



Florida Gas Transmission Company
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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 SO₂ 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 Under these revisions, the fuel sulfur monitoring requirements are no longer applicable to the turbine at Compressor Station No. 18 since the gas quality characteristics are in a current, valid purchase contract, tariff sheet or transportation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

Florida Gas Transmission Company

Phase VI Expansion Project

Compressor Station No. 18

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

August 2004

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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_x (oxides of nitrogen) combustion. Engineering designs for the new included selection of an engine incorporating dry low NO_x combustion technology. Dry low NO_x technology for control of NO_x 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 (SO₂) 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.

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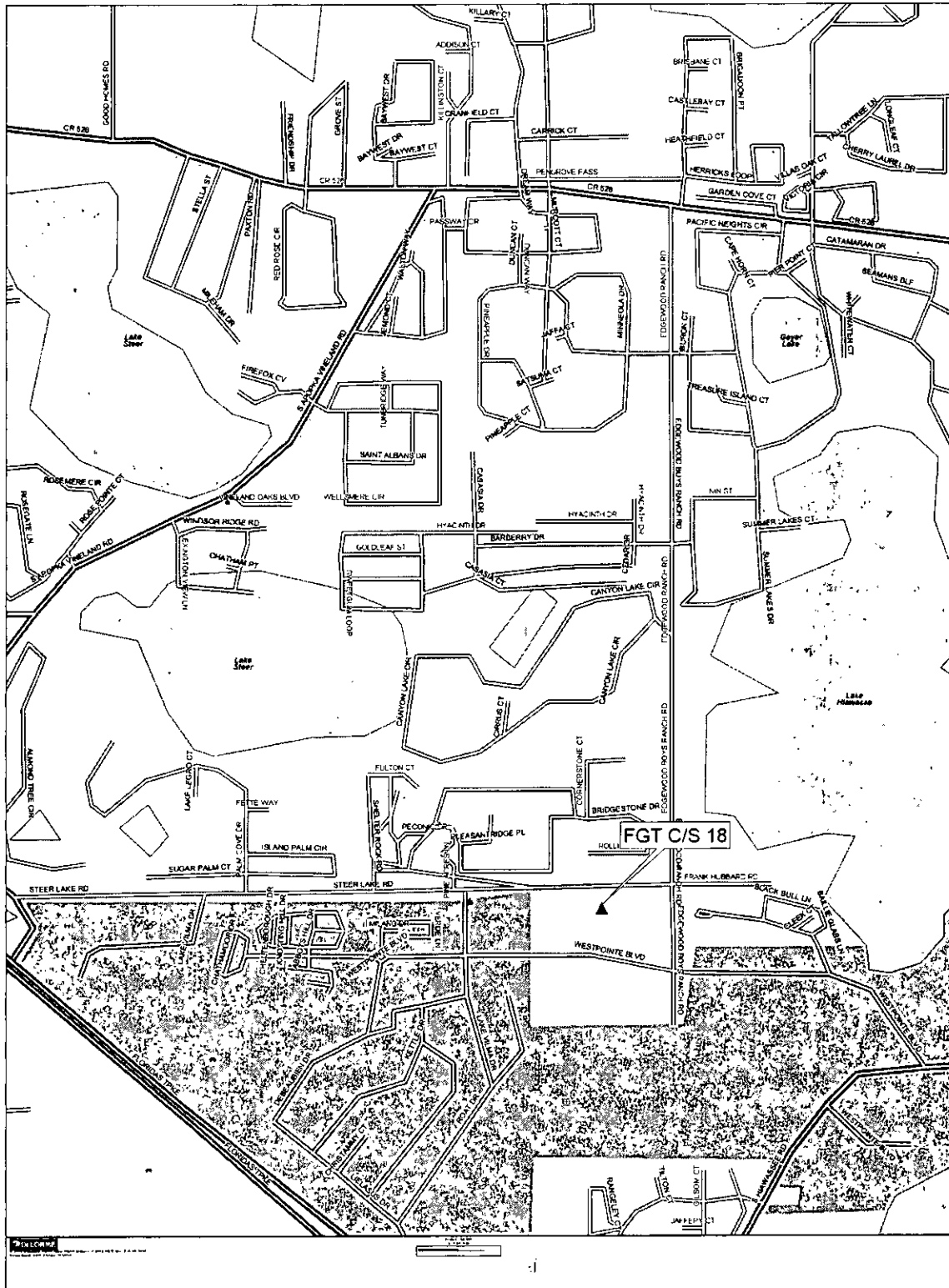


Figure 1-1

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.

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Table 2-1 Summary of Existing Compressor Engines

Engine #	Date of Installation	Type	Manufacturer	Model #	Brake Horse Power (bhp)
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

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

Parameter	Design
Compressor Engine	1806
Type	Gas Turbine
Manufacturer	Cooper-Rolls
Model	501-KC7 DLE
Unit Size	7,200 bhp (ISO)
Heat Input ^a	7,067.5 bhp (site)
	67.7 MMBtu/hr
Specific Heat Input ^a	9,516 Btu/hp-hr
Maximum Fuel Consumption ^b	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>^a Based on observed higher heat value (HHV) heat rate; lower heating value estimated at 9,579 Btu/hp-hr</p> <p>^b Fuel flow for natural gas of 1040 British thermal units per standard cubic foot (Btu/scf).</p>	

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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_x, 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 (SO₂) 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 SO₂ 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

Pollutant	Emission Factor	Reference	lb/hr	TPY
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.

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Table 2-4 Potential Annual Emissions (tpy) Summary

SOURCE ID	DESCRIPTION	NO _x	CO	VOC ^a	SO ₂	PM
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: ^b	0.0	0.0	3.0	0.0	0.0
NEW ANNUAL POTENTIAL TOTALS:		985.3	202.8	71.5	17.8	3.7

(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_x and SO₂. The applicable emission standards are provided in Table 3-3.

The NO_x emission limit for Subpart GG is calculated as follows:

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

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

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

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Table 3-1 Applicability of New Source Performance Standards

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

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

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$F = NO_x \text{ emission allowance}$

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.

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

$$\text{STD} = 0.0150 (14.4/12.2) + 0$$

$$= 0.0177 \%$$

$$= 177 \text{ ppm}_v$$

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

The turbine at this facility will meet the NSPS for NO_x of 177 ppmv (i.e., manufacturer's estimation of 25 ppmv), and for SO_2 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

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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

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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 (5th 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)]

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Attachment A

DEP Forms



Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit for a proposed project:

- subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- at an existing federally enforceable state air operation permit (FESOP) or Title V permitted facility.

Air Operation Permit – Use this form to apply for:

- an initial federally enforceable state air operation permit (FESOP); or
- an initial/revised/renewal Title V air operation permit.

Air Construction Permit & Revised/Renewal Title V Air Operation Permit (Concurrent Processing Option)

– Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: Florida Gas Transmission Company	
2. Site Name: Compressor Station No. 18	
3. Facility Identification Number: 0950190	
4. Facility Location... Street Address or Other Locator: 7990 Steer Lake Road City: Orlando County: Orange Zip Code: 32861-6898	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Application Contact Name: James Fleak, Environmental Specialist	
2. Application Contact Mailing Address: Organization/Firm: Florida Gas Transmission Company Street Address: P.O. Box 945100 City: Maitland State: FL Zip Code: 32794-5100	
3. Application Contact Telephone Numbers: Telephone: (407) 838-7057 Fax: (407) 838-7101	
4. Application Contact Email Address: james.fleak@crosscountryenergy.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	
2. Project Number(s):	
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

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.


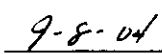
Application Comment

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

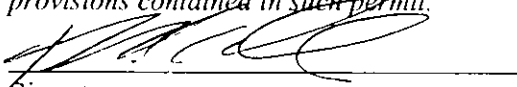
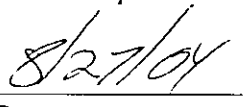
Application Responsible Official Certification

Complete if applying for an initial/revised/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> <i>(1) 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> <i>(2) 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> <i>(3) 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> <i>(4) 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> <i>(5) 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 (seal)

* Attach any exception to certification statement.

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.	Facility Regulatory Classifications Comment: Facility is a major source for PSD and Title V purposes. New turbine is subject to NSPS Subpart GG. 40 CFR 63 Subpart YYYY has been proposed for turbines, but the potentially subject emission unit will be deleted under USEPA proposed revisions.	

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?
 Yes
 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_x 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]

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:		

**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. $(0.158 \text{ lb/hr})(1 \text{ ton}/2000 \text{ lb})(8760 \text{ hr}/1 \text{ yr}) = 0.69 \text{ tons/year}$			
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

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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

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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

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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 <p>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.</p>
7. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

EMISSIONS UNIT INFORMATION

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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

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Additional Requirements Comment

Attachment B

Plot Plan

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 Gas	Ref Gas	Ref Gas	Ref Gas	Ref Gas	Ref Gas
Fuel LHV (BTU/lb)	20420	20420	20420	20420	20420	20420
Expected Emissions @ 15% O2						
NOx ppm	25	25	25	25	25	25
CO ppm	50	50	50	50	50	50
Expected Emissions (lb/eng-hr)						
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
Exhaust Gas (vol %)						
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
Total Hazardous Cmpds	1.027E-03	

Reference:

AP-42, 5th Edition, Supplement F, 04/00, Table3.1-3