoing instrument was acknowledged before me this 16 day of NOV., 20 04, by DEBORAH M. TONEY who is personally known to me and who did take an oath.

SEAL)

*[Signature]*  
BEVERLY C. SHIMMONS  
My Comm. Exp. 3/10/05  
No. 00 004941  
I Personally Knows 11 October 10

**PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT**  
Florida Department of Environmental Protection  
Draft Air Permit No. 0950190-006-AC  
Florida Gas Transmission Company  
Existing Compressor Station 18  
Orange County, Florida  
Applicant: The applicant for this project is the Florida Gas Transmission Company. The applicant's mailing address is: P. O. Box 4657, Houston, TX 77101-4657. The applicant's authorized representative is Mr. Richard Craig, the V.P. of Southeastern Operations.  
Facility Location: The Florida Gas Transmission Company operates existing compressor station 18, which is located at 7990 Steer Lake Road in Orlando, Florida.  
Project: The applicant proposes several revisions to the original air construction permit for Engine 1806. As installed, the gas turbine fires slightly more natural gas to produce the required power output. The applicant requests approximately an 8% increase in the maximum heat input rate. Also, Engine 1806 is a light industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements. Finally, the applicant has amended the federal fuel monitoring requirements for nitrogen and sulfur in Support GG of 40 CFR 60 regulating gas turbines. The applicant requests a permit revision to be consistent with the amended fuel monitoring requirements.  
Permitting Authority: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 409, Florida Statutes (F.S.) and Chapters 62-4, 62-210, and 62-212 of the Florida Administrative Code (F.A.C.). The proposed project is not exempt from air permitting requirements, and an air permit is required to be formed for the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination regarding this project. The Permitting Authority's physical address is: 111 South Magnolia Drive, Tallahassee, Florida. The Permitting Authority's mailing address is: 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is: 850/488-0114.  
Project File: A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority for additional information at the address and phone number listed above. A copy of the complete project file is also available at the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.  
Notice of Intent to Issue Air Permit: The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all



NOV 23 2004

State of Florida } S.S.  
COUNTY OF ORANGE }

### BUREAU OF AIR REGULATION

Before the undersigned authority personally appeared DEBORAH M. TONEY

, who on oath says that he/she is the Legal Advertising Representative of Orlando Sentinel, a daily newspaper published at ORLANDO in ORANGE County, Florida; that the attached copy of advertisement, being a PUBLIC NOTICE OF I in the matter of #0950190-006-AC

in the ORANGE Court, was published in said newspaper in the issue; of 11/13/04

Affiant further says that the said Orlando Sentinel is a newspaper published at ORLANDO in said ORANGE County, Florida, and that the said newspaper has heretofore been continuously published in said ORANGE County, Florida, each Week Day and has been entered as second-class mail matter at the post office in ORLANDO in said ORANGE County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

The foregoing instrument was acknowledged before me this 16 day of NOV., 20 04, by DEBORAH M. TONEY, who is personally known to me and who did take an oath.

(SEAL)



BEVERLY C. SIMMONS

My Comm Exp. 3/10/05

No. DD 004941

Personally Known  Other I.D.

#### PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Florida Department of Environmental Protection  
Draft Air Permit No. 0950190-006-AC

Florida Gas Transmission Company  
Existing Compressor Station 18  
Orange County, Florida

**Applicant:** The applicant for this project is the Florida Gas Transmission Company. The applicant's mailing address is: P. O. Box 4657, Houston, TX 77101-4657. The applicant's authorized representative is Mr. Richard Craig, the V.P. of Southeastern Operations.

**Facility Location:** The Florida Gas Transmission Company operates existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida.

**Project:** The applicant proposes several revisions to the original air construction permit for Engine 1806. As installed, the gas turbine fires slightly more natural gas to produce the required power output. The applicant requests approximately an 8% increase in the maximum heat input rate. Also, Engine 1806 is a light-industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements. Finally, EPA recently amended the federal fuel monitoring requirements for nitrogen and sulfur in Subpart GG of 40 CFR 60 regulating gas turbines. The applicant requests a permit revision to be consistent with the amended fuel monitoring requirements.

**Permitting Authority:** Applications for air construction permits are subject to review in accordance with 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 proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination regarding this project. The Permitting Authority's physical address is 111 South Magnolia Drive, Tallahassee, Florida. The Permitting Authority's mailing address is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

**Project File:** A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under

Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address and phone number listed above. A copy of the complete project file is also available at the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.

**Notice of Intent to Issue Air Permit:** The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all

appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

**Comments:** The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of fourteen (14) days from the date of publication of this Public Notice. Written comments must be provided to the Permitting Authority at the above address. Any written comments filed will be made available for public inspection. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice.

**Petitions:** A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within fourteen (14) days of publication of this Public Notice or receipt of a written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant of 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, F.A.C.

A petition that disputes the material facts on which the Permitting Authority'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 rights will be affected by the agency determination; (c) A statement of how and when the 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 state; (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 the 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 Permitting Authority'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, F.A.C.


Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Public Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

**Mediation:** Mediation is not available for this proceeding.

# Memorandum

# Florida Department of Environmental Protection

---

TO: Trina Vielhauer, Bureau of Air Regulation  
THROUGH: Al Linero, Air Permitting South  
FROM: Jeff Koerner, Air Permitting South   
DATE: October 19, 2004  
SUBJECT: Draft Air Construction Permit No. 0950190-006-AC  
Florida Gas Transmission Company, Compressor Station 18 (Orlando)  
Revised Air Construction Permit for Engine 1806

Attached for your review are the following items:

- Intent to Issue Permit and Public Notice Package;
- Technical Evaluation and Preliminary Determination;
- Draft Permit; and
- PE Certification

The draft permit is a revision of the original air construction permit (No. 0950190-004-AC) for Engine 1806 to: increase the maximum heat input rate for the existing gas turbine; include notification/testing requirements for functionally equivalent component replacements; and to make the fuel monitoring requirements consistent with the recent amendments to NSPS Subpart GG for gas turbines. The revised permit does not make any changes to Engine 1805, which was originally included to revise the particulate matter emission standard. The Technical Evaluation and Preliminary Determination presents a detailed description of the project, rule applicability, and proposed emissions standards. The P.E. certification provides a brief summary of the proposed project. Day #74 is December 17, 2004. I recommend your approval of the attached Draft Permit package for this project.

Attachments

**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. Richard Craig, V.P. of Southeastern  
Operations  
Florida Gas Transmission Company  
Post Office Box 4657  
Houston, TX 77101-4657

2. Article Number

(Transfer from service label)

7000 1670 0013 3109 9281

PS Form 3811, August 2001

Domestic Return Receipt

102595-02-M-1540

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

X

*[Handwritten Signature]*

Agent

Addressee

B. Received by (Printed Name)

*[Handwritten: R. Craig]*

C. Date of Delivery

*[Handwritten: NOV 9 2004]*

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

Insured Mail

C.O.D.

4. Restricted Delivery? (Extra Fee)

Yes

**U.S. Postal Service  
CERTIFIED MAIL RECEIPT**

(Domestic Mail Only. No Insurance Coverage Provided)

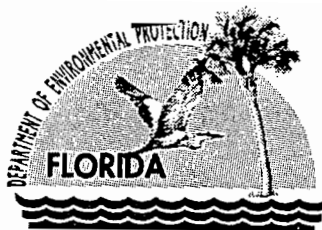
7000 1670 0013 3109 9281

Postage	\$	Postmark Here
Certified Fee		
Return Receipt Fee (Endorsement Required)		
Restricted Delivery Fee (Endorsement Required)		

1  
Se Mr. Richard Craig, V.P. of Southeastern  
Operations  
St Florida Gas Transmission Company  
Ci Post Office Box 4657  
Houston, TX 77101-4657

PS Form 3800, May 2000

See Reverse for Instructions



Jeb Bush  
Governor

# Department of Environmental Protection

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

Colleen M. Castille  
Secretary

October 29, 2004

Mr. Richard Craig, V.P. of Southeastern Operations  
Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

Re: Air Construction Permit No. 0950190-006-AC  
Florida Gas Transmission Company, Compressor Station 18  
Revision to Increase Heat Input for Engine 1806

Dear Mr. Craig:

On September 10, 2004, you submitted an application to revise the original air construction permit to increase the maximum heat input rate for Engine 1806. You have also requested revisions to include notification/testing requirements for "functionally equivalent" component replacements and to incorporate the amended Subpart GG fuel monitoring requirements. The affected units are installed at existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida. Enclosed are the following documents: "Technical Evaluation and Preliminary Determination", "Draft Permit", "Written Notice of Intent to Issue Air Permit", and "Public Notice of Intent to Issue Air Permit".

The "Technical Evaluation and Preliminary Determination" summarizes the Permitting Authority's technical review of the application and provides the rationale for making the preliminary determination to issue a Draft Permit. The proposed "Draft Permit" includes the specific conditions that regulate the emissions units covered by the proposed project. The "Written Notice of Intent to Issue Air Permit" provides important information regarding: the Permitting Authority's intent to issue an air permit for the proposed project; the requirements for publishing a Public Notice of the Permitting Authority's intent to issue an air permit; the procedures for submitting comments on the Draft Permit; the process for filing a petition for an administrative hearing; and the availability of mediation. The "Public Notice of Intent to Issue Air Permit" is the actual notice that you must have published in the legal advertisement section of a newspaper of general circulation in the area affected by this project.

If you have any questions, please contact the Project Engineer, Jeff Koerner, at 850/921-9536.

Sincerely,

Trina Vielhauer, Chief  
Bureau of Air Regulation

Enclosures

"More Protection, Less Process"

Printed on recycled paper.

**TECHNICAL EVALUATION  
&  
PRELIMINARY DETERMINATION**

**PROJECT**

Draft Permit No. 0950190-006-AC  
(Revision of Original Air Permit No. 0950190-004-AC)  
Increased Heat Input Rate for Engine 1806

**COUNTY**

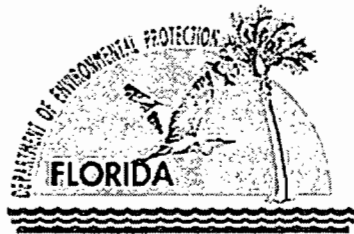
Orange County

**APPLICANT**

Florida Gas Transmission Company  
Existing Compressor Station 18  
ARMS Facility ID No. 0950190

**PERMITTING  
AUTHORITY**

Florida Department of Environmental Protection  
Division of Air Resource Management  
Bureau of Air Regulation  
Air Permitting South Program



October 19, 2004

{Filename: 0950190-006-AC - TEPD}

## 1. APPLICATION INFORMATION

### Facility Description

The Florida Gas Transmission Company operates existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to a National Ambient Air Quality Standard (NAAQS). The Standard Industrial Classification for "Natural Gas Transmission: is SIC No. 4922. Compressor Station 18 consists of: three 2000 bhp engines that were installed in 1962; a 2000 bhp engine that was installed in 1968; a 2700 bhp engine that installed in 1991 (PSD); and a 7200 bhp gas turbine installed in 2003. The primary regulatory categories are:

Title III: The facility is a major source of hazardous air pollutants (HAP).

Title IV: The facility has no units subject to the acid rain provisions of the Clean Air Act.

Title V: The facility is a Title V major source of air pollution (Chapter 213, F.A.C.).

PSD: The facility is a PSD-major source of air pollution (Rule 62-212.400, F.A.C.).

NSPS: The gas turbine is subject to the New Source Performance Standards in Subpart GG of 40 CFR 60.

### Project Description

Engine 1806 was constructed under Air Permit No. 0950190-004-AC as a 7200 bhp gas turbine to be used as a natural gas pipeline compressor engine. The applicant requests the following changes to the original permit.

- Based on performance testing, the installed gas turbine fires more natural gas to produce the required power output. The applicant requests that the permitted maximum heat input rate be increased from 63 to 68 MMBtu per hour.
- In July of 2004, EPA amended the federal fuel monitoring requirements in Subpart GG of 40 CFR for gas turbines. The applicant requests a permit revision to be consistent with the amended fuel monitoring requirements.
- Engine 1806 is a light-industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements.

## 2. APPLICABLE REGULATIONS

### State Regulations

This project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). This project is subject to the applicable rules and regulations defined in the following Chapters of the Florida Administrative Code.

<u>Chapter</u>	<u>Description</u>
62-4	Permitting Requirements
62-204	Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference
62-210	Required Permits, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms
62-212	Preconstruction Review, PSD Requirements, and BACT Determinations
62-213	Operation Permits for Major Sources of Air Pollution
62-296	Emission Limiting Standards
62-297	Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures

### Federal Regulations

This project is also subject to the applicable federal provisions regarding air quality as established by the EPA in the following sections of the Code of Federal Regulations (CFR).

<u>Title 40, CFR</u>	<u>Description</u>
Part 60	Subpart A - General Provisions for NSPS Sources NSPS Subpart GG - Stationary Gas Turbines Applicable Appendices

### 3. INCREASE HEAT INPUT FOR ENGINE 1806

Engine 1806 is a Cooper-Rolls Royce Model KC7-DLE gas turbine nominally rated at 7200 bhp (ISO). The conditions for an "ISO" standard day are 59° F, 60% relative humidity, and 14.7 psi pressure. The unit is permitted for a capacity of 63 MMBtu per hour at a compressor inlet temperature of 59° F when producing approximately 7200 bhp of output. As installed, the performance curves indicate a maximum heat input rate of about 68 MMBtu per hour at a compressor inlet temperature of 59° F when producing approximately 6600 bhp. Apparently, the unit is not as efficient as initially believed. However, the initial compliance test results also show that the gas turbine is well below the permitted emission rates.

Increasing the maximum heat input rate from 63 to 68 MMBtu per hour simply recognizes the capabilities of the installed unit. FGTC continues to work with Rolls Royce to improve the performance. The permit standards will not change as a result of this revision. Only "equivalent maximum emissions" will increase slightly because these rates were directly based on the maximum heat input rate. The minimal change in heat input will not result in significant actual emissions increases. The Department will approve this request.

### 4. REVISED FUEL MONITORING REQUIREMENTS

In July of 2004, EPA amended the fuel monitoring requirements for gas turbines subject to NSPS Subpart GG, which included the following important changes:

- The amended requirements recognize that pipeline natural gas contains negligible amounts of nitrogen. Therefore, if the permittee elects to not use an allowance for fuel bound nitrogen, then there is no requirement for monitoring the nitrogen content of natural gas. This means that the permittee must use an "F-value" of "zero" when calculating the allowable NSPS Subpart GG NO<sub>x</sub> standard for the gas turbine. This change basically incorporates similar case-by-case determinations made over the years.
- The amended requirements also recognize that pipeline natural gas contains negligible amounts of sulfur. Therefore, if the permittee demonstrates that the maximum sulfur content of the pipeline natural gas is no more than 20 grains per 100 cubic feet of gas as specified in the current tariff sheet, then there is no requirement for monitoring the sulfur content of natural gas.
- Engine 1806 "dry" lean premix combustors and not wet injection to control NO<sub>x</sub> emissions. So, the continuous monitoring requirements for the water-to-fuel ratio are not appropriate. The Subpart GG NO<sub>x</sub> standard is 190 ppmvd @ 15% oxygen. This is nearly eight times the NO<sub>x</sub> standard of 25 ppmvd @ 15% oxygen specified in the permit. It would be nearly impossible for the lean premix gas turbine to exceed the NSPS Subpart GG NO<sub>x</sub> standard. The current permit does not require any continuous demonstration that the gas turbine is complying with the NSPS Subpart GG NO<sub>x</sub> standard. As stated in the preamble to the July 2004 amendments, the changes do not impose any additional monitoring for existing units.

FGTC agrees to use no allowance for fuel bound nitrogen when determining compliance with the NSPS Subpart GG NO<sub>x</sub> standard and has provided the current tariff sheet showing a maximum sulfur content of only 10 grains per 100 cubic feet of pipeline natural gas. The permit includes these and conditions. Therefore, monitoring for fuel nitrogen and sulfur is not required for the pipeline natural gas. The Department will remove the custom fuel monitoring plan and revise the permit to reflect these changes. No changes were made with regard to continuous monitoring for purposes of reporting excess NO<sub>x</sub> emissions; however, the permitting note was updated.



**5. REQUIREMENTS FOR FUNCTIONALLY EQUIVALENT COMPONENT REPLACEMENTS**

**Executive Summary**

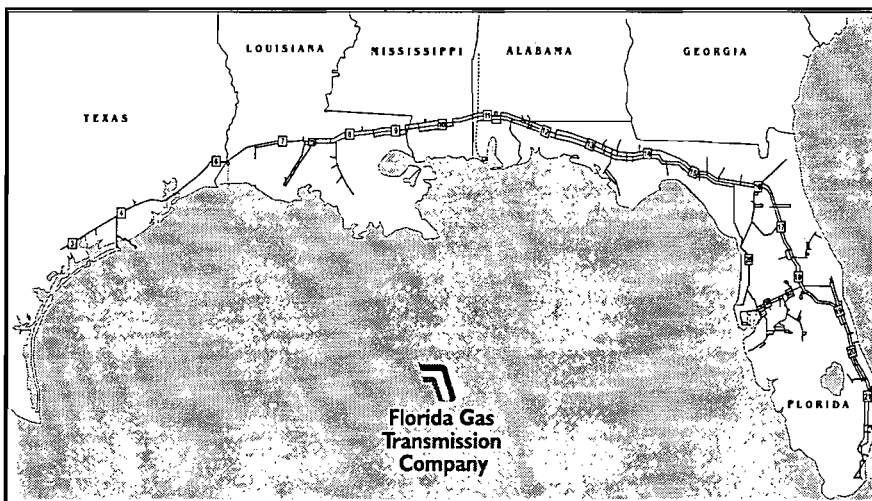
Florida Gas Transmission Company (FGTC) operates several compressor stations serving a large natural gas pipeline that runs throughout Florida. The pipeline supports a wide variety of residential, commercial, industrial, and utility customers that rely on natural gas as a clean fuel. FGTC considers the months of April through October to be the critical “run season” for the gas pipeline. This is the period of highest expected natural gas use in Florida with compressor stations operating at higher rates than at other times of the year. During the run season, it is critical that repairs and maintenance be performed as quickly as possible to maintain natural gas availability throughout the system.

Many compressor stations use light industrial gas turbines to drive compressors that maintain pipeline pressure and flow. These types of gas turbines require relatively frequent inspections and maintenance to keep units in proper working order. Such maintenance activities are necessary to prevent the catastrophic failures, which would result in costly repairs and reduce reliability of the natural gas supply. The natural gas pipeline industry has determined that it is more efficient to perform certain repairs and maintenance activities at a regional maintenance facility as opposed to performing them on site. FGTC requests the Department’s concurrence that pulling the gas generator component of Engine 1806, sending it to a regional maintenance facility for repair, and installing a like-kind gas generator, is not a modification and does not require a preconstruction permit.

The Bureau of Air Regulation concludes that replacement of the gas generator/power turbine component (or smaller components) for this light industrial gas turbine compressor engine is standard industry practice for the natural gas pipeline industry. As such, the replacement is not a modification and does not require a new air construction permit or modification of an existing air construction permit. This would also be true for comparable replacements for other gas turbines serving as compressor engines and having similar functions, characteristics, and sizes (< 16,000 bhp). This report presents background information for compressor station gas turbines, regulatory requirements, emissions impacts, maintenance practices, interpretations by other states, and the Bureau of Air Regulation’s rationale for this conclusion.

**Background**

Engine 1806 is a permitted gas turbine compressor engine rated at approximately 7200 bhp. It is installed at Station 18, which is located Orlando, Orange County, Florida. In summary, FGTC requests the Department’s concurrence that replacement of the gas generator component is standard practice for the gas pipeline industry and does not require a preconstruction permit. FGTC will provide notification of such replacements and compliance test the replacement unit with 60 days of first fire.



Florida Compressor Stations

No.	City	County
12	Milton	Santa Rosa
13	Caryville	Washington
14	Quincy	Gadsden
15	Perry	Taylor
16	Brooker	Bradford
17	Silver Springs	Marion
18	Orlando	Orange
19	Melbourne	Brevard
20	Ft. Pierce	St. Lucie
21	West Palm Bch	Palm Beach
24	Trenton	Gilchrist
26	Lecanto	Citrus
27	Thonotosassa	Hillsborough
30	Plant City	Hillsborough
31	Kissimmee	Osceola

**Figure 1. Existing Natural Gas Pipeline System**

FGTC operates and maintains a natural gas pipeline that has been in existence since 1958. As shown in Figure 1, the pipeline originates in Texas and passes through portions of Louisiana, Mississippi, Alabama, Georgia, and Florida. Compressor stations form an integral part of the pipeline system, providing the necessary pressure and flow to reliably deliver natural gas to residential, commercial, industrial, and electric utility consumers. There are fifteen existing compressor stations in Florida.

Each compressor station consists of a variety of equipment such as gas compressors, compressor engines, emergency generators, lube oil tanks, used oil tanks, and blow-down stacks. The main sources of air pollution are the compressor engines, which are either reciprocating internal combustion engines or light industrial aero-derivative gas turbines. These units provide the motive power necessary to drive the gas compressors, which boost pipeline pressure and allow flow throughout the system. All of the compressor engines fire natural gas as the exclusive fuel because of its ready availability along the pipeline. Reciprocating internal combustion engines vary in size from about 2000 to 4600 bhp output. Light industrial gas turbines provide much higher outputs ranging from about 1000 to 16,000 bhp output.

### Gas Turbine Components

In recent years, FGTC began depending on light industrial aero-derivative gas turbines (< 16,000 bhp) for its compressor engines rather than reciprocating internal combustion engines. The new gas turbines are more powerful, more efficient, and emit less than one-tenth of the NOx emissions based on a comparable heat input rate. Each gas turbine is delivered to the station as a skid-mounted package consisting of the following general components: gas generator, accessory drive system, air inlet and filtration system, fuel delivery system, cooling system, lubrication system, power turbine, power shaft, control system, starting system, and exhaust system with stack. See Figure 2.

Gas turbines are designed to strict tolerances that must be maintained to ensure efficient operation and to prevent catastrophic failure of the components. Performing maintenance on many of these critical components is difficult and costly to perform in the field. To facilitate maintenance and repair, manufacturers of light industrial aero-derivative gas turbines typically incorporate a modular design to allow pulling and replacing component parts instead of performing maintenance in the field. Due to their relatively small size, replacement components can be quickly delivered and installed to minimize downtime. The "replaced component" is shipped back to a regional maintenance facility where it is overhauled

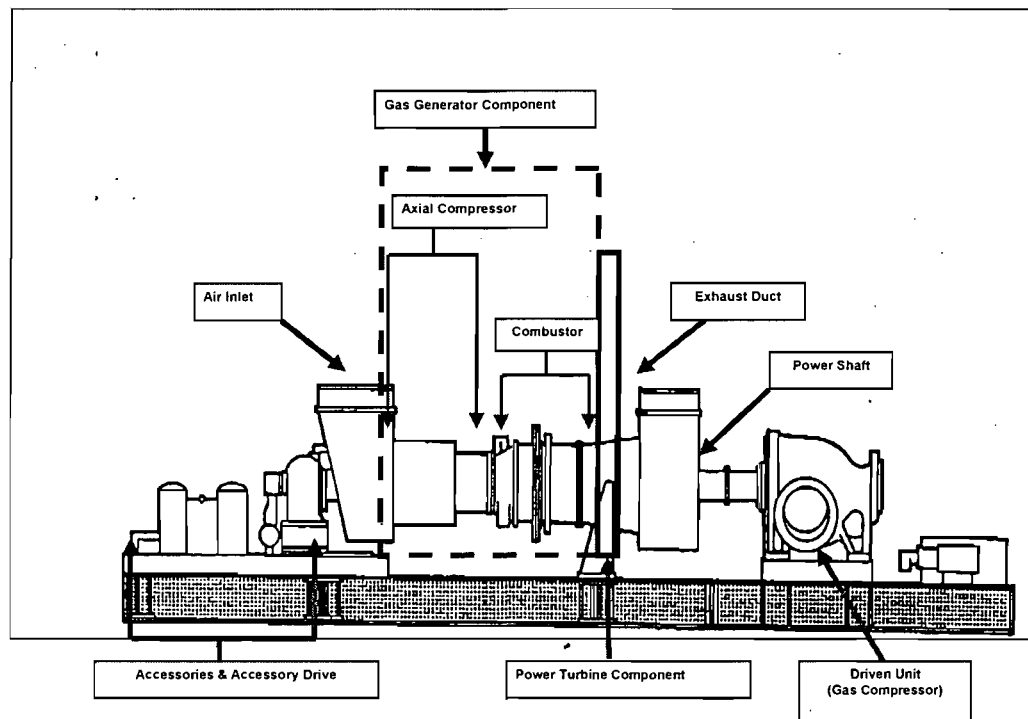


Figure 2. Gas Turbine Compressor Engine and Components

## Technical Evaluation and Preliminary Determination

and returned to a pool of similar gas turbine components to be used as a replacement in the future. For this reason, gas turbine manufacturers also provide extensive maintenance contracts with “pull and replace” provisions for “like-kind” components. Typical operating levels between major maintenance inspections and overhauls can be between 20,000 and 40,000 engine hours or less. This would be in the range of two to six years for a scheduled major overhaul required by the manufacturer.

### Emissions from Gas Turbine Compressor Engines

Engine 1806 is a Royce Model No. 501-KC7 DLE gas turbine serving as a compressor engine at existing Station 18. Firing natural gas as the exclusive fuel, this unit has a nominal output capacity of approximately 7200 bhp at ISO conditions. It also incorporates a version of lean premix combustion technology, which results in low emissions of carbon monoxide (CO), nitrogen oxide (NO<sub>x</sub>), and volatile organic compounds (VOC). As natural gas contains little ash or sulfur, this unit also emits very low levels of particulate matter (PM/PM<sub>10</sub>) and sulfur dioxide (SO<sub>2</sub>). Table 1 shows the permitted potential emissions from Engine 1806.

Table 1. Potential Emissions from Engine 1806

Pollutant	Emission Factor Reference	Emission Factors		Emissions	
		Factor	lb/MMBtu	lb/hour	TPY
CO	Vendor	50 ppmvd @ 15% O <sub>2</sub>	0.101	6.9	30
NO <sub>x</sub>	Vendor	25 ppmvd @ 15% O <sub>2</sub>	0.082	5.7	25
PM/PM <sub>10</sub>	AP-42, Table 3.1-2A	0.0066 lb/MMBtu	0.007	0.5	2
SO <sub>2</sub>	FERC	10 grains sulfur/100 scf	0.028	1.9	8
VOC	Vendor	0.2 lb/hour	0.003	0.2	1

#### Notes:

- Emission rates are based on a maximum heat input rate of 68 MMBtu/hour and a compressor inlet temperature of 59° F.
- Annual emissions are based on year-round operation (8760 hours per year) at these rates.
- “FERC” is the Federal Energy Regulatory Commission. FERC establishes the maximum sulfur content for pipeline gas.

### Review

The Bureau of Air Regulation uses numerous criteria to determine whether or not repair, replacement, or maintenance activities are considered routine. Many of these items are interrelated and no one factor determines whether a project is routine or not. Instead, these factors are reviewed in light of the specific case and available information to reach a conclusion for the project as a whole. The Department reviewed the following key areas with regard to the replacement of a gas generator/power turbine component in a light industrial aero-derivative gas turbine compressor engine serving a natural gas pipeline. It is also worth noting that if the industry were performing these maintenance and repair activities in the field at each site, the Department does not believe a construction permit would be necessary.

### Nature

- Are major components of a facility are being modified or replaced? Specifically, are the units of considerable size, function, or importance to the operation of the facility, considering the type of industry involved?

Gas turbine compressor engines are a major part of a natural gas compressor station and serve to fulfill the primary function. In terms of the entire natural gas pipeline, a single gas turbine compressor engine might be considered rather small. Currently, the largest gas turbine compressor engine is 15,700 bhp, which is equivalent to approximately 12 MW. The gas generator is the major component of a gas turbine compressor engine.

- Does the change require pre-approval of a state commission, in the case of utilities?

## Technical Evaluation and Preliminary Determination

---

Pipelines and compressor station projects must get prior approval based on need from the Federal Energy Regulatory Commission (FERC). Once the original site and capacity is approved, specified equipment may be replaced as necessary without additional approval from FERC. With regard to the state, gas turbines are primarily approved for construction through the Department's air permitting process. Any changes that would increase or decrease capacity would require additional air construction permits and would likely require prior approval from FERC.

3. Does the source itself characterize the change as "non-routine" in any of its own documents?

FGTC contends that it is *not* typical to perform most repairs for a gas generator *on site*. For the gas pipeline industry, it is more common to remove the component and transport it to a central maintenance facility for repair. Because repair can take several weeks or months, a replacement gas generator is usually installed to minimize downtime during periods of high demand. FGTC provided a discussion of maintenance practices from Solar Gas Turbines, a company that manufactures many of the existing units. This document describes the replacement of a gas generator component as a standard industry maintenance practice for its aero-derivative, light industrial gas turbines. Such units are designed to strict tolerances that must be maintained to ensure efficient operation and prevent catastrophic failure of the components. Performing maintenance on many of these critical components is difficult and costly to perform on site. Therefore, light industrial gas turbines incorporate a modular design to facilitate prompt repair and return to service.

Based on the modular design, equipment manufacturers are able to offer comprehensive maintenance contracts to "pull and replace" components and eliminate critical downtime. The faulty equipment is replaced with a like-kind component, transported to a regional maintenance facility, repaired, and returned to a pool of available replacement components. Downtime for the gas turbine compressor engine may be just a few days even for the replacement of the gas generator component. Solar Gas Turbines indicates that more than 85% of the gas generators and gas generator/power turbine sets leaving their central maintenance facility are considered "replacement components".

4. Can the change be performed during full functioning of the facility or while it is in full working order?

Gas generator repairs cannot generally be performed while the unit is in operation. As discussed previously, the exacting tolerances make on site repair difficult and costly. Replacements can usually be installed within a few days.

5. Are the materials, equipment and resources necessary to carry out the planned activity already on site?

No, replacement components are generally warehoused with the original equipment vendor. Under a maintenance contract, a replacement component (even an entire gas generator) can be delivered within a day or so. The malfunctioning component is then pulled and returned to the equipment vendor for repair. A replacement component is installed so that the compressor engine can return to service. If the gas turbine is still under the initial warranty, a repaired component is occasionally returned back to the original compressor station and re-installed as the original equipment. This is based on specific contractual requirements and may be at the discretion of the equipment vendor.

### Extent

1. Will an entire emissions unit be replaced?

The entire gas turbine compressor engine is not being replaced, but the gas generator is a major component of the gas turbine compressor engine. However, the modular design of the light industrial, aero-derivative gas turbine allows the rapid replacement of even this large component.

2. Will the change take a significant time to perform?

Generally, replacement of a gas generator component can be completed in just a few days. This is the main reason for development of the "pull and replace" policy for handling maintenance and repair issues.

## Technical Evaluation and Preliminary Determination

---

3. Will the collection of activities, taken as a whole, constitute a “non-routine effort”, notwithstanding that individual elements could be routine?

For a light industrial aero-derivative gas turbine, manufacturers normally recommend a major overhaul every two to six years depending on the model and actual operating hours. An overhaul generally involves complete refurbishment of the gas generator to restore it to the original design and operating specifications. For the gas pipeline industry, such overhauls are typically performed at a regional maintenance facility. Alternatively, it is possible that the smaller individual components could be replaced during this period, which would eventually result in near replacement of the gas generator.

EPA’s background document for NSPS Subpart GG (EPA-450/2-77-017a) notes that the terms “overhaul” and “ultimate life” are not defined equally by all gas turbine manufacturers. This makes it difficult to distinguish between modifications and routine maintenance practices. It mentions that non-wearing parts (rotor discs, casings, housing, bearing supports, rotor shafts, etc.) are designed for an ultimate life of about 30 years. However, most manufacturers require “overhauls” after about 20,000 to 40,000 hours of operation. Because an overhaul typically returns a unit to “new” condition, the “ultimate life” of the gas turbine may be indefinite.

The EPA document specifically lists several changes that would *not* be modifications: relocation or transfer of ownership; changes in types or grades of fuel if originally designed for its use; increases in operating hours; variations in operating loads within the original engine design specification; and routine repairs, like-kind replacements, and maintenance (including the repair or replacement of stator blades, turbine nozzles, turbine buckets, fuel nozzles, combustion chambers, seals, and shaft packings). Note that the list of gas turbine components represents parts of the gas generator. The EPA document also lists the following changes that could be modifications resulting in increased emissions: replacements with a different design that allows the firing of alternate fuels; replacements with a different design that allows increased power output; and operating the unit at higher sustained outputs than the original design. The purpose of listing activities that would or would not be a “modification” that would trigger the NSPS Subpart GG requirements was to show that the new regulation would have only slight impacts on existing gas turbines based on existing practices.

4. Does the change require the addition of parts to existing equipment?

No, gas generator components are replaced with functionally equivalent “like-kind” components. Occasionally, manufacturers improve replacement parts to resolve continuing maintenance problems. However, such improvements would not increase the maximum heat input rate or output capacity. Capacity increases require new air permits and would likely require a new FERC approval.

### Purpose

1. Is the purpose of the effort to extend the useful life of the unit? Does the owner propose to replace a unit at the end of its useful life?

The primary purpose of component replacement is to facilitate prompt repair in order to return the gas turbine compressor engine to its original design and operating specifications. FGTC believes that component replacement does not increase the operating life of the gas turbine beyond that of a unit that was “properly maintained” in the field. It is noted that such replacements may lead to an “indefinite” life for the gas turbine.

2. Will the change keep the unit operating in its present condition or will it allow enhanced operation? Will the change permit increased capacity, operating rate, utilization, or fuel adaptability?

Replacement of the gas generator component with a functionally equivalent “like-kind” component will allow the compressor engine to continue operating as it was originally designed. The replacement is not intended to increase the capacity, operating rate, or utilization of the compressor engine. These units typically operate a significant portion of each calendar year (> 40%) depending entirely on consumer demands for natural gas. For this reason, gas turbine compressor engines are typically permitted for year round operation (8760 hours per year). Because compressor engines serve a natural gas pipeline, natural gas is the exclusive fuel and fuel-

**Technical Evaluation and Preliminary Determination**

---

switching is not an issue.

**Frequency:** Is the change performed frequently in a typical unit's life?

Yes, it is possible that a gas generator replacement will be performed many times over the life of a gas turbine compressor engine. Again, equipment manufacturers purposely incorporate modular designs into their light industrial, aero-derivative gas turbines to allow for quick component replacements rather than on-site maintenance. Such designs lead to long-term maintenance contracts that include regularly scheduled replacements. Although the "changes" may occur relatively frequently, these practices are intended to keep the unit operating as originally designed.

**Cost**

1. Will the change be costly, both in absolute terms and relative to the cost of replacing the unit?

Replacement of a gas generator is likely the most expensive single component replacement. However, the true cost of such a replacement is difficult to estimate accurately. First, replacements are typically performed in accordance with current contractual requirements, which may cover an entire fleet of gas turbines. So, replacement costs may be spread over a large number of similar units. Second, when a replacement gas generator is installed, the original gas generator retains some value. Typically, the "replaced" gas generator is shipped to a regional maintenance facility for repair. After an overhaul and performance testing, the "replaced" unit returns to a fleet of similar equipment, which will be used as "replacement" components. As summarized in the following table, FGTC provided the following information as an estimate of the component costs for a typical light industrial gas turbine.

Table 2. Estimated Component Costs for a New Light Industrial Gas Turbine (Solar Mars 110S)

<i>Gas Generator</i> .....	\$2,400,000
(Air Intake Assembly, Combustion Assembly, Compressor Assembly and Gas Producer Turbine Assembly)	
<i>Power Turbine</i> .....	\$600,000
(Power Turbine Rotor Assembly, Turbine Exhaust Diffuser, Control System and Inlet Filter and Silencer)	
<i>Ancillary Components</i> .....	\$3,000,000
(Exhaust Collector and Silencer, Control and Electrical System, Starter Assembly, Accessory Drive, Fuel Control System, Lube Oil Coolers, and Lube Oil Skid)	
<i>Miscellaneous Costs</i> .....	\$3,000,000
Engineering and Design, Construction Management, Foundations and Supports and Installation)	
<i>Total Capital Cost</i> .....	\$9,000,000

The capital costs of the gas generator plus power turbine (\$3 million) represent approximately 33% of the total capital cost of a new gas turbine (\$9 million). The estimated "replacement cost" for a gas generator plus power turbine from the replacement pool is approximately \$300,000. This represents only 10% of the estimated costs for brand new components and less than 5% of the total estimated cost of a new gas turbine compressor engine.

2. Is a significant amount of the cost of the change included in the source's capital expenses, or will the change be paid for out of the operating budget? Are the costs reasonably reflective of the costs originally projected during the unit's design phase as necessary to maintain day-to-day operation?

Any costs related to component replacements that are covered under the original warranty would be charged to the operating budget. Any components sent off site for repair and returned to the original site are charged to the operating budget. Any replacement costs incurred for the newest Nuovo-Pignone gas turbines (15,700 bhp) are charged to the operating budget. Replacement costs for out-of-warranty units are charged to the

capital budget. As previously discussed, these replacement costs are well known in the design phase and planned for accordingly.

### How do other states handle component replacements?

The pipeline originates in Texas and passes through portions of Louisiana, Mississippi, Alabama, and Florida. Alabama considers like-kind component replacements to be “routine”, as do several other states that have natural gas pipelines including Georgia, Minnesota, Montana, North Dakota, and South Dakota. Louisiana requires a “minor modification”, which involves a \$140 permit fee and a 4-page application. A public notice is not required and permit modifications are typically issued within 5-6 days of submittal. For units with NOx emissions less than 25 TPY, Texas allows the exchange of gas turbines under a “Permit by Rule” with no notice requirements. It appears that all of the pipeline compressor engines in Texas are in this category.

### **Conclusion**

The primary purpose of a “like-kind” gas generator component replacement is to facilitate prompt repair in order to return the gas turbine compressor engine to its original design and operating specifications. Manufacturers purposely incorporate a modular design into light industrial gas turbines (< 16,000 bhp) to simplify component replacements and allow the gas turbine compressor engine to quickly return to service. After review of the available information, the Bureau of Air Regulation concludes that replacement of the gas generator component of gas turbine compressor Engine 1806 is a routine maintenance practice for the natural gas pipeline industry.

Rule 62-210.300(1)(a), F.A.C. states that, “Unless exempt from permitting pursuant to Rule 62-210.300(3)(a) or (b), F.A.C., or Rule 62-4.040, F.A.C., an air construction permit shall be obtained by the owner or operator of any proposed new or modified facility or emissions unit prior to the beginning of construction or modification, in accordance with all applicable provisions of this chapter, Chapter 62-212, F.A.C., and Chapter 62-4, F.A.C.” Rule 62-210.200(169), F.A.C. defines a *modification* as, “Any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Act, including any not previously emitted, from any emissions unit or facility.” However, it also states that, “A physical change or change in the method of operation shall not include ... routine maintenance, repair, or replacement of component parts of an emissions unit ...”

By definition, it is not a modification to perform routine repairs, replacements, and maintenance on permitted units. Therefore, replacement of the gas generator does not require a new air construction permit or a modification to the initial air construction permit. Because the gas generator is the largest component having the greatest impact on emissions, the conclusion would be the same for smaller individual components. This would also be true for comparable replacements on other gas turbines serving as compressor engines at this station and having similar functions, characteristics, and sizes (< 16,000 bhp). The Bureau of Air Regulation’s conclusion is specific to light industrial aero-derivative gas turbine compressor engines and shall not be used for any other sizes of gas turbines, uses of gas turbines, other types of emissions units or for any other industries.

Rule 62-4.160(2) and (6), F.A.C. requires an owner to provide information regarding changes made to permitted equipment. For cases related to repair, Rule 62-4.130, F.A.C. requires this notification to be made promptly once the equipment has failed, or is identified as subject to failure, and is scheduled for replacement. Rule 62-4.160(15), F.A.C. requires a permittee to provide information that shows compliance with the terms of its permit. Rule 62-297.310(7)(b), F.A.C. gives the Department the authority to require tests following maintenance to show that the repaired unit remains in compliance with all established emission limits. Such tests will also verify that there are no deviations from the permit conditions or emission limits as a result of the replacement. Based on these regulations, the following process is recommended to clarify notification and testing requirements for gas generator component replacements.

“For the replacement of gas turbine components to facilitate prompt repair and return the unit to its original specifications, the permittee shall comply with the following notification and testing requirements.

1. Components shall only be replaced with functionally equivalent “like-kind” equipment. Replacement

components may consist of improved or newer equipment, but such components shall not change operation or increase the capacity (heat input rate or power output) of the gas turbine. Replacement components that affect emissions shall be designed to achieve, and shall achieve, the emissions standards specified in all valid air permits or better. After a component replacement, the gas turbine remains subject to the standards of all valid air permits. [Rule 62-210.200(169), F.A.C.]

2. For gas generator replacements, the permittee shall notify the Compliance Authority within seven days of beginning such work. Within seven days of first fire on a replacement gas generator, the permittee shall submit the following information to the Compliance Authority: date of first fire and certification from the vendor that the replacement gas generator is a functionally equivalent “like-kind” component. The vendor certification shall also identify the make, model number, maximum heat input rate (MMBtu/hour), power output (bhp) at ISO conditions, and that the permitted emission rates are achievable with the replacement component. This notification may be made by letter, fax, or email. A copy of this information shall be kept on site at the compressor station. Within 60 days of restarting the unit after a gas generator replacement, the permittee shall conduct stack tests to demonstrate compliance with the applicable emission standards. The permittee shall notify the Compliance Authority in writing at least 15 days prior to conducting these tests. The permittee shall comply with all permit requirements for test notification, test methods, test procedures, and reporting. [Rules 62-4.130, 62-4.160(2), (6), and (15) and 62-297.310(7)(b), F.A.C.]
3. After investigation and for good cause, the Department may require special compliance tests pursuant to Rule 62-297.310(7)(b), F.A.C.”

The above provisions ensure that the replacements are “like-kind”, that the repaired emissions unit complies with the emissions standards, and that the appropriate Compliance Authorities are kept informed.

### **Does this impact NSPS Subpart GG requirements?**

This gas turbine compressor engine is currently subject to NSPS Subpart GG, which regulates emissions of nitrogen oxides and sulfur dioxide from stationary gas turbines. However, this unit is permitted at much lower levels and readily complies with the NSPS requirements. In fact, FGTC has few (if any) pre-NSPS units in operation along their natural gas pipeline. Even so, the replacement gas generator component is intended to return the unit to original design and operating specifications and will not increase the unit capacity. Consequently, there will be no increase in hourly emissions that could trigger new Subpart GG requirements. In addition, available information suggests that the cost of replacing the entire gas generator/power turbine set is much less than the 50% replacement cost criteria that would trigger “reconstruction” under the NSPS requirements. Therefore, such replacements do not affect the applicability for, or compliance with, the NSPS Subpart GG requirements.

### **Does this impact NESHAP Subpart YYYYY requirements?**

About half of FGTC’s existing compressor stations are major sources of hazardous air pollutants. According to the recently promulgated NESHAP, new gas turbines constructed after January 14, 2003 at these major facilities are subject to the Subpart YYYYY requirements. Several existing gas turbines constructed before January 14, 2003 at these major facilities are considered “affected sources”, but are not subject to any specific requirements. Such existing units could become subject to the same requirements for new units if “reconstructed”. However, Subpart YYYYY also uses the 50% replacement cost criteria to define “reconstruction”. Again, it is unlikely that any routine component replacements would trigger “reconstruction”. Therefore, such replacements do not affect the applicability for, or compliance with, the NESHAP Subpart YYYYY requirements.

### **Does this impact PSD applicability?**

About half of FGTC’s existing compressor stations are PSD-major facilities. PSD preconstruction review could possibly apply to existing units undergoing a modification. However, replacement of the gas generator component of a light industrial gas turbine compressor engine is considered a routine maintenance practice for the



gas pipeline industry. By definition, it is not a modification to perform routine repairs, replacements, and maintenance on permitted units. Therefore, such replacement activities are not subject to PSD review.

### Other Considerations

Over the last several years, the Department has issued many permits authorizing the construction and operation of new large frame (~ 40 to 170 MW) gas turbines at electrical generating plants. The Department does not believe that replacing the gas generator component for these large frame units is routine maintenance. However, the determination of Best Available Control Technology for many of the large frame gas turbine projects relied on clean burning natural gas as the primary fuel to achieve the lowest levels of emissions. The backup fuel for these units is distillate oil, which results in far more pollution. Therefore, quick component replacements for FGTC's small compressor engines will help ensure that a reliable supply of natural gas is available for use at large power plants.

### 5. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the specific conditions of the draft permit. Jeff Koerner is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

## WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

---

*In the Matter of an  
Application for Air Permit by:*

Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

*Authorized Representative:*

Mr. Richard Craig, V.P. of Southeastern Operations

Draft Air Permit No. 0950190-006-AC  
Compressor Station 18  
Increased Heat Input for Engine 1806  
Orange County, Florida

**Facility Location:** Florida Gas Transmission Company operates existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida.

**Project:** The applicant proposes to revise the original air construction permit for Engine 1806 to increase the maximum heat input rate, include notification/testing requirements for functionally equivalent component replacements, and to make the fuel monitoring requirements consistent with the recent amendments to NSPS Subpart GG for gas turbines. Details of the project are provided in the in the application and the enclosed "Technical Evaluation and Preliminary Determination".

**Permitting Authority:** Applications for air construction permits are subject to review in accordance with 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 proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Permitting Authority's physical address is 111 South Magnolia Drive, Tallahassee, Florida. The Permitting Authority's mailing address is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

**Project File:** A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address or phone number listed above. A copy of the complete project file is also available at the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.

**Notice of Intent to Issue Permit:** The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

**Public Notice:** Pursuant to Section 403.815, F.S. and Rules 62-110.106 and 62-210.350, F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue Air Permit" (Public Notice). The Public Notice shall be published one time only as soon as possible in the legal advertisement section of a newspaper of general circulation in the area affected by this project. The newspaper used must meet 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 Permitting Authority at above address or phone number. Pursuant to Rule 62-110.106(5), F.A.C., the applicant shall provide proof of publication to the Permitting Authority at the above address within seven (7) days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rule 62-110.106(11), F.A.C.

**Comments:** The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of fourteen (14) days from the date of publication of the Public Notice. Written comments must be provided to the Permitting Authority at the above address. Any written comments filed will be made available for public

**WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT**

---

inspection. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice.

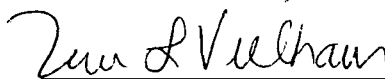
**Petitions:** A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's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

A petition that disputes the material facts on which the Permitting Authority'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 each 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 state; (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 the 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 Permitting Authority'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, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Written Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

**Mediation:** Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.



\_\_\_\_\_  
Trina Vielhauer, Chief  
Bureau of Air Regulation

**WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT**

---

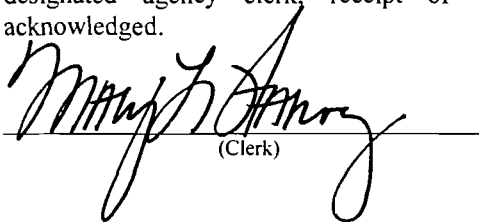
**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this "Written Notice of Intent to Issue Air Permit" package (including the Public Notice, the 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 11/3/04 to the persons listed below.

Mr. Richard Craig, FGTC\*  
Mr. James Fleak, FGTC  
Mr. David H. Parham, P.E., FGTC  
Mr. V. Duane Pierce, AQMcS  
Mr. Len Kozlov, CD  
Ms. Marie Driscoll, OCEPD

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

  
\_\_\_\_\_  
(Clerk)

11/3/04  
(Date)

## PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Florida Department of Environmental Protection  
Draft Air Permit No. 0950190-006-AC  
Florida Gas Transmission Company – Existing Compressor Station 18  
Orange County, Florida

**Applicant:** The applicant for this project is the Florida Gas Transmission Company. The applicant's mailing address is: P. O. Box 4657, Houston, TX 77101-4657. The applicant's authorized representative is Mr. Richard Craig, the V.P. of Southeastern Operations.

**Facility Location:** The Florida Gas Transmission Company operates existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida.

**Project:** The applicant proposes several revisions to the original air construction permit for Engine 1806. As installed, the gas turbine fires slightly more natural gas to produce the required power output. The applicant requests approximately an 8% increase in the maximum heat input rate. Also, Engine 1806 is a light-industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements. Finally, EPA recently amended the federal fuel monitoring requirements for nitrogen and sulfur in Subpart GG of 40 CFR 60 regulating gas turbines. The applicant requests a permit revision to be consistent with the amended fuel monitoring requirements.

**Permitting Authority:** Applications for air construction permits are subject to review in accordance with 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 proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination regarding this project. The Permitting Authority's physical address is 111 South Magnolia Drive, Tallahassee, Florida. The Permitting Authority's mailing address is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

**Project File:** A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address and phone number listed above. A copy of the complete project file is also available at the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.

**Notice of Intent to Issue Air Permit:** The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

**Comments:** The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of fourteen (14) days from the date of publication of this Public Notice. Written comments must be provided to the Permitting Authority at the above address. Any written comments filed will be made available for public inspection. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice.

**Petitions:** A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by any persons other than those entitled to written notice

**(Public Notice to be Published in the Newspaper)**

## PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

under Section 120.60(3), F.S. must be filed within fourteen (14) days of publication of this Public Notice or receipt of a written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority'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 rights will be affected by the agency determination; (c) A statement of how and when the 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 state; (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 the 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 Permitting Authority'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, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Public Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

**Mediation:** Mediation is not available for this proceeding.

# DRAFT PERMIT REVISION

## PERMITTEE:

Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

### Authorized Representative:

Mr. Richard Craig, V.P. of Southeastern Operations

Orlando Compressor Station 18 Air Permit No. 0950190-006-AC Facility ID No. 0950190 SIC No. 4922 Expires: <u>July 1, 2005</u>
---

## DESCRIPTION AND LOCATION

Existing Station 18 consists of the following six compressor engines.

ID	Emission Unit Description
001	Engine 1801 is a 2000 bhp reciprocating internal combustion engine installed in 1962.
002	Engine 1802 is a 2000 bhp reciprocating internal combustion engine installed in 1962.
003	Engine 1803 is a 2000 bhp reciprocating internal combustion engine installed in 1962.
004	Engine 1804 is a 2000 bhp reciprocating internal combustion engine installed in 1968.
005	Engine 1805 is a 2700 bhp reciprocating internal combustion engine installed in 1991.
006	Engine 1806 is a 7200 bhp (ISO) gas turbine installed in 2003.

This permit establishes requirements for Emissions Units 005 and 006 at existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida. It is a revision of original air construction Permit No. 0950190-004-AC. The UTM coordinates are Zone 17, 451.86 km East, and 3154.79 km North.

## STATEMENT OF BASIS

This air pollution 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.) and Title 40, Part 60 of the Code of Federal Regulations. The permittee is authorized to perform the work and make the proposed changes 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.

## CONTENTS

- Section 1. General Information
- Section 2. Administrative Requirements
- Section 3. Emissions Units Specific Conditions
- Section 4. Appendices

## SECTION 1. GENERAL INFORMATION

### PROJECT DESCRIPTION

Engine 1806 was installed under original air construction Permit No. 0950190-004-AC as a new 7200 bhp gas turbine to be used as a compressor engine at existing Compressor Station 18. That permit also included a revision of the particulate matter emissions standard for Engine 1805, an existing reciprocating internal combustion engine used as a compressor engine at Station 18. Air Permit No. 0950190-006-AC is issued as a revision of the original air construction permit to: authorize a nominal increase in the maximum heat input rate for Engine 1806; include notification and recordkeeping requirements for functionally equivalent component replacements on Engine 1806; and revise the fuel nitrogen and sulfur monitoring requirements to be consistent with recent amendments to NSPS Subpart GG for gas turbines.

### REGULATORY CLASSIFICATION

Title III: The facility is a major source of hazardous air pollutants (HAP).

Title IV: The facility has no units subject to the acid rain provisions of the Clean Air Act.

Title V: The facility is a Title V major source of air pollution (Chapter 213, F.A.C.).

PSD: The facility is a PSD-major source of air pollution (Rule 62-212.400, F.A.C.).

NSPS: The gas turbine is subject to the New Source Performance Standards in Subpart GG of 40 CFR 60.

### RELEVANT DOCUMENTS

The documents listed below are not a part of this permit; however, they are specifically related to this permitting action and are on file with the Department.

- Application No. 0950190-006-AC received on 09/10/04 and all related correspondence.
- Administrative correction to Air Permit No. 0950190-004-AC issued on 04/15/04.
- Extension to Air Permit No. 0950190-004-AC issued on 11/05/03.
- Air Permit No. 0950190-004-AC issued on 01/10/03, which authorized initial construction of Engine 1806.
- Air Permit No. PSD-FL-163 issued on 05/09/91, which authorized initial construction of Engine 1805.



## SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: All documents related to applications for permits to construct or modify a PSD-major source shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. All documents related to applications for operation permits shall be submitted to the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to: Air Quality Management, Orange County Environmental Protection Division, 800 Mercy Drive, Suite 4, Orlando, FL 32808.
3. Appendices: The following Appendices are attached as part of this permit: Appendix CF (Citation Format); Appendix GC (General Conditions); Appendix GG (NSPS Subpart GG Requirements for Gas Turbines); and Appendix SC (Standard Conditions).
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit 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.; Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, F.A.C.; and Title 40, Part 60 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. 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. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
5. New or Additional Conditions: 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.]
6. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
7. Authority to Construct: The emissions units regulated by this air construction permit have been constructed and are in operation. No further construction is authorized.
8. Title V Permit: Pursuant to Rule 62-213.420(1)(a)2, F.A.C., the permittee shall submit an application for a revised Title V air operation permit at least ninety (90) days before the expiration of this permit, but no later than 180 days after commencing operation. In accordance with Rule 62-213.412(2), F.A.C., the permittee may immediately implement the changes authorized by this air construction permit after submitting the application for a revised Title V air operation permit to the Permitting Authority and providing copies of the application to EPA Region 4 and each Compliance Authority. To apply for a revised 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 Central District Office with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, 62-213.412, and 62-213.420, F.A.C.]

**SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS**

**A. EU-005 - 2700 bhp Compressor Engine No. 1805**

This section of the permit addresses the following existing emissions unit.

**Emissions Unit No. 005 - Compressor Engine No. 1805**

The existing compressor engine is a 2700 bhp reciprocating internal combustion engine fired exclusively with pipeline natural gas.

**APPLICABLE REQUIREMENT**

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit. Except for the change noted below, the unit remains subject to the conditions of all other valid air construction and operations permits. [Rule 62-4.070, F.A.C.]
2. Particulate Matter: For Compressor Engine No. 1805 (EU-005), particulate matter emissions are minimized by good combustion design with the firing of natural gas as the exclusive fuel. This requirement supersedes the particulate matter standards (TSP and PM<sub>10</sub>) in Condition No. 1 of Air Permit No. PSD-FL-163, as amended. *{Permitting Note: This change does not result in any increases in actual or potential emissions of particulate matter. All other standards of Air Permit No. PSD-FL-163 remain unaffected.}*

## SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

### B. EU-006 - 7200 bhp Compressor Engine No. 1806

This section of the permit addresses the following new emissions unit.

#### Emissions Unit No. 006 - 7200 bhp Compressor Engine No. 1806

*Description:* The compressor engine is a 7200 bhp (ISO) gas turbine consisting of a Cooper-Rolls Royce Model No. 501-KC7 DLE with lean premix combustor design.

*Fuel:* The gas turbine fires pipeline natural gas (SCC No 2-02-002-01) at a maximum firing rate of approximately 65,100 cubic feet per hour based on a heat content of 1040 BTU per SCF of gas.

*Capacity:* At ~~63~~ 68 MMBtu per hour of heat input, the gas turbine produces approximately 7200 bhp (ISO). The gas turbine typically operates near capacity.

*Controls:* The lean premix combustor design minimizes NOx emissions. The efficient combustion of natural gas at high temperatures minimizes emissions of CO, PM/PM10, SO2, and VOC.

*Stack Parameters:* When operating at capacity, exhaust gases exit a 6.0 feet diameter stack that is 61.2 feet tall at 964° F with a flow rate of approximately 97,500 acfm.

#### APPLICABLE STANDARDS AND REGULATIONS

1. NSPS Requirements: The gas turbine shall comply with the New Source Performance Standards (NSPS) of Subpart GG in 40 CFR 60. The applicable NSPS requirements are provided in Appendix GG of this permit. The Department believes that the conditions in this section are at least as stringent as, or more stringent than, the NSPS requirements of Subpart GG. [Rule 62-4.070(3), F.A.C.; 40 CFR 60, Subpart GG]

#### EQUIPMENT

2. Compressor Engine No. 1806: The permittee is authorized to install one 7200 bhp (ISO) gas turbine compressor engine consisting of a Cooper-Rolls Royce Model No. 501-KC7 DLE. The permittee shall tune, operate and maintain the gas turbine's lean premix combustor design to reduce emissions of nitrogen oxides below the permitted limits. Ancillary equipment includes the automated gas turbine control system, an inlet air filtration system, and an exhaust stack. [Applicant Request; Design]

#### PERFORMANCE RESTRICTIONS

3. Permitted Capacities: The maximum heat input rate to the gas turbine shall not exceed ~~63~~ 68 MMBtu per hour (24-hour average) while producing approximately 7200 bhp (ISO) based on a compressor inlet air temperature of 59° F, 100% load, and a higher heating value (HHV) of 1040 BTU per SCF for natural gas. Heat input rates will vary depending upon gas turbine characteristics, load, and ambient conditions. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial testing. Performance data shall be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. Compliance with this equipment specification shall be demonstrated based on the information required in Condition 13 of this subsection. [Rule 62-210.200(PTE), F.A.C.]
4. Authorized Fuel: The gas turbine shall fire only natural gas with a maximum of 10 grains of sulfur per 100 standard cubic feet of natural gas. [Applicant Request; Rule 62-210.200(PTE), F.A.C.]
5. Restricted Operation: The hours of operation for the gas turbine are not limited (8760 hours per year). Except for startup and shutdown, operation below 50% base load is prohibited. [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

**SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS**

**B. EU-006 - 7200 bhp Compressor Engine No. 1806**

**EMISSIONS STANDARDS**

6. Emissions Standards: Emissions from the gas turbine shall not exceed the following standards for carbon monoxide (CO), nitrogen oxides (NOx), opacity, particulate matter (PM), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOC).

Pollutant	Standards	Equivalent Maximum Emissions <sup>f</sup>		Rule Basis <sup>g</sup>
		lb/hour	TPY	
CO <sup>a</sup>	50.0 ppmvd @ 15% O <sub>2</sub>	6.9	30.22	Avoid Rule 62-212.400, F.A.C.
NOx <sup>b</sup>	25.0 ppmvd @ 15% O <sub>2</sub>	5.7	24.97	Avoid Rule 62-212.400, F.A.C. 40 CFR 60.332
SO <sub>2</sub> <sup>c</sup>	10.0 grains of sulfur per 100 SCF of gas	<del>1.7</del> <u>1.9</u>	<del>7.45</del> <u>8.15</u>	Avoid Rule 62-212.400, F.A.C. 40 CFR 60.333
Opacity <sup>d</sup>	10% opacity, 6-minute average	Not Applicable		Rule 62-4.070(3), F.A.C.
PM <sup>e</sup>	Efficient combustion of natural gas	<del>0.4</del> <u>0.5</u>	<del>1.75</del> <u>1.96</u>	Rule 62-4.070(3), F.A.C.
VOC <sup>e</sup>	Efficient combustion of natural gas	0.2	0.88	Rule 62-4.070(3), F.A.C.

- a. The CO standards are based on the average of three test runs as determined by EPA Method 10.
- b. The NOx standards are based on the average of three test runs as determined EPA Method 20.
- c. The fuel sulfur specification is based on the maximum limit specified by Federal Energy Regulatory Commission (FERC) and effectively limits the potential SO<sub>2</sub> emissions. Expected fuel sulfur levels are less than 1 grain per 100 SCF of natural gas from the pipeline.
- d. The opacity standard is based on a 6-minute average, as determined by EPA Method 9.
- e. For both PM and VOC, the efficient combustion of natural gas is indicated by compliance with opacity and CO standards. Equivalent maximum PM emissions are based on a factor of 0.0066 lb/MMBtu heat input from AP-42 Table 3.1-2a. Equivalent maximum VOC emissions are based on a total hydrocarbon factor of 1.58 lb/eng-hr from the vendor and the conservative assumption that 10% the hydrocarbons are regulated (non-methane) VOC. No testing is required.
- f. Equivalent maximum emissions are based on the maximum expected emissions, permitted capacity, a compressor inlet air temperature of 59° F, and 8760 hours of operation per year. For comparison purposes, the permittee shall provide a reference table with the initial compliance test report of mass emission rates versus the compressor inlet temperatures. Each test report shall include measured mass emission rates for CO, NOx and SO<sub>2</sub>. Mass emission rates for SO<sub>2</sub> shall be calculated based on actual fuel sulfur content and fuel flow rate. For tests conducted at 59° F or greater, measured mass emission rates shall be compared to the equivalent maximum emissions above. For tests conducted below 59° F, measured mass emission rates shall be compared to the tabled mass emission rates provided by the manufacturer based on compressor inlet temperatures.
- g. Compliance with the emissions standards of this permit ensures that the project remains a minor source of air pollution with respect to PSD.

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

#### B. EU-006 - 7200 bhp Compressor Engine No. 1806

##### EMISSIONS PERFORMANCE TESTING

7. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content <i>{Permitting Note: These methods shall be used as necessary to support other required methods.}</i>
9	Determination of Opacity
10	Determination of Carbon Monoxide Emissions <i>{Permitting Note: This method shall be based on a continuous sampling train.}</i>
19	Determination of Sulfur Dioxide and Nitrogen Oxides Emission Rates <i>{Permitting Note: This method shall be used as necessary to support other required methods.}</i>
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Gas Turbines

Tests shall be conducted in accordance with the requirements specified in Appendix SC of this permit. The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

8. Initial Tests: The gas turbine shall be tested to demonstrate initial compliance with the emission standards for CO, NO<sub>x</sub>, and visible emissions. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the gas turbine. The initial NO<sub>x</sub> performance tests shall be conducted at approximately four evenly spaced points between the minimum normal operating load and 100% of peak load. Each of the three low-load NO<sub>x</sub> performance tests shall consist of three, 20-minute test runs. The peak load NO<sub>x</sub> performance test shall consist of three, 1-hour test runs. The CO performance tests shall be conducted concurrently with the NO<sub>x</sub> performance tests at peak load. SO<sub>2</sub> emissions shall be calculated and reported based on fuel flow and vendor analysis of fuel sulfur content. *{Permitting Note: Initial tests have already been performed for this unit and are not required to be repeated as part of this permit revision.}* [Rule 62-297.310(7)(a)1, F.A.C.; 40 CFR 60.8 and 60.335]
9. Annual Tests: During each federal fiscal year (October 1 - September 30), the gas turbine shall be tested to demonstrate compliance with the emission standards for CO, NO<sub>x</sub>, and visible emissions. CO and NO<sub>x</sub> emissions shall be tested concurrently at permitted capacity. SO<sub>2</sub> emissions shall be calculated and reported based on fuel flow and vendor analysis of fuel sulfur content. In addition to the test results, each report shall include a general description of the maintenance activities and operation of this facility since the last test. [Rule 62-297.310(7)(a)4, F.A.C.]
10. 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 subsequently required tests. [Rule 62-297.310(7)(a)9, F.A.C.; 40 CFR 60.7 and, 60.8]

##### RECORDS, REPORTS, AND NOTIFICATIONS

11. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix SC of this permit. In addition, NO<sub>x</sub> emissions shall be corrected to ISO ambient atmospheric conditions and compared to the NSPS Subpart GG standard identified in Appendix GG of this permit for each required test. For each test run, the report shall also indicate the natural gas firing rate (cubic feet per hour), heat input rate (MMBtu per hour), the power output (bhp), percent peak load, and the inlet compressor temperature. [Rule 62-297.310(8), F.A.C.; 40 CFR 60.334]

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

#### B. EU-006 - 7200 bhp Compressor Engine No. 1806

12. Fuel Monitoring: The gas turbine shall fire only pipeline natural gas with a maximum fuel sulfur content of no more than 10 grains of sulfur per 100 cubic feet of gas. The permittee shall take no allowance for fuel bound nitrogen (F-value = 0) when demonstrating compliance with the NSPS Subpart GG NO<sub>x</sub> standard. Based on these restrictions, no monitoring for the fuel nitrogen and sulfur contents is required. This is also described in Appendix GG of this permit. [Rule 62-4.070(3), F.A.C.; 40 CFR 60.334, as amended]
13. Operational Data: Using the automated gas turbine control system, the permittee shall monitor and record heat input (MMBtu), power output (bhp), and hours of operation for the gas turbine. Within the 10 days of a request by the Department or the Compliance Authority, the permittee shall be able to summarize the following information for a given day: heat input (MMBtu per hour, daily average); power output (bhp, daily average); and total hours of gas turbine operation. This information shall also be used for submittal of the required Annual Operating Report. [Rule 62-4.070(3), F.A.C.]
14. Component Replacements: For the replacement of gas turbine components to facilitate prompt repair and return the unit to its original specifications, the permittee shall comply with the following notification and testing requirements.
- Components shall only be replaced with functionally equivalent "like-kind" equipment. Replacement components may consist of improved or newer equipment, but such components shall not change operation or increase the capacity (heat input and power output rates) of the gas turbine. Replacement components that affect emissions shall be designed to achieve the emissions standards specified in all valid air permits and shall achieve these standards or better. After a component replacement, the gas turbine compressor engine remains subject to the standards of all valid air permits. [Rule 62-210.200(169), F.A.C.]
  - The permittee shall notify the Compliance Authority within seven days after beginning any replacement of the gas generator component of the compressor engine. Within seven days of first fire on a replacement gas generator, the permittee shall submit the following information to the Compliance Authority: date of first fire and certification from the vendor that the replacement gas generator is a functionally equivalent "like-kind" component. The vendor certification shall also identify the make, model number, maximum heat input rate (MMBtu/hour), power output (bhp) at ISO conditions, and that the permitted emission rates are achievable with the replacement component. This notification may be made by letter, fax, or email. A copy of the information shall be kept on site at the compressor station. Within 60 days of restarting the unit after a gas generator replacement, the permittee shall conduct stack tests to demonstrate compliance with the applicable emission standards. The permittee shall notify the Compliance Authority in writing at least 15 days prior to conducting these tests. The permittee shall comply with all permit requirements for test notification, test methods, test procedures, and reporting. [Rules 62-4.130, 62-4.160(2), (6), and (15) and 62-297.310(7)(b), F.A.C.]
  - After investigation and for good cause, the Department may require special compliance tests pursuant to Rule 62-297.310(7)(b), F.A.C.

**SECTION 4. APPENDICES**  
**CONTENTS**

---

Appendix CF. Citation Format

Appendix GC. General Conditions

Appendix GG. NSPS Subpart GG Requirements for Gas Turbines

Appendix SC. Standard Conditions

**SECTION 4. APPENDIX CF**  
**CITATION FORMAT**

---

*The following examples illustrate the format used in the permit to identify applicable permitting actions and regulations.*

**REFERENCES TO PREVIOUS PERMITTING ACTIONS**

Old Permit Numbers

*Example:* Permit No. AC50-123456 or Air Permit No. AO50-123456

*Where:* “AC” identifies the permit as an Air Construction Permit  
“AO” identifies the permit as an Air Operation Permit  
“123456” identifies the specific permit project number

New Permit Numbers

*Example:* Permit Nos. 099-2222-001-AC, 099-2222-001-AF, 099-2222-001-AO, or 099-2222-001-AV

*Where:* “099” represents the specific county ID number in which the project is located  
“2222” represents the specific facility ID number  
“001” identifies the specific permit project  
“AC” identifies the permit as an air construction permit  
“AF” identifies the permit as a minor federally enforceable state operation permit  
“AO” identifies the permit as a minor source air operation permit  
“AV” identifies the permit as a Title V Major Source Air Operation Permit

PSD Permit Numbers

*Example:* Permit No. PSD-FL-317

*Where:* “PSD” means issued pursuant to the Prevention of Significant Deterioration of Air Quality  
“FL” means that the permit was issued by the State of Florida  
“317” identifies the specific permit project

**RULE CITATION FORMATS**

Florida Administrative Code (F.A.C.)

*Example:* [Rule 62-213.205, F.A.C.]

*Means:* Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

*Example:* [40 CFR 60.7]

*Means:* Title 40, Part 60, Section 7



**SECTION 4. APPENDIX GC**  
**GENERAL CONDITIONS**

---

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

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.
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, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
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.
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.
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.
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.
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.

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

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

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

**SECTION 4. APPENDIX GC**  
**GENERAL CONDITIONS**

---

Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

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.
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.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
  - a. Determination of Best Available Control Technology (NA);
  - b. Determination of Prevention of Significant Deterioration (NA); and
  - c. Compliance with New Source Performance Standards (X).
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.
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.

**SECTION 4. APPENDIX GG**  
**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

The following emissions unit is subject to the applicable requirements of Subpart A (General Provisions) and Subpart GG (Stationary Gas Turbines) established as New Source Performance Standards in 40 CFR 60 and adopted by reference in Rule 62-204.800(7)(b), F.A.C.

ID	Emission Unit Description
006	Compressor Engine No. 1806 consisting of a 7200 bhp gas turbine

**NSPS GENERAL PROVISIONS**

In addition to the specific conditions of the permit and NSPS Subpart GG, the emissions unit is subject to the applicable General Provisions of the New Source Performance Standards including 40 CFR 60.7 (Notification and Record Keeping), 40 CFR 60.8 (Performance Tests), 40 CFR 60.11 (Compliance with Standards and Maintenance Requirements), 40 CFR 60.12 (Circumvention), 40 CFR 60.13 (Monitoring Requirements), and 40 CFR 60.19 (General Notification and Reporting Requirements). The General Provisions are not included in this permit, but can be obtained from the Department upon request.

**40 CFR 60, SUBPART GG - STANDARDS OF PERFORMANCE FOR STATIONARY GAS TURBINES**

Each gas turbine shall comply with all applicable requirements of 40 CFR 60, Subpart GG adopted by reference in Rule 62-204.800(7)(b), F.A.C. Inapplicable provisions have been deleted in the following conditions, but the numbering of the original rules has been preserved for ease of reference. The term "Administrator" when used in 40 CFR 60 shall mean the Department's Secretary or the Secretary's designee. Department notes and requirements related to the Subpart GG requirements are shown immediately following the section to which they refer. The rule basis for the Department requirements specified below is Rule 62-4.070(3), F.A.C.

Section 60.330 Applicability and Designation of Affected Facility.

- (a) The provisions of this subpart are applicable to the following affected facilities: All stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour), based on the lower heating value of the fuel fired.

Section 60.331 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

- (g) ISO standard day conditions means 288 degrees Kelvin, 60 percent relative humidity and 101.3 kilopascals pressure.
- (i) Peak load means 100 percent of the manufacturer's design capacity of the gas turbine at ISO standard day conditions.
- (j) Base load means the load level at which a gas turbine is normally operated.

Section 60.332 Standard for Nitrogen Oxides.

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

$$STD = 0.0150 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NOx emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt-hour.

**SECTION 4. APPENDIX GG**  
**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

F = NO<sub>x</sub> emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of this section.

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

Fuel-bound nitrogen (percent by weight)	F (NO <sub>x</sub> percent by volume)
N ≤ 0.015	0
0.015 < N ≤ 0.1	0.04(N)
0.1 < N ≤ 0.25	0.004 + 0.0067(N - 0.1)
N > 0.25	0.005

where: N = the nitrogen content of the fuel (percent by weight).

**Department Requirement:** When firing natural gas, the “F” value shall be assumed to be “0”.

*{Permitting Note: The “Y” value when firing natural gas as provided by the manufacturer is approximately “11.4”. The equivalent NO<sub>x</sub> emission standard is 190 ppmvd at 15% oxygen. The emissions standards in Section 3 of the permit are much more stringent than this requirement.}*

(c) Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour) but less than or equal to 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired, shall comply with the provisions of paragraph (a)(2) of this section.

Section 60.333 Standard for Sulfur Dioxide.

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

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

Section 60.334 Monitoring of Operations.

(c) For the purpose of reports required under Section 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) Nitrogen oxides. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with Section 60.332 by the performance test required in Section 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in Section 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under Section 60.335(a).

*{Permitting Note: Excess NO<sub>x</sub> emissions reporting requirements do not apply. The gas turbine uses “dry” lean premix combustors and not wet injection to control NO<sub>x</sub> emissions. As indicated above, the Subpart GG NO<sub>x</sub> standard is 190 ppmvd @ 15% oxygen. This is nearly eight times the NO<sub>x</sub> standard specified in the permit and would be nearly impossible for this lean premix combustion turbine to exceed. As stated in the preamble to the July 2004 amendments, the rule changes do not impose any additional monitoring requirements for existing units.}*

(h) The owner or operator of any stationary gas turbine subject to the provisions of this subpart:

(2) Shall monitor the nitrogen content of the fuel combusted in the turbine, if the owner or operator claims an allowance for fuel bound nitrogen (i.e., if an F-value greater than zero is being or will be used by the owner or operator to calculate STD in §60.332).

*{Permitting Note: Because the nitrogen content of pipeline natural is negligible, the permittee does not claim an allowance for fuel bound nitrogen and will use “0” for the F-value when calculating the NO<sub>x</sub> standard in §60.332. The permit prohibits the permittee from claiming the allowance for fuel nitrogen. Therefore, no fuel nitrogen monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}*

**SECTION 4. APPENDIX GG**  
**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

- (3) May elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in §60.331(v), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring.

§60.331(v) states, "Natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions. Natural gas contains 20.0 grains or less of total sulfur per 100 standard cubic feet. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1100 Btu per standard cubic foot. Natural gas does not include the following gaseous fuels: Landfill gas, digester gas, refinery gas, sour gas, blast furnace gas, coal-derived gas, producer gas, coke oven gas, or any gaseous fuel produced in a process which might result in highly variable sulfur content or heating value."

The permittee elects not to monitor the sulfur content of natural gas based on §60.334(h)(3)(i), which states that, "The gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less." The current tariff sheet specifies that natural gas delivered by the pipeline system shall contain not more than 10 grains of total sulfur per 100 cubic feet of gas. Therefore, the pipeline natural gas meets the above definition.

{Permitting Note: The permit requires the gas turbine to fire only pipeline natural gas with a maximum sulfur content of 10 grains of sulfur per 100 cubic feet of gas. Therefore, no fuel sulfur monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}

Section 60.335 Test Methods and Procedures.

- (a) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.
- (b) In conducting the performance tests required in Section 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided for in Section 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section.
- (c) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in Sections 60.332 and 60.333(a) as follows:

- (1) The nitrogen oxides emission rate (NO<sub>x</sub>) shall be computed for each run using the following equation:

$$\text{NO}_x = (\text{NO}_{x0}) (\text{Pr}/\text{Po})^{0.5} e^{19(\text{Ho} - 0.00653)} (288^\circ\text{K}/\text{Ta})^{1.53}$$

where:

NO<sub>x</sub> = emission rate of NO<sub>x</sub> at 15 percent O<sub>2</sub> and ISO standard ambient conditions, volume percent.

NO<sub>x0</sub> = observed NO<sub>x</sub> concentration, ppm by volume.

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

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

Ho = observed humidity of ambient air, g H<sub>2</sub>O/g air.

e = transcendental constant, 2.718.

Ta = ambient temperature, °K.

**Department Requirement:** NO<sub>x</sub> emissions shall be corrected to ISO ambient atmospheric conditions for each required emissions performance test and compared to the NO<sub>x</sub> standard specified in 40 CFR 60.332.

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

**SECTION 4. APPENDIX GG**  
**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

---

**Department Requirement:** The initial NO<sub>x</sub> performance tests shall be conducted at approximately four evenly spaced points between the minimum normal operating load and 100% of peak load.

*{Permitting Note: The dry low-NO<sub>x</sub> controls are only effective above a minimum load, which will be identified during initial testing.}*

- (3) Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NO<sub>x</sub> emissions shall be determined at each of the load conditions specified in paragraph (c)(2) of this section.

**Department Requirement:** The span value shall be no greater than 75 ppm of nitrogen oxides due to the low NO<sub>x</sub> emission levels of the gas turbine.

- (d) The owner or operator shall determine compliance with the sulfur content standard in Section 60.333(b) as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference - see Section 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.
- (e) To meet the requirements of Section 60.334(b), the owner or operator shall use the methods specified in paragraphs (a) and (d) of this section to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

*{Permitting Note: The permit prohibits the permittee from claiming the allowance for fuel nitrogen. The permit also requires the gas turbine to fire only pipeline natural gas with a maximum sulfur content of 10 grains of sulfur per 100 cubic feet of gas. Therefore, no fuel nitrogen or fuel sulfur monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}*

**SECTION 4. APPENDIX SC**  
**STANDARD CONDITIONS**

---

*{Permitting Note: Unless otherwise specified in the permit, the following conditions apply to all emissions units and activities at this facility.}*

**EMISSIONS AND CONTROLS**

1. **Plant Operation - Problems:** If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
2. **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.]
3. **Excess Emissions Allowed:** Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]
4. **Excess Emissions Prohibited:** Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
5. **Excess Emissions - Notification:** In case of excess emissions resulting from malfunctions, the permittee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
6. **VOC or OS Emissions:** No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
7. **Objectionable Odor Prohibited:** No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and 62-210.200(203), F.A.C.]
8. **General Visible Emissions:** No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. [Rule 62-296.320(4)(b)1, F.A.C.]
9. **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.]

**TESTING REQUIREMENTS**

10. **Required Number of Test Runs:** For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

**SECTION 4. APPENDIX SC**  
**STANDARD CONDITIONS**

---

11. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2), F.A.C.]
12. 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.]
13. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.
- 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 thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.
  - 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.
  - 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), F.A.C.]
14. 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.
  - 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), F.A.C.]
15. Sampling Facilities: The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C.
16. Test Notification: The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator. [Rule 62-297.310(7)(a)9, F.A.C.]
17. 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.]
18. Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide



**SECTION 4. APPENDIX SC**  
**STANDARD CONDITIONS**

---

sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information:

1. The type, location, and designation of the emissions unit tested.
2. The facility at which the emissions unit is located.
3. The owner or operator of the emissions unit.
4. The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
5. The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.
6. The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
7. A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
8. The date, starting time and duration of each sampling run.
9. The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
10. The number of points sampled and configuration and location of the sampling plane.
11. For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
12. The type, manufacturer and configuration of the sampling equipment used.
13. Data related to the required calibration of the test equipment.
14. Data on the identification, processing and weights of all filters used.
15. Data on the types and amounts of any chemical solutions used.
16. Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17. The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18. All measured and calculated data required to be determined by each applicable test procedure for each run.
19. The detailed calculations for one run that relate the collected data to the calculated emission rate.
20. The applicable emission standard, and the resulting maximum allowable emission rate for the emissions unit, plus the test result in the same form and unit of measure.
21. A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-210.310(8), F.A.C.]

**RECORDS AND REPORTS**

19. 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.]
20. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

P.E. CERTIFICATION STATEMENT

PERMITTEE

Florida Gas Transmission Company  
1400 Smith Street  
Houston, TX 77002

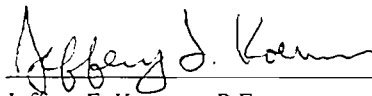
Draft Air Permit No. 0950190-006-AC  
Compressor Station 18, Engine 1806  
Revised Air Construction Permit  
Orange County, Florida

PROJECT DESCRIPTION

The applicant proposes several revisions to the original air construction permit for Engine 1806. As installed, the gas turbine fires slightly more natural gas to produce the required power output. The applicant requests approximately an 8% increase in the maximum heat input rate. Also, Engine 1806 is a light-industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements. Finally, EPA recently amended the federal monitoring requirements for fuel nitrogen and fuel sulfur in Subpart GG of 40 CFR for gas turbines. The applicant requests a permit revision to be consistent with the July 2004 amendments for fuel monitoring.

The requested changes are reasonable and not expected to result in increased emissions. The equivalent maximum emission rates for CO, NOx, and VOC were not changed based on the initial test results. The equivalent maximum emission rates for SO2 and PM were increased slightly because these rates were directly based on the maximum heat input rate. See the Technical Evaluation and Preliminary Determination for a detailed discussion of the revisions.

*I HEREBY CERTIFY that the air pollution control 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, geological, and meteorological features).*



Jeffery F. Koerner, P.E.  
Registration Number: 49441

10-19-04

(Date)

**P.E. CERTIFICATION STATEMENT**

**PERMITTEE**

Florida Gas Transmission Company  
1400 Smith Street  
Houston, TX 77002

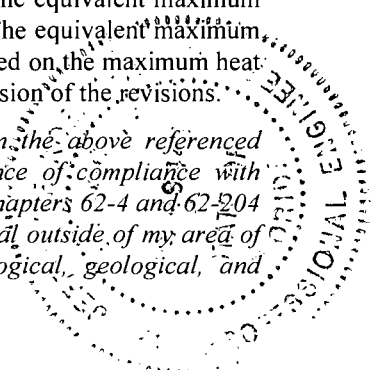
Draft Air Permit No. 0950190-006-AC  
Compressor Station 18, Engine 1806  
Revised Air Construction Permit  
Orange County, Florida

**PROJECT DESCRIPTION**

The applicant proposes several revisions to the original air construction permit for Engine 1806. As installed, the gas turbine fires slightly more natural gas to produce the required power output. The applicant requests approximately an 8% increase in the maximum heat input rate. Also, Engine 1806 is a light-industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements. Finally, EPA recently amended the federal monitoring requirements for fuel nitrogen and fuel sulfur in Subpart GG of 40 CFR for gas turbines. The applicant requests a permit revision to be consistent with the July 2004 amendments for fuel monitoring.

The requested changes are reasonable and not expected to result in increased emissions. The equivalent maximum emission rates for CO, NOx, and VOC were not changed based on the initial test results. The equivalent maximum emission rates for SO2 and PM were increased slightly because these rates were directly based on the maximum heat input rate. See the Technical Evaluation and Preliminary Determination for a detailed discussion of the revisions.

*I HEREBY CERTIFY that the air pollution control 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, geological, and meteorological features).*



*Jeffery F. Koerner*

Jeffery F. Koerner, P.E.  
Registration Number: 49441

*10-19-04*

(Date)



# Department of Environmental Protection

Jeb Bush  
Governor

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

Colleen M. Castille  
Secretary

October 29, 2004

Mr. Richard Craig, V.P. of Southeastern Operations  
Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

Re: Air Construction Permit No. 0950190-006-AC  
Florida Gas Transmission Company, Compressor Station 18  
Revision to Increase Heat Input for Engine 1806

Dear Mr. Craig:

On September 10, 2004, you submitted an application to revise the original air construction permit to increase the maximum heat input rate for Engine 1806. You have also requested revisions to include notification/testing requirements for "functionally equivalent" component replacements and to incorporate the amended Subpart GG fuel monitoring requirements. The affected units are installed at existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida. Enclosed are the following documents: "Technical Evaluation and Preliminary Determination", "Draft Permit", "Written Notice of Intent to Issue Air Permit", and "Public Notice of Intent to Issue Air Permit".

The "Technical Evaluation and Preliminary Determination" summarizes the Permitting Authority's technical review of the application and provides the rationale for making the preliminary determination to issue a Draft Permit. The proposed "Draft Permit" includes the specific conditions that regulate the emissions units covered by the proposed project. The "Written Notice of Intent to Issue Air Permit" provides important information regarding: the Permitting Authority's intent to issue an air permit for the proposed project; the requirements for publishing a Public Notice of the Permitting Authority's intent to issue an air permit; the procedures for submitting comments on the Draft Permit; the process for filing a petition for an administrative hearing; and the availability of mediation. The "Public Notice of Intent to Issue Air Permit" is the actual notice that you must have published in the legal advertisement section of a newspaper of general circulation in the area affected by this project.

If you have any questions, please contact the Project Engineer, Jeff Koerner, at 850/921-9536.

Sincerely,

A handwritten signature in cursive script, reading "Trina Vielhauer".

Trina Vielhauer, Chief  
Bureau of Air Regulation

Enclosures

"More Protection, Less Process"

Printed on recycled paper.

**TECHNICAL EVALUATION  
&  
PRELIMINARY DETERMINATION**

**PROJECT**

Draft Permit No. 0950190-006-AC  
(Revision of Original Air Permit No. 0950190-004-AC)  
Increased Heat Input Rate for Engine 1806

**COUNTY**

Orange County

**APPLICANT**

Florida Gas Transmission Company  
Existing Compressor Station 18  
ARMS Facility ID No. 0950190

**PERMITTING  
AUTHORITY**

Florida Department of Environmental Protection  
Division of Air Resource Management  
Bureau of Air Regulation  
Air Permitting South Program



October 19, 2004

*{Filename: 0950190-006-AC - TE PD}*

## 1. APPLICATION INFORMATION

### Facility Description

The Florida Gas Transmission Company operates existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to a National Ambient Air Quality Standard (NAAQS). The Standard Industrial Classification for "Natural Gas Transmission" is SIC No. 4922. Compressor Station 18 consists of: three 2000 bhp engines that were installed in 1962; a 2000 bhp engine that was installed in 1968; a 2700 bhp engine that installed in 1991 (PSD); and a 7200 bhp gas turbine installed in 2003. The primary regulatory categories are:

Title III: The facility is a major source of hazardous air pollutants (HAP).

Title IV: The facility has no units subject to the acid rain provisions of the Clean Air Act.

Title V: The facility is a Title V major source of air pollution (Chapter 213, F.A.C.).

PSD: The facility is a PSD-major source of air pollution (Rule 62-212.400, F.A.C.).

NSPS: The gas turbine is subject to the New Source Performance Standards in Subpart GG of 40 CFR 60.

### Project Description

Engine 1806 was constructed under Air Permit No. 0950190-004-AC as a 7200 bhp gas turbine to be used as a natural gas pipeline compressor engine. The applicant requests the following changes to the original permit.

- Based on performance testing, the installed gas turbine fires more natural gas to produce the required power output. The applicant requests that the permitted maximum heat input rate be increased from 63 to 68 MMBtu per hour.
- In July of 2004, EPA amended the federal fuel monitoring requirements in Subpart GG of 40 CFR for gas turbines. The applicant requests a permit revision to be consistent with the amended fuel monitoring requirements.
- Engine 1806 is a light-industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements.

## 2. APPLICABLE REGULATIONS

### State Regulations

This project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). This project is subject to the applicable rules and regulations defined in the following Chapters of the Florida Administrative Code.

<u>Chapter</u>	<u>Description</u>
62-4	Permitting Requirements
62-204	Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference
62-210	Required Permits, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms
62-212	Preconstruction Review, PSD Requirements, and BACT Determinations
62-213	Operation Permits for Major Sources of Air Pollution
62-296	Emission Limiting Standards
62-297	Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures

## **Federal Regulations**

This project is also subject to the applicable federal provisions regarding air quality as established by the EPA in the following sections of the Code of Federal Regulations (CFR).

<u>Title 40, CFR</u>	<u>Description</u>
Part 60	Subpart A - General Provisions for NSPS Sources NSPS Subpart GG - Stationary Gas Turbines Applicable Appendices

### **3. INCREASE HEAT INPUT FOR ENGINE 1806**

Engine 1806 is a Cooper-Rolls Royce Model KC7-DLE gas turbine nominally rated at 7200 bhp (ISO). The conditions for an "ISO" standard day are 59° F, 60% relative humidity, and 14.7 psi pressure. The unit is permitted for a capacity of 63 MMBtu per hour at a compressor inlet temperature of 59° F when producing approximately 7200 bhp of output. As installed, the performance curves indicate a maximum heat input rate of about 68 MMBtu per hour at a compressor inlet temperature of 59° F when producing approximately 6600 bhp. Apparently, the unit is not as efficient as initially believed. However, the initial compliance test results also show that the gas turbine is well below the permitted emission rates.

Increasing the maximum heat input rate from 63 to 68 MMBtu per hour simply recognizes the capabilities of the installed unit. FGTC continues to work with Rolls Royce to improve the performance. The permit standards will not change as a result of this revision. Only "equivalent maximum emissions" will increase slightly because these rates were directly based on the maximum heat input rate. The minimal change in heat input will not result in significant actual emissions increases. The Department will approve this request.

### **4. REVISED FUEL MONITORING REQUIREMENTS**

In July of 2004, EPA amended the fuel monitoring requirements for gas turbines subject to NSPS Subpart GG, which included the following important changes:

- The amended requirements recognize that pipeline natural gas contains negligible amounts of nitrogen. Therefore, if the permittee elects to not use an allowance for fuel bound nitrogen, then there is no requirement for monitoring the nitrogen content of natural gas. This means that the permittee must use an "F-value" of "zero" when calculating the allowable NSPS Subpart GG NO<sub>x</sub> standard for the gas turbine. This change basically incorporates similar case-by-case determinations made over the years.
- The amended requirements also recognize that pipeline natural gas contains negligible amounts of sulfur. Therefore, if the permittee demonstrates that the maximum sulfur content of the pipeline natural gas is no more than 20 grains per 100 cubic feet of gas as specified in the current tariff sheet, then there is no requirement for monitoring the sulfur content of natural gas.
- Engine 1806 "dry" lean premix combustors and not wet injection to control NO<sub>x</sub> emissions. So, the continuous monitoring requirements for the water-to-fuel ratio are not appropriate. The Subpart GG NO<sub>x</sub> standard is 190 ppmvd @ 15% oxygen. This is nearly eight times the NO<sub>x</sub> standard of 25 ppmvd @ 15% oxygen specified in the permit. It would be nearly impossible for the lean premix gas turbine to exceed the NSPS Subpart GG NO<sub>x</sub> standard. The current permit does not require any continuous demonstration that the gas turbine is complying with the NSPS Subpart GG NO<sub>x</sub> standard. As stated in the preamble to the July 2004 amendments, the changes do not impose any additional monitoring for existing units.

FGTC agrees to use no allowance for fuel bound nitrogen when determining compliance with the NSPS Subpart GG NO<sub>x</sub> standard and has provided the current tariff sheet showing a maximum sulfur content of only 10 grains per 100 cubic feet of pipeline natural gas. The permit includes these and conditions. Therefore, monitoring for fuel nitrogen and sulfur is not required for the pipeline natural gas. The Department will remove the custom fuel monitoring plan and revise the permit to reflect these changes. No changes were made with regard to continuous monitoring for purposes of reporting excess NO<sub>x</sub> emissions; however, the permitting note was updated.

**5. REQUIREMENTS FOR FUNCTIONALLY EQUIVALENT COMPONENT REPLACEMENTS**

**Executive Summary**

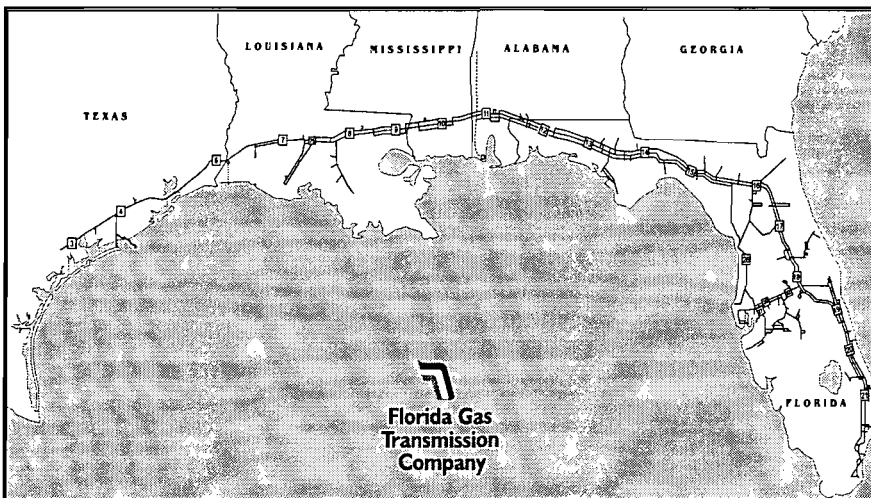
Florida Gas Transmission Company (FGTC) operates several compressor stations serving a large natural gas pipeline that runs throughout Florida. The pipeline supports a wide variety of residential, commercial, industrial, and utility customers that rely on natural gas as a clean fuel. FGTC considers the months of April through October to be the critical “run season” for the gas pipeline. This is the period of highest expected natural gas use in Florida with compressor stations operating at higher rates than at other times of the year. During the run season, it is critical that repairs and maintenance be performed as quickly as possible to maintain natural gas availability throughout the system.

Many compressor stations use light industrial gas turbines to drive compressors that maintain pipeline pressure and flow. These types of gas turbines require relatively frequent inspections and maintenance to keep units in proper working order. Such maintenance activities are necessary to prevent the catastrophic failures, which would result in costly repairs and reduce reliability of the natural gas supply. The natural gas pipeline industry has determined that it is more efficient to perform certain repairs and maintenance activities at a regional maintenance facility as opposed to performing them on site. FGTC requests the Department’s concurrence that pulling the gas generator component of Engine 1806, sending it to a regional maintenance facility for repair, and installing a like-kind gas generator, is not a modification and does not require a preconstruction permit.

The Bureau of Air Regulation concludes that replacement of the gas generator/power turbine component (or smaller components) for this light industrial gas turbine compressor engine is standard industry practice for the natural gas pipeline industry. As such, the replacement is not a modification and does not require a new air construction permit or modification of an existing air construction permit. This would also be true for comparable replacements for other gas turbines serving as compressor engines and having similar functions, characteristics, and sizes (< 16,000 bhp). This report presents background information for compressor station gas turbines, regulatory requirements, emissions impacts, maintenance practices, interpretations by other states, and the Bureau of Air Regulation’s rationale for this conclusion.

**Background**

Engine 1806 is a permitted gas turbine compressor engine rated at approximately 7200 bhp. It is installed at Station 18, which is located Orlando, Orange County, Florida. In summary, FGTC requests the Department’s concurrence that replacement of the gas generator component is standard practice for the gas pipeline industry and does not require a preconstruction permit. FGTC will provide notification of such replacements and compliance test the replacement unit with 60 days of first fire.



Florida Compressor Stations

No.	City	County
12	Milton	Santa Rosa
13	Caryville	Washington
14	Quincy	Gadsden
15	Perry	Taylor
16	Brooker	Bradford
17	Silver Springs	Marion
18	Orlando	Orange
19	Melbourne	Brevard
20	Ft. Pierce	St. Lucie
21	West Palm Bch	Palm Beach
24	Trenton	Gilchrist
26	Lecanto	Citrus
27	Thonotosassa	Hillsborough
30	Plant City	Hillsborough
31	Kissimmee	Osceola

**Figure 1. Existing Natural Gas Pipeline System**



FGTC operates and maintains a natural gas pipeline that has been in existence since 1958. As shown in Figure 1, the pipeline originates in Texas and passes through portions of Louisiana, Mississippi, Alabama, Georgia, and Florida. Compressor stations form an integral part of the pipeline system, providing the necessary pressure and flow to reliably deliver natural gas to residential, commercial, industrial, and electric utility consumers. There are fifteen existing compressor stations in Florida.

Each compressor station consists of a variety of equipment such as gas compressors, compressor engines, emergency generators, lube oil tanks, used oil tanks, and blow-down stacks. The main sources of air pollution are the compressor engines, which are either reciprocating internal combustion engines or light industrial aero-derivative gas turbines. These units provide the motive power necessary to drive the gas compressors, which boost pipeline pressure and allow flow throughout the system. All of the compressor engines fire natural gas as the exclusive fuel because of its ready availability along the pipeline. Reciprocating internal combustion engines vary in size from about 2000 to 4600 bhp output. Light industrial gas turbines provide much higher outputs ranging from about 1000 to 16,000 bhp output.

### Gas Turbine Components

In recent years, FGTC began depending on light industrial aero-derivative gas turbines (< 16,000 bhp) for its compressor engines rather than reciprocating internal combustion engines. The new gas turbines are more powerful, more efficient, and emit less than one-tenth of the NOx emissions based on a comparable heat input rate. Each gas turbine is delivered to the station as a skid-mounted package consisting of the following general components: gas generator, accessory drive system, air inlet and filtration system, fuel delivery system, cooling system, lubrication system, power turbine, power shaft, control system, starting system, and exhaust system with stack. See Figure 2.

Gas turbines are designed to strict tolerances that must be maintained to ensure efficient operation and to prevent catastrophic failure of the components. Performing maintenance on many of these critical components is difficult and costly to perform in the field. To facilitate maintenance and repair, manufacturers of light industrial aero-derivative gas turbines typically incorporate a modular design to allow pulling and replacing component parts instead of performing maintenance in the field. Due to their relatively small size, replacement components can be quickly delivered and installed to minimize downtime. The “replaced component” is shipped back to a regional maintenance facility where it is overhauled

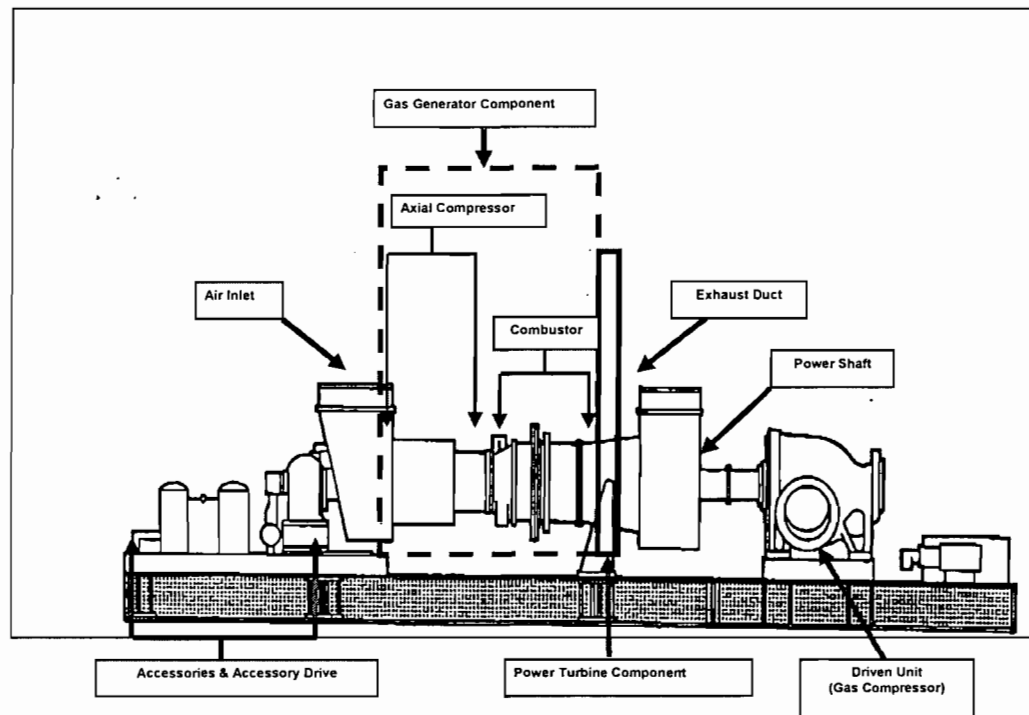


Figure 2. Gas Turbine Compressor Engine and Components

## Technical Evaluation and Preliminary Determination

and returned to a pool of similar gas turbine components to be used as a replacement in the future. For this reason, gas turbine manufacturers also provide extensive maintenance contracts with “pull and replace” provisions for “like-kind” components. Typical operating levels between major maintenance inspections and overhauls can be between 20,000 and 40,000 engine hours or less. This would be in the range of two to six years for a scheduled major overhaul required by the manufacturer.

### Emissions from Gas Turbine Compressor Engines

Engine 1806 is a Royce Model No. 501-KC7 DLE gas turbine serving as a compressor engine at existing Station 18. Firing natural gas as the exclusive fuel, this unit has a nominal output capacity of approximately 7200 bhp at ISO conditions. It also incorporates a version of lean premix combustion technology, which results in low emissions of carbon monoxide (CO), nitrogen oxide (NO<sub>x</sub>), and volatile organic compounds (VOC). As natural gas contains little ash or sulfur, this unit also emits very low levels of particulate matter (PM/PM<sub>10</sub>) and sulfur dioxide (SO<sub>2</sub>). Table 1 shows the permitted potential emissions from Engine 1806.

Table 1. Potential Emissions from Engine 1806

Pollutant	Emission Factor Reference	Emission Factors		Emissions	
		Factor	lb/MMBtu	lb/hour	TPY
CO	Vendor	50 ppmvd @ 15% O <sub>2</sub>	0.101	6.9	30
NO <sub>x</sub>	Vendor	25 ppmvd @ 15% O <sub>2</sub>	0.082	5.7	25
PM/PM <sub>10</sub>	AP-42, Table 3.1-2A	0.0066 lb/MMBtu	0.007	0.5	2
SO <sub>2</sub>	FERC	10 grains sulfur/100 scf	0.028	1.9	8
VOC	Vendor	0.2 lb/hour	0.003	0.2	1

#### Notes:

- Emission rates are based on a maximum heat input rate of 68 MMBtu/hour and a compressor inlet temperature of 59° F.
- Annual emissions are based on year-round operation (8760 hours per year) at these rates.
- “FERC” is the Federal Energy Regulatory Commission. FERC establishes the maximum sulfur content for pipeline gas.

### Review

The Bureau of Air Regulation uses numerous criteria to determine whether or not repair, replacement, or maintenance activities are considered routine. Many of these items are interrelated and no one factor determines whether a project is routine or not. Instead, these factors are reviewed in light of the specific case and available information to reach a conclusion for the project as a whole. The Department reviewed the following key areas with regard to the replacement of a gas generator/power turbine component in a light industrial aero-derivative gas turbine compressor engine serving a natural gas pipeline. It is also worth noting that if the industry were performing these maintenance and repair activities in the field at each site, the Department does not believe a construction permit would be necessary.

#### Nature

- Are major components of a facility are being modified or replaced? Specifically, are the units of considerable size, function, or importance to the operation of the facility, considering the type of industry involved?

Gas turbine compressor engines are a major part of a natural gas compressor station and serve to fulfill the primary function. In terms of the entire natural gas pipeline, a single gas turbine compressor engine might be considered rather small. Currently, the largest gas turbine compressor engine is 15,700 bhp, which is equivalent to approximately 12 MW. The gas generator is the major component of a gas turbine compressor engine.

- Does the change require pre-approval of a state commission, in the case of utilities?

Pipelines and compressor station projects must get prior approval based on need from the Federal Energy Regulatory Commission (FERC). Once the original site and capacity is approved, specified equipment may be replaced as necessary without additional approval from FERC. With regard to the state, gas turbines are primarily approved for construction through the Department's air permitting process. Any changes that would increase or decrease capacity would require additional air construction permits and would likely require prior approval from FERC.

3. Does the source itself characterize the change as "non-routine" in any of its own documents?

FGTC contends that it is *not* typical to perform most repairs for a gas generator *on site*. For the gas pipeline industry, it is more common to remove the component and transport it to a central maintenance facility for repair. Because repair can take several weeks or months, a replacement gas generator is usually installed to minimize downtime during periods of high demand. FGTC provided a discussion of maintenance practices from Solar Gas Turbines, a company that manufactures many of the existing units. This document describes the replacement of a gas generator component as a standard industry maintenance practice for its aero-derivative, light industrial gas turbines. Such units are designed to strict tolerances that must be maintained to ensure efficient operation and prevent catastrophic failure of the components. Performing maintenance on many of these critical components is difficult and costly to perform on site. Therefore, light industrial gas turbines incorporate a modular design to facilitate prompt repair and return to service.

Based on the modular design, equipment manufacturers are able to offer comprehensive maintenance contracts to "pull and replace" components and eliminate critical downtime. The faulty equipment is replaced with a like-kind component, transported to a regional maintenance facility, repaired, and returned to a pool of available replacement components. Downtime for the gas turbine compressor engine may be just a few days even for the replacement of the gas generator component. Solar Gas Turbines indicates that more than 85% of the gas generators and gas generator/power turbine sets leaving their central maintenance facility are considered "replacement components".

4. Can the change be performed during full functioning of the facility or while it is in full working order?

Gas generator repairs cannot generally be performed while the unit is in operation. As discussed previously, the exacting tolerances make on site repair difficult and costly. Replacements can usually be installed within a few days.

5. Are the materials, equipment and resources necessary to carry out the planned activity already on site?

No, replacement components are generally warehoused with the original equipment vendor. Under a maintenance contract, a replacement component (even an entire gas generator) can be delivered within a day or so. The malfunctioning component is then pulled and returned to the equipment vendor for repair. A replacement component is installed so that the compressor engine can return to service. If the gas turbine is still under the initial warranty, a repaired component is occasionally returned back to the original compressor station and re-installed as the original equipment. This is based on specific contractual requirements and may be at the discretion of the equipment vendor.

### Extent

1. Will an entire emissions unit be replaced?

The entire gas turbine compressor engine is not being replaced, but the gas generator is a major component of the gas turbine compressor engine. However, the modular design of the light industrial, aero-derivative gas turbine allows the rapid replacement of even this large component.

2. Will the change take a significant time to perform?

Generally, replacement of a gas generator component can be completed in just a few days. This is the main reason for development of the "pull and replace" policy for handling maintenance and repair issues.

## Technical Evaluation and Preliminary Determination

---

3. Will the collection of activities, taken as a whole, constitute a “non-routine effort”, notwithstanding that individual elements could be routine?

For a light industrial aero-derivative gas turbine, manufacturers normally recommend a major overhaul every two to six years depending on the model and actual operating hours. An overhaul generally involves complete refurbishment of the gas generator to restore it to the original design and operating specifications. For the gas pipeline industry, such overhauls are typically performed at a regional maintenance facility. Alternatively, it is possible that the smaller individual components could be replaced during this period, which would eventually result in near replacement of the gas generator.

EPA’s background document for NSPS Subpart GG (EPA-450/2-77-017a) notes that the terms “overhaul” and “ultimate life” are not defined equally by all gas turbine manufacturers. This makes it difficult to distinguish between modifications and routine maintenance practices. It mentions that non-wearing parts (rotor discs, casings, housing, bearing supports, rotor shafts, etc.) are designed for an ultimate life of about 30 years. However, most manufacturers require “overhauls” after about 20,000 to 40,000 hours of operation. Because an overhaul typically returns a unit to “new” condition, the “ultimate life” of the gas turbine may be indefinite.

The EPA document specifically lists several changes that would *not* be modifications: relocation or transfer of ownership; changes in types or grades of fuel if originally designed for its use; increases in operating hours; variations in operating loads within the original engine design specification; and routine repairs, like-kind replacements, and maintenance (including the repair or replacement of stator blades, turbine nozzles, turbine buckets, fuel nozzles, combustion chambers, seals, and shaft packings). Note that the list of gas turbine components represents parts of the gas generator. The EPA document also lists the following changes that could be modifications resulting in increased emissions: replacements with a different design that allows the firing of alternate fuels; replacements with a different design that allows increased power output; and operating the unit at higher sustained outputs than the original design. The purpose of listing activities that would or would not be a “modification” that would trigger the NSPS Subpart GG requirements was to show that the new regulation would have only slight impacts on existing gas turbines based on existing practices.

4. Does the change require the addition of parts to existing equipment?

No, gas generator components are replaced with functionally equivalent “like-kind” components. Occasionally, manufacturers improve replacement parts to resolve continuing maintenance problems. However, such improvements would not increase the maximum heat input rate or output capacity. Capacity increases require new air permits and would likely require a new FERC approval.

### Purpose

1. Is the purpose of the effort to extend the useful life of the unit? Does the owner propose to replace a unit at the end of its useful life?

The primary purpose of component replacement is to facilitate prompt repair in order to return the gas turbine compressor engine to its original design and operating specifications. FGTC believes that component replacement does not increase the operating life of the gas turbine beyond that of a unit that was “properly maintained” in the field. It is noted that such replacements may lead to an “indefinite” life for the gas turbine.

2. Will the change keep the unit operating in its present condition or will it allow enhanced operation? Will the change permit increased capacity, operating rate, utilization, or fuel adaptability?

Replacement of the gas generator component with a functionally equivalent “like-kind” component will allow the compressor engine to continue operating as it was originally designed. The replacement is not intended to increase the capacity, operating rate, or utilization of the compressor engine. These units typically operate a significant portion of each calendar year (> 40%) depending entirely on consumer demands for natural gas. For this reason, gas turbine compressor engines are typically permitted for year round operation (8760 hours per year). Because compressor engines serve a natural gas pipeline, natural gas is the exclusive fuel and fuel-

switching is not an issue.

**Frequency:** Is the change performed frequently in a typical unit’s life?

Yes, it is possible that a gas generator replacement will be performed many times over the life of a gas turbine compressor engine. Again, equipment manufacturers purposely incorporate modular designs into their light industrial, aero-derivative gas turbines to allow for quick component replacements rather than on-site maintenance. Such designs lead to long-term maintenance contracts that include regularly scheduled replacements. Although the “changes” may occur relatively frequently, these practices are intended to keep the unit operating as originally designed.

**Cost**

1. Will the change be costly, both in absolute terms and relative to the cost of replacing the unit?

Replacement of a gas generator is likely the most expensive single component replacement. However, the true cost of such a replacement is difficult to estimate accurately. First, replacements are typically performed in accordance with current contractual requirements, which may cover an entire fleet of gas turbines. So, replacement costs may be spread over a large number of similar units. Second, when a replacement gas generator is installed, the original gas generator retains some value. Typically, the “replaced” gas generator is shipped to a regional maintenance facility for repair. After an overhaul and performance testing, the “replaced” unit returns to a fleet of similar equipment, which will be used as “replacement” components. As summarized in the following table, FGTC provided the following information as an estimate of the component costs for a typical light industrial gas turbine.

Table 2. Estimated Component Costs for a New Light Industrial Gas Turbine (Solar Mars 110S)

<i>Gas Generator</i> .....	\$2,400,000
(Air Intake Assembly, Combustion Assembly, Compressor Assembly and Gas Producer Turbine Assembly)	
<i>Power Turbine</i> .....	\$600,000
(Power Turbine Rotor Assembly, Turbine Exhaust Diffuser, Control System and Inlet Filter and Silencer)	
<i>Ancillary Components</i> .....	\$3,000,000
(Exhaust Collector and Silencer, Control and Electrical System, Starter Assembly, Accessory Drive, Fuel Control System, Lube Oil Coolers, and Lube Oil Skid)	
<i>Miscellaneous Costs</i> .....	\$3,000,000
Engineering and Design, Construction Management, Foundations and Supports and Installation)	
<i>Total Capital Cost</i> .....	\$9,000,000

The capital costs of the gas generator plus power turbine (\$3 million) represent approximately 33% of the total capital cost of a new gas turbine (\$9 million). The estimated “replacement cost” for a gas generator plus power turbine from the replacement pool is approximately \$300,000. This represents only 10% of the estimated costs for brand new components and less than 5% of the total estimated cost of a new gas turbine compressor engine.

2. Is a significant amount of the cost of the change included in the source’s capital expenses, or will the change be paid for out of the operating budget? Are the costs reasonably reflective of the costs originally projected during the unit’s design phase as necessary to maintain day-to-day operation?

Any costs related to component replacements that are covered under the original warranty would be charged to the operating budget. Any components sent off site for repair and returned to the original site are charged to the operating budget. Any replacement costs incurred for the newest Nuovo-Pignone gas turbines (15,700 bhp) are charged to the operating budget. Replacement costs for out-of-warranty units are charged to the

## Technical Evaluation and Preliminary Determination

---

capital budget. As previously discussed, these replacement costs are well known in the design phase and planned for accordingly.

### How do other states handle component replacements?

The pipeline originates in Texas and passes through portions of Louisiana, Mississippi, Alabama, and Florida. Alabama considers like-kind component replacements to be “routine”, as do several other states that have natural gas pipelines including Georgia, Minnesota, Montana, North Dakota, and South Dakota. Louisiana requires a “minor modification”, which involves a \$140 permit fee and a 4-page application. A public notice is not required and permit modifications are typically issued within 5-6 days of submittal. For units with NOx emissions less than 25 TPY, Texas allows the exchange of gas turbines under a “Permit by Rule” with no notice requirements. It appears that all of the pipeline compressor engines in Texas are in this category.

### **Conclusion**

The primary purpose of a “like-kind” gas generator component replacement is to facilitate prompt repair in order to return the gas turbine compressor engine to its original design and operating specifications. Manufacturers purposely incorporate a modular design into light industrial gas turbines (< 16,000 bhp) to simplify component replacements and allow the gas turbine compressor engine to quickly return to service. After review of the available information, the Bureau of Air Regulation concludes that replacement of the gas generator component of gas turbine compressor Engine 1806 is a routine maintenance practice for the natural gas pipeline industry.

Rule 62-210.300(1)(a), F.A.C. states that, “Unless exempt from permitting pursuant to Rule 62-210.300(3)(a) or (b), F.A.C., or Rule 62-4.040, F.A.C., an air construction permit shall be obtained by the owner or operator of any proposed new or modified facility or emissions unit prior to the beginning of construction or modification, in accordance with all applicable provisions of this chapter, Chapter 62-212, F.A.C., and Chapter 62-4, F.A.C.” Rule 62-210.200(169), F.A.C. defines a *modification* as, “Any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Act, including any not previously emitted, from any emissions unit or facility.” However, it also states that, “A physical change or change in the method of operation shall not include ... routine maintenance, repair, or replacement of component parts of an emissions unit ...”

By definition, it is not a modification to perform routine repairs, replacements, and maintenance on permitted units. Therefore, replacement of the gas generator does not require a new air construction permit or a modification to the initial air construction permit. Because the gas generator is the largest component having the greatest impact on emissions, the conclusion would be the same for smaller individual components. This would also be true for comparable replacements on other gas turbines serving as compressor engines at this station and having similar functions, characteristics, and sizes (< 16,000 bhp). The Bureau of Air Regulation’s conclusion is specific to light industrial aero-derivative gas turbine compressor engines and shall not be used for any other sizes of gas turbines, uses of gas turbines, other types of emissions units or for any other industries.

Rule 62-4.160(2) and (6), F.A.C. requires an owner to provide information regarding changes made to permitted equipment. For cases related to repair, Rule 62-4.130, F.A.C. requires this notification to be made promptly once the equipment has failed, or is identified as subject to failure, and is scheduled for replacement. Rule 62-4.160(15), F.A.C. requires a permittee to provide information that shows compliance with the terms of its permit. Rule 62-297.310(7)(b), F.A.C. gives the Department the authority to require tests following maintenance to show that the repaired unit remains in compliance with all established emission limits. Such tests will also verify that there are no deviations from the permit conditions or emission limits as a result of the replacement. Based on these regulations, the following process is recommended to clarify notification and testing requirements for gas generator component replacements.

“For the replacement of gas turbine components to facilitate prompt repair and return the unit to its original specifications, the permittee shall comply with the following notification and testing requirements.

1. Components shall only be replaced with functionally equivalent “like-kind” equipment. Replacement

## Technical Evaluation and Preliminary Determination

---

components may consist of improved or newer equipment, but such components shall not change operation or increase the capacity (heat input rate or power output) of the gas turbine. Replacement components that affect emissions shall be designed to achieve, and shall achieve, the emissions standards specified in all valid air permits or better. After a component replacement, the gas turbine remains subject to the standards of all valid air permits. [Rule 62-210.200(169), F.A.C.]

2. For gas generator replacements, the permittee shall notify the Compliance Authority within seven days of beginning such work. Within seven days of first fire on a replacement gas generator, the permittee shall submit the following information to the Compliance Authority: date of first fire and certification from the vendor that the replacement gas generator is a functionally equivalent “like-kind” component. The vendor certification shall also identify the make, model number, maximum heat input rate (MMBtu/hour), power output (bhp) at ISO conditions, and that the permitted emission rates are achievable with the replacement component. This notification may be made by letter, fax, or email. A copy of this information shall be kept on site at the compressor station. Within 60 days of restarting the unit after a gas generator replacement, the permittee shall conduct stack tests to demonstrate compliance with the applicable emission standards. The permittee shall notify the Compliance Authority in writing at least 15 days prior to conducting these tests. The permittee shall comply with all permit requirements for test notification, test methods, test procedures, and reporting. [Rules 62-4.130, 62-4.160(2), (6), and (15) and 62-297.310(7)(b), F.A.C.]
3. After investigation and for good cause, the Department may require special compliance tests pursuant to Rule 62-297.310(7)(b), F.A.C.”

The above provisions ensure that the replacements are “like-kind”, that the repaired emissions unit complies with the emissions standards, and that the appropriate Compliance Authorities are kept informed.

### **Does this impact NSPS Subpart GG requirements?**

This gas turbine compressor engine is currently subject to NSPS Subpart GG, which regulates emissions of nitrogen oxides and sulfur dioxide from stationary gas turbines. However, this unit is permitted at much lower levels and readily complies with the NSPS requirements. In fact, FGTC has few (if any) pre-NSPS units in operation along their natural gas pipeline. Even so, the replacement gas generator component is intended to return the unit to original design and operating specifications and will not increase the unit capacity. Consequently, there will be no increase in hourly emissions that could trigger new Subpart GG requirements. In addition, available information suggests that the cost of replacing the entire gas generator/power turbine set is much less than the 50% replacement cost criteria that would trigger “reconstruction” under the NSPS requirements. Therefore, such replacements do not affect the applicability for, or compliance with, the NSPS Subpart GG requirements.

### **Does this impact NESHAP Subpart YYYYY requirements?**

About half of FGTC’s existing compressor stations are major sources of hazardous air pollutants. According to the recently promulgated NESHAP, new gas turbines constructed after January 14, 2003 at these major facilities are subject to the Subpart YYYYY requirements. Several existing gas turbines constructed before January 14, 2003 at these major facilities are considered “affected sources”, but are not subject to any specific requirements. Such existing units could become subject to the same requirements for new units if “reconstructed”. However, Subpart YYYYY also uses the 50% replacement cost criteria to define “reconstruction”. Again, it is unlikely that any routine component replacements would trigger “reconstruction”. Therefore, such replacements do not affect the applicability for, or compliance with, the NESHAP Subpart YYYYY requirements.

### **Does this impact PSD applicability?**

About half of FGTC’s existing compressor stations are PSD-major facilities. PSD preconstruction review could possibly apply to existing units undergoing a modification. However, replacement of the gas generator component of a light industrial gas turbine compressor engine is considered a routine maintenance practice for the

gas pipeline industry. By definition, it is not a modification to perform routine repairs, replacements, and maintenance on permitted units. Therefore, such replacement activities are not subject to PSD review.

**Other Considerations**

Over the last several years, the Department has issued many permits authorizing the construction and operation of new large frame (~ 40 to 170 MW) gas turbines at electrical generating plants. The Department does not believe that replacing the gas generator component for these large frame units is routine maintenance. However, the determination of Best Available Control Technology for many of the large frame gas turbine projects relied on clean burning natural gas as the primary fuel to achieve the lowest levels of emissions. The backup fuel for these units is distillate oil, which results in far more pollution. Therefore, quick component replacements for FGTC's small compressor engines will help ensure that a reliable supply of natural gas is available for use at large power plants.

**5. PRELIMINARY DETERMINATION**

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the specific conditions of the draft permit. Jeff Koerner is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.



## WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

---

*In the Matter of an  
Application for Air Permit by:*

Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

*Authorized Representative:*

Mr. Richard Craig, V.P. of Southeastern Operations

Draft Air Permit No. 0950190-006-AC  
Compressor Station 18  
Increased Heat Input for Engine 1806  
Orange County, Florida

**Facility Location:** Florida Gas Transmission Company operates existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida.

**Project:** The applicant proposes to revise the original air construction permit for Engine 1806 to increase the maximum heat input rate, include notification/testing requirements for functionally equivalent component replacements, and to make the fuel monitoring requirements consistent with the recent amendments to NSPS Subpart GG for gas turbines. Details of the project are provided in the in the application and the enclosed "Technical Evaluation and Preliminary Determination".

**Permitting Authority:** Applications for air construction permits are subject to review in accordance with 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 proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Permitting Authority's physical address is 111 South Magnolia Drive, Tallahassee, Florida. The Permitting Authority's mailing address is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

**Project File:** A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address or phone number listed above. A copy of the complete project file is also available at the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.

**Notice of Intent to Issue Permit:** The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

**Public Notice:** Pursuant to Section 403.815, F.S. and Rules 62-110.106 and 62-210.350, F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue Air Permit" (Public Notice). The Public Notice shall be published one time only as soon as possible in the legal advertisement section of a newspaper of general circulation in the area affected by this project. The newspaper used must meet 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 Permitting Authority at above address or phone number. Pursuant to Rule 62-110.106(5), F.A.C., the applicant shall provide proof of publication to the Permitting Authority at the above address within seven (7) days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rule 62-110.106(11), F.A.C.

**Comments:** The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of fourteen (14) days from the date of publication of the Public Notice. Written comments must be provided to the Permitting Authority at the above address. Any written comments filed will be made available for public

## WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

---

inspection. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice.

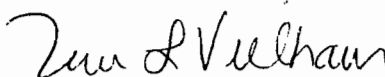
**Petitions:** A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's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

A petition that disputes the material facts on which the Permitting Authority'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 each 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 state; (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 the 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 Permitting Authority'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, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Written Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

**Mediation:** Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.



---

Trina Vielhauer, Chief  
Bureau of Air Regulation

**WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT**

---

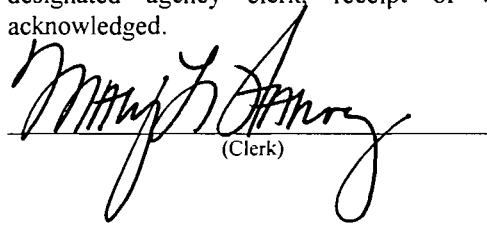
**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this "Written Notice of Intent to Issue Air Permit" package (including the Public Notice, the 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 11/3/04 to the persons listed below.

Mr. Richard Craig, FGTC\*  
Mr. James Fleak, FGTC  
Mr. David H. Parham, P.E., FGTC  
Mr. V. Duane Pierce, AQMcS  
Mr. Len Kozlov, CD  
Ms. Marie Driscoll, OCEPD

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

  
\_\_\_\_\_  
(Clerk)

11/3/04  
(Date)

## PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Florida Department of Environmental Protection  
Draft Air Permit No. 0950190-006-AC  
Florida Gas Transmission Company – Existing Compressor Station 18  
Orange County, Florida

**Applicant:** The applicant for this project is the Florida Gas Transmission Company. The applicant's mailing address is: P. O. Box 4657, Houston, TX 77101-4657. The applicant's authorized representative is Mr. Richard Craig, the V.P. of Southeastern Operations.

**Facility Location:** The Florida Gas Transmission Company operates existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida.

**Project:** The applicant proposes several revisions to the original air construction permit for Engine 1806. As installed, the gas turbine fires slightly more natural gas to produce the required power output. The applicant requests approximately an 8% increase in the maximum heat input rate. Also, Engine 1806 is a light-industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements. Finally, EPA recently amended the federal fuel monitoring requirements for nitrogen and sulfur in Subpart GG of 40 CFR 60 regulating gas turbines. The applicant requests a permit revision to be consistent with the amended fuel monitoring requirements.

**Permitting Authority:** Applications for air construction permits are subject to review in accordance with 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 proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination regarding this project. The Permitting Authority's physical address is 111 South Magnolia Drive, Tallahassee, Florida. The Permitting Authority's mailing address is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

**Project File:** A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address and phone number listed above. A copy of the complete project file is also available at the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.

**Notice of Intent to Issue Air Permit:** The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

**Comments:** The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of fourteen (14) days from the date of publication of this Public Notice. Written comments must be provided to the Permitting Authority at the above address. Any written comments filed will be made available for public inspection. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice.

**Petitions:** A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by any persons other than those entitled to written notice

**(Public Notice to be Published in the Newspaper)**

## PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

under Section 120.60(3), F.S. must be filed within fourteen (14) days of publication of this Public Notice or receipt of a written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority'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 rights will be affected by the agency determination; (c) A statement of how and when the 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 state; (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 the 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 Permitting Authority'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, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Public Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

**Mediation:** Mediation is not available for this proceeding.

# DRAFT PERMIT REVISION

## PERMITTEE:

Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

*Authorized Representative:*

Mr. Richard Craig, V.P. of Southeastern Operations

Orlando Compressor Station 18  
Air Permit No. 0950190-006-AC  
Facility ID No. 0950190  
SIC No. 4922  
Expires: July 1, 2005

## DESCRIPTION AND LOCATION

Existing Station 18 consists of the following six compressor engines.

ID	Emission Unit Description
001	Engine 1801 is a 2000 bhp reciprocating internal combustion engine installed in 1962.
002	Engine 1802 is a 2000 bhp reciprocating internal combustion engine installed in 1962.
003	Engine 1803 is a 2000 bhp reciprocating internal combustion engine installed in 1962.
004	Engine 1804 is a 2000 bhp reciprocating internal combustion engine installed in 1968.
005	Engine 1805 is a 2700 bhp reciprocating internal combustion engine installed in 1991.
006	Engine 1806 is a 7200 bhp (ISO) gas turbine installed in 2003.

This permit establishes requirements for Emissions Units 005 and 006 at existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida. It is a revision of original air construction Permit No. 0950190-004-AC. The UTM coordinates are Zone 17, 451.86 km East, and 3154.79 km North.

## STATEMENT OF BASIS

This air pollution 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.) and Title 40, Part 60 of the Code of Federal Regulations. The permittee is authorized to perform the work and make the proposed changes 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.

## CONTENTS

- Section 1. General Information
- Section 2. Administrative Requirements
- Section 3. Emissions Units Specific Conditions
- Section 4. Appendices

## SECTION 1. GENERAL INFORMATION

### PROJECT DESCRIPTION

Engine 1806 was installed under original air construction Permit No. 0950190-004-AC as a new 7200 bhp gas turbine to be used as a compressor engine at existing Compressor Station 18. That permit also included a revision of the particulate matter emissions standard for Engine 1805, an existing reciprocating internal combustion engine used as a compressor engine at Station 18. Air Permit No. 0950190-006-AC is issued as a revision of the original air construction permit to: authorize a nominal increase in the maximum heat input rate for Engine 1806; include notification and recordkeeping requirements for functionally equivalent component replacements on Engine 1806; and revise the fuel nitrogen and sulfur monitoring requirements to be consistent with recent amendments to NSPS Subpart GG for gas turbines.

### REGULATORY CLASSIFICATION

Title III: The facility is a major source of hazardous air pollutants (HAP).

Title IV: The facility has no units subject to the acid rain provisions of the Clean Air Act.

Title V: The facility is a Title V major source of air pollution (Chapter 213, F.A.C.).

PSD: The facility is a PSD-major source of air pollution (Rule 62-212.400, F.A.C.).

NSPS: The gas turbine is subject to the New Source Performance Standards in Subpart GG of 40 CFR 60.

### RELEVANT DOCUMENTS

The documents listed below are not a part of this permit; however, they are specifically related to this permitting action and are on file with the Department.

- Application No. 0950190-006-AC received on 09/10/04 and all related correspondence.
- Administrative correction to Air Permit No. 0950190-004-AC issued on 04/15/04.
- Extension to Air Permit No. 0950190-004-AC issued on 11/05/03.
- Air Permit No. 0950190-004-AC issued on 01/10/03, which authorized initial construction of Engine 1806.
- Air Permit No. PSD-FL-163 issued on 05/09/91, which authorized initial construction of Engine 1805.

## SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: All documents related to applications for permits to construct or modify a PSD-major source shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. All documents related to applications for operation permits shall be submitted to the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to: Air Quality Management, Orange County Environmental Protection Division, 800 Mercy Drive, Suite 4, Orlando, FL 32808.
3. Appendices: The following Appendices are attached as part of this permit: Appendix CF (Citation Format); Appendix GC (General Conditions); Appendix GG (NSPS Subpart GG Requirements for Gas Turbines); and Appendix SC (Standard Conditions).
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit 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.; Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, F.A.C.; and Title 40, Part 60 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. 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. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
5. New or Additional Conditions: 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.]
6. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
7. Authority to Construct: The emissions units regulated by this air construction permit have been constructed and are in operation. No further construction is authorized.
8. Title V Permit: Pursuant to Rule 62-213.420(1)(a)2, F.A.C., the permittee shall submit an application for a revised Title V air operation permit at least ninety (90) days before the expiration of this permit, but no later than 180 days after commencing operation. In accordance with Rule 62-213.412(2), F.A.C., the permittee may immediately implement the changes authorized by this air construction permit after submitting the application for a revised Title V air operation permit to the Permitting Authority and providing copies of the application to EPA Region 4 and each Compliance Authority. To apply for a revised 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 Central District Office with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, 62-213.412, and 62-213.420, F.A.C.]



**SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS**

**A. EU-005 - 2700 bhp Compressor Engine No. 1805**

This section of the permit addresses the following existing emissions unit.

**Emissions Unit No. 005 - Compressor Engine No. 1805**

The existing compressor engine is a 2700 bhp reciprocating internal combustion engine fired exclusively with pipeline natural gas.

**APPLICABLE REQUIREMENT**

1. **Previous Permits:** This permit supplements all previously issued air construction and operation permits for this emissions unit. Except for the change noted below, the unit remains subject to the conditions of all other valid air construction and operations permits. [Rule 62-4.070, F.A.C.]
2. **Particulate Matter:** For Compressor Engine No. 1805 (EU-005), particulate matter emissions are minimized by good combustion design with the firing of natural gas as the exclusive fuel. This requirement supersedes the particulate matter standards (TSP and PM<sub>10</sub>) in Condition No. 1 of Air Permit No. PSD-FL-163, as amended. *{Permitting Note: This change does not result in any increases in actual or potential emissions of particulate matter. All other standards of Air Permit No. PSD-FL-163 remain unaffected.}*

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

#### B. EU-006 - 7200 bhp Compressor Engine No. 1806

This section of the permit addresses the following new emissions unit.

##### Emissions Unit No. 006 - 7200 bhp Compressor Engine No. 1806

*Description:* The compressor engine is a 7200 bhp (ISO) gas turbine consisting of a Cooper-Rolls Royce Model No. 501-KC7 DLE with lean premix combustor design.

*Fuel:* The gas turbine fires pipeline natural gas (SCC No 2-02-002-01) at a maximum firing rate of approximately 65,100 cubic feet per hour based on a heat content of 1040 BTU per SCF of gas.

*Capacity:* At ~~63~~ 68 MMBtu per hour of heat input, the gas turbine produces approximately 7200 bhp (ISO). The gas turbine typically operates near capacity.

*Controls:* The lean premix combustor design minimizes NOx emissions. The efficient combustion of natural gas at high temperatures minimizes emissions of CO, PM/PM10, SO2, and VOC.

*Stack Parameters:* When operating at capacity, exhaust gases exit a 6.0 feet diameter stack that is 61.2 feet tall at 964° F with a flow rate of approximately 97,500 acfm.

#### APPLICABLE STANDARDS AND REGULATIONS

1. NSPS Requirements: The gas turbine shall comply with the New Source Performance Standards (NSPS) of Subpart GG in 40 CFR 60. The applicable NSPS requirements are provided in Appendix GG of this permit. The Department believes that the conditions in this section are at least as stringent as, or more stringent than, the NSPS requirements of Subpart GG. [Rule 62-4.070(3), F.A.C.; 40 CFR 60, Subpart GG]

#### EQUIPMENT

2. Compressor Engine No. 1806: The permittee is authorized to install one 7200 bhp (ISO) gas turbine compressor engine consisting of a Cooper-Rolls Royce Model No. 501-KC7 DLE. The permittee shall tune, operate and maintain the gas turbine's lean premix combustor design to reduce emissions of nitrogen oxides below the permitted limits. Ancillary equipment includes the automated gas turbine control system, an inlet air filtration system, and an exhaust stack. [Applicant Request; Design]

#### PERFORMANCE RESTRICTIONS

3. Permitted Capacities: The maximum heat input rate to the gas turbine shall not exceed ~~63~~ 68 MMBtu per hour (24-hour average) while producing approximately 7200 bhp (ISO) based on a compressor inlet air temperature of 59° F, 100% load, and a higher heating value (HHV) of 1040 BTU per SCF for natural gas. Heat input rates will vary depending upon gas turbine characteristics, load, and ambient conditions. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial testing. Performance data shall be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. Compliance with this equipment specification shall be demonstrated based on the information required in Condition 13 of this subsection. [Rule 62-210.200(PTE), F.A.C.]
4. Authorized Fuel: The gas turbine shall fire only natural gas with a maximum of 10 grains of sulfur per 100 standard cubic feet of natural gas. [Applicant Request; Rule 62-210.200(PTE), F.A.C.]
5. Restricted Operation: The hours of operation for the gas turbine are not limited (8760 hours per year). Except for startup and shutdown, operation below 50% base load is prohibited. [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

#### B. EU-006 - 7200 bhp Compressor Engine No. 1806

#### EMISSIONS STANDARDS

6. Emissions Standards: Emissions from the gas turbine shall not exceed the following standards for carbon monoxide (CO), nitrogen oxides (NOx), opacity, particulate matter (PM), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOC).

Pollutant	Standards	Equivalent Maximum Emissions <sup>f</sup>		Rule Basis <sup>g</sup>
		lb/hour	TPY	
CO <sup>a</sup>	50.0 ppmvd @ 15% O <sub>2</sub>	6.9	30.22	Avoid Rule 62-212.400, F.A.C.
NOx <sup>b</sup>	25.0 ppmvd @ 15% O <sub>2</sub>	5.7	24.97	Avoid Rule 62-212.400, F.A.C. 40 CFR 60.332
SO <sub>2</sub> <sup>c</sup>	10.0 grains of sulfur per 100 SCF of gas	<del>1.7</del> <u>1.9</u>	<del>7.45</del> <u>8.15</u>	Avoid Rule 62-212.400, F.A.C. 40 CFR 60.333
Opacity <sup>d</sup>	10% opacity, 6-minute average	Not Applicable		Rule 62-4.070(3), F.A.C.
PM <sup>e</sup>	Efficient combustion of natural gas	<del>0.4</del> <u>0.5</u>	<del>1.75</del> <u>1.96</u>	Rule 62-4.070(3), F.A.C.
VOC <sup>e</sup>	Efficient combustion of natural gas	0.2	0.88	Rule 62-4.070(3), F.A.C.

- a. The CO standards are based on the average of three test runs as determined by EPA Method 10.
- b. The NOx standards are based on the average of three test runs as determined EPA Method 20.
- c. The fuel sulfur specification is based on the maximum limit specified by Federal Energy Regulatory Commission (FERC) and effectively limits the potential SO<sub>2</sub> emissions. Expected fuel sulfur levels are less than 1 grain per 100 SCF of natural gas from the pipeline.
- d. The opacity standard is based on a 6-minute average, as determined by EPA Method 9.
- e. For both PM and VOC, the efficient combustion of natural gas is indicated by compliance with opacity and CO standards. Equivalent maximum PM emissions are based on a factor of 0.0066 lb/MMBtu heat input from AP-42 Table 3.1-2a. Equivalent maximum VOC emissions are based on a total hydrocarbon factor of 1.58 lb/eng-hr from the vendor and the conservative assumption that 10% the hydrocarbons are regulated (non-methane) VOC. No testing is required.
- f. Equivalent maximum emissions are based on the maximum expected emissions, permitted capacity, a compressor inlet air temperature of 59° F, and 8760 hours of operation per year. For comparison purposes, the permittee shall provide a reference table with the initial compliance test report of mass emission rates versus the compressor inlet temperatures. Each test report shall include measured mass emission rates for CO, NOx and SO<sub>2</sub>. Mass emission rates for SO<sub>2</sub> shall be calculated based on actual fuel sulfur content and fuel flow rate. For tests conducted at 59° F or greater, measured mass emission rates shall be compared to the equivalent maximum emissions above. For tests conducted below 59° F, measured mass emission rates shall be compared to the tabled mass emission rates provided by the manufacturer based on compressor inlet temperatures.
- g. Compliance with the emissions standards of this permit ensures that the project remains a minor source of air pollution with respect to PSD.

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

#### B. EU-006 - 7200 bhp Compressor Engine No. 1806

##### EMISSIONS PERFORMANCE TESTING

7. **Test Methods:** Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content <i>{Permitting Note: These methods shall be used as necessary to support other required methods.}</i>
9	Determination of Opacity
10	Determination of Carbon Monoxide Emissions <i>{Permitting Note: This method shall be based on a continuous sampling train.}</i>
19	Determination of Sulfur Dioxide and Nitrogen Oxides Emission Rates <i>{Permitting Note: This method shall be used as necessary to support other required methods.}</i>
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Gas Turbines

Tests shall be conducted in accordance with the requirements specified in Appendix SC of this permit. The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

8. **Initial Tests:** The gas turbine shall be tested to demonstrate initial compliance with the emission standards for CO, NO<sub>x</sub>, and visible emissions. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the gas turbine. The initial NO<sub>x</sub> performance tests shall be conducted at approximately four evenly spaced points between the minimum normal operating load and 100% of peak load. Each of the three low-load NO<sub>x</sub> performance tests shall consist of three, 20-minute test runs. The peak load NO<sub>x</sub> performance test shall consist of three, 1-hour test runs. The CO performance tests shall be conducted concurrently with the NO<sub>x</sub> performance tests at peak load. SO<sub>2</sub> emissions shall be calculated and reported based on fuel flow and vendor analysis of fuel sulfur content. *{Permitting Note: Initial tests have already been performed for this unit and are not required to be repeated as part of this permit revision.}* [Rule 62-297.310(7)(a)1, F.A.C.; 40 CFR 60.8 and 60.335]
9. **Annual Tests:** During each federal fiscal year (October 1 - September 30), the gas turbine shall be tested to demonstrate compliance with the emission standards for CO, NO<sub>x</sub>, and visible emissions. CO and NO<sub>x</sub> emissions shall be tested concurrently at permitted capacity. SO<sub>2</sub> emissions shall be calculated and reported based on fuel flow and vendor analysis of fuel sulfur content. In addition to the test results, each report shall include a general description of the maintenance activities and operation of this facility since the last test. [Rule 62-297.310(7)(a)4, F.A.C.]
10. **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 subsequently required tests. [Rule 62-297.310(7)(a)9, F.A.C.; 40 CFR 60.7 and, 60.8]

##### RECORDS, REPORTS, AND NOTIFICATIONS

11. **Test Reports:** The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix SC of this permit. In addition, NO<sub>x</sub> emissions shall be corrected to ISO ambient atmospheric conditions and compared to the NSPS Subpart GG standard identified in Appendix GG of this permit for each required test. For each test run, the report shall also indicate the natural gas firing rate (cubic feet per hour), heat input rate (MMBtu per hour), the power output (bhp), percent peak load, and the inlet compressor temperature. [Rule 62-297.310(8), F.A.C.; 40 CFR 60.334]

### SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

#### B. EU-006 - 7200 bhp Compressor Engine No. 1806

12. Fuel Monitoring: The gas turbine shall fire only pipeline natural gas with a maximum fuel sulfur content of no more than 10 grains of sulfur per 100 cubic feet of gas. The permittee shall take no allowance for fuel bound nitrogen (F-value = 0) when demonstrating compliance with the NSPS Subpart GG NOx standard. Based on these restrictions, no monitoring for the fuel nitrogen and sulfur contents is required. This is also described in Appendix GG of this permit. [Rule 62-4.070(3), F.A.C.; 40 CFR 60.334, as amended]
13. Operational Data: Using the automated gas turbine control system, the permittee shall monitor and record heat input (MMBtu), power output (bhp), and hours of operation for the gas turbine. Within the 10 days of a request by the Department or the Compliance Authority, the permittee shall be able to summarize the following information for a given day: heat input (MMBtu per hour, daily average); power output (bhp, daily average); and total hours of gas turbine operation. This information shall also be used for submittal of the required Annual Operating Report. [Rule 62-4.070(3), F.A.C.]
14. Component Replacements: For the replacement of gas turbine components to facilitate prompt repair and return the unit to its original specifications, the permittee shall comply with the following notification and testing requirements.
- Components shall only be replaced with functionally equivalent "like-kind" equipment. Replacement components may consist of improved or newer equipment, but such components shall not change operation or increase the capacity (heat input and power output rates) of the gas turbine. Replacement components that affect emissions shall be designed to achieve the emissions standards specified in all valid air permits and shall achieve these standards or better. After a component replacement, the gas turbine compressor engine remains subject to the standards of all valid air permits. [Rule 62-210.200(169), F.A.C.]
  - The permittee shall notify the Compliance Authority within seven days after beginning any replacement of the gas generator component of the compressor engine. Within seven days of first fire on a replacement gas generator, the permittee shall submit the following information to the Compliance Authority: date of first fire and certification from the vendor that the replacement gas generator is a functionally equivalent "like-kind" component. The vendor certification shall also identify the make, model number, maximum heat input rate (MMBtu/hour), power output (bhp) at ISO conditions, and that the permitted emission rates are achievable with the replacement component. This notification may be made by letter, fax, or email. A copy of the information shall be kept on site at the compressor station. Within 60 days of restarting the unit after a gas generator replacement, the permittee shall conduct stack tests to demonstrate compliance with the applicable emission standards. The permittee shall notify the Compliance Authority in writing at least 15 days prior to conducting these tests. The permittee shall comply with all permit requirements for test notification, test methods, test procedures, and reporting. [Rules 62-4.130, 62-4.160(2), (6), and (15) and 62-297.310(7)(b), F.A.C.]
  - After investigation and for good cause, the Department may require special compliance tests pursuant to Rule 62-297.310(7)(b), F.A.C.

**SECTION 4. APPENDICES**  
**CONTENTS**

---

Appendix CF. Citation Format

Appendix GC. General Conditions

Appendix GG. NSPS Subpart GG Requirements for Gas Turbines

Appendix SC. Standard Conditions

**SECTION 4. APPENDIX CF**  
**CITATION FORMAT**

---

*The following examples illustrate the format used in the permit to identify applicable permitting actions and regulations.*

**REFERENCES TO PREVIOUS PERMITTING ACTIONS**

Old Permit Numbers

*Example:* Permit No. AC50-123456 or Air Permit No. AO50-123456

*Where:* “AC” identifies the permit as an Air Construction Permit

“AO” identifies the permit as an Air Operation Permit

“123456” identifies the specific permit project number

New Permit Numbers

*Example:* Permit Nos. 099-2222-001-AC, 099-2222-001-AF, 099-2222-001-AO, or 099-2222-001-AV

*Where:* “099” represents the specific county ID number in which the project is located

“2222” represents the specific facility ID number

“001” identifies the specific permit project

“AC” identifies the permit as an air construction permit

“AF” identifies the permit as a minor federally enforceable state operation permit

“AO” identifies the permit as a minor source air operation permit

“AV” identifies the permit as a Title V Major Source Air Operation Permit

PSD Permit Numbers

*Example:* Permit No. PSD-FL-317

*Where:* “PSD” means issued pursuant to the Prevention of Significant Deterioration of Air Quality

“FL” means that the permit was issued by the State of Florida

“317” identifies the specific permit project

**RULE CITATION FORMATS**

Florida Administrative Code (F.A.C.)

*Example:* [Rule 62-213.205, F.A.C.]

*Means:* Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

*Example:* [40 CFR 60.7]

*Means:* Title 40, Part 60, Section 7

**SECTION 4. APPENDIX GC**  
**GENERAL CONDITIONS**

---

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

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.
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, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
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.
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.
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.
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.
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.

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

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

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



**SECTION 4. APPENDIX GC**  
**GENERAL CONDITIONS**

---

Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

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.
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.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
  - a. Determination of Best Available Control Technology (NA);
  - b. Determination of Prevention of Significant Deterioration (NA); and
  - c. Compliance with New Source Performance Standards (X).
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.
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.

**SECTION 4. APPENDIX GG**

**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

The following emissions unit is subject to the applicable requirements of Subpart A (General Provisions) and Subpart GG (Stationary Gas Turbines) established as New Source Performance Standards in 40 CFR 60 and adopted by reference in Rule 62-204.800(7)(b), F.A.C.

ID	Emission Unit Description
006	Compressor Engine No. 1806 consisting of a 7200 bhp gas turbine

**NSPS GENERAL PROVISIONS**

In addition to the specific conditions of the permit and NSPS Subpart GG, the emissions unit is subject to the applicable General Provisions of the New Source Performance Standards including 40 CFR 60.7 (Notification and Record Keeping), 40 CFR 60.8 (Performance Tests), 40 CFR 60.11 (Compliance with Standards and Maintenance Requirements), 40 CFR 60.12 (Circumvention), 40 CFR 60.13 (Monitoring Requirements), and 40 CFR 60.19 (General Notification and Reporting Requirements). The General Provisions are not included in this permit, but can be obtained from the Department upon request.

**40 CFR 60, SUBPART GG - STANDARDS OF PERFORMANCE FOR STATIONARY GAS TURBINES**

Each gas turbine shall comply with all applicable requirements of 40 CFR 60, Subpart GG adopted by reference in Rule 62-204.800(7)(b), F.A.C. Inapplicable provisions have been deleted in the following conditions, but the numbering of the original rules has been preserved for ease of reference. The term "Administrator" when used in 40 CFR 60 shall mean the Department's Secretary or the Secretary's designee. Department notes and requirements related to the Subpart GG requirements are shown immediately following the section to which they refer. The rule basis for the Department requirements specified below is Rule 62-4.070(3), F.A.C.

Section 60.330 Applicability and Designation of Affected Facility.

- (a) The provisions of this subpart are applicable to the following affected facilities: All stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour), based on the lower heating value of the fuel fired.

Section 60.331 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

- (g) ISO standard day conditions means 288 degrees Kelvin, 60 percent relative humidity and 101.3 kilopascals pressure.
- (i) Peak load means 100 percent of the manufacturer's design capacity of the gas turbine at ISO standard day conditions.
- (j) Base load means the load level at which a gas turbine is normally operated.

Section 60.332 Standard for Nitrogen Oxides.

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

$$STD = 0.0150 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NOx emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt-hour.

**SECTION 4. APPENDIX GG**  
**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

F = NO<sub>x</sub> emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of this section.

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

Fuel-bound nitrogen (percent by weight)	F (NO <sub>x</sub> percent by volume)
N ≤ 0.015	0
0.015 < N ≤ 0.1	0.04(N)
0.1 < N ≤ 0.25	0.004 + 0.0067(N - 0.1)
N > 0.25	0.005

where: N = the nitrogen content of the fuel (percent by weight).

**Department Requirement:** When firing natural gas, the “F” value shall be assumed to be “0”.

*{Permitting Note: The “Y” value when firing natural gas as provided by the manufacturer is approximately “11.4”. The equivalent NO<sub>x</sub> emission standard is 190 ppmvd at 15% oxygen. The emissions standards in Section 3 of the permit are much more stringent than this requirement.}*

(c) Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour) but less than or equal to 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired, shall comply with the provisions of paragraph (a)(2) of this section.

Section 60.333 Standard for Sulfur Dioxide.

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

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

Section 60.334 Monitoring of Operations.

(c) For the purpose of reports required under Section 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) Nitrogen oxides. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with Section 60.332 by the performance test required in Section 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in Section 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under Section 60.335(a).

*{Permitting Note: Excess NO<sub>x</sub> emissions reporting requirements do not apply. The gas turbine uses “dry” lean premix combustors and not wet injection to control NO<sub>x</sub> emissions. As indicated above, the Subpart GG NO<sub>x</sub> standard is 190 ppmvd @ 15% oxygen. This is nearly eight times the NO<sub>x</sub> standard specified in the permit and would be nearly impossible for this lean premix combustion turbine to exceed. As stated in the preamble to the July 2004 amendments, the rule changes do not impose any additional monitoring requirements for existing units.}*

(h) The owner or operator of any stationary gas turbine subject to the provisions of this subpart:

(2) Shall monitor the nitrogen content of the fuel combusted in the turbine, if the owner or operator claims an allowance for fuel bound nitrogen (i.e., if an F-value greater than zero is being or will be used by the owner or operator to calculate STD in §60.332).

*{Permitting Note: Because the nitrogen content of pipeline natural is negligible, the permittee does not claim an allowance for fuel bound nitrogen and will use “0” for the F-value when calculating the NO<sub>x</sub> standard in §60.332. The permit prohibits the permittee from claiming the allowance for fuel nitrogen. Therefore, no fuel nitrogen monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}*

SECTION 4. APPENDIX GG

NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES

- (3) May elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in §60.331(v), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring.

§60.331(v) states, "Natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions. Natural gas contains 20.0 grains or less of total sulfur per 100 standard cubic feet. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1100 Btu per standard cubic foot. Natural gas does not include the following gaseous fuels: Landfill gas, digester gas, refinery gas, sour gas, blast furnace gas, coal-derived gas, producer gas, coke oven gas, or any gaseous fuel produced in a process which might result in highly variable sulfur content or heating value."

The permittee elects not to monitor the sulfur content of natural gas based on §60.334(h)(3)(i), which states that, "The gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less." The current tariff sheet specifies that natural gas delivered by the pipeline system shall contain not more than 10 grains of total sulfur per 100 cubic feet of gas. Therefore, the pipeline natural gas meets the above definition.

{Permitting Note: The permit requires the gas turbine to fire only pipeline natural gas with a maximum sulfur content of 10 grains of sulfur per 100 cubic feet of gas. Therefore, no fuel sulfur monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}

Section 60.335 Test Methods and Procedures.

- (a) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.
- (b) In conducting the performance tests required in Section 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided for in Section 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section.
- (c) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in Sections 60.332 and 60.333(a) as follows:

- (1) The nitrogen oxides emission rate (NO<sub>x</sub>) shall be computed for each run using the following equation:

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

where:

NO<sub>x</sub> = emission rate of NO<sub>x</sub> at 15 percent O<sub>2</sub> and ISO standard ambient conditions, volume percent.

NO<sub>x0</sub> = observed NO<sub>x</sub> concentration, ppm by volume.

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

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

Ho = observed humidity of ambient air, g H<sub>2</sub>O/g air.

e = transcendental constant, 2.718.

Ta = ambient temperature, °K.

**Department Requirement:** NO<sub>x</sub> emissions shall be corrected to ISO ambient atmospheric conditions for each required emissions performance test and compared to the NO<sub>x</sub> standard specified in 40 CFR 60.332.

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

**SECTION 4. APPENDIX GG**  
**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

---

**Department Requirement:** The initial NO<sub>x</sub> performance tests shall be conducted at approximately four evenly spaced points between the minimum normal operating load and 100% of peak load.

*{Permitting Note: The dry low-NO<sub>x</sub> controls are only effective above a minimum load, which will be identified during initial testing.}*

- (3) Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NO<sub>x</sub> emissions shall be determined at each of the load conditions specified in paragraph (c)(2) of this section.

**Department Requirement:** The span value shall be no greater than 75 ppm of nitrogen oxides due to the low NO<sub>x</sub> emission levels of the gas turbine.

- (d) The owner or operator shall determine compliance with the sulfur content standard in Section 60.333(b) as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference - see Section 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.
- (e) To meet the requirements of Section 60.334(b), the owner or operator shall use the methods specified in paragraphs (a) and (d) of this section to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

*{Permitting Note: The permit prohibits the permittee from claiming the allowance for fuel nitrogen. The permit also requires the gas turbine to fire only pipeline natural gas with a maximum sulfur content of 10 grains of sulfur per 100 cubic feet of gas. Therefore, no fuel nitrogen or fuel sulfur monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}*

**SECTION 4. APPENDIX SC**  
**STANDARD CONDITIONS**

---

*{Permitting Note: Unless otherwise specified in the permit, the following conditions apply to all emissions units and activities at this facility.}*

**EMISSIONS AND CONTROLS**

1. **Plant Operation - Problems:** If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
2. **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.]
3. **Excess Emissions Allowed:** Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]
4. **Excess Emissions Prohibited:** Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
5. **Excess Emissions - Notification:** In case of excess emissions resulting from malfunctions, the permittee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
6. **VOC or OS Emissions:** No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
7. **Objectionable Odor Prohibited:** No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and 62-210.200(203), F.A.C.]
8. **General Visible Emissions:** No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. [Rule 62-296.320(4)(b)1, F.A.C.]
9. **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.]

**TESTING REQUIREMENTS**

10. **Required Number of Test Runs:** For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

**SECTION 4. APPENDIX SC**  
**STANDARD CONDITIONS**

---

11. **Operating Rate During Testing:** Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2), F.A.C.]
12. **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.]
13. **Test Procedures:** Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.
- 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 thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.
  - 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.
  - 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), F.A.C.]
14. **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.
  - 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), F.A.C.]
15. **Sampling Facilities:** The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C.
16. **Test Notification:** The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator. [Rule 62-297.310(7)(a)9, F.A.C.]
17. **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.]
18. **Test Reports:** The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide

**SECTION 4. APPENDIX SC**  
**STANDARD CONDITIONS**

---

sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information:

1. The type, location, and designation of the emissions unit tested.
2. The facility at which the emissions unit is located.
3. The owner or operator of the emissions unit.
4. The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
5. The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.
6. The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
7. A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
8. The date, starting time and duration of each sampling run.
9. The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
10. The number of points sampled and configuration and location of the sampling plane.
11. For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
12. The type, manufacturer and configuration of the sampling equipment used.
13. Data related to the required calibration of the test equipment.
14. Data on the identification, processing and weights of all filters used.
15. Data on the types and amounts of any chemical solutions used.
16. Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17. The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18. All measured and calculated data required to be determined by each applicable test procedure for each run.
19. The detailed calculations for one run that relate the collected data to the calculated emission rate.
20. The applicable emission standard, and the resulting maximum allowable emission rate for the emissions unit, plus the test result in the same form and unit of measure.
21. A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-210.310(8), F.A.C.]

**RECORDS AND REPORTS**

19. 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.]
20. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]



# P.E. CERTIFICATION STATEMENT

## PERMITTEE

Florida Gas Transmission Company  
1400 Smith Street  
Houston, TX 77002

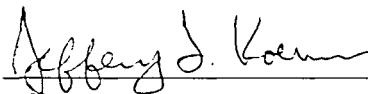
Draft Air Permit No. 0950190-006-AC  
Compressor Station 18, Engine 1806  
Revised Air Construction Permit  
Orange County, Florida

## PROJECT DESCRIPTION

The applicant proposes several revisions to the original air construction permit for Engine 1806. As installed, the gas turbine fires slightly more natural gas to produce the required power output. The applicant requests approximately an 8% increase in the maximum heat input rate. Also, Engine 1806 is a light-industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements. Finally, EPA recently amended the federal monitoring requirements for fuel nitrogen and fuel sulfur in Subpart GG of 40 CFR for gas turbines. The applicant requests a permit revision to be consistent with the July 2004 amendments for fuel monitoring.

The requested changes are reasonable and not expected to result in increased emissions. The equivalent maximum emission rates for CO, NO<sub>x</sub>, and VOC were not changed based on the initial test results. The equivalent maximum emission rates for SO<sub>2</sub> and PM were increased slightly because these rates were directly based on the maximum heat input rate. See the Technical Evaluation and Preliminary Determination for a detailed discussion of the revisions.

*I HEREBY CERTIFY that the air pollution control 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, geological, and meteorological features).*



Jeffery F. Koerner, P.E.  
Registration Number: 49441

10-19-04

(Date)



**Florida Gas Transmission Company**  
601 South Lake Destiny Road, Suite 450, Maitland, FL 32751  
Post Office Box 945100, Maitland, FL 32794-5100  
407.838.7000 Fax 407.838.7001

RECEIVED

SEP 10 2004

BUREAU OF AIR REGULATION

August 27, 2004

CERTIFIED MAIL – RETURN RECEIPT

Ms. Trina Vielhauer  
Bureau of Air Regulation  
Florida Department of Environmental Protection  
Twin Towers Office Bldg.  
2600 Blairstone  
Tallahassee, FL 32399-2400

Reference: Facility: 0950190  
Air Permit No. 0950190-004-AC  
Emission Unit No. 006 (Engine No. 1806)  
Compressor Station No. 18, Orlando, Orange County

Dear Ms. Vielhauer:

*Project No. : 0950190-006-AC*

**Subject: Application to Modify Air Construction Permit for Increased Heat Rate**

Florida Gas Transmission Company (FGT) has previously submitted an Application for an Air Construction Permit for a new Cooper-Rolls 501-KC7 compressor turbine at the above referenced facility. This was authorized by the above referenced construction permit.

A review of data from the initial compliance test for the new engine indicates that the heat rate for the engine is higher than was predicted by the manufacturer. FGT, therefore, is requesting that the heat rate listed in the permit be changed from 63.0 MM Btu/hr to 67.7 MM Btu/hr.

An application requesting this modification is attached. The changes reflect a change in the heat rate and the resulting changes in particulate matter, hazardous air pollutants and SO<sub>2</sub> emissions that are based on fuel use.

On July 8, 2004, the U.S. EPA promulgated a revised 40 CFR 60 Subpart GG. Under these revisions, the fuel sulfur monitoring requirements are no longer applicable to the turbine at Compressor Station No. 18 since the gas quality characteristics are in a current, valid purchase contract, tariff sheet or transportation contract specifying that the maximum total sulfur content

of the fuel is 20.0 grains/100 scf or less (40 CFR 60.331(u)). FGT is requesting that this fuel monitoring requirement be removed from the permit.

If you have any questions or need additional information, please call me at (850) 350-5042.

Sincerely,

A handwritten signature in black ink, appearing to read "James E. Fleak". The signature is fluid and cursive, with a long horizontal stroke at the end.

James E. Fleak, P.E.  
Division Environmental Specialist

#### ATTACHMENTS

CC: Rick Craig, w/o attachments  
David Parham, P.E.  
Duane Pierce, AQMcS, LLC  
Compressor Station No. 18

CS 18 P6 Draft Heat Revision 0704 Construction Application.doc

**Florida Gas Transmission Company**

**Phase VI Expansion Project**

**Compressor Station No. 18**

**APPLICATION  
For  
CONCURRENT  
AIR CONSTRUCTION  
AND  
OPERATING  
PERMIT MODIFICATIONS**

**August 2004**

# AQMcS

---

## Table of Contents

<b>1.0</b>	<b>INTRODUCTION</b>	<b>1</b>
<b>2.0</b>	<b>PROJECT DESCRIPTION</b>	<b>3</b>
2.1	EXISTING OPERATIONS	3
2.2	NEW COMPRESSOR ENGINE	3
2.2.1	<i>Emissions Summary</i>	6
<b>3.0</b>	<b>REGULATORY ANALYSIS</b>	<b>8</b>
3.1	FEDERAL REGULATIONS REVIEW	8
3.1.1	<i>Applicability of New Source Performance Standards (NSPS)</i>	8
3.1.2	<i>Applicability of National Emission Standards for Hazardous Air Pollutants (NESHAPS)</i>	10
3.1.2.1	<i>40 CFR 63 Subpart HHH</i>	10
3.1.2.2	<i>40 CFR 63 Subpart YYYY</i>	11
3.1.2.3	<i>40 CFR 63 Subpart ZZZZ</i>	11
3.2	FLORIDA STATE AIR QUALITY REGULATIONS	11
3.2.1	<i>Rule 62-210.300 Permits Required</i>	11
3.2.2	<i>Rule 62-204.240 Ambient Air Quality Standards</i>	11
3.2.3	<i>Rule 62-296.320(2) Objectionable Odors</i>	11
3.2.4	<i>Rule 62-296.320(4)(b)1 General Particulate Emission Limiting Standards</i>	12
3.2.5	<i>Rule 62-210.300(3)(a) Exempt Emissions Units and/or Activities</i>	12
3.2.6	<i>FDEP Title V CORE Requirements</i>	12
<b>4.0</b>	<b>REFERENCES</b>	<b>13</b>

<b>Attachment A</b>	<b>DEP Forms</b>
<b>Attachment B</b>	<b>Plot Plan</b>
<b>Attachment C</b>	<b>Vendor Information</b>
<b>Attachment D</b>	<b>Calculations</b>

# AQMcs

---

## List of Tables

Table 2-1 Summary of Existing Compressor Engines .....	4
Table 2-2 Revised Compressor Engine 1806 Specifications and Stack Parameters.....	5
Table 2-3 Emissions from FGT's New Turbine Engine No. 1806 .....	6
Table 2-4 Potential Annual Emissions (tpy) Summary .....	7
Table 3-1 Applicability of New Source Performance Standards.....	9

## 1.0 INTRODUCTION

Florida Gas Transmission Company (FGT), a Delaware Corporation and ENRON/EL PASO affiliate of Houston, Texas, has expanded its existing natural gas pipeline facility near Orlando in Orange County, Florida (Compressor Station No. 18). This modification is part of FGT's Phase VI Expansion Project, aimed at increasing the supply capacity of FGT's network servicing domestic, commercial, and industrial customers in Florida.

Compressor Station No. 18 is located in Orange County, Florida, at 7990 Steer Lake Road. Figure 1-1 shows the location of the existing compressor station.

The expansion at this location consisted of the addition of one 7,200 ISO brake horsepower (bhp), natural-gas-fired, turbine compressor engine. The new compressor engine is used solely for transporting natural gas by pipeline for distribution to markets in Florida. The new engine is a Cooper-Rolls 501-KC7 DLE equipped with dry low NO<sub>x</sub> (oxides of nitrogen) combustion. Engineering designs for the new included selection of an engine incorporating dry low NO<sub>x</sub> combustion technology. Dry low NO<sub>x</sub> technology for control of NO<sub>x</sub> emissions would represent Best Available Control Technology (BACT) for the new turbine engine under PSD requirements.

This application requests a revision to the heat rate for the new turbine described above. Initial emissions testing indicated that the heat rate was higher than that anticipated by the manufacturer. Therefore, FGT is proposing to increase the descriptive heat rate for this engine and to also revise the emission rates for particulate matter (PM), sulfur dioxide (SO<sub>2</sub>) and hazardous air pollutants (HAPs) since they are dependent on fuel use.

This narrative contains the following additional sections. Descriptions of the existing operation at FGT's Compressor Station No.18 and the new 7,200 bhp engine addition are presented in Section 2.0. The air quality review requirements and applicability of state and federal regulations are discussed in Section 3.0 and references are included in Section 4.0

FDEP permit application forms are presented in Attachment A. Attachment B contains a plot plan of the facility. Attachment C contains vendor information and Attachment D contains emission calculations.





## 2.0 PROJECT DESCRIPTION

A plot plan of FGT's Compressor Station No. 18, showing the location of the plant boundaries, the existing emission sources, and the location of the new engine addition is presented in Attachment B. The following sections provide a description of the existing operations at this location, as well as a description of the new project.

### 2.1 Existing Operations

FGT's existing Compressor Station No. 18 consisted of four 2,000 bhp and one 2,700 bhp natural-gas-fired reciprocating internal combustion (IC) engines. Table 2-1 summarizes engine manufacturer, model, and the date of installation for each of the existing engines. The original installation was made in 1962 (Compressor Engines 1801 through 1803). A 2,000 bhp engine was added in 1968 (Compressor Engine 1804). These engines were installed before the CAA Amendments of 1977. An addition referred to as Phase II was constructed in 1991 (Compressor Engine 1805) and was subject to PSD review. These existing engines were not modified as part of the Phase VI Expansion Project.

The existing facility also has supporting equipment including lube and used oil storage tanks, air compressors and emergency generators.

### 2.2 New Compressor Engine

FGT installed one natural gas-fired turbine engine compressor unit and associated support equipment at Compressor Station No. 18. The turbine engine is a Cooper-Rolls 501-KC7 DLE engine compressor unit rated at 7,200 bhp ISO. Fuel is exclusively natural gas from FGT's natural gas pipeline. Engine specifications and stack parameters for the new engine are presented in Table 2-2.

The heat and fuel rate values provided in Table 2-2 represent revised values based on initial emission testing and observation of operating parameters since installation.

# AQMcs

---

**Table 2-1 Summary of Existing Compressor Engines**

<b>Engine #</b>	<b>Date of Installation</b>	<b>Type</b>	<b>Manufacturer</b>	<b>Model #</b>	<b>Brake Horse Power (bhp)</b>
1801	1962	Reciprocating	Worthington	SEHG-8	2000
1802	1962	Reciprocating	Worthington	SEHG-8	2000
1803	1962	Reciprocating	Worthington	SEHG-8	2000
1804	1968	Reciprocating	Worthington	SEHG-8	2000
1805	1991	Reciprocating	Cooper - Bessemer	GMVH-12C2	2700

# AQMcs

**Table 2-2 Revised Compressor Engine 1806 Specifications and Stack Parameters**

<b>Parameter</b>	<b>Design</b>
Compressor Engine	1806
Type	Gas Turbine
Manufacturer	Cooper-Rolls
Model	501-KC7 DLE
Unit Size	7,200 bhp (ISO)
Heat Input <sup>a</sup>	7,067.5 bhp (site)
	67.7 MMBtu/hr
Specific Heat Input <sup>a</sup>	9,516 Btu/hp-hr
Maximum Fuel Consumption <sup>b</sup>	0.0651 MMscf/hr
Speed	13,600 rpm
Stack Parameters	
Stack Height	61.17 ft
Stack Diameter	6.0 ft
Exhaust Gas Flow	97,542 acfm
Exhaust Temperature	964 °F
Exhaust Gas Velocity	57.50 ft/sec
<p>NOTE:</p> <p>acfm = actual cubic feet per minute.</p> <p>bhp = brake horsepower.</p> <p>Btu/bhp-hr = British thermal units per brake horsepower per hour.</p> <p>°F = degrees Fahrenheit.</p> <p>ft = feet.</p> <p>ft/sec = feet per second.</p> <p>MMscf/hr = million standard cubic feet per hour</p> <p>rpm = revolutions per minute.</p> <p><sup>a</sup> Based on observed higher heat value (HHV) heat rate; lower heating value estimated at 9,579 Btu/hp-hr</p> <p><sup>b</sup> Fuel flow for natural gas of 1040 British thermal units per standard cubic foot (Btu/scf).</p>	

# AQMs

---

Hourly and annual emissions of regulated pollutants from the engine under normal operating conditions are presented in Table 2-3. Emissions of oxides of nitrogen (NO<sub>x</sub>, carbon monoxide (CO) and non-methane hydrocarbons (NMHC) are based on the engine manufacturer's supplied data (See Attachment C).

Typically, turbine vendors do not provide information on particulate matter (PM), sulfur dioxide (SO<sub>2</sub>) or hazardous air pollutant (HAP) emissions; therefore, particulate matter and HAP emissions are based upon USEPA publication AP-42 Table 3.1-2a and Table 3.1-3 respectively (USEPA, 2000) and emissions of SO<sub>2</sub> are based on FGT's Federal Energy Regulatory Commission (FERC) certificate limit of 10 grains sulfur per 100 cubic feet of natural gas.

**Table 2-3 Emissions from FGT's New Turbine Engine No. 1806**

<b>Pollutant</b>	<b>Emission Factor</b>	<b>Reference</b>	<b>lb/hr</b>	<b>TPY</b>
Nitrogen Oxides	5.7 lb/hr	Manufacturer Data	5.70	25.0
Carbon Monoxide	6.91 lb/hr	Manufacturer Data	6.91	30.3
Volatile Organic Compounds (non methane)	0.158 lb/hr	Manufacturer Data	0.16	0.7
Particulate Matter	0.0066 lb/MMBtu	AP-42, Table 3.1-2a	0.45	2.0
Sulfur Dioxide	10 grains/100 scf	FERC Limit	1.86	8.2
HAPs	Various see Attachment D	AP-42, Table 3.1-3	0.07	0.3

## 2.2.1 Emissions Summary

The new total emissions resulting from this revision are listed on Table 2-4. The calculations used to estimate these emissions are presented in Attachment D.

# AQMcS

---

**Table 2-4 Potential Annual Emissions (tpy) Summary**

<b>SOURCE ID</b>	<b>DESCRIPTION</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC<sup>a</sup></b>	<b>SO<sub>2</sub></b>	<b>PM</b>
1801	2000 bhp Recip. Engine	227.8	30.9	13.9	1.8	0.3
1802	2000 bhp Recip. Engine	227.8	30.9	13.9	1.8	0.3
1803	2000 bhp Recip. Engine	227.8	30.9	13.9	1.8	0.3
1804	2000 bhp Recip. Engine	227.8	30.9	13.9	1.8	0.3
1805	2700 bhp Recip. Engine	46.3	48.7	11.6	2.2	0.4
EM GEN	306 bhp Recip. Engine	2.8	0.2	0.0	0.2	0.1
1806 - revised	7,200 bhp Turbine Engine –new	25.0	30.3	0.7	8.2	2.0
Fugitives	Component Fugitive Emissions	0.0	0.0	0.6	0.0	0.0
	OTHER SOURCES: <sup>b</sup>	0.0	0.0	3.0	0.0	0.0
<b>NEW ANNUAL POTENTIAL TOTALS:</b>		<b>985.3</b>	<b>202.8</b>	<b>71.5</b>	<b>17.8</b>	<b>3.7</b>

(a) VOC = Non-methane/non-ethane HC

(b) Estimate of Other Insignificant Sources. Includes ancillary equipment, storage tanks and equipment leaks

## 3.0 REGULATORY ANALYSIS

This section presents a review of federal and Florida State air quality regulations, which are applicable to the operations and new emission unit at Compressor Station No. 18.

### 3.1 Federal Regulations Review

The federal regulatory programs administered by the USEPA have been developed under the authority of the Clean Air Act. The following subsections review the essential elements of the federal regulatory program and the impact they have on the operations and new modifications at Compressor Station No. 18.

#### 3.1.1 Applicability of New Source Performance Standards (NSPS)

The regulation of new sources through the development of standards applicable to a specific category of sources was a significant step taken by the 1970 CAA Amendments. The Administrator was directed to publish a new regulation establishing a Standard of Performance for any category of new sources that cause or contribute significantly to air pollution and which may reasonably be anticipated to endanger public health. All Standards apply to all sources within a given category, regardless of geographic location or ambient air quality at the location.

Performance standards are published in 40 CFR 60. The new turbine installed at Compressor Station No. 18 is subject to Subpart GG, Standards of Performance for Stationary Gas Turbines, because it has a maximum heat input at peak load of >10.7 gigajoules/hour (10 MMBtu/hr) based on the lower heating value of the natural gas fuel. This regulation establishes emission limits for NO<sub>x</sub> and SO<sub>2</sub>. The applicable emission standards are provided in Table 3-3.

The NO<sub>x</sub> emission limit for Subpart GG is calculated as follows:

$$STD = 0.0150 (14.4/Y) + F$$

$$STD = \text{Allowable NO}_x \text{ emissions}$$

$$Y = \text{Heat rate at peak load not to exceed 14.4 KjJwatt-hour}$$

# AQMCs

---

**Table 3-1 Applicability of New Source Performance Standards**

<b>NSPS Subpart</b>	<b>NSPS Regulations</b>	<b>Equipment</b>	<b>Fuel</b>	<b>Pollutant</b>	<b>Heat Input Applicability</b>	<b>Equipment Design Maximum*</b>	<b>NSPS Emission Limits</b>	<b>Equipment Emissions</b>
GG	60.332	Engine No. 1806 Gas Turbine	Gas	NO <sub>2</sub>	>10 MM Btu/hr	61.14MMBtu/hr	177 ppm <sub>v</sub>	25 ppm <sub>v</sub>
GG	60.333	Engine No. 1806 Gas Turbine	Gas	SO <sub>2</sub>	>10 MM Btu/hr	61.14 MMBtu/hr	150 ppm <sub>v</sub>	~4 ppm <sub>v</sub>

\* Estimated from observed fuel usage. Vendor design maximum is 56.87 MM Btu/hr LHV.

# AQMcs

---

$$F = NO_x \text{ emission allowance}$$

The use of the F factor in this equation is optional under the revised Subpart GG. Since the fuel bound nitrogen in natural gas is less than 0.015% by weight, the value of F as defined in 40 CFR 60.332 would be equal to zero.

$$\begin{aligned} Y &= \text{Btu/bhp-hr} \times 1.055 \text{ Kj/Btu} \times \text{hp-hr/745.7 watt-hour} \\ &= 8,651 \text{ Btu/bhp-hr} \times 1.055 \text{ Kj/Btu} \times \text{hp-hr/745.7 watt-hour} \\ &= 12.2 \text{ Kj/watt-hr} \end{aligned}$$

$$\begin{aligned} \text{STD} &= 0.0150 (14.4/12.2) + 0 \\ &= 0.0177 \% \\ &= 177 \text{ ppm}_v \end{aligned}$$

Table 3-1 summarizes the NSPS applicability for this gas turbine.

The turbine at this facility will meet the NSPS for NO<sub>x</sub> of 177 ppmv (i.e., manufacturer's estimation of 25 ppmv), and for SO<sub>2</sub> of 8000 ppmw (estimated for this turbine to be 344 ppmw).

FGT was granted a custom fuel monitoring schedule for this engine; however, the daily monitoring of fuel nitrogen and sulfur is no longer required under the recent revisions effective July 8, 2004. FGT is requesting that this requirement be removed from the construction and operating permits. Specifically, FGT is requesting that Section III, Provision B.12 be deleted from the construction permit.

### 3.1.2 Applicability of National Emission Standards for Hazardous Air Pollutants (NESHAPS)

Several NESHAPS are potentially applicable to this facility and these emission sources.

#### 3.1.2.1 40 CFR 63 Subpart HHH



# AQMcS

---

One NESHAPS potentially applicable to this compressor station is 40 CFR 63 Subpart HHH. Compressor Station No. 18 has no affected sources as defined by 40 CFR 63 Subpart HHH and is, therefore, not subject to this subpart.

## 3.1.2.2 40 CFR 63 Subpart YYYY

This facility is a Major Source for Hazardous Air Pollutants and this turbine is subject to the new turbine MACT regulations (40 CFR 63 Subpart YYYY) promulgated on March 5, 2004. However, on April 7, 2004, the U.S.EPA proposed to stay Subpart YYYY applicability for four subcategories of the Combustion Turbines source category and also proposed a rule to delete these four subcategories from the Combustion Turbines source category. This turbine (Engine No. 1806) is included within these sub-categories.

## 3.1.2.3 40 CFR 63 Subpart ZZZZ

The U.S.EPA has recently finalized 40 CFR 63 Subpart ZZZZ for reciprocating internal combustion engines; however, FGT does not have any engines subject to this regulation at this facility.

## 3.2 Florida State Air Quality Regulations

Compressor Station No. 18 is currently operating under Permit No. 0070012-003-AV and is subject to the provisions of that permit. Rule 62, F.A.C., contains the air quality rules and regulations for the State of Florida. The primary federal regulations that affect Compressor Station No. 18 have been incorporated into or are referenced by these rules. The significant state regulations that are applicable to the new emission units are briefly listed below.

### 3.2.1 Rule 62-210.300 Permits Required

FGT is required to obtain a construction permit prior to construction of new emission units. This requirement was met by the submittal of an application for a construction permit and the subsequent issuance of Construction Permit No. 0950190-004-AC.

### 3.2.2 Rule 62-204.240 Ambient Air Quality Standards

FGT must not violate any of the ambient air quality standards listed under this rule.

### 3.2.3 Rule 62-296.320(2) Objectionable Odors

This rule prohibits the discharge of pollutants that will cause or contribute to an objectionable

# AQMcs

---

odor.

## 3.2.4 Rule 62-296.320(4)(b)1 General Particulate Emission Limiting Standards.

FGT is prohibited from allowing the new compressor engine to discharge into the atmosphere the emissions of air pollutants, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20 percent opacity).

## 3.2.5 Rule 62-210.300(3)(a) Exempt Emissions Units and/or Activities.

The emissions from the emergency generator and the fugitive leak emissions are insignificant sources and are exempt from the permitting requirements of Chapter 62-210 Stationary Sources - General Requirements, 62-213 Operation Permits For Major Sources Of Air Pollution and 62-4 Permits.

## 3.2.6 FDEP Title V CORE Requirements

This facility and emissions unit are subject to the requirements of the FDEP Title V CORE requirements.

## 4.0 REFERENCES

- U.S. Environmental Protection Agency (USEPA). 2000. Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (5<sup>th</sup> Ed.) AP-42, Research Triangle Park, NC.
- 40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines; Final Rule (69 FR 10512)
- 40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines; Proposed Rule (69 FR 18327)]
- 40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines; Proposed Rule (69 FR 18338)]

## **Attachment A**

### **DEP Forms**



## APPLICATION INFORMATION

### Purpose of Application

This application for air permit is submitted to obtain: (Check one)

#### Air Construction Permit

Air construction permit.

#### Air Operation Permit

Initial Title V air operation permit.

Title V air operation permit revision.

Title V air operation permit renewal.

Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.

Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

#### **Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)**

Air construction permit and Title V permit revision, incorporating the proposed project.

Air construction permit and Title V permit renewal, incorporating the proposed project.

**Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:**

I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

### Application Comment

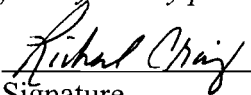
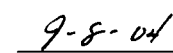
Application is for the revision of the heat rate for a new turbine that was installed under Construction Permit 0950190-004-AC.



**APPLICATION INFORMATION**

**Owner/Authorized Representative Statement**

**Complete if applying for an air construction permit or an initial FESOP.**

1. Owner/Authorized Representative Name : Richard Craig, Vice President, Southeast Operations
2. Owner/Authorized Representative Mailing Address... Organization/Firm: Florida Gas Transmission Company Street Address: P.O. Box 4657 City: Houston State: TX Zip Code: 77101-4657
3. Owner/Authorized Representative Telephone Numbers... Telephone: (713) 646 - 7227 ext. Fax: ( ) -
4. Owner/Authorized Representative Email Address: rick.craig@CrossCountryEnergy.com
5. Owner/Authorized Representative Statement:  <i>I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.</i>   Signature   Date



**APPLICATION INFORMATION**

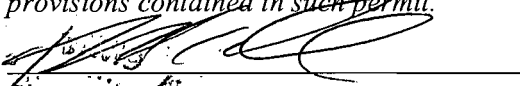
**Application Responsible Official Certification**

**Complete if applying for an initial/revise/renewal Title V permit or concurrent processing of an air construction permit and a revised/renewal Title V permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."**

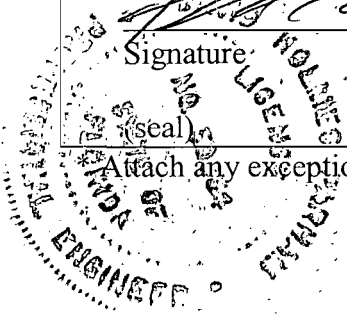
1. Application Responsible Official Name: Richard Craig, Vice President, Southeast Operations
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input checked="" type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source.
3. Owner/Authorized Representative Mailing Address... Organization/Firm: Florida Gas Transmission Company Street Address: P.O. Box 4657 City: Houston State: TX Zip Code: 77101-4657
4. Application Responsible Official Telephone Numbers... Telephone: (713) 646 - 7227 ext. Fax: ( ) -
5. Application Responsible Official Email Address: rick.craig@CrossCountryEnergy.com
6. Application Responsible Official Certification: <i>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</i>  Signature <u>Richard Craig</u> Date <u>9-8-04</u>

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: David Holmes Parham Registration Number: 50834
2. Professional Engineer Mailing Address... Organization/Firm: Florida Gas Transmission Company Street Address: 601 S. Lake Destiny Dr. Suite 450 City: Maitland State: FL Zip Code: 32751
3. Professional Engineer Telephone Numbers... Telephone: (407) 838-7119 ext. Fax: (407) 838-7101
4. Professional Engineer Email Address: david.parham@CrossCountryEnergy.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i>  (1) <i>To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i>  (2) <i>To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i>  (3) <i>If the purpose of this application is to obtain a Title V air operation permit (check here <input checked="" type="checkbox"/>) , if so, I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i>  (4) <i>If the purpose of this application is to obtain an air construction permit (check here <input type="checkbox"/>) , if so, or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input checked="" type="checkbox"/>) , if so, I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i>  (5) <i>If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>) , if so, I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  Signature:  Date: <u>8/27/04</u>

Attach any exception to certification statement.



## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility Location and Type

1. Facility UTM Coordinates... Zone 17     East (km)   451.86 North (km)  3154.79		2. Facility Latitude/Longitude... Latitude (DD/MM/SS)  28/31/15 Longitude (DD/MM/SS) 82/29/31	
3. Governmental Facility Code: 0	4. Facility Status Code: A	5. Facility Major Group SIC Code: 49	6. Facility SIC(s): 4922
7. Facility Comment : Compressor Station No. 18 is an existing natural gas pipeline compressor station with six existing compressor engines. It is classified as a major source under New Source Review and Title V definitions.			

#### **Facility Contact**

1. Facility Contact Name: Jim Burrow, Team Environmentalist
2. Facility Contact Mailing Address... Organization/Firm: Florida Gas Transmission Company Street Address: 2990 Steer Lake Rd. City: Orlando                     State: FL                     Zip Code: 32861-6898
3. Facility Contact Telephone Numbers: Telephone: (407) 838 - 7356     ext.     Fax:     (407) 838 - 7351
4. Facility Contact Email Address: james.burrow@crosscountryenergy.com

#### Facility Primary Responsible Official

**Complete if an "application responsible official" is identified in Section I. that is not the facility "primary responsible official."**

1. Facility Primary Responsible Official Name: See Section 1
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City:                             State:                     Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: ( ) -     ext.     Fax: ( ) -
4. Facility Primary Responsible Official Email Address:

## FACILITY INFORMATION

### Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a “major source” and a “synthetic minor source.”

1.	<input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2.	<input type="checkbox"/> Synthetic Non-Title V Source	
3.	<input checked="" type="checkbox"/> Title V Source	
4.	<input checked="" type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5.	<input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6.	<input checked="" type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7.	<input type="checkbox"/> Synthetic Minor Source of HAPs	
8.	<input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9.	<input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10.	<input checked="" type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11.	<input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12.	<p>Facility Regulatory Classifications Comment:</p> <p>Facility is a major source for PSD and Title V purposes. New turbine is subject to NSPS Subpart GG.</p> <p>40 CFR 63 Subpart YYYY has been proposed for turbines, but the potentially subject emission unit will be deleted under USEPA proposed revisions.</p>	

# FACILITY INFORMATION

## List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
NO <sub>x</sub>	A	N
CO	A	N
VOC	B	N
SO <sub>2</sub>	B	N
PM	B	N

# FACILITY INFORMATION

## B. EMISSIONS CAPS

### Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID No.s Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap
NA					
7. Facility-Wide or Multi-Unit Emissions Cap Comment:  There are no emission caps.					

## FACILITY INFORMATION

### C. FACILITY ADDITIONAL INFORMATION

#### Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Attach. B</u> <input type="checkbox"/> Previously Submitted, Date: _____
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>08/2000</u>
3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: <u>NA</u> <input type="checkbox"/> Previously Submitted, Date: _____

#### Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (existing permitted facility)
2. Description of Proposed Construction or Modification: <input checked="" type="checkbox"/> Attached, Document ID: <u>Narrative Section 2.0</u>
3. Rule Applicability Analysis: <input checked="" type="checkbox"/> Attached, Document ID: <u>Narrative Section 3.0</u>
4. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification (Rule 62-212.400(2), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6. Preconstruction Air Quality Monitoring and Analysis (Rule 62-212.400(5)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7. Ambient Impact Analysis (Rule 62-212.400(5)(d), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. Air Quality Impact since 1977 (Rule 62-212.400(5)(h)5., F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(5)(e)1. and 62-212.500(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

## FACILITY INFORMATION

### Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.):  
 Attached, Document ID: \_\_\_\_\_  Not Applicable (no exempt units at facility)

### Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities (Required for initial/renewal applications only):  
 Attached, Document ID: \_\_\_\_\_  Not Applicable (revision application)
2. Identification of Applicable Requirements (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought):  
 Attached, Document ID: Narrative Section 3.0  
 Not Applicable (revision application with no change in applicable requirements)
3. Compliance Report and Plan (Required for all initial/revision/renewal applications):  
 Attached, Document ID: NA  
Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.
4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only):  
 Attached, Document ID: \_\_\_\_\_  
 Equipment/Activities On site but Not Required to be Individually Listed  
 Not Applicable
5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) :  
 Attached, Document ID: \_\_\_\_\_  Not Applicable
6. Requested Changes to Current Title V Air Operation Permit:  
 Attached, Document ID: Cover Letter  Not Applicable

### Additional Requirements Comment

FGT is requesting a revision to the heat rate for EU No. 006 which was installed under construction Permit 0950190-004-AC. Initial testing determined that the heat rate was higher than the rate anticipated by the manufacturer.



## EMISSIONS UNIT INFORMATION

Section [ 1 ] of [ 1 ]

### III. EMISSIONS UNIT INFORMATION

**Title V Air Operation Permit Application** - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

**Air Construction Permit or FESOP Application** - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an “unregulated emissions unit” does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

**Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application** – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**A. GENERAL EMISSIONS UNIT INFORMATION****Title V Air Operation Permit Emissions Unit Classification**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

**Emissions Unit Description and Status**

1. Type of Emissions Unit Addressed in this Section: (Check one)

This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:

7,200 bhp ISO natural gas fired turbine compressor unit

3. Emissions Unit Identification Number: 006

4. Emissions Unit Status Code: A	5. Commence Construction Date: 02/24/03	6. Initial Startup Date: 10/01/03	7. Emissions Unit Major Group SIC Code: 49	8. Acid Rain Unit? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
-------------------------------------	--	--------------------------------------	---	--

9. Package Unit:

Manufacturer: Cooper-Rolls Royce

Model Number: 501-KC7 DLE

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

The new turbine engine is a Cooper-Rolls 501-KC7 DLE engine compressor unit ISO rated at 7,200 bhp and site rated at 7,067.5 bhp. Fuel is exclusively natural gas from the FGT's gas pipeline. The new engine will incorporate dry, low NO<sub>x</sub> combustion technology.

**EMISSIONS UNIT INFORMATION**

**Section [ 1 ] of [ 1 ]**

**Emissions Unit Control Equipment**

1. Control Equipment/Method(s) Description:

The engine incorporates dry, low NOX combustion technology.

2. Control Device or Method Code(s): 99

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**B. EMISSIONS UNIT CAPACITY INFORMATION**  
**(Optional for unregulated emissions units.)**

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate:
2. Maximum Production Rate:
3. Maximum Heat Input Rate: 67.7 million Btu/hr
4. Maximum Incineration Rate: pounds/hr tons/day
5. Requested Maximum Operating Schedule: 24 hours/day 7 days/week 52 weeks/year 8760 hours/year
6. Operating Capacity/Schedule Comment:  Heat input of 67.7 MM Btu/hr is based on emissions testing.

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**C. EMISSION POINT (STACK/VENT) INFORMATION  
(Optional for unregulated emissions units.)****Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: 1806		2. Emission Point Type Code: 1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:  NA			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:  NA			
5. Discharge Type Code: V	6. Stack Height: 61.16 feet	7. Exit Diameter: 6.0 feet	
8. Exit Temperature: 964 °F	9. Actual Volumetric Flow Rate: 97,542 acfm	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: 17 East (km): 451.86 North (km): 3154.79		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:			

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate:** Segment 1 of 1

1. Segment Description (Process/Fuel Type):  Natural gas fired turbine engine driving a natural gas compressor, operating full time.		
2. Source Classification Code (SCC): 2-02-002-01		3. SCC Units: Million cubic feet burned
4. Maximum Hourly Rate: 0.0651	5. Maximum Annual Rate: 570.242	6. Estimated Annual Activity Factor: NA
7. Maximum % Sulfur: 0.03	8. Maximum % Ash: NA	9. Million Btu per SCC Unit: 1040
10. Segment Comment: Based on heat rate of 67.7 MMBtu/hr HHV.  Percent sulfur is based on maximum Federal Energy Regulatory Commission (FERC) limit of 10 gr S/100 scf and gas density of 0.0455 lb/scf.		

**Segment Description and Rate:** Segment NA of       

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)**

**Segment Description and Rate:** Segment NA of \_\_\_\_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**Segment Description and Rate:** Segment NA of \_\_\_\_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**EMISSIONS UNIT INFORMATION**

**Section [ 1 ] of [ 1 ]**

**E. EMISSIONS UNIT POLLUTANTS**

**List of Pollutants Emitted by Emissions Unit**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
NOX	099		EL
CO			NS
VOC			NS
SO2			EL
PM10			NS
HAPS			NS



**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**  
 (Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: NOX		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 5.7 lb/hour                      24.97 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to    tons/year NA			
6. Emission Factor: 5.7 lb/hr  Reference: Vendor's data		7. Emissions Method Code: 5	
8. Calculation of Emissions:  (5.70 lb/hr)(1 ton/2000 lb)(8760 hr/1 yr) = 24.97 tons/year			
9. Pollutant Potential/Estimated Fugitive Emissions Comment:  Based on vendor's data. See Attachment C.			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
 ALLOWABLE EMISSIONS**

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions: NA
3. Allowable Emissions and Units: 25 ppmv	4. Equivalent Allowable Emissions: 5.7 lb/hour                      24.97 tons/year
5. Method of Compliance:  Initial performance test, custom fuel monitoring	
6. Allowable Emissions Comment (Description of Operating Method):  40 CFR 60.332(a)(2) limits NOX emissions to 190 ppmv.	

**Allowable Emissions** Allowable Emissions NA of    

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions NA of    

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: SO2	2. Total Percent Efficiency of Control:
3. Potential Emissions: 1.9 lb/hour                      8.15 tons/year	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year NA	
6. Emission Factor: 10 gr/100scf  Reference: FERC limit	7. Emissions Method Code: 2
8. Calculation of Emissions:  $(10 \text{ gr S}/100 \text{ scf})(65,100 \text{ scf/hr})(1 \text{ lb}/7000 \text{ gr}) = 0.93 \text{ lb S/hr}$ $(0.93 \text{ lb S/hr})(2 \text{ lb SO}_2/\text{lb S}) = 1.86 \text{ lb SO}_2/\text{hr}$ $(1.86 \text{ lb SO}_2/\text{hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) = 8.15 \text{ ton/yr}$	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:  SO2 emission factor is based on maximum Federal Energy Regulatory Commission (FERC) limit of 10 gr S/100 scf and gas density of 0.0455 lb/scf. See Attachment C. Reason for difference in construction permit tpy limit unknown.	

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
 ALLOWABLE EMISSIONS**

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions: NA
3. Allowable Emissions and Units: 10 grains/100 scf	4. Equivalent Allowable Emissions: 1.86 lb/hour      8.15 tons/year
5. Method of Compliance:  Initial performance test, custom fuel monitoring	
6. Allowable Emissions Comment (Description of Operating Method):  40 CFR 60.333(a) limits SO2 emissions to 8000 ppmw.	

**Allowable Emissions** Allowable Emissions NA of    

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions NA of    

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: PM	2. Total Percent Efficiency of Control:
3. Potential Emissions: 0.45 lb/hour                      1.96 tons/year	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year NA	
6. Emission Factor: 0.0066 lb/MM Btu  Reference: Table 3.1-2a, AP-42 4/00, Supplement E	7. Emissions Method Code: 3
8. Calculation of Emissions:  (0.0066 lb/MM Btu)(67.7 MM Btu/hr) = 0.447 lb/hr (0.447 lb/hr)(8760 hr/yr)(1 ton/2000 lb) = 1.96 ton/yr	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:  Based on revised fuel use test data	

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions NA of \_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions: NA
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:  Initial performance test, custom fuel monitoring	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions NA of \_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions NA of \_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: CO	2. Total Percent Efficiency of Control:	
3. Potential Emissions: 6.91 lb/hour                      30.27 tons/year	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to    tons/year NA		
6. Emission Factor: 6.91 lb/hr  Reference: Vendor's data	7. Emissions Method Code: 5	
8. Calculation of Emissions:  (6.91 lb/hr)(1 ton/2000 lb)(8760 hr/1 yr) = 30.27 tons/year		
9. Pollutant Potential/Estimated Fugitive Emissions Comment:  Based on vendor's data. See Attachment C.		

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions NA of \_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions: NA
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:  Initial performance test, custom fuel monitoring	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions NA of \_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions NA of \_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	



**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: VOC	2. Total Percent Efficiency of Control:
3. Potential Emissions: 1.58 lb/hour                      0.69 tons/year	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year NA	
6. Emission Factor: 1.58 lb/hr THC  Reference: Vendor's data	7. Emissions Method Code: 5
8. Calculation of Emissions:  Vendor factor for total hydrocarbons (THC) = 1.58 lb/hr. Assume 10% is VOC. (0.158 lb/hr)(1 ton/2000 lb)(8760 hr/1 yr) = 0.69 tons/year	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:  Based on vendor's data. See Attachment C.	

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
 ALLOWABLE EMISSIONS**

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions NA of \_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions: NA
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:  Initial performance test, custom fuel monitoring	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions NA of \_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions NA of \_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: HAPS	2. Total Percent Efficiency of Control:
3. Potential Emissions: 0.0634 lb/hour                      0.30 tons/year	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year NA	
6. Emission Factor: 0.001027 lb/MM Btu  Reference: Table 3.1-3a, AP-42 4/00, Supplement E	7. Emissions Method Code: 3
8. Calculation of Emissions:  (0.001027 lb/MM Btu)(67.7 MM Btu/hr) = 0.070 lb/hr (0.070/lb/hr)(8760 hr/yr)(1 ton/2000 lb) = 0.30 ton/yr	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:	

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
 ALLOWABLE EMISSIONS**

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions NA of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions: NA
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:  Initial performance test, custom fuel monitoring	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions NA of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions NA of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**G. VISIBLE EMISSIONS INFORMATION**

**Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.**

**Visible Emissions Limitation:** Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: VE10	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: 10 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: USEPA Method 9 annually	
5. Visible Emissions Comment:  Subject to 62-296-320 General Visible Emissions Standards.	

**Visible Emissions Limitation:** Visible Emissions Limitation NA of     

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**H. CONTINUOUS MONITOR INFORMATION**

**Complete if this emissions unit is or would be subject to continuous monitoring.**

**Continuous Monitoring System:** Continuous Monitor NA of   

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor    of   

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**EMISSIONS UNIT INFORMATION**

Section [ 1 ] of [ 1 ]

**I. EMISSIONS UNIT ADDITIONAL INFORMATION**

**Additional Requirements for All Applications, Except as Otherwise Stated**

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>08/2000</u>
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>08/2000</u>
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: <u>NA</u> <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: <u>NA</u> <input type="checkbox"/> Previously Submitted, Date _____ <input type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records <input type="checkbox"/> Attached, Document ID: <u>Submitted separately and concurrently</u> Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> To be Submitted, Date (if known): <u>03/06/04</u> Test Date(s)/Pollutant(s) Tested: <u>01/21/04, NOX, CO, SO2, VE</u> <input type="checkbox"/> Not Applicable  Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**EMISSIONS UNIT INFORMATION**

**Section [ 1 ] of [ 1 ]**

**Additional Requirements for Air Construction Permit Applications**

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) <input type="checkbox"/> Attached, Document ID: <u>NA</u> <input checked="" type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**Additional Requirements for Title V Air Operation Permit Applications**

1. Identification of Applicable Requirements <input checked="" type="checkbox"/> Attached, Document ID: <u>Section 3.0 of Narrative</u>
2. Compliance Assurance Monitoring <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable



5. Acid Rain Part Application

- Certificate of Representation (EPA Form No. 7610-1)
  - Copy Attached, Document ID: \_\_\_\_\_
- Acid Rain Part (Form No. 62-210.900(1)(a))
  - Attached, Document ID: \_\_\_\_\_
  - Previously Submitted, Date: \_\_\_\_\_
- Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
  - Attached, Document ID: \_\_\_\_\_
  - Previously Submitted, Date: \_\_\_\_\_
- New Unit Exemption (Form No. 62-210.900(1)(a)2.)
  - Attached, Document ID: \_\_\_\_\_
  - Previously Submitted, Date: \_\_\_\_\_
- Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
  - Attached, Document ID: \_\_\_\_\_
  - Previously Submitted, Date: \_\_\_\_\_
- Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
  - Attached, Document ID: \_\_\_\_\_
  - Previously Submitted, Date: \_\_\_\_\_
- Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
  - Attached, Document ID: \_\_\_\_\_
  - Previously Submitted, Date: \_\_\_\_\_
- Not Applicable

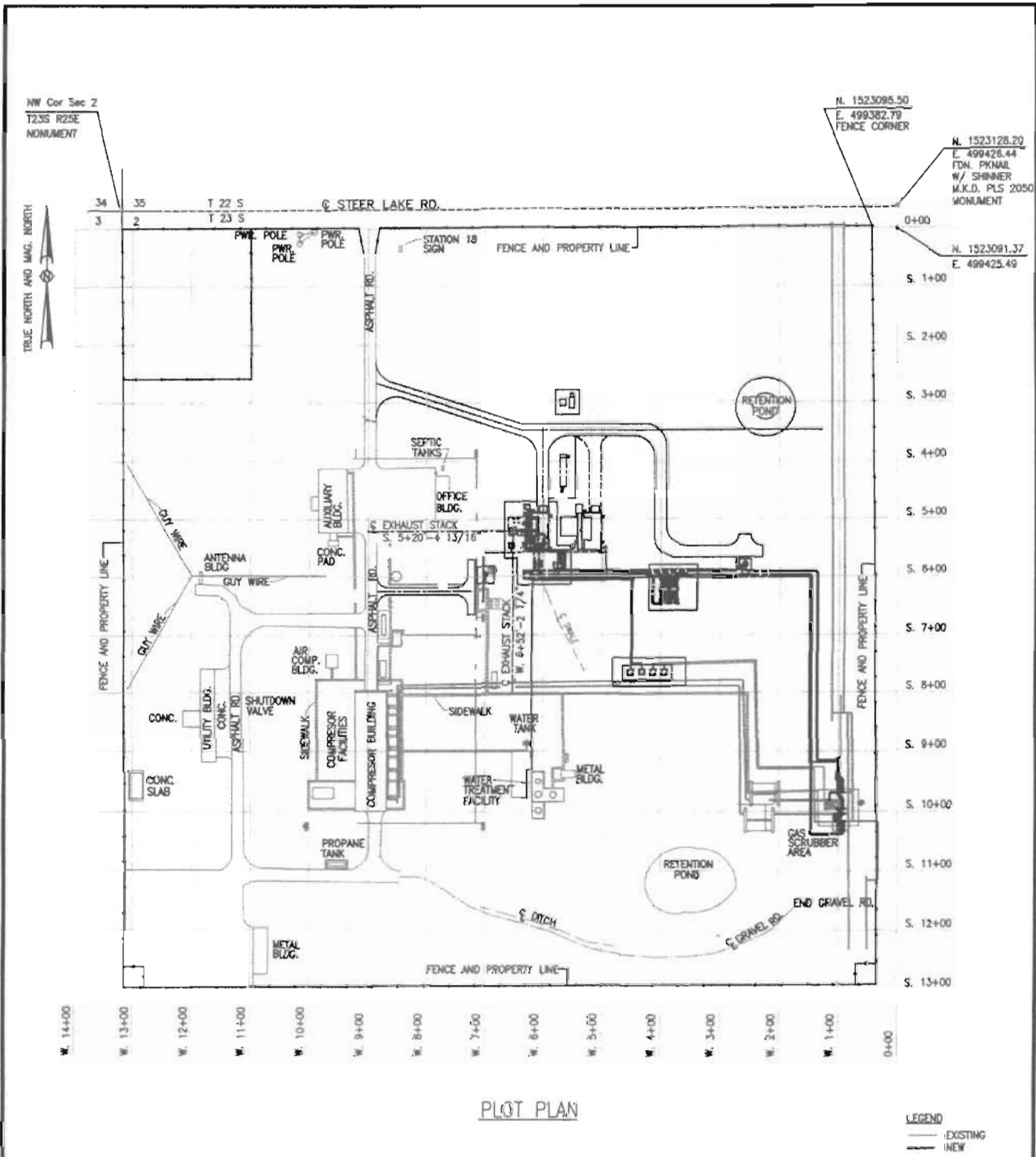
**EMISSIONS UNIT INFORMATION**

**Section [ 1 ] of [ 1 ]**

**Additional Requirements Comment**

## **Attachment B**

### **Plot Plan**



PLOT PLAN

LEGEND  
 — EXISTING  
 - - - NEW

PIPELINE, STATION, OR ACCOUNT NUMBER		SCALE N.T.S.		CONST. YR. 2003		PROJECT NO. C.012612	
FILENUMBER	CADD FILENAME	DRAWN MM		DATE 10/15/02		PREVIOUS DWG. NO.	
REV. NO. - DESCRIPTION	BY	DATE	APP.	<b>Florida Gas Transmission Company</b> An Enron/B Pace Affiliates COMPRESSOR STATION NO. 18 FGT PHASE VI EXPANSION PLOT PLAN ORANGE COUNTY, FLORIDA			SHT. OF
							DWG. NO.
							S3-1AP
							SHT. 1 OF 1

**Attachment C**

**Vendor Information**

**Cooper-Rolls 501 KC-7 Turbine**

**Allison Industrial Engine Performance & Emissions Estimate (EDR 18656)**

**Date:** October 10,2002

**Project:** FGT CS18

**Engine Model:** 501-KC7

Parameter\Data Pt. No.	1	2	3	4	5	6
Altitude (feet)	120	120	120	120	120	120
Ambient Press. (psia)	14.632	14.632	14.632	14.632	14.632	14.632
Relative Humidity	100	100	100	100	100	100
Inlet Loss ("H2O)	4	4	4	4	4	4
Exhaust Loss ("H2O)	3	3	3	3	3	3
Inlet Pressure (CIP, psia)	14.488	14.488	14.488	14.488	14.488	14.488
Inlet Temperature (CIT, °F)	59	59	59	59	59	59
Inlet Flow (lb/sec)	44.641	43.271	41.79	40.98	39.904	38.457
Combustion System	DLE	DLE	DLE	DLE	DLE	DLE
Control Temp. (°F)	1935	1861	1798	1739	1675	1612
BOT f/a (°F)	2012	1938	1876	1816	1752	1690
Fuel Flow (MMBTU/hr)	56.8693	52.4132	48.2499	44.2163	40.1411	38.3185
Fuel Flow (lb/hr)	2784.98	2566.76	2362.87	2165.34	1965.77	1876.52
Output Shaft Speed (rpm)	13600	13600	13600	13600	13600	13600
Gas Generator Speed (rpm)	14699	14378	14121	13896	13698	13500
Shaft Power (hp)	7067.5	6360.7	5654	4947.4	4240.3	3534
% of Full Load	100	90	80	70	60	50
HeatRate[Shaft] BTU/(shp*hr)	8047	8240	8534	8937	9466	10843
TOT t/c (°F)	965	933	911	893	873	855
Exhaust Flow (lb/sec)	45.106	43.685	41.969	40.091	38.128	35.911
Exhaust Temp. (f/a, °F)	964	933	911	892	872	854
Exhaust P-static (psia)	14.741	14.741	14.741	14.741	14.741	14.741
Fuel	Ref	Ref	Ref	Ref	Ref	Ref
	Gas	Gas	Gas	Gas	Gas	Gas
Fuel LHV (BTU/lb)	20420	20420	20420	20420	20420	20420
<b>Expected Emissions @ 15% O2</b>						
NOx ppm	25	25	25	25	25	25
CO ppm	50	50	50	50	50	50
<b>Expected Emissions (lb/eng-hr)</b>						
NOx	5.7	5.2	4.8	4.3	3.8	3.5
CO	6.91	6.37	5.83	5.21	4.62	4.31
HC	1.58	1.46	1.33	1.19	1.06	0.98
<b>Exhaust Gas (vol %)</b>						
CO2	2.94	2.8	2.68	2.51	2.34	2.32
H2O	7.32	7.05	6.81	6.48	6.16	6.12
O2	14.27	14.57	14.85	15.21	15.57	15.62
N2	74.58	74.68	74.77	74.9	75.02	75.04
Ar	0.89	0.9	0.9	0.9	0.9	0.9

**Attachment D**  
**Emission Calculations**

**Engine No. 1806 EPN: 006 REVISED**

**NOx Emissions: (Based on Vendor Data)**

$$\text{lb NOx/hr} = 5.70$$

$$\begin{aligned} \text{tons NOx/yr} &= (\text{lb NOx/hr})(\text{hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= (5.7 \text{ lb NOx/hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= 24.97 \end{aligned}$$

**CO Emissions: (Based on Vendor Data)**

$$\text{lb CO/hr} = 6.91$$

$$\begin{aligned} \text{tons CO/yr} &= (\text{lb CO/hr})(\text{hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= (6.9 \text{ lb CO/hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= 30.27 \end{aligned}$$

**VOC Emissions: (Based on Vendor Data)**

$$\text{lb VOC/hr} = 0.158$$

$$\begin{aligned} \text{tons VOC/yr} &= (\text{lb VOC/hr})(\text{hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= (0.158 \text{ lb VOC/hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= 0.69 \end{aligned}$$

**SO2 Emissions: (Based on FERC Limits)**

$$\begin{aligned} \text{lb S/hr} &= (\text{gr S}/100 \text{ scf})(\text{MMscf/hr})(1 \text{ lb}/7000 \text{ gr}) \\ &= (10 \text{ gr S}/100 \text{ scf})(0.0651 \text{ MMscf/hr})(1 \text{ lb}/7000 \text{ gr}) \\ &= 0.93 \end{aligned}$$

$$\begin{aligned} \text{lb SO2/hr} &= (\text{lb S/hr})(2 \text{ lb SO2}/\text{lb S}) \\ &= (0.93 \text{ lb S/hr})(2 \text{ lb SO2}/\text{lb S}) \\ &= 1.86 \end{aligned}$$

$$\begin{aligned} \text{tons SO2/yr} &= (\text{lb SO2/hr})(\text{hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= (1.86 \text{ lb SO2/hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= 8.15 \end{aligned}$$

**PM 10/2.5 Emissions: (Based on AP-42 Table 3.1-2a, 4/00)**

$$\begin{aligned} \text{lb PM/hr} &= (\text{lb PM}/\text{MMBtu})(\text{MMBtu/hr}) \\ &= (0.0066 \text{ lb}/\text{MMBtu})(67.7000 \text{ MMBtu/hr}) \\ &= 0.4468 \end{aligned}$$

$$\begin{aligned} \text{tons PM/yr} &= (\text{lb PM/hr})(\text{hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= (0.45 \text{ lb PM/hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= 1.96 \end{aligned}$$

**HAPs Emissions: (Based on AP-42 Table 3.1-3, 4/00)**

$$\begin{aligned} \text{lb HAP/hr} &= (\text{lb HAP}/\text{MMBtu})(\text{MMBtu/hr}) \\ &= (0.00102733 \text{ lb}/\text{MMBtu})(67.7000 \text{ MMBtu/hr}) \\ &= 0.0696 \end{aligned}$$

$$\begin{aligned} \text{tons HAP/yr} &= (\text{lb HAP/hr})(\text{hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= (0.07 \text{ lb HAP/hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) \\ &= 0.30 \end{aligned}$$



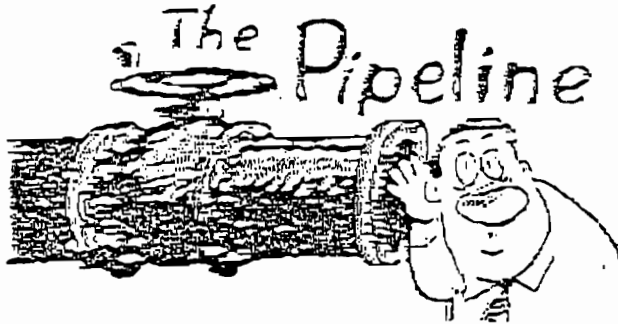
## Engine HAP Emission Factors

HAP	Turbine	
	Factor lb/MMBtu	Ref.
1,3-Butadiene	4.30E-07	d
Acetaldehyde	4.00E-05	d
Acrolein	6.40E-06	d
Benzene	1.20E-05	d
Ethylbenzene	3.20E-05	d
Formaldehyde	7.10E-04	d
Naphthalene	1.30E-06	d
PAH	2.20E-06	d
Toluene	1.30E-04	d
Xylenes	6.40E-05	d
<b>Total Hazardous Cmpds</b>	<b>1.027E-03</b>	

Reference:

AP-42, 5th Edition, Supplement F, 04/00, Table3.1-3

BEST AVAILABLE COPY



Florida Gas Transmission Company  
 Tallahassee Region  
 1967 Commonwealth Lane  
 Tallahassee, FL 32303

Main Telephone: 850-350-5000 FAX: 850-350-5000

Date: 8/26/04

**FAX**

7151

To

James Fleak

From

Jake Krautsch

*90 day response*

*Remove Heat Input from permit condition  
 Central District*

*Jeff Koerner at Tallahassee discussed*

*1806 turbine application to change heat input  
 should get construction permit within 90 days from Jeff K.  
 Tallahassee*

*Phase I d VI - FDEP district*

*all construction permits went thru Tallahassee Jeff Koerner  
 within 12 mo. Title V application to modify*

Aug 18 04 04:04p

Air Program

407-897-5963

p.2



Jeb Bush  
Governor

# Department of Environmental Protection

Central District  
3319 Maguire Boulevard, Suite 232  
Orlando, Florida 32803-3767

*due within  
90 days  
Aug 18, 2004  
30.1  
60.0  
Nov 17, 2004*

## AIR RESOURCES COMPLETENESS REVIEW

SOURCE NAME: Compressor Station #18  
 APPLICANT: Richard Craig, VP Southeast Operations  
 LOCATION: Florida Gas Transmission  
 7990 Steer Lake Road  
 Orlando, FL 32861

DATE RECEIVED: 03/04/04  
 FILE: 0950190-C05-AV  
 FAX: 850.350.3001

Mr. Krautsch's response to my completeness letter for this project was received on July 20, 2004 and reviewed by this office. The following is needed to complete the application.

1. From permit 0950190-004-AC, Performance Restrictions, 3. Permitted Capacities: The maximum heat input rate to the gas turbine shall not exceed 63 MMBtu per hour... From permit 0950190-003-AV, Specific Condition 1. Capacity. The maximum... shall not exceed 15 MMBtu/hr per engine.

To remove the hourly rates, my supervisor has advised that a construction permit is needed for the other units (001-004) and that application should go to Tallahassee. Until both construction permits are issued, this application will be labeled incomplete. Please provide a copy of construction permit(s) when issued.

2. A staff member of Orange Co. Pollution Control has stated that Engine 1806 and perhaps another engine is out of compliance with the hourly heat input rate. Please provide a statement about the compliance status of each engine and a compliance plan (application page A-12, number 3) so that the hourly heat input limitations are maintained.

Please provide a compliance plan or evidence of construction permit(s) from Tallahassee removing the hourly limit.

Pursuant to Rule 62-4.055, the applicant (Mr. Craig) shall have ninety days after the Department mails a timely request for additional information to submit that information to the Department. If an applicant requires more than ninety days in which to respond to a request for additional information, the applicant may notify the Department in writing of the circumstances, at which time the application shall be held in active status for one additional period of up to ninety days. Additional extensions shall be granted for good cause shown by the applicant. A showing that the applicant is making a diligent effort to obtain the requested additional information shall constitute good cause. Failure of an applicant to provide the timely requested information by the applicable deadline shall result in denial of the application.

"More Protection, Less Process"

Printed on recycled paper.

Florida Gas Transmission, Station #18  
0950190-005-AV  
page two

Please provide future responses from Mr. Craig to complete the application process. If you have any questions regarding this letter, please fax me at 407.897.5963 or write to me at the above address.

Sincerely,



Alan Zahn, P.E.  
Permitting Supervisor

18 Aug '04  
date

cc: Jacob Krautsch, FL Gas Transmission, fax 8503505001  
John Kapser, PE, OCEPD, fax 4078361498  
Al Linaro, PE, DARM, fax 2926979

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> <li>Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</li> <li>Print your name and address on the reverse so that we can return the card to you.</li> <li>Attach this card to the back of the mailpiece, or on the front if space permits.</li> </ul>	<p>A. Signature <input type="checkbox"/> Agent  <input checked="" type="checkbox"/> Addressee</p> <p>B. Received by (Printed Name) <i>Richard Craig</i> Date of Delivery <i>NOV 9 2004</i></p>
<p>1. Article Addressed to:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Mr. Richard Craig, V.P. of Southeastern Operations                      Florida Gas Transmission Company                      Post Office Box 4657                      Houston, TX 77101-4657</p> </div>	<p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes                      If YES, enter delivery address below: <input type="checkbox"/> No</p> <p>3. Service Type  <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail  <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise  <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p> <p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>
<p>2. Article Number                      (Transfer from service label)</p>	<p><i>7000 1670 0013 3109 9281</i></p>

PS Form 3811, August 2001

Domestic Return Receipt

102595-02-M-1540

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
*(Domestic Mail Only; No Insurance Coverage Provided)*

<p>7000 1670 0013 3109 9281</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Postage</td> <td style="width: 40%;">\$</td> </tr> <tr> <td>Certified Fee</td> <td></td> </tr> <tr> <td>Return Receipt Fee (Endorsement Required)</td> <td></td> </tr> <tr> <td>Restricted Delivery Fee (Endorsement Required)</td> <td></td> </tr> </table>	Postage	\$	Certified Fee		Return Receipt Fee (Endorsement Required)		Restricted Delivery Fee (Endorsement Required)		<p>Postmark Here</p>
Postage	\$									
Certified Fee										
Return Receipt Fee (Endorsement Required)										
Restricted Delivery Fee (Endorsement Required)										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">1</td> <td style="width: 85%;"> <p>Se Mr. Richard Craig, V.P. of Southeastern Operations</p> <p>St Florida Gas Transmission Company</p> <p>Co Post Office Box 4657</p> <p>Houston, TX 77101-4657</p> </td> <td style="width: 10%;"></td> </tr> </table>			1	<p>Se Mr. Richard Craig, V.P. of Southeastern Operations</p> <p>St Florida Gas Transmission Company</p> <p>Co Post Office Box 4657</p> <p>Houston, TX 77101-4657</p>						
1	<p>Se Mr. Richard Craig, V.P. of Southeastern Operations</p> <p>St Florida Gas Transmission Company</p> <p>Co Post Office Box 4657</p> <p>Houston, TX 77101-4657</p>									
<p>PS Form 3800, May 2000. See Reverse for Instructions</p>										

appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

**Comments:** The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of fourteen (14) days from the date of publication of this Public Notice. Written comments must be provided to the Permitting Authority of the above address. Any written comments filed will be made available for public inspection. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice.

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

A petition that disputes the material facts on which the Permitting Authority'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 rights will be affected by the agency determination; (c) A statement of how and when the 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 state; (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 the 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 Permitting Authority'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, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Public Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

**Mediation:** Mediation is not available for this proceeding.  
CDR5931324 NOV.13.2004

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> <li>■ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</li> <li>■ Print your name and address on the reverse so that we can return the card to you.</li> <li>■ Attach this card to the back of the mailpiece, or on the front if space permits.</li> </ul>	<p>A. Signature <input checked="" type="checkbox"/> Agent <input checked="" type="checkbox"/> Addressee</p>
<p>1. Article Addressed to: Mr. Richard Craig Florida Gas Transmission Company Post Office Box 4657 Houston, TX 77101-4657</p>	<p>B. Received by (Printed Name) C. Date of Delivery J. Salazar DEC 13 2004</p>
<p>2. Article Number (Transfer from service label)</p>	<p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No</p>
	<p>3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p>
	<p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>
	<p>7000 1670 0013 3110 2011</p>

PS Form 3811, August 2001

Domestic Return Receipt

102595-02-M-1540

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	\$	Postmark Here
Certified Fee		
Return Receipt Fee (Endorsement Required)		
Restricted Delivery Fee (Endorsement Required)		
<b>Total Postage &amp; Fees</b>	<b>\$</b>	

7000 1670 0013 3110 2011

Sent to: Mr. Richard Craig  
Florida Gas Transmission  
Post Office Box 4657  
Houston, Texas 77101-4657

PS Form 3800, May 2000 See Reverse for Instructions



# Department of Environmental Protection

Jeb Bush  
Governor

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

Colleen M. Castille  
Secretary

October 29, 2004

Mr. Richard Craig, V.P. of Southeastern Operations  
Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

Re: Air Construction Permit No. 0950190-006-AC  
Florida Gas Transmission Company, Compressor Station 18  
Revision to Increase Heat Input for Engine 1806

Dear Mr. Craig:

On September 10, 2004, you submitted an application to revise the original air construction permit to increase the maximum heat input rate for Engine 1806. You have also requested revisions to include notification/testing requirements for "functionally equivalent" component replacements and to incorporate the amended Subpart GG fuel monitoring requirements. The affected units are installed at existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida. Enclosed are the following documents: "Technical Evaluation and Preliminary Determination", "Draft Permit", "Written Notice of Intent to Issue Air Permit", and "Public Notice of Intent to Issue Air Permit".

The "Technical Evaluation and Preliminary Determination" summarizes the Permitting Authority's technical review of the application and provides the rationale for making the preliminary determination to issue a Draft Permit. The proposed "Draft Permit" includes the specific conditions that regulate the emissions units covered by the proposed project. The "Written Notice of Intent to Issue Air Permit" provides important information regarding: the Permitting Authority's intent to issue an air permit for the proposed project; the requirements for publishing a Public Notice of the Permitting Authority's intent to issue an air permit; the procedures for submitting comments on the Draft Permit; the process for filing a petition for an administrative hearing; and the availability of mediation. The "Public Notice of Intent to Issue Air Permit" is the actual notice that you must have published in the legal advertisement section of a newspaper of general circulation in the area affected by this project.

If you have any questions, please contact the Project Engineer, Jeff Koerner, at 850/921-9536.

Sincerely,

Trina Vielhauer, Chief  
Bureau of Air Regulation

Enclosures

"More Protection, Less Process"

Printed on recycled paper.



**TECHNICAL EVALUATION  
&  
PRELIMINARY DETERMINATION**

**PROJECT**

Draft Permit No. 0950190-006-AC  
(Revision of Original Air Permit No. 0950190-004-AC)  
Increased Heat Input Rate for Engine 1806

**COUNTY**

Orange County

**APPLICANT**

Florida Gas Transmission Company  
Existing Compressor Station 18  
ARMS Facility ID No. 0950190

**PERMITTING  
AUTHORITY**

Florida Department of Environmental Protection  
Division of Air Resource Management  
Bureau of Air Regulation  
Air Permitting South Program



October 19, 2004

{Filename: 0950190-006-AC - TEPD}

## 1. APPLICATION INFORMATION

### Facility Description

The Florida Gas Transmission Company operates existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to a National Ambient Air Quality Standard (NAAQS). The Standard Industrial Classification for "Natural Gas Transmission" is SIC No. 4922. Compressor Station 18 consists of: three 2000 bhp engines that were installed in 1962; a 2000 bhp engine that was installed in 1968; a 2700 bhp engine that installed in 1991 (PSD); and a 7200 bhp gas turbine installed in 2003. The primary regulatory categories are:

Title III: The facility is a major source of hazardous air pollutants (HAP).

Title IV: The facility has no units subject to the acid rain provisions of the Clean Air Act.

Title V: The facility is a Title V major source of air pollution (Chapter 213, F.A.C.).

PSD: The facility is a PSD-major source of air pollution (Rule 62-212.400, F.A.C.).

NSPS: The gas turbine is subject to the New Source Performance Standards in Subpart GG of 40 CFR 60.

### Project Description

Engine 1806 was constructed under Air Permit No. 0950190-004-AC as a 7200 bhp gas turbine to be used as a natural gas pipeline compressor engine. The applicant requests the following changes to the original permit.

- Based on performance testing, the installed gas turbine fires more natural gas to produce the required power output. The applicant requests that the permitted maximum heat input rate be increased from 63 to 68 MMBtu per hour.
- In July of 2004, EPA amended the federal fuel monitoring requirements in Subpart GG of 40 CFR for gas turbines. The applicant requests a permit revision to be consistent with the amended fuel monitoring requirements.
- Engine 1806 is a light-industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements.

## 2. APPLICABLE REGULATIONS

### State Regulations

This project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). This project is subject to the applicable rules and regulations defined in the following Chapters of the Florida Administrative Code.

<u>Chapter</u>	<u>Description</u>
62-4	Permitting Requirements
62-204	Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference
62-210	Required Permits, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms
62-212	Preconstruction Review, PSD Requirements, and BACT Determinations
62-213	Operation Permits for Major Sources of Air Pollution
62-296	Emission Limiting Standards
62-297	Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures

## **Federal Regulations**

This project is also subject to the applicable federal provisions regarding air quality as established by the EPA in the following sections of the Code of Federal Regulations (CFR).

<u>Title 40, CFR</u>	<u>Description</u>
Part 60	Subpart A - General Provisions for NSPS Sources NSPS Subpart GG - Stationary Gas Turbines Applicable Appendices

### **3. INCREASE HEAT INPUT FOR ENGINE 1806**

Engine 1806 is a Cooper-Rolls Royce Model KC7-DLE gas turbine nominally rated at 7200 bhp (ISO). The conditions for an "ISO" standard day are 59° F, 60% relative humidity, and 14.7 psi pressure. The unit is permitted for a capacity of 63 MMBtu per hour at a compressor inlet temperature of 59° F when producing approximately 7200 bhp of output. As installed, the performance curves indicate a maximum heat input rate of about 68 MMBtu per hour at a compressor inlet temperature of 59° F when producing approximately 6600 bhp. Apparently, the unit is not as efficient as initially believed. However, the initial compliance test results also show that the gas turbine is well below the permitted emission rates.

Increasing the maximum heat input rate from 63 to 68 MMBtu per hour simply recognizes the capabilities of the installed unit. FGTC continues to work with Rolls Royce to improve the performance. The permit standards will not change as a result of this revision. Only "equivalent maximum emissions" will increase slightly because these rates were directly based on the maximum heat input rate. The minimal change in heat input will not result in significant actual emissions increases. The Department will approve this request.

### **4. REVISED FUEL MONITORING REQUIREMENTS**

In July of 2004, EPA amended the fuel monitoring requirements for gas turbines subject to NSPS Subpart GG, which included the following important changes:

- The amended requirements recognize that pipeline natural gas contains negligible amounts of nitrogen. Therefore, if the permittee elects to not use an allowance for fuel bound nitrogen, then there is no requirement for monitoring the nitrogen content of natural gas. This means that the permittee must use an "F-value" of "zero" when calculating the allowable NSPS Subpart GG NO<sub>x</sub> standard for the gas turbine. This change basically incorporates similar case-by-case determinations made over the years.
- The amended requirements also recognize that pipeline natural gas contains negligible amounts of sulfur. Therefore, if the permittee demonstrates that the maximum sulfur content of the pipeline natural gas is no more than 20 grains per 100 cubic feet of gas as specified in the current tariff sheet, then there is no requirement for monitoring the sulfur content of natural gas.
- Engine 1806 "dry" lean premix combustors and not wet injection to control NO<sub>x</sub> emissions. So, the continuous monitoring requirements for the water-to-fuel ratio are not appropriate. The Subpart GG NO<sub>x</sub> standard is 190 ppmvd @ 15% oxygen. This is nearly eight times the NO<sub>x</sub> standard of 25 ppmvd @ 15% oxygen specified in the permit. It would be nearly impossible for the lean premix gas turbine to exceed the NSPS Subpart GG NO<sub>x</sub> standard. The current permit does not require any continuous demonstration that the gas turbine is complying with the NSPS Subpart GG NO<sub>x</sub> standard. As stated in the preamble to the July 2004 amendments, the changes do not impose any additional monitoring for existing units.

FGTC agrees to use no allowance for fuel bound nitrogen when determining compliance with the NSPS Subpart GG NO<sub>x</sub> standard and has provided the current tariff sheet showing a maximum sulfur content of only 10 grains per 100 cubic feet of pipeline natural gas. The permit includes these and conditions. Therefore, monitoring for fuel nitrogen and sulfur is not required for the pipeline natural gas. The Department will remove the custom fuel monitoring plan and revise the permit to reflect these changes. No changes were made with regard to continuous monitoring for purposes of reporting excess NO<sub>x</sub> emissions; however, the permitting note was updated.

**5. REQUIREMENTS FOR FUNCTIONALLY EQUIVALENT COMPONENT REPLACEMENTS**

**Executive Summary**

Florida Gas Transmission Company (FGTC) operates several compressor stations serving a large natural gas pipeline that runs throughout Florida. The pipeline supports a wide variety of residential, commercial, industrial, and utility customers that rely on natural gas as a clean fuel. FGTC considers the months of April through October to be the critical “run season” for the gas pipeline. This is the period of highest expected natural gas use in Florida with compressor stations operating at higher rates than at other times of the year. During the run season, it is critical that repairs and maintenance be performed as quickly as possible to maintain natural gas availability throughout the system.

Many compressor stations use light industrial gas turbines to drive compressors that maintain pipeline pressure and flow. These types of gas turbines require relatively frequent inspections and maintenance to keep units in proper working order. Such maintenance activities are necessary to prevent the catastrophic failures, which would result in costly repairs and reduce reliability of the natural gas supply. The natural gas pipeline industry has determined that it is more efficient to perform certain repairs and maintenance activities at a regional maintenance facility as opposed to performing them on site. FGTC requests the Department’s concurrence that pulling the gas generator component of Engine 1806, sending it to a regional maintenance facility for repair, and installing a like-kind gas generator, is not a modification and does not require a preconstruction permit.

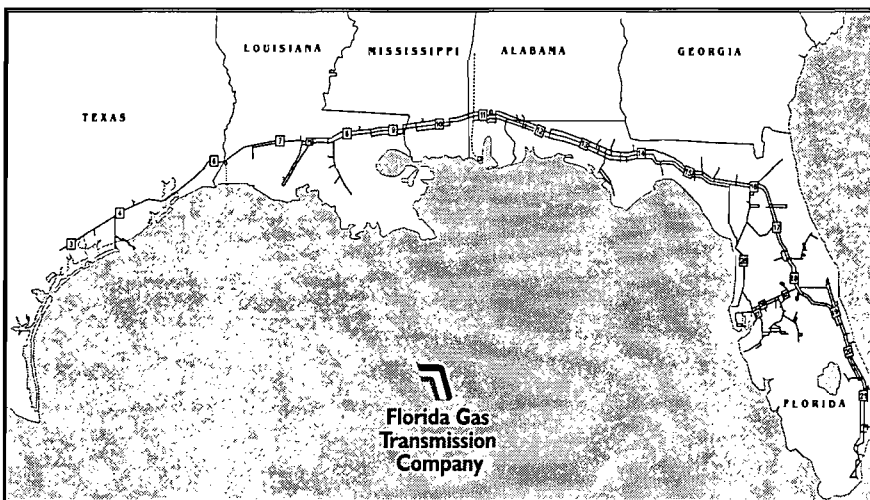
The Bureau of Air Regulation concludes that replacement of the gas generator/power turbine component (or smaller components) for this light industrial gas turbine compressor engine is standard industry practice for the natural gas pipeline industry. As such, the replacement is not a modification and does not require a new air construction permit or modification of an existing air construction permit. This would also be true for comparable replacements for other gas turbines serving as compressor engines and having similar functions, characteristics, and sizes (< 16,000 bhp). This report presents background information for compressor station gas turbines, regulatory requirements, emissions impacts, maintenance practices, interpretations by other states, and the Bureau of Air Regulation’s rationale for this conclusion.

**Background**

Engine 1806 is a permitted gas turbine compressor engine rated at approximately 7200 bhp. It is installed at Station 18, which is located Orlando, Orange County, Florida. In summary, FGTC requests the Department’s concurrence that replacement of the gas generator component is standard practice for the gas pipeline industry and does not require a preconstruction permit. FGTC will provide notification of such replacements and compliance test the replacement unit with 60 days of first fire.

Florida Compressor Stations

No.	City	County
12	Milton	Santa Rosa
13	Caryville	Washington
14	Quincy	Gadsden
15	Perry	Taylor
16	Brooker	Bradford
17	Silver Springs	Marion
18	Orlando	Orange
19	Melbourne	Brevard
20	Ft. Pierce	St. Lucie
21	West Palm Bch	Palm Beach
24	Trenton	Gilchrist
26	Lecanto	Citrus
27	Thonotosassa	Hillsborough
30	Plant City	Hillsborough
31	Kissimmee	Osceola



**Figure 1. Existing Natural Gas Pipeline System**

FGTC operates and maintains a natural gas pipeline that has been in existence since 1958. As shown in Figure 1, the pipeline originates in Texas and passes through portions of Louisiana, Mississippi, Alabama, Georgia, and Florida. Compressor stations form an integral part of the pipeline system, providing the necessary pressure and flow to reliably deliver natural gas to residential, commercial, industrial, and electric utility consumers. There are fifteen existing compressor stations in Florida.

Each compressor station consists of a variety of equipment such as gas compressors, compressor engines, emergency generators, lube oil tanks, used oil tanks, and blow-down stacks. The main sources of air pollution are the compressor engines, which are either reciprocating internal combustion engines or light industrial aero-derivative gas turbines. These units provide the motive power necessary to drive the gas compressors, which boost pipeline pressure and allow flow throughout the system. All of the compressor engines fire natural gas as the exclusive fuel because of its ready availability along the pipeline. Reciprocating internal combustion engines vary in size from about 2000 to 4600 bhp output. Light industrial gas turbines provide much higher outputs ranging from about 1000 to 16,000 bhp output.

### Gas Turbine Components

In recent years, FGTC began depending on light industrial aero-derivative gas turbines (< 16,000 bhp) for its compressor engines rather than reciprocating internal combustion engines. The new gas turbines are more powerful, more efficient, and emit less than one-tenth of the NOx emissions based on a comparable heat input rate. Each gas turbine is delivered to the station as a skid-mounted package consisting of the following general components: gas generator, accessory drive system, air inlet and filtration system, fuel delivery system, cooling system, lubrication system, power turbine, power shaft, control system, starting system, and exhaust system with stack. See Figure 2.

Gas turbines are designed to strict tolerances that must be maintained to ensure efficient operation and to prevent catastrophic failure of the components. Performing maintenance on many of these critical components is difficult and costly to perform in the field. To facilitate maintenance and repair, manufacturers of light industrial aero-derivative gas turbines typically incorporate a modular design to allow pulling and replacing component parts instead of performing maintenance in the field. Due to their relatively small size, replacement components can be quickly delivered and installed to minimize downtime. The "replaced component" is shipped back to a regional maintenance facility where it is overhauled

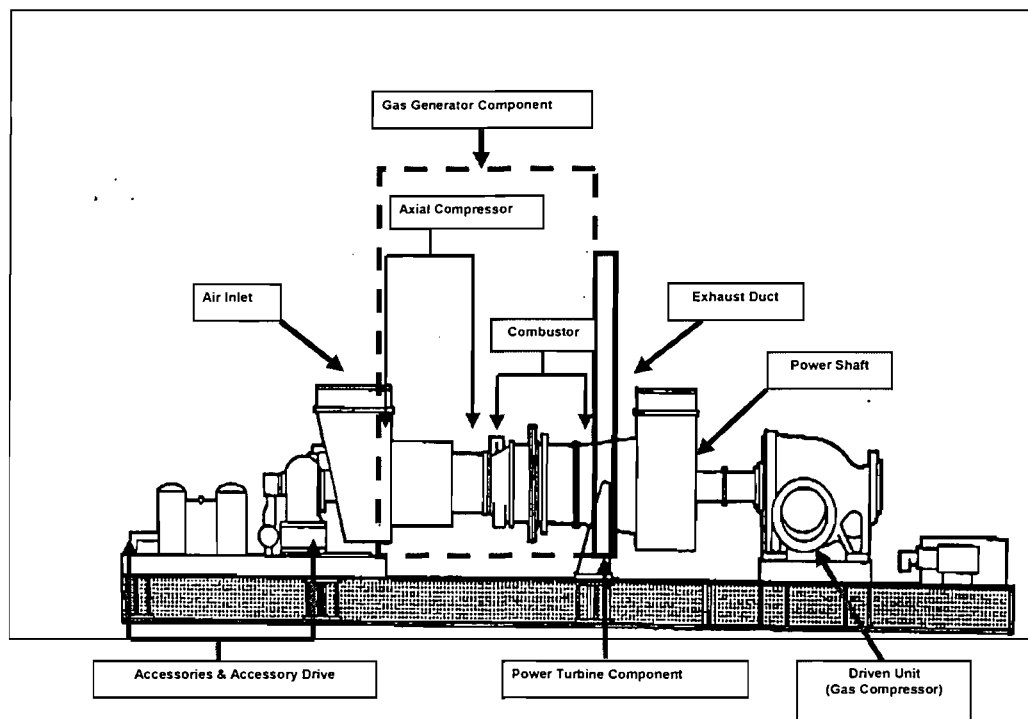


Figure 2. Gas Turbine Compressor Engine and Components

## Technical Evaluation and Preliminary Determination

and returned to a pool of similar gas turbine components to be used as a replacement in the future. For this reason, gas turbine manufacturers also provide extensive maintenance contracts with “pull and replace” provisions for “like-kind” components. Typical operating levels between major maintenance inspections and overhauls can be between 20,000 and 40,000 engine hours or less. This would be in the range of two to six years for a scheduled major overhaul required by the manufacturer.

### Emissions from Gas Turbine Compressor Engines

Engine 1806 is a Royce Model No. 501-KC7 DLE gas turbine serving as a compressor engine at existing Station 18. Firing natural gas as the exclusive fuel, this unit has a nominal output capacity of approximately 7200 bhp at ISO conditions. It also incorporates a version of lean premix combustion technology, which results in low emissions of carbon monoxide (CO), nitrogen oxide (NO<sub>x</sub>), and volatile organic compounds (VOC). As natural gas contains little ash or sulfur, this unit also emits very low levels of particulate matter (PM/PM<sub>10</sub>) and sulfur dioxide (SO<sub>2</sub>). Table 1 shows the permitted potential emissions from Engine 1806.

Table 1. Potential Emissions from Engine 1806

Pollutant	Emission Factor Reference	Emission Factors		Emissions	
		Factor	lb/MMBtu	lb/hour	TPY
CO	Vendor	50 ppmvd @ 15% O <sub>2</sub>	0.101	6.9	30
NO <sub>x</sub>	Vendor	25 ppmvd @ 15% O <sub>2</sub>	0.082	5.7	25
PM/PM <sub>10</sub>	AP-42, Table 3.1-2A	0.0066 lb/MMBtu	0.007	0.5	2
SO <sub>2</sub>	FERC	10 grains sulfur/100 scf	0.028	1.9	8
VOC	Vendor	0.2 lb/hour	0.003	0.2	1

#### Notes:

- Emission rates are based on a maximum heat input rate of 68 MMBtu/hour and a compressor inlet temperature of 59° F.
- Annual emissions are based on year-round operation (8760 hours per year) at these rates.
- “FERC” is the Federal Energy Regulatory Commission. FERC establishes the maximum sulfur content for pipeline gas.

### Review

The Bureau of Air Regulation uses numerous criteria to determine whether or not repair, replacement, or maintenance activities are considered routine. Many of these items are interrelated and no one factor determines whether a project is routine or not. Instead, these factors are reviewed in light of the specific case and available information to reach a conclusion for the project as a whole. The Department reviewed the following key areas with regard to the replacement of a gas generator/power turbine component in a light industrial aero-derivative gas turbine compressor engine serving a natural gas pipeline. It is also worth noting that if the industry were performing these maintenance and repair activities in the field at each site, the Department does not believe a construction permit would be necessary.

#### Nature

- Are major components of a facility are being modified or replaced? Specifically, are the units of considerable size, function, or importance to the operation of the facility, considering the type of industry involved?

Gas turbine compressor engines are a major part of a natural gas compressor station and serve to fulfill the primary function. In terms of the entire natural gas pipeline, a single gas turbine compressor engine might be considered rather small. Currently, the largest gas turbine compressor engine is 15,700 bhp, which is equivalent to approximately 12 MW. The gas generator is the major component of a gas turbine compressor engine.

- Does the change require pre-approval of a state commission, in the case of utilities?

## Technical Evaluation and Preliminary Determination

---

Pipelines and compressor station projects must get prior approval based on need from the Federal Energy Regulatory Commission (FERC). Once the original site and capacity is approved, specified equipment may be replaced as necessary without additional approval from FERC. With regard to the state, gas turbines are primarily approved for construction through the Department's air permitting process. Any changes that would increase or decrease capacity would require additional air construction permits and would likely require prior approval from FERC.

3. Does the source itself characterize the change as "non-routine" in any of its own documents?

FGTC contends that it is *not* typical to perform most repairs for a gas generator *on site*. For the gas pipeline industry, it is more common to remove the component and transport it to a central maintenance facility for repair. Because repair can take several weeks or months, a replacement gas generator is usually installed to minimize downtime during periods of high demand. FGTC provided a discussion of maintenance practices from Solar Gas Turbines, a company that manufactures many of the existing units. This document describes the replacement of a gas generator component as a standard industry maintenance practice for its aero-derivative, light industrial gas turbines. Such units are designed to strict tolerances that must be maintained to ensure efficient operation and prevent catastrophic failure of the components. Performing maintenance on many of these critical components is difficult and costly to perform on site. Therefore, light industrial gas turbines incorporate a modular design to facilitate prompt repair and return to service.

Based on the modular design, equipment manufacturers are able to offer comprehensive maintenance contracts to "pull and replace" components and eliminate critical downtime. The faulty equipment is replaced with a like-kind component, transported to a regional maintenance facility, repaired, and returned to a pool of available replacement components. Downtime for the gas turbine compressor engine may be just a few days even for the replacement of the gas generator component. Solar Gas Turbines indicates that more than 85% of the gas generators and gas generator/power turbine sets leaving their central maintenance facility are considered "replacement components".

4. Can the change be performed during full functioning of the facility or while it is in full working order?

Gas generator repairs cannot generally be performed while the unit is in operation. As discussed previously, the exacting tolerances make on site repair difficult and costly. Replacements can usually be installed within a few days.

5. Are the materials, equipment and resources necessary to carry out the planned activity already on site?

No, replacement components are generally warehoused with the original equipment vendor. Under a maintenance contract, a replacement component (even an entire gas generator) can be delivered within a day or so. The malfunctioning component is then pulled and returned to the equipment vendor for repair. A replacement component is installed so that the compressor engine can return to service. If the gas turbine is still under the initial warranty, a repaired component is occasionally returned back to the original compressor station and re-installed as the original equipment. This is based on specific contractual requirements and may be at the discretion of the equipment vendor.

### Extent

1. Will an entire emissions unit be replaced?

The entire gas turbine compressor engine is not being replaced, but the gas generator is a major component of the gas turbine compressor engine. However, the modular design of the light industrial, aero-derivative gas turbine allows the rapid replacement of even this large component.

2. Will the change take a significant time to perform?

Generally, replacement of a gas generator component can be completed in just a few days. This is the main reason for development of the "pull and replace" policy for handling maintenance and repair issues.

## Technical Evaluation and Preliminary Determination

---

3. Will the collection of activities, taken as a whole, constitute a “non-routine effort”, notwithstanding that individual elements could be routine?

For a light industrial aero-derivative gas turbine, manufacturers normally recommend a major overhaul every two to six years depending on the model and actual operating hours. An overhaul generally involves complete refurbishment of the gas generator to restore it to the original design and operating specifications. For the gas pipeline industry, such overhauls are typically performed at a regional maintenance facility. Alternatively, it is possible that the smaller individual components could be replaced during this period, which would eventually result in near replacement of the gas generator.

EPA’s background document for NSPS Subpart GG (EPA-450/2-77-017a) notes that the terms “overhaul” and “ultimate life” are not defined equally by all gas turbine manufacturers. This makes it difficult to distinguish between modifications and routine maintenance practices. It mentions that non-wearing parts (rotor discs, casings, housing, bearing supports, rotor shafts, etc.) are designed for an ultimate life of about 30 years. However, most manufacturers require “overhauls” after about 20,000 to 40,000 hours of operation. Because an overhaul typically returns a unit to “new” condition, the “ultimate life” of the gas turbine may be indefinite.

The EPA document specifically lists several changes that would *not* be modifications: relocation or transfer of ownership; changes in types or grades of fuel if originally designed for its use; increases in operating hours; variations in operating loads within the original engine design specification; and routine repairs, like-kind replacements, and maintenance (including the repair or replacement of stator blades, turbine nozzles, turbine buckets, fuel nozzles, combustion chambers, seals, and shaft packings). Note that the list of gas turbine components represents parts of the gas generator. The EPA document also lists the following changes that could be modifications resulting in increased emissions: replacements with a different design that allows the firing of alternate fuels; replacements with a different design that allows increased power output; and operating the unit at higher sustained outputs than the original design. The purpose of listing activities that would or would not be a “modification” that would trigger the NSPS Subpart GG requirements was to show that the new regulation would have only slight impacts on existing gas turbines based on existing practices.

4. Does the change require the addition of parts to existing equipment?

No, gas generator components are replaced with functionally equivalent “like-kind” components. Occasionally, manufacturers improve replacement parts to resolve continuing maintenance problems. However, such improvements would not increase the maximum heat input rate or output capacity. Capacity increases require new air permits and would likely require a new FERC approval.

### Purpose

1. Is the purpose of the effort to extend the useful life of the unit? Does the owner propose to replace a unit at the end of its useful life?

The primary purpose of component replacement is to facilitate prompt repair in order to return the gas turbine compressor engine to its original design and operating specifications. FGTC believes that component replacement does not increase the operating life of the gas turbine beyond that of a unit that was “properly maintained” in the field. It is noted that such replacements may lead to an “indefinite” life for the gas turbine.

2. Will the change keep the unit operating in its present condition or will it allow enhanced operation? Will the change permit increased capacity, operating rate, utilization, or fuel adaptability?

Replacement of the gas generator component with a functionally equivalent “like-kind” component will allow the compressor engine to continue operating as it was originally designed. The replacement is not intended to increase the capacity, operating rate, or utilization of the compressor engine. These units typically operate a significant portion of each calendar year (> 40%) depending entirely on consumer demands for natural gas. For this reason, gas turbine compressor engines are typically permitted for year round operation (8760 hours per year). Because compressor engines serve a natural gas pipeline, natural gas is the exclusive fuel and fuel-



switching is not an issue.

**Frequency:** Is the change performed frequently in a typical unit's life?

Yes, it is possible that a gas generator replacement will be performed many times over the life of a gas turbine compressor engine. Again, equipment manufacturers purposely incorporate modular designs into their light industrial, aero-derivative gas turbines to allow for quick component replacements rather than on-site maintenance. Such designs lead to long-term maintenance contracts that include regularly scheduled replacements. Although the "changes" may occur relatively frequently, these practices are intended to keep the unit operating as originally designed.

**Cost**

1. Will the change be costly, both in absolute terms and relative to the cost of replacing the unit?

Replacement of a gas generator is likely the most expensive single component replacement. However, the true cost of such a replacement is difficult to estimate accurately. First, replacements are typically performed in accordance with current contractual requirements, which may cover an entire fleet of gas turbines. So, replacement costs may be spread over a large number of similar units. Second, when a replacement gas generator is installed, the original gas generator retains some value. Typically, the "replaced" gas generator is shipped to a regional maintenance facility for repair. After an overhaul and performance testing, the "replaced" unit returns to a fleet of similar equipment, which will be used as "replacement" components. As summarized in the following table, FGTC provided the following information as an estimate of the component costs for a typical light industrial gas turbine.

Table 2. Estimated Component Costs for a New Light Industrial Gas Turbine (Solar Mars 110S)

<i>Gas Generator</i> .....	\$2,400,000
(Air Intake Assembly, Combustion Assembly, Compressor Assembly and Gas Producer Turbine Assembly)	
<i>Power Turbine</i> .....	\$600,000
(Power Turbine Rotor Assembly, Turbine Exhaust Diffuser, Control System and Inlet Filter and Silencer)	
<i>Ancillary Components</i> .....	\$3,000,000
(Exhaust Collector and Silencer, Control and Electrical System, Starter Assembly, Accessory Drive, Fuel Control System, Lube Oil Coolers, and Lube Oil Skid)	
<i>Miscellaneous Costs</i> .....	\$3,000,000
Engineering and Design, Construction Management, Foundations and Supports and Installation)	
<i>Total Capital Cost</i> .....	\$9,000,000

The capital costs of the gas generator plus power turbine (\$3 million) represent approximately 33% of the total capital cost of a new gas turbine (\$9 million). The estimated "replacement cost" for a gas generator plus power turbine from the replacement pool is approximately \$300,000. This represents only 10% of the estimated costs for brand new components and less than 5% of the total estimated cost of a new gas turbine compressor engine.

2. Is a significant amount of the cost of the change included in the source's capital expenses, or will the change be paid for out of the operating budget? Are the costs reasonably reflective of the costs originally projected during the unit's design phase as necessary to maintain day-to-day operation?

Any costs related to component replacements that are covered under the original warranty would be charged to the operating budget. Any components sent off site for repair and returned to the original site are charged to the operating budget. Any replacement costs incurred for the newest Nuovo-Pignone gas turbines (15,700 bhp) are charged to the operating budget. Replacement costs for out-of-warranty units are charged to the

## Technical Evaluation and Preliminary Determination

---

capital budget. As previously discussed, these replacement costs are well known in the design phase and planned for accordingly.

### How do other states handle component replacements?

The pipeline originates in Texas and passes through portions of Louisiana, Mississippi, Alabama, and Florida. Alabama considers like-kind component replacements to be “routine”, as do several other states that have natural gas pipelines including Georgia, Minnesota, Montana, North Dakota, and South Dakota. Louisiana requires a “minor modification”, which involves a \$140 permit fee and a 4-page application. A public notice is not required and permit modifications are typically issued within 5-6 days of submittal. For units with NOx emissions less than 25 TPY, Texas allows the exchange of gas turbines under a “Permit by Rule” with no notice requirements. It appears that all of the pipeline compressor engines in Texas are in this category.

### **Conclusion**

The primary purpose of a “like-kind” gas generator component replacement is to facilitate prompt repair in order to return the gas turbine compressor engine to its original design and operating specifications. Manufacturers purposely incorporate a modular design into light industrial gas turbines (< 16,000 bhp) to simplify component replacements and allow the gas turbine compressor engine to quickly return to service. After review of the available information, the Bureau of Air Regulation concludes that replacement of the gas generator component of gas turbine compressor Engine 1806 is a routine maintenance practice for the natural gas pipeline industry.

Rule 62-210.300(1)(a), F.A.C. states that, “Unless exempt from permitting pursuant to Rule 62-210.300(3)(a) or (b), F.A.C., or Rule 62-4.040, F.A.C., an air construction permit shall be obtained by the owner or operator of any proposed new or modified facility or emissions unit prior to the beginning of construction or modification, in accordance with all applicable provisions of this chapter, Chapter 62-212, F.A.C., and Chapter 62-4, F.A.C.” Rule 62-210.200(169), F.A.C. defines a *modification* as, “Any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any air pollutant subject to regulation under the Act, including any not previously emitted, from any emissions unit or facility.” However, it also states that, “A physical change or change in the method of operation shall not include ... routine maintenance, repair, or replacement of component parts of an emissions unit ...”

By definition, it is not a modification to perform routine repairs, replacements, and maintenance on permitted units. Therefore, replacement of the gas generator does not require a new air construction permit or a modification to the initial air construction permit. Because the gas generator is the largest component having the greatest impact on emissions, the conclusion would be the same for smaller individual components. This would also be true for comparable replacements on other gas turbines serving as compressor engines at this station and having similar functions, characteristics, and sizes (< 16,000 bhp). The Bureau of Air Regulation’s conclusion is specific to light industrial aero-derivative gas turbine compressor engines and shall not be used for any other sizes of gas turbines, uses of gas turbines, other types of emissions units or for any other industries.

Rule 62-4.160(2) and (6), F.A.C. requires an owner to provide information regarding changes made to permitted equipment. For cases related to repair, Rule 62-4.130, F.A.C. requires this notification to be made promptly once the equipment has failed, or is identified as subject to failure, and is scheduled for replacement. Rule 62-4.160(15), F.A.C. requires a permittee to provide information that shows compliance with the terms of its permit. Rule 62-297.310(7)(b), F.A.C. gives the Department the authority to require tests following maintenance to show that the repaired unit remains in compliance with all established emission limits. Such tests will also verify that there are no deviations from the permit conditions or emission limits as a result of the replacement. Based on these regulations, the following process is recommended to clarify notification and testing requirements for gas generator component replacements.

“For the replacement of gas turbine components to facilitate prompt repair and return the unit to its original specifications, the permittee shall comply with the following notification and testing requirements.

1. Components shall only be replaced with functionally equivalent “like-kind” equipment. Replacement

components may consist of improved or newer equipment, but such components shall not change operation or increase the capacity (heat input rate or power output) of the gas turbine. Replacement components that affect emissions shall be designed to achieve, and shall achieve, the emissions standards specified in all valid air permits or better. After a component replacement, the gas turbine remains subject to the standards of all valid air permits. [Rule 62-210.200(169), F.A.C.]

2. For gas generator replacements, the permittee shall notify the Compliance Authority within seven days of beginning such work. Within seven days of first fire on a replacement gas generator, the permittee shall submit the following information to the Compliance Authority: date of first fire and certification from the vendor that the replacement gas generator is a functionally equivalent “like-kind” component. The vendor certification shall also identify the make, model number, maximum heat input rate (MMBtu/hour), power output (bhp) at ISO conditions, and that the permitted emission rates are achievable with the replacement component. This notification may be made by letter, fax, or email. A copy of this information shall be kept on site at the compressor station. Within 60 days of restarting the unit after a gas generator replacement, the permittee shall conduct stack tests to demonstrate compliance with the applicable emission standards. The permittee shall notify the Compliance Authority in writing at least 15 days prior to conducting these tests. The permittee shall comply with all permit requirements for test notification, test methods, test procedures, and reporting. [Rules 62-4.130, 62-4.160(2), (6), and (15) and 62-297.310(7)(b), F.A.C.]
3. After investigation and for good cause, the Department may require special compliance tests pursuant to Rule 62-297.310(7)(b), F.A.C.”

The above provisions ensure that the replacements are “like-kind”, that the repaired emissions unit complies with the emissions standards, and that the appropriate Compliance Authorities are kept informed.

**Does this impact NSPS Subpart GG requirements?**

This gas turbine compressor engine is currently subject to NSPS Subpart GG, which regulates emissions of nitrogen oxides and sulfur dioxide from stationary gas turbines. However, this unit is permitted at much lower levels and readily complies with the NSPS requirements. In fact, FGTC has few (if any) pre-NSPS units in operation along their natural gas pipeline. Even so, the replacement gas generator component is intended to return the unit to original design and operating specifications and will not increase the unit capacity. Consequently, there will be no increase in hourly emissions that could trigger new Subpart GG requirements. In addition, available information suggests that the cost of replacing the entire gas generator/power turbine set is much less than the 50% replacement cost criteria that would trigger “reconstruction” under the NSPS requirements. Therefore, such replacements do not affect the applicability for, or compliance with, the NSPS Subpart GG requirements.

**Does this impact NESHAP Subpart YYYY requirements?**

About half of FGTC’s existing compressor stations are major sources of hazardous air pollutants. According to the recently promulgated NESHAP, new gas turbines constructed after January 14, 2003 at these major facilities are subject to the Subpart YYYY requirements. Several existing gas turbines constructed before January 14, 2003 at these major facilities are considered “affected sources”, but are not subject to any specific requirements. Such existing units could become subject to the same requirements for new units if “reconstructed”. However, Subpart YYYY also uses the 50% replacement cost criteria to define “reconstruction”. Again, it is unlikely that any routine component replacements would trigger “reconstruction”. Therefore, such replacements do not affect the applicability for, or compliance with, the NESHAP Subpart YYYY requirements.

**Does this impact PSD applicability?**

About half of FGTC’s existing compressor stations are PSD-major facilities. PSD preconstruction review could possibly apply to existing units undergoing a modification. However, replacement of the gas generator component of a light industrial gas turbine compressor engine is considered a routine maintenance practice for the

gas pipeline industry. By definition, it is not a modification to perform routine repairs, replacements, and maintenance on permitted units. Therefore, such replacement activities are not subject to PSD review.

**Other Considerations**

Over the last several years, the Department has issued many permits authorizing the construction and operation of new large frame (~ 40 to 170 MW) gas turbines at electrical generating plants. The Department does not believe that replacing the gas generator component for these large frame units is routine maintenance. However, the determination of Best Available Control Technology for many of the large frame gas turbine projects relied on clean burning natural gas as the primary fuel to achieve the lowest levels of emissions. The backup fuel for these units is distillate oil, which results in far more pollution. Therefore, quick component replacements for FGTC's small compressor engines will help ensure that a reliable supply of natural gas is available for use at large power plants.

**5. PRELIMINARY DETERMINATION**

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the specific conditions of the draft permit. Jeff Koerner is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

## WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

---

*In the Matter of an  
Application for Air Permit by:*

Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

*Authorized Representative:*

Mr. Richard Craig, V.P. of Southeastern Operations

Draft Air Permit No. 0950190-006-AC  
Compressor Station 18  
Increased Heat Input for Engine 1806  
Orange County, Florida

**Facility Location:** Florida Gas Transmission Company operates existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida.

**Project:** The applicant proposes to revise the original air construction permit for Engine 1806 to increase the maximum heat input rate, include notification/testing requirements for functionally equivalent component replacements, and to make the fuel monitoring requirements consistent with the recent amendments to NSPS Subpart GG for gas turbines. Details of the project are provided in the in the application and the enclosed "Technical Evaluation and Preliminary Determination".

**Permitting Authority:** Applications for air construction permits are subject to review in accordance with 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 proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Permitting Authority's physical address is 111 South Magnolia Drive, Tallahassee, Florida. The Permitting Authority's mailing address is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

**Project File:** A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address or phone number listed above. A copy of the complete project file is also available at the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.

**Notice of Intent to Issue Permit:** The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

**Public Notice:** Pursuant to Section 403.815, F.S. and Rules 62-110.106 and 62-210.350, F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue Air Permit" (Public Notice). The Public Notice shall be published one time only as soon as possible in the legal advertisement section of a newspaper of general circulation in the area affected by this project. The newspaper used must meet 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 Permitting Authority at above address or phone number. Pursuant to Rule 62-110.106(5), F.A.C., the applicant shall provide proof of publication to the Permitting Authority at the above address within seven (7) days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rule 62-110.106(11), F.A.C.

**Comments:** The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of fourteen (14) days from the date of publication of the Public Notice. Written comments must be provided to the Permitting Authority at the above address. Any written comments filed will be made available for public

## WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

---

inspection. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice.

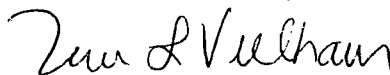
**Petitions:** A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's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

A petition that disputes the material facts on which the Permitting Authority'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 each 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 state; (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 the 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 Permitting Authority'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, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Written Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

**Mediation:** Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.



\_\_\_\_\_  
Trina Vielhauer, Chief  
Bureau of Air Regulation

**WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT**

---

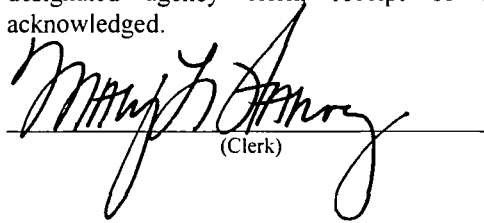
**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this "Written Notice of Intent to Issue Air Permit" package (including the Public Notice, the 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 11/3/04 to the persons listed below.

- Mr. Richard Craig, FGTC\*
- ✓ Mr. James Fleak, FGTC
- Mr. David H. Parham, P.E., FGTC
- Mr. V. Duane Pierce, AQMcS
- Mr. Len Kozlov, CD
- Ms. Marie Driscoll, OCEPD

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

  
\_\_\_\_\_  
(Clerk)

11/3/04  
(Date)

## PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Florida Department of Environmental Protection  
Draft Air Permit No. 0950190-006-AC  
Florida Gas Transmission Company – Existing Compressor Station 18  
Orange County, Florida

**Applicant:** The applicant for this project is the Florida Gas Transmission Company. The applicant's mailing address is: P. O. Box 4657, Houston, TX 77101-4657. The applicant's authorized representative is Mr. Richard Craig, the V.P. of Southeastern Operations.

**Facility Location:** The Florida Gas Transmission Company operates existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida.

**Project:** The applicant proposes several revisions to the original air construction permit for Engine 1806. As installed, the gas turbine fires slightly more natural gas to produce the required power output. The applicant requests approximately an 8% increase in the maximum heat input rate. Also, Engine 1806 is a light-industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements. Finally, EPA recently amended the federal fuel monitoring requirements for nitrogen and sulfur in Subpart GG of 40 CFR 60 regulating gas turbines. The applicant requests a permit revision to be consistent with the amended fuel monitoring requirements.

**Permitting Authority:** Applications for air construction permits are subject to review in accordance with 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 proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination regarding this project. The Permitting Authority's physical address is 111 South Magnolia Drive, Tallahassee, Florida. The Permitting Authority's mailing address is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

**Project File:** A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address and phone number listed above. A copy of the complete project file is also available at the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.

**Notice of Intent to Issue Air Permit:** The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

**Comments:** The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of fourteen (14) days from the date of publication of this Public Notice. Written comments must be provided to the Permitting Authority at the above address. Any written comments filed will be made available for public inspection. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice.

**Petitions:** A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by any persons other than those entitled to written notice

(Public Notice to be Published in the Newspaper)



## PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

under Section 120.60(3), F.S. must be filed within fourteen (14) days of publication of this Public Notice or receipt of a written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority'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 rights will be affected by the agency determination; (c) A statement of how and when the 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 state; (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 the 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 Permitting Authority'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, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Public Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

**Mediation:** Mediation is not available for this proceeding.

**(Public Notice to be Published in the Newspaper)**

# DRAFT PERMIT REVISION

## PERMITTEE:

Florida Gas Transmission Company  
P. O. Box 4657  
Houston, TX 77101-4657

*Authorized Representative:*

Mr. Richard Craig, V.P. of Southeastern Operations

Orlando Compressor Station 18  
Air Permit No. 0950190-006-AC  
Facility ID No. 0950190  
SIC No. 4922  
Expires: July 1, 2005

## DESCRIPTION AND LOCATION

Existing Station 18 consists of the following six compressor engines.

ID	Emission Unit Description
001	Engine 1801 is a 2000 bhp reciprocating internal combustion engine installed in 1962.
002	Engine 1802 is a 2000 bhp reciprocating internal combustion engine installed in 1962.
003	Engine 1803 is a 2000 bhp reciprocating internal combustion engine installed in 1962.
004	Engine 1804 is a 2000 bhp reciprocating internal combustion engine installed in 1968.
005	Engine 1805 is a 2700 bhp reciprocating internal combustion engine installed in 1991.
006	Engine 1806 is a 7200 bhp (ISO) gas turbine installed in 2003.

This permit establishes requirements for Emissions Units 005 and 006 at existing Compressor Station 18, which is located at 7990 Steer Lake Road in Orlando, Florida. It is a revision of original air construction Permit No. 0950190-004-AC. The UTM coordinates are Zone 17, 451.86 km East, and 3154.79 km North.

## STATEMENT OF BASIS

This air pollution 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.) and Title 40, Part 60 of the Code of Federal Regulations. The permittee is authorized to perform the work and make the proposed changes 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.

## CONTENTS

- Section 1. General Information
- Section 2. Administrative Requirements
- Section 3. Emissions Units Specific Conditions
- Section 4. Appendices

## SECTION 1. GENERAL INFORMATION

---

### **PROJECT DESCRIPTION**

Engine 1806 was installed under original air construction Permit No. 0950190-004-AC as a new 7200 bhp gas turbine to be used as a compressor engine at existing Compressor Station 18. That permit also included a revision of the particulate matter emissions standard for Engine 1805, an existing reciprocating internal combustion engine used as a compressor engine at Station 18. Air Permit No. 0950190-006-AC is issued as a revision of the original air construction permit to: authorize a nominal increase in the maximum heat input rate for Engine 1806; include notification and recordkeeping requirements for functionally equivalent component replacements on Engine 1806; and revise the fuel nitrogen and sulfur monitoring requirements to be consistent with recent amendments to NSPS Subpart GG for gas turbines.

### **REGULATORY CLASSIFICATION**

Title III: The facility is a major source of hazardous air pollutants (HAP).

Title IV: The facility has no units subject to the acid rain provisions of the Clean Air Act.

Title V: The facility is a Title V major source of air pollution (Chapter 213, F.A.C.).

PSD: The facility is a PSD-major source of air pollution (Rule 62-212.400, F.A.C.).

NSPS: The gas turbine is subject to the New Source Performance Standards in Subpart GG of 40 CFR 60.

### **RELEVANT DOCUMENTS**

The documents listed below are not a part of this permit; however, they are specifically related to this permitting action and are on file with the Department.

- Application No. 0950190-006-AC received on 09/10/04 and all related correspondence.
- Administrative correction to Air Permit No. 0950190-004-AC issued on 04/15/04.
- Extension to Air Permit No. 0950190-004-AC issued on 11/05/03.
- Air Permit No. 0950190-004-AC issued on 01/10/03, which authorized initial construction of Engine 1806.
- Air Permit No. PSD-FL-163 issued on 05/09/91, which authorized initial construction of Engine 1805.

## SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: All documents related to applications for permits to construct or modify a PSD-major source shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. All documents related to applications for operation permits shall be submitted to the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to: Air Quality Management, Orange County Environmental Protection Division, 800 Mercy Drive, Suite 4, Orlando, FL 32808.
3. Appendices: The following Appendices are attached as part of this permit: Appendix CF (Citation Format); Appendix GC (General Conditions); Appendix GG (NSPS Subpart GG Requirements for Gas Turbines); and Appendix SC (Standard Conditions).
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit 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.; Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, F.A.C.; and Title 40, Part 60 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. 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. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
5. New or Additional Conditions: 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.]
6. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
7. Authority to Construct: The emissions units regulated by this air construction permit have been constructed and are in operation. No further construction is authorized.
8. Title V Permit: Pursuant to Rule 62-213.420(1)(a)2, F.A.C., the permittee shall submit an application for a revised Title V air operation permit at least ninety (90) days before the expiration of this permit, but no later than 180 days after commencing operation. In accordance with Rule 62-213.412(2), F.A.C., the permittee may immediately implement the changes authorized by this air construction permit after submitting the application for a revised Title V air operation permit to the Permitting Authority and providing copies of the application to EPA Region 4 and each Compliance Authority. To apply for a revised 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 Central District Office with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, 62-213.412, and 62-213.420, F.A.C.]

**SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS**

**A. EU-005 - 2700 bhp Compressor Engine No. 1805**

This section of the permit addresses the following existing emissions unit.

**Emissions Unit No. 005 - Compressor Engine No. 1805**

The existing compressor engine is a 2700 bhp reciprocating internal combustion engine fired exclusively with pipeline natural gas.

**APPLICABLE REQUIREMENT**

1. Previous Permits: This permit supplements all previously issued air construction and operation permits for this emissions unit. Except for the change noted below, the unit remains subject to the conditions of all other valid air construction and operations permits. [Rule 62-4.070, F.A.C.]
2. Particulate Matter: For Compressor Engine No. 1805 (EU-005), particulate matter emissions are minimized by good combustion design with the firing of natural gas as the exclusive fuel. This requirement supersedes the particulate matter standards (TSP and PM<sub>10</sub>) in Condition No. 1 of Air Permit No. PSD-FL-163, as amended. *{Permitting Note: This change does not result in any increases in actual or potential emissions of particulate matter. All other standards of Air Permit No. PSD-FL-163 remain unaffected.}*

## SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

### B. EU-006 - 7200 bhp Compressor Engine No. 1806

This section of the permit addresses the following new emissions unit.

#### Emissions Unit No. 006 - 7200 bhp Compressor Engine No. 1806

*Description:* The compressor engine is a 7200 bhp (ISO) gas turbine consisting of a Cooper-Rolls Royce Model No. 501-KC7 DLE with lean premix combustor design.

*Fuel:* The gas turbine fires pipeline natural gas (SCC No 2-02-002-01) at a maximum firing rate of approximately 65,100 cubic feet per hour based on a heat content of 1040 BTU per SCF of gas.

*Capacity:* At ~~63~~ 68 MMBtu per hour of heat input, the gas turbine produces approximately 7200 bhp (ISO). The gas turbine typically operates near capacity.

*Controls:* The lean premix combustor design minimizes NOx emissions. The efficient combustion of natural gas at high temperatures minimizes emissions of CO, PM/PM10, SO2, and VOC.

*Stack Parameters:* When operating at capacity, exhaust gases exit a 6.0 feet diameter stack that is 61.2 feet tall at 964° F with a flow rate of approximately 97,500 acfm.

#### APPLICABLE STANDARDS AND REGULATIONS

1. NSPS Requirements: The gas turbine shall comply with the New Source Performance Standards (NSPS) of Subpart GG in 40 CFR 60. The applicable NSPS requirements are provided in Appendix GG of this permit. The Department believes that the conditions in this section are at least as stringent as, or more stringent than, the NSPS requirements of Subpart GG. [Rule 62-4.070(3), F.A.C.; 40 CFR 60, Subpart GG]

#### EQUIPMENT

2. Compressor Engine No. 1806: The permittee is authorized to install one 7200 bhp (ISO) gas turbine compressor engine consisting of a Cooper-Rolls Royce Model No. 501-KC7 DLE. The permittee shall tune, operate and maintain the gas turbine's lean premix combustor design to reduce emissions of nitrogen oxides below the permitted limits. Ancillary equipment includes the automated gas turbine control system, an inlet air filtration system, and an exhaust stack. [Applicant Request; Design]

#### PERFORMANCE RESTRICTIONS

3. Permitted Capacities: The maximum heat input rate to the gas turbine shall not exceed ~~63~~ 68 MMBtu per hour (24-hour average) while producing approximately 7200 bhp (ISO) based on a compressor inlet air temperature of 59° F, 100% load, and a higher heating value (HHV) of 1040 BTU per SCF for natural gas. Heat input rates will vary depending upon gas turbine characteristics, load, and ambient conditions. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial testing. Performance data shall be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department. Compliance with this equipment specification shall be demonstrated based on the information required in Condition 13 of this subsection. [Rule 62-210.200(PTE), F.A.C.]
4. Authorized Fuel: The gas turbine shall fire only natural gas with a maximum of 10 grains of sulfur per 100 standard cubic feet of natural gas. [Applicant Request; Rule 62-210.200(PTE), F.A.C.]
5. Restricted Operation: The hours of operation for the gas turbine are not limited (8760 hours per year). Except for startup and shutdown, operation below 50% base load is prohibited. [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.]

**SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS**

**B. EU-006 - 7200 bhp Compressor Engine No. 1806**

**EMISSIONS STANDARDS**

6. Emissions Standards: Emissions from the gas turbine shall not exceed the following standards for carbon monoxide (CO), nitrogen oxides (NOx), opacity, particulate matter (PM), sulfur dioxide (SO<sub>2</sub>), and volatile organic compounds (VOC).

Pollutant	Standards	Equivalent Maximum Emissions <sup>f</sup>		Rule Basis <sup>g</sup>
		lb/hour	TPY	
CO <sup>a</sup>	50.0 ppmvd @ 15% O <sub>2</sub>	6.9	30.22	Avoid Rule 62-212.400, F.A.C.
NOx <sup>b</sup>	25.0 ppmvd @ 15% O <sub>2</sub>	5.7	24.97	Avoid Rule 62-212.400, F.A.C. 40 CFR 60.332
SO <sub>2</sub> <sup>c</sup>	10.0 grains of sulfur per 100 SCF of gas	<del>1.7</del> <u>1.9</u>	<del>7.45</del> <u>8.15</u>	Avoid Rule 62-212.400, F.A.C. 40 CFR 60.333
Opacity <sup>d</sup>	10% opacity, 6-minute average	Not Applicable		Rule 62-4.070(3), F.A.C.
PM <sup>e</sup>	Efficient combustion of natural gas	<del>0.4</del> <u>0.5</u>	<del>1.75</del> <u>1.96</u>	Rule 62-4.070(3), F.A.C.
VOC <sup>e</sup>	Efficient combustion of natural gas	0.2	0.88	Rule 62-4.070(3), F.A.C.

- a. The CO standards are based on the average of three test runs as determined by EPA Method 10.
- b. The NOx standards are based on the average of three test runs as determined EPA Method 20.
- c. The fuel sulfur specification is based on the maximum limit specified by Federal Energy Regulatory Commission (FERC) and effectively limits the potential SO<sub>2</sub> emissions. Expected fuel sulfur levels are less than 1 grain per 100 SCF of natural gas from the pipeline.
- d. The opacity standard is based on a 6-minute average, as determined by EPA Method 9.
- e. For both PM and VOC, the efficient combustion of natural gas is indicated by compliance with opacity and CO standards. Equivalent maximum PM emissions are based on a factor of 0.0066 lb/MMBtu heat input from AP-42 Table 3.1-2a. Equivalent maximum VOC emissions are based on a total hydrocarbon factor of 1.58 lb/eng-hr from the vendor and the conservative assumption that 10% the hydrocarbons are regulated (non-methane) VOC. No testing is required.
- f. Equivalent maximum emissions are based on the maximum expected emissions, permitted capacity, a compressor inlet air temperature of 59° F, and 8760 hours of operation per year. For comparison purposes, the permittee shall provide a reference table with the initial compliance test report of mass emission rates versus the compressor inlet temperatures. Each test report shall include measured mass emission rates for CO, NOx and SO<sub>2</sub>. Mass emission rates for SO<sub>2</sub> shall be calculated based on actual fuel sulfur content and fuel flow rate. For tests conducted at 59° F or greater, measured mass emission rates shall be compared to the equivalent maximum emissions above. For tests conducted below 59° F, measured mass emission rates shall be compared to the tabled mass emission rates provided by the manufacturer based on compressor inlet temperatures.
- g. Compliance with the emissions standards of this permit ensures that the project remains a minor source of air pollution with respect to PSD.

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS

B. EU-006 - 7200 bhp Compressor Engine No. 1806

EMISSIONS PERFORMANCE TESTING

7. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content <i>{Permitting Note: These methods shall be used as necessary to support other required methods.}</i>
9	Determination of Opacity
10	Determination of Carbon Monoxide Emissions <i>{Permitting Note: This method shall be based on a continuous sampling train.}</i>
19	Determination of Sulfur Dioxide and Nitrogen Oxides Emission Rates <i>{Permitting Note: This method shall be used as necessary to support other required methods.}</i>
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Gas Turbines

Tests shall be conducted in accordance with the requirements specified in Appendix SC of this permit. The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

8. Initial Tests: The gas turbine shall be tested to demonstrate initial compliance with the emission standards for CO, NOx, and visible emissions. The initial tests shall be conducted within 60 days after achieving permitted capacity, but not later than 180 days after initial operation of the gas turbine. The initial NOx performance tests shall be conducted at approximately four evenly spaced points between the minimum normal operating load and 100% of peak load. Each of the three low-load NOx performance tests shall consist of three, 20-minute test runs. The peak load NOx performance test shall consist of three, 1-hour test runs. The CO performance tests shall be conducted concurrently with the NOx performance tests at peak load. SO2 emissions shall be calculated and reported based on fuel flow and vendor analysis of fuel sulfur content. *{Permitting Note: Initial tests have already been performed for this unit and are not required to be repeated as part of this permit revision.}* [Rule 62-297.310(7)(a)1, F.A.C.; 40 CFR 60.8 and 60.335]

9. Annual Tests: During each federal fiscal year (October 1 - September 30), the gas turbine shall be tested to demonstrate compliance with the emission standards for CO, NOx, and visible emissions. CO and NOx emissions shall be tested concurrently at permitted capacity. SO2 emissions shall be calculated and reported based on fuel flow and vendor analysis of fuel sulfur content. In addition to the test results, each report shall include a general description of the maintenance activities and operation of this facility since the last test. [Rule 62-297.310(7)(a)4, F.A.C.]

10. 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 subsequently required tests. [Rule 62-297.310(7)(a)9, F.A.C.; 40 CFR 60.7 and, 60.8]

RECORDS, REPORTS, AND NOTIFICATIONS

11. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix SC of this permit. In addition, NOx emissions shall be corrected to ISO ambient atmospheric conditions and compared to the NSPS Subpart GG standard identified in Appendix GG of this permit for each required test. For each test run, the report shall also indicate the natural gas firing rate (cubic feet per hour), heat input rate (MMBtu per hour), the power output (bhp), percent peak load, and the inlet compressor temperature. [Rule 62-297.310(8), F.A.C.; 40 CFR 60.334]



**SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS**

**B. EU-006 - 7200 bhp Compressor Engine No. 1806**

12. Fuel Monitoring: The gas turbine shall fire only pipeline natural gas with a maximum fuel sulfur content of no more than 10 grains of sulfur per 100 cubic feet of gas. The permittee shall take no allowance for fuel bound nitrogen (F-value = 0) when demonstrating compliance with the NSPS Subpart GG NO<sub>x</sub> standard. Based on these restrictions, no monitoring for the fuel nitrogen and sulfur contents is required. This is also described in Appendix GG of this permit. [Rule 62-4.070(3), F.A.C.; 40 CFR 60.334, as amended]
13. Operational Data: Using the automated gas turbine control system, the permittee shall monitor and record heat input (MMBtu), power output (bhp), and hours of operation for the gas turbine. Within the 10 days of a request by the Department or the Compliance Authority, the permittee shall be able to summarize the following information for a given day: heat input (MMBtu per hour, daily average); power output (bhp, daily average); and total hours of gas turbine operation. This information shall also be used for submittal of the required Annual Operating Report. [Rule 62-4.070(3), F.A.C.]
14. Component Replacements: For the replacement of gas turbine components to facilitate prompt repair and return the unit to its original specifications, the permittee shall comply with the following notification and testing requirements.
- a. Components shall only be replaced with functionally equivalent "like-kind" equipment. Replacement components may consist of improved or newer equipment, but such components shall not change operation or increase the capacity (heat input and power output rates) of the gas turbine. Replacement components that affect emissions shall be designed to achieve the emissions standards specified in all valid air permits and shall achieve these standards or better. After a component replacement, the gas turbine compressor engine remains subject to the standards of all valid air permits. [Rule 62-210.200(169), F.A.C.]
- b. The permittee shall notify the Compliance Authority within seven days after beginning any replacement of the gas generator component of the compressor engine. Within seven days of first fire on a replacement gas generator, the permittee shall submit the following information to the Compliance Authority: date of first fire and certification from the vendor that the replacement gas generator is a functionally equivalent "like-kind" component. The vendor certification shall also identify the make, model number, maximum heat input rate (MMBtu/hour), power output (bhp) at ISO conditions, and that the permitted emission rates are achievable with the replacement component. This notification may be made by letter, fax, or email. A copy of the information shall be kept on site at the compressor station. Within 60 days of restarting the unit after a gas generator replacement, the permittee shall conduct stack tests to demonstrate compliance with the applicable emission standards. The permittee shall notify the Compliance Authority in writing at least 15 days prior to conducting these tests. The permittee shall comply with all permit requirements for test notification, test methods, test procedures, and reporting. [Rules 62-4.130, 62-4.160(2), (6), and (15) and 62-297.310(7)(b), F.A.C.]
- c. After investigation and for good cause, the Department may require special compliance tests pursuant to Rule 62-297.310(7)(b), F.A.C.

**SECTION 4. APPENDICES**  
**CONTENTS**

---

Appendix CF. Citation Format

Appendix GC. General Conditions

Appendix GG. NSPS Subpart GG Requirements for Gas Turbines

Appendix SC. Standard Conditions

**SECTION 4. APPENDIX CF**  
**CITATION FORMAT**

---

*The following examples illustrate the format used in the permit to identify applicable permitting actions and regulations.*

**REFERENCES TO PREVIOUS PERMITTING ACTIONS**

Old Permit Numbers

*Example:* Permit No. AC50-123456 or Air Permit No. AO50-123456

*Where:* “AC” identifies the permit as an Air Construction Permit

“AO” identifies the permit as an Air Operation Permit

“123456” identifies the specific permit project number

New Permit Numbers

*Example:* Permit Nos. 099-2222-001-AC, 099-2222-001-AF, 099-2222-001-AO, or 099-2222-001-AV

*Where:* “099” represents the specific county ID number in which the project is located

“2222” represents the specific facility ID number

“001” identifies the specific permit project

“AC” identifies the permit as an air construction permit

“AF” identifies the permit as a minor federally enforceable state operation permit

“AO” identifies the permit as a minor source air operation permit

“AV” identifies the permit as a Title V Major Source Air Operation Permit

PSD Permit Numbers

*Example:* Permit No. PSD-FL-317

*Where:* “PSD” means issued pursuant to the Prevention of Significant Deterioration of Air Quality

“FL” means that the permit was issued by the State of Florida

“317” identifies the specific permit project

**RULE CITATION FORMATS**

Florida Administrative Code (F.A.C.)

*Example:* [Rule 62-213.205, F.A.C.]

*Means:* Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

*Example:* [40 CFR 60.7]

*Means:* Title 40, Part 60, Section 7

**SECTION 4. APPENDIX GC**  
**GENERAL CONDITIONS**

---

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

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.
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, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
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.
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.
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.
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.
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.

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

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

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

**SECTION 4. APPENDIX GC**  
**GENERAL CONDITIONS**

---

Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

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.
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.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
  - a. Determination of Best Available Control Technology (NA);
  - b. Determination of Prevention of Significant Deterioration (NA); and
  - c. Compliance with New Source Performance Standards (X).
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.
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.

o

**SECTION 4. APPENDIX GG**  
**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

The following emissions unit is subject to the applicable requirements of Subpart A (General Provisions) and Subpart GG (Stationary Gas Turbines) established as New Source Performance Standards in 40 CFR 60 and adopted by reference in Rule 62-204.800(7)(b), F.A.C.

ID	Emission Unit Description
006	Compressor Engine No. 1806 consisting of a 7200 bhp gas turbine

**NSPS GENERAL PROVISIONS**

In addition to the specific conditions of the permit and NSPS Subpart GG, the emissions unit is subject to the applicable General Provisions of the New Source Performance Standards including 40 CFR 60.7 (Notification and Record Keeping), 40 CFR 60.8 (Performance Tests), 40 CFR 60.11 (Compliance with Standards and Maintenance Requirements), 40 CFR 60.12 (Circumvention), 40 CFR 60.13 (Monitoring Requirements), and 40 CFR 60.19 (General Notification and Reporting Requirements). The General Provisions are not included in this permit, but can be obtained from the Department upon request.

**40 CFR 60, SUBPART GG - STANDARDS OF PERFORMANCE FOR STATIONARY GAS TURBINES**

Each gas turbine shall comply with all applicable requirements of 40 CFR 60, Subpart GG adopted by reference in Rule 62-204.800(7)(b), F.A.C. Inapplicable provisions have been deleted in the following conditions, but the numbering of the original rules has been preserved for ease of reference. The term "Administrator" when used in 40 CFR 60 shall mean the Department's Secretary or the Secretary's designee. Department notes and requirements related to the Subpart GG requirements are shown immediately following the section to which they refer. The rule basis for the Department requirements specified below is Rule 62-4.070(3), F.A.C.

Section 60.330 Applicability and Designation of Affected Facility.

- (a) The provisions of this subpart are applicable to the following affected facilities: All stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour), based on the lower heating value of the fuel fired.

Section 60.331 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

- (g) ISO standard day conditions means 288 degrees Kelvin, 60 percent relative humidity and 101.3 kilopascals pressure.
- (i) Peak load means 100 percent of the manufacturer's design capacity of the gas turbine at ISO standard day conditions.
- (j) Base load means the load level at which a gas turbine is normally operated.

Section 60.332 Standard for Nitrogen Oxides.

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

$$STD = 0.0150 \frac{(14.4)}{Y} + F$$

where:

STD = allowable NOx emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt-hour.

**SECTION 4. APPENDIX GG**  
**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

F = NO<sub>x</sub> emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of this section.

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

Fuel-bound nitrogen (percent by weight)	F (NO <sub>x</sub> percent by volume)
N ≤ 0.015	0
0.015 < N ≤ 0.1	0.04(N)
0.1 < N ≤ 0.25	0.004 + 0.0067(N - 0.1)
N > 0.25	0.005

where: N = the nitrogen content of the fuel (percent by weight).

**Department Requirement:** When firing natural gas, the “F” value shall be assumed to be “0”.

*{Permitting Note: The “Y” value when firing natural gas as provided by the manufacturer is approximately “11.4”. The equivalent NO<sub>x</sub> emission standard is 190 ppmvd at 15% oxygen. The emissions standards in Section 3 of the permit are much more stringent than this requirement.}*

(c) Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour) but less than or equal to 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired, shall comply with the provisions of paragraph (a)(2) of this section.

Section 60.333 Standard for Sulfur Dioxide.

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

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

Section 60.334 Monitoring of Operations.

(c) For the purpose of reports required under Section 60.7(c), periods of excess emissions that shall be reported are defined as follows:

(1) Nitrogen oxides. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate compliance with Section 60.332 by the performance test required in Section 60.8 or any period during which the fuel-bound nitrogen of the fuel is greater than the maximum nitrogen content allowed by the fuel-bound nitrogen allowance used during the performance test required in Section 60.8. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, gas turbine load, and nitrogen content of the fuel during the period of excess emissions, and the graphs or figures developed under Section 60.335(a).

*{Permitting Note: Excess NO<sub>x</sub> emissions reporting requirements do not apply. The gas turbine uses “dry” lean premix combustors and not wet injection to control NO<sub>x</sub> emissions. As indicated above, the Subpart GG NO<sub>x</sub> standard is 190 ppmvd @ 15% oxygen. This is nearly eight times the NO<sub>x</sub> standard specified in the permit and would be nearly impossible for this lean premix combustion turbine to exceed. As stated in the preamble to the July 2004 amendments, the rule changes do not impose any additional monitoring requirements for existing units.}*

(h) The owner or operator of any stationary gas turbine subject to the provisions of this subpart:

(2) Shall monitor the nitrogen content of the fuel combusted in the turbine, if the owner or operator claims an allowance for fuel bound nitrogen (i.e., if an F-value greater than zero is being or will be used by the owner or operator to calculate STD in §60.332).

*{Permitting Note: Because the nitrogen content of pipeline natural is negligible, the permittee does not claim an allowance for fuel bound nitrogen and will use “0” for the F-value when calculating the NO<sub>x</sub> standard in §60.332. The permit prohibits the permittee from claiming the allowance for fuel nitrogen. Therefore, no fuel nitrogen monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}*

**SECTION 4. APPENDIX GG**  
**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

- (3) May elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in §60.331(v), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring.

§60.331(v) states, "Natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions. Natural gas contains 20.0 grains or less of total sulfur per 100 standard cubic feet. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1100 Btu per standard cubic foot. Natural gas does not include the following gaseous fuels: Landfill gas, digester gas, refinery gas, sour gas, blast furnace gas, coal-derived gas, producer gas, coke oven gas, or any gaseous fuel produced in a process which might result in highly variable sulfur content or heating value."

The permittee elects not to monitor the sulfur content of natural gas based on §60.334(h)(3)(i), which states that, "The gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less." The current tariff sheet specifies that natural gas delivered by the pipeline system shall contain not more than 10 grains of total sulfur per 100 cubic feet of gas. Therefore, the pipeline natural gas meets the above definition.

{Permitting Note: The permit requires the gas turbine to fire only pipeline natural gas with a maximum sulfur content of 10 grains of sulfur per 100 cubic feet of gas. Therefore, no fuel sulfur monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}

Section 60.335 Test Methods and Procedures.

- (a) To compute the nitrogen oxides emissions, the owner or operator shall use analytical methods and procedures that are accurate to within 5 percent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.
- (b) In conducting the performance tests required in Section 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided for in Section 60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section.
- (c) The owner or operator shall determine compliance with the nitrogen oxides and sulfur dioxide standards in Sections 60.332 and 60.333(a) as follows:

- (1) The nitrogen oxides emission rate (NO<sub>x</sub>) shall be computed for each run using the following equation:

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

where:

NO<sub>x</sub> = emission rate of NO<sub>x</sub> at 15 percent O<sub>2</sub> and ISO standard ambient conditions, volume percent.

NO<sub>x0</sub> = observed NO<sub>x</sub> concentration, ppm by volume.

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

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

Ho = observed humidity of ambient air, g H<sub>2</sub>O/g air.

e = transcendental constant, 2.718.

Ta = ambient temperature, °K.

**Department Requirement:** NO<sub>x</sub> emissions shall be corrected to ISO ambient atmospheric conditions for each required emissions performance test and compared to the NO<sub>x</sub> standard specified in 40 CFR 60.332.

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



**SECTION 4. APPENDIX GG**  
**NSPS SUBPART GG REQUIREMENTS FOR GAS TURBINES**

---

**Department Requirement:** The initial NO<sub>x</sub> performance tests shall be conducted at approximately four evenly spaced points between the minimum normal operating load and 100% of peak load.

*{Permitting Note: The dry low-NO<sub>x</sub> controls are only effective above a minimum load, which will be identified during initial testing.}*

- (3) Method 20 shall be used to determine the nitrogen oxides, sulfur dioxide, and oxygen concentrations. The span values shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NO<sub>x</sub> emissions shall be determined at each of the load conditions specified in paragraph (c)(2) of this section.

**Department Requirement:** The span value shall be no greater than 75 ppm of nitrogen oxides due to the low NO<sub>x</sub> emission levels of the gas turbine.

- (d) The owner or operator shall determine compliance with the sulfur content standard in Section 60.333(b) as follows: ASTM D 2880-71 shall be used to determine the sulfur content of liquid fuels and ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels (incorporated by reference - see Section 60.17). The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.
- (e) To meet the requirements of Section 60.334(b), the owner or operator shall use the methods specified in paragraphs (a) and (d) of this section to determine the nitrogen and sulfur contents of the fuel being burned. The analysis may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor, or any other qualified agency.

*{Permitting Note: The permit prohibits the permittee from claiming the allowance for fuel nitrogen. The permit also requires the gas turbine to fire only pipeline natural gas with a maximum sulfur content of 10 grains of sulfur per 100 cubic feet of gas. Therefore, no fuel nitrogen or fuel sulfur monitoring is required. The fuel monitoring provisions were revised pursuant to the final July 2004 amendments to Subpart GG.}*

**SECTION 4. APPENDIX SC**  
**STANDARD CONDITIONS**

---

*{Permitting Note: Unless otherwise specified in the permit, the following conditions apply to all emissions units and activities at this facility.}*

**EMISSIONS AND CONTROLS**

1. **Plant Operation - Problems:** If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
2. **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.]
3. **Excess Emissions Allowed:** Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]
4. **Excess Emissions Prohibited:** Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
5. **Excess Emissions - Notification:** In case of excess emissions resulting from malfunctions, the permittee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
6. **VOC or OS Emissions:** No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
7. **Objectionable Odor Prohibited:** No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and 62-210.200(203), F.A.C.]
8. **General Visible Emissions:** No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. [Rule 62-296.320(4)(b)1, F.A.C.]
9. **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.]

**TESTING REQUIREMENTS**

10. **Required Number of Test Runs:** For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

**SECTION 4. APPENDIX SC**  
**STANDARD CONDITIONS**

---

11. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2), F.A.C.]
12. 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.]
13. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.
- 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 thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.
  - 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.
  - 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), F.A.C.]
14. 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.
  - 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), F.A.C.]
15. Sampling Facilities: The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C.
16. Test Notification: The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator. [Rule 62-297.310(7)(a)9, F.A.C.]
17. 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.]
18. Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide

## SECTION 4. APPENDIX SC

### STANDARD CONDITIONS

sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information:

1. The type, location, and designation of the emissions unit tested.
2. The facility at which the emissions unit is located.
3. The owner or operator of the emissions unit.
4. The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
5. The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.
6. The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
7. A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
8. The date, starting time and duration of each sampling run.
9. The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
10. The number of points sampled and configuration and location of the sampling plane.
11. For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
12. The type, manufacturer and configuration of the sampling equipment used.
13. Data related to the required calibration of the test equipment.
14. Data on the identification, processing and weights of all filters used.
15. Data on the types and amounts of any chemical solutions used.
16. Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17. The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18. All measured and calculated data required to be determined by each applicable test procedure for each run.
19. The detailed calculations for one run that relate the collected data to the calculated emission rate.
20. The applicable emission standard, and the resulting maximum allowable emission rate for the emissions unit, plus the test result in the same form and unit of measure.
21. A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-210.310(8), F.A.C.]

#### RECORDS AND REPORTS

19. 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.]
20. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

P.E. CERTIFICATION STATEMENT

PERMITTEE

Florida Gas Transmission Company  
1400 Smith Street  
Houston, TX 77002

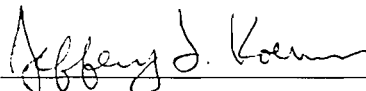
Draft Air Permit No. 0950190-006-AC  
Compressor Station 18, Engine 1806  
Revised Air Construction Permit  
Orange County, Florida

PROJECT DESCRIPTION

The applicant proposes several revisions to the original air construction permit for Engine 1806. As installed, the gas turbine fires slightly more natural gas to produce the required power output. The applicant requests approximately an 8% increase in the maximum heat input rate. Also, Engine 1806 is a light-industrial gas turbine with a power output of approximately 7200 bhp. It is common practice within the gas pipeline industry to replace the gas generator for maintenance and repair with a functionally equivalent component. The replaced gas generator is then shipped to a regional facility for maintenance and placed back into a pool of similar components. The applicant requests specific notification and testing requirements for conducting such functionally equivalent component replacements. Finally, EPA recently amended the federal monitoring requirements for fuel nitrogen and fuel sulfur in Subpart GG of 40 CFR for gas turbines. The applicant requests a permit revision to be consistent with the July 2004 amendments for fuel monitoring.

The requested changes are reasonable and not expected to result in increased emissions. The equivalent maximum emission rates for CO, NOx, and VOC were not changed based on the initial test results. The equivalent maximum emission rates for SO2 and PM were increased slightly because these rates were directly based on the maximum heat input rate. See the Technical Evaluation and Preliminary Determination for a detailed discussion of the revisions.

*I HEREBY CERTIFY that the air pollution control 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, geological, and meteorological features).*



Jeffery F. Koerner, P.E.  
Registration Number: 49441

10-19-04

(Date)