



Florida Gas Transmission Company

A Southern Union/El Paso Affiliate

5444 Westheimer Road
Houston, TX 77056-5306

P.O. Box 4967
Houston, TX 77210-4967
713.989.7000

May 31, 2011

Mr. Rick Bradburn
Air Program Administrator
Florida Department of Environmental Protection
Northwest District Office
160 West Government Street, Suite 308
Pensacola, FL 32502-5740

**Re: Florida Gas Transmission – Munson Compressor Station No. 12
Facility Identification Number: 1130037
Title V Air Operation Permit Revision Application**

Dear Mr. Bradburn:

As part of its Phase VIII Expansion Project, Florida Gas Transmission Company (FGT) recently installed and placed in operation one Solar Titan 130-20502SA gas turbine, two Generac SG300 emergency generator engines, and miscellaneous support equipment at its existing natural gas compressor station (CS-12) located at 13100 Munson Highway in Milton, Santa Rosa County, Florida. The Department issued Air Construction Permit No. 1130037-011-AC authorizing the installation and initial operation of the Phase VIII Expansion equipment on April 16, 2009. The air construction permit expires on September 1, 2011.

As required by Air Construction Permit No. 1130037-011-AC, Section 2, Condition No. 8., three copies of a Title V air operation permit revision application are enclosed for your review. Pursuant to the requirements of Chapter 62-213.400, F.A.C., the application package contains the Florida Department of Environmental Protection *Application for Air Permit – Long Form* and all required supplemental facility and emission unit information.

Please contact me at (713) 989-7111 or by email at paul.newman@sug.com if there are any questions regarding this application.

Sincerely,

Paul I. Newman.
Manager, Environmental Compliance

cc: Christy Devore, FDEP Tallahassee
Tom Davis, P.E.

Enclosures

RECEIVED

JUN 02 2011

**BUREAU OF
AIR REGULATION**

**MUNSON COMPRESSOR
STATION NO. 12**

**TITLE V AIR OPERATION
PERMIT REVISION APPLICATION**

Prepared for:



Florida Gas Transmission Company

A Southern Union/El Paso Affiliate

Maitland, Florida

Prepared by:



Environmental Consulting & Technology, Inc.

***3701 Northwest 98th Street
Gainesville, Florida 32606***

ECT No. 110338-0100

June 2011

INTRODUCTION

As part of its Phase VIII expansion, Florida Gas Transmission Company (FGT) recently installed and placed in operation one Solar® Titan™ 130-20502SA gas turbine (EU ID 011, FGT No. 1209), two Generac® SG300 emergency generator engines (EU ID 009, FGT Nos. GEN 04 and GEN05), and miscellaneous support equipment (EU ID 010) at its existing natural gas compressor station (CS-12) located at 13100 Munson Highway in Milton, Santa Rosa County, Florida. The miscellaneous support equipment includes two petroleum contact water (PCW) storage tanks, one used oil tank, one saleable pipeline liquids (SPL) storage tank, and pipeline equipment such as valve and flanges. Each storage tank has a capacity of 210 barrels (8,820 gallons).

The Florida Department of Environmental Protection (FDEP) issued Air Construction Permit No. 1130037-011-AC authorizing the installation and initial operation of the new CS-12 Phase VIII expansion equipment on April 16, 2009. This air construction permit expires on September 1, 2011. Operation of the new Phase VIII expansion equipment commenced on March 22, 2011.

The Solar® gas turbine is a 20,500-horsepower (hp) unit equipped with a dry low-nitrogen oxides (NO_x) (DLN) combustor. The two emergency engines are 454-hp natural gas-fired, spark ignition (SI), four-stroke rich burn (4SRB) reciprocating internal combustion engines (RICEs). The miscellaneous support equipment includes one 500-gallon oily water tank.

The Solar® Titan™ 130 gas turbine is a regulated emissions unit, because it emits at least one “emissions-limited pollutant.” The Solar® gas turbine is subject to the applicable requirements of New Source Performance Standard (NSPS) Subpart KKKK, NSPS for Stationary Combustion Turbines.

The two emergency generator engines are subject to the applicable requirements of NSPS Subpart JJJJ, NSPS for Stationary Spark Ignition Internal Combustion Engines. These engines are also subject to the applicable requirements of National Emission Standards

for Hazardous Air Pollutants (NESHAPs) Subpart ZZZZ, NESHAPs for Stationary Reciprocating Internal Combustion Engines.

The emergency generator engines qualify as *insignificant emission units* in accordance with Rule 62-213.430(6), F.A.C. This rule contains the following requirements:

- (a) All requests for determination of insignificant emissions units or activities made pursuant to paragraph 62-213.420(3)(n), F.A.C., shall be processed in conjunction with the permit, permit renewal or permit revision application submitted pursuant to this chapter. Insignificant emissions units or activities shall be approved by FDEP consistent with the provisions of paragraph 62-4.040(1)(b), F.A.C. Emissions units or activities which are added to a Title V source after issuance of a permit under this chapter shall be incorporated into the permit at its next renewal, provided such emissions units or activities have been exempted from the requirement to obtain an air construction permit and also qualify as insignificant pursuant to this rule.
- (b) An emissions unit or activity shall be considered insignificant if all of the following criteria are met:
 1. Such unit or activity would be subject to no unit-specific applicable requirement.
 2. Such unit or activity, in combination with other units and activities proposed as insignificant, would not cause the facility to exceed any major source threshold(s) as defined in subparagraph 62-213.420(3)(c)1., F.A.C., unless it is acknowledged in the permit application that such units or activities would cause the facility to exceed such threshold(s).
 3. Such unit or activity would neither emit nor have the potential to emit:
 - a. 500 pounds per year or more of lead and lead compounds expressed as lead.
 - b. 1,000 pounds per year or more of any HAP.
 - c. 2,500 pounds per year or more of total HAPs.
 - d. 5.0 tons per year or more of any other regulated pollutant.

The CS-12 emergency generator engines meet the previous requirements. Potential emissions were estimated assuming 500-hours-per-year operation, although actual annual operating hours will be much lower. As shown on Table A-1 of Attachment A, the emergency engines' potential emissions are well below the thresholds specified in Rule 62-213.430(6), F.A.C.

Regarding unit-specific applicable requirements, as noted previously, the Generac® SG300 emergency generator engines are subject to NESHAPs Subpart JJJJ and ZZZZ. However, FDEP is currently in the process of revising Section 62-210.300; a proposed rule was issued April 8, 2011. The proposed rule will specifically exclude NSPS Subparts IIII and JJJJ and NESHAPs Subpart ZZZZ as "unit-specific applicable requirements."

The miscellaneous support equipment also qualifies as an *insignificant emission unit* in accordance with Rule 62-213.430(6), F.A.C.

In addition to the new Phase VIII expansion equipment, CS-12 includes five 2,000-hp Cooper-Bessemer® Model LS-8-SG RICEs (EU IDs 001 through 005, FGT Nos. 1201 through 1205), one 4,100-hp Dresser-Rand® Model TCV-10 RICE (EU ID 006, FGT No. 1206), one 15,000-hp Solar® Model Mars 100-T-15000S gas turbine (EU ID 008, FGT No. 1207), one 15,700-hp Nuovo Pignone® Model PGT-10B gas turbine (EU ID 010, FGT No. 1208), and miscellaneous support equipment (EU ID 009). The miscellaneous support equipment includes new and used lubricating oil storage tanks, PCW (previously called oily water) storage tanks, SPL (previously called pipeline condensate) storage tanks, a 637-hp emergency generator engine, and pipeline equipment such as valves and flanges.

Operation of CS-12 is presently authorized by Title V Air Operation Permit No. 1130037-010-AV. This Title V permit was renewed on June 25, 2008 and expires on June 25, 2013.

Prior to the Phase VIII expansion, CS-12 was a major source with respect to the Title V air operation and Prevention of Significant Deterioration (PSD) permitting programs. CS-12 was also a major source of hazardous air pollutants (HAPs). CS-12 remains a major source with the addition of the Phase VIII expansion equipment.

Section 2, Condition No. 8 of Air Construction Permit No. 1130037-011-AC, and Rule 62-213.420(1)(a)3., F.A.C., requires the submittal of a Title V air operation permit revision application to incorporate the Phase VIII expansion equipment at least 90 days prior to construction permit expiration (i.e., by June 3, 2011) but no later than 180 days after commencing operation (i.e., by September 18, 2011).

This application package, consisting of the FDEP's *Application for Air Permit – Long Form, Effective March 11, 2010*, and the required supplemental facility and emissions unit information, constitutes FGT's Title V air operation permit revision application for CS-12 to incorporate the Phase VIII expansion equipment and is submitted to satisfy the requirements of Section 62-213.420, F.A.C.

**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

APPLICATION FOR AIR PERMIT – LONG FORM





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 any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

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

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. 12	
3. Facility Identification Number: 1130037	
4. Facility Location Street Address or Other Locator: 13100 Munson Highway City: Milton County: Santa Rosa Zip Code: 32570-7546	
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: Paul Newman, Manager, Environmental Compliance	
2. Application Contact Mailing Address... Organization/Firm: Florida Gas Transmission Company Street Address: 5444 Westheimer Road City: Houston State: Texas Zip Code: 77056-5306	
3. Application Contact Telephone Numbers... Telephone: (713) 989 – 7111 ext. Fax: (713) 989 – 1135	
4. Application Contact Email Address: paul.newman@sug.com	

Application Processing Information (DEP Use)

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

APPLICATION INFORMATION

Purpose of Application

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

Air Construction Permit

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

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 INFORMATION

Application Comment

As part of its Phase VIII Expansion, Florida Gas Transmission Company (FGT) recently installed and placed in operation one Solar Titan 130-20502SA gas turbine (EU ID 011, FGT No. 1209), two Generac SG300 emergency generator engines (EU ID 009, FGT Nos. GEN 04 and GEN05), and miscellaneous support equipment (EU ID 010) at its existing natural gas Munson Compressor Station (CS-12) The Department issued Air Construction Permit No. 1130037-011-AC authorizing the installation and initial operation of the CS-12 Phase VIII Expansion equipment on April 16, 2009. This air construction permit expires on September 1, 2011. Operation of the new Phase VIII Expansion equipment commenced on March 22, 2011.

This application and supporting documents constitutes FGT's request for issuance of a Title V air operation permit revision for CS-12 to incorporate the Phase VIII Expansion equipment and is submitted to satisfy the requirements of Chapter 62-213.420, F.A.C.

The application provides updated heat input and potential emissions rates for the EU-011 gas turbine. If the Department determines that these changes also require a revision to an underlying air construction permit, FGT requests that the air construction permit revisions be processed concurrently with the Title V air operation permit revision application.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
011	One 20,500 bhp natural gas-fired gas turbine FGT No. 1409 Solar Model Titan 130-20502SA	N/A	N/A

Application Processing Fee

Check one: Attached - Amount: \$ _____ Not Applicable

Compressor Station No. 12 has been issued a Title V air operation permit. Application processing fee not required pursuant to Rule 62-213.205(4), F.A.C.

APPLICATION INFORMATION

Owner/Authorized Representative Statement **NOT APPLICABLE**

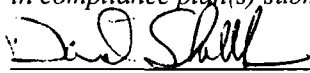
Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name :
2. Owner/Authorized Representative Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Owner/Authorized Representative Telephone Numbers... Telephone: () - ext. Fax: ()
4. Owner/Authorized Representative E-mail Address:
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i> _____ Signature _____ Date

APPLICATION INFORMATION

Application Responsible Official Certification

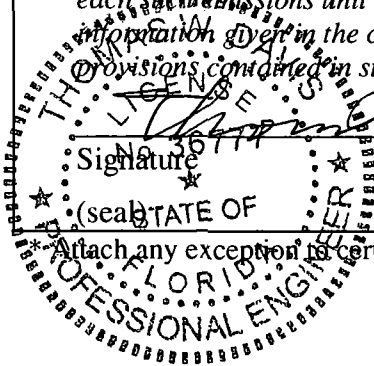
Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary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

1. Application Responsible Official Name: David W. Shellhouse, 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 or CAIR source.
3. Application Responsible Official Mailing Address... Organization/Firm: Florida Gas Transmission Company Street Address: 2405 Lucien Way, Suite 200 City: Maitland State: FL Zip Code: 32751-7047
4. Application Responsible Official Telephone Numbers... Telephone: (407) 838 - 7122 ext. Fax: (407) 838 - 7151
5. Application Responsible Official E-mail Address: dave.shellhouse@sug.com
6. Application Responsible Official Certification: <p><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></p> <p> Signature</p> <p><u>5/31/11</u> Date</p>

Professional Engineer Certification

APPLICATION INFORMATION

1. Professional Engineer Name: Thomas W. Davis Registration Number: 36777
2. Professional Engineer Mailing Address... Organization/Firm: Environmental Consulting & Technology, Inc. Street Address: 3701 Northwest 98th Street City: Gainesville State: Florida Zip Code: 32606-5004
3. Professional Engineer Telephone Numbers... Telephone: (352) 248 – 3351 ext. Fax: (352) 332 - 6722
4. Professional Engineer Email Address: tdavis@ectinc.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <p>(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></p> <p>(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></p> <p>(3) <i>If the purpose of this application is to obtain a Title V air operation permit (check here <input 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></p> <p>(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 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></p> <p>(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 checked="" 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></p> <p>Signature: <u><i>Thomas W. Davis</i></u> Date: <u>6/1/11</u></p>



Attach any exceptions to certification statement.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates...		2. Facility Latitude/Longitude...	
Zone 16	East (km) 510.9 North (km) 3,419.7	Latitude (DD/MM/SS) / /	Longitude (DD/MM/SS) / /
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 :			

Facility Contact

1. Facility Contact Name: Wesley Orso
2. Facility Contact Mailing Address... Organization/Firm: Florida Gas Transmission Company Street Address: Route 1 , Box 146 City: Milton State: Florida Zip Code: 32570-9740
3. Facility Contact Telephone Numbers: Telephone: (850) 350 -5214 ext. Fax: (850) 350 -5201
4. Facility Contact Email Address: wesley.orso@sug.com

Facility Primary Responsible Official **NOT APPLICABLE**

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:
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 E-mail 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.	Facility Regulatory Classifications Comment: <p>The Solar 130 gas turbine (EU ID No. 011) is subject to NSPS 40 CFR Part 60 Subpart KKKK.</p> <p>The two Generac emergency generator SI RICE are subject to NSPS 40 CFR Part 60 Subpart JJJJ and NESHAPS 40 CFR Part 63 Subpart ZZZZ.</p>	

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
NO _x	A	N
CO	A	N
SO ₂	B	N
VOC	B	N
HAPS	A	N

FACILITY INFORMATION

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps **NOT APPLICABLE**

1. Pollutant Subject to Emissions Cap	2. Facility-Wide Cap [Y or N]? (all units)	3. Emissions Unit ID's Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:

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 type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>11/26/2008</u>
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>11/26/2008</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: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>11/26/2008</u>

Additional Requirements for Air Construction Permit Applications **NOT APPLICABLE**

1.	Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable (existing permitted facility)
2.	Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): <input type="checkbox"/> Attached, Document ID: _____
3.	Rule Applicability Analysis: <input type="checkbox"/> Attached, Document ID: _____
4.	List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable (no exempt units at facility)
5.	Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
6.	Air Quality Analysis (Rule 62-212.400(7), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
7.	Source Impact Analysis (Rule 62-212.400(5), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
8.	Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
9.	Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
10.	Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications **NOT APPLICABLE**

1. List of Exempt Emissions Units:
 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: **Introduction**
 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: **Introduction**
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 Onsite 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: _____ Not Applicable

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

NOT APPLICABLE

Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program

1. Acid Rain Program Forms:

Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):

Attached, Document ID: _____ Previously Submitted, Date: _____

Not Applicable (not an Acid Rain source)

Phase II NO_x Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):

Attached, Document ID: _____ Previously Submitted, Date: _____

Not Applicable

New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):

Attached, Document ID: _____ Previously Submitted, Date: _____

Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):

Attached, Document ID: _____ Previously Submitted, Date: _____

Not Applicable (not a CAIR source)

Additional Requirements Comment

Emergency Generator Potential Emission Rates – Attachment A.

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:

20,500 horsepower (hp) natural gas-fired Solar Model Titan 130-20502SA gas turbine.

3. Emissions Unit Identification Number: **011 (FGT No. 1209)**

4. Emissions Unit Status Code: A	5. Commence Construction Date: 07/21/2010	6. Initial Startup Date: 03/22/2011	7. Emissions Unit Major Group SIC Code: 49
--	---	---	---

8. Federal Program Applicability: (Check all that apply)

- Acid Rain Unit
- CAIR Unit

9. Package Unit:

Manufacturer: **Solar** Model Number:- **Titan 130-20502SA**

10. Generator Nameplate Rating: **N/A** MW

11. Emissions Unit Comment:

EMISSIONS UNIT INFORMATION

Section [1] of [1]

Emissions Unit Control Equipment/Method: Control **1** of **1**

1. Control Equipment/Method Description: Dry Low-NO_x (DLN) Combustion
2. Control Device or Method Code: 025

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
2. Control Device or Method Code:

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: N/A
2. Maximum Production Rate: N/A
3. Maximum Heat Input Rate: 165.0 mmBtu/hr, higher heating value (HHV) at ISO
4. Maximum Incineration Rate: pounds/hr tons/day
5. Requested Maximum Operating Schedule: 24 hours/day 52 weeks/year 7 days/week 8,760 hours/year
6. Operating Capacity/Schedule Comment: Maximum heat input based on gas turbine output power of 20,500 bhp, heat rate of 8,048 Btu/hp-hr, HHV at ISO conditions (i.e., 59°F, 50% relative humidity, and one atmosphere pressure), and natural gas heat content of 1,040 Btu/ft³ (HHV). Heat input rate will vary with gas turbine characteristics, load, and ambient conditions.

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: EU-011		2. Emission Point Type Code: 1			
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: N/A					
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: N/A					
5. Discharge Type Code: V		6. Stack Height: 55 feet		7. Exit Diameter: 8.7 feet	
8. Exit Temperature: 944 °F		9. Actual Volumetric Flow Rate: 232,782 acfm		10. Water Vapor: N/A %	
11. Maximum Dry Standard Flow Rate: N/A dscfm			12. Nonstack Emission Point Height: feet		
13. Emission Point UTM Coordinates... Zone: East (km): North (km):			14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)		
15. Emission Point Comment:					

EMISSIONS UNIT INFORMATION

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D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): Natural gas burned in internal combustion industrial turbine.		
2. Source Classification Code (SCC): 2-02-002-01		3. SCC Units: Million cubic feet burned
4. Maximum Hourly Rate: 0.1586	5. Maximum Annual Rate: 1,389.72	6. Estimated Annual Activity Factor: N/A
7. Maximum % Sulfur: 0.031	8. Maximum % Ash: N/A	9. Million Btu per SCC Unit: 1,040 (HHV)
10. Segment Comment: Field 7 sulfur content is based on maximum Federal Energy Regulatory Commission (FERC) tariff limit of 10 gr S/100 scf and gas density of 0.0455 lb/scf.		

Segment Description and Rate: Segment __ 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
NO _x	025	N/A	EL
CO	N/A	N/A	EL
SO ₂	N/A	N/A	EL

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**
(Optional for unregulated emissions units.)

Complete a Subsection F1 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 operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: NO_x	2. Total Percent Efficiency of Control: N/A
3. Potential Emissions: 8.9 lb/hour 38.9 tons/year	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): N/A to tons/year	
8. Emission Factor: Reference: Permit No. 03990029-011-AC Section 3, Condition No. 7.	7. Emissions Method Code: 0
8.a. Baseline Actual Emissions (if required): tons/year N/A	8.b. Baseline 24-month Period: N/A From: To:
9.a. Projected Actual Emissions (if required): tons/year N/A	9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years N/A
10. Calculation of Emissions: NO_x = 8.9 lb/hr (based on 15 ppmvd @ 15% O₂ permit limit) NO_x = (8.9 lb/hr) x (8,760 hr/yr) x (1 ton / 2,000 lb) = 38.9 ton/yr	
11. Potential, Fugitive, and Actual Emissions Comment: Potential emission rates based on NO_x concentration permit limit of 15 ppmvd @ 15% O₂ and heat input of 165.0 x 10⁶ Btu/hr, HHV at ISO conditions.	

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
 ALLOWABLE EMISSIONS**

Complete Subsection F2 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: OTHER	2. Future Effective Date of Allowable Emissions: N/A
3. Requested Allowable Emissions and Units: 15 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 8.9 lb/hour 38.9 tons/year
5. Method of Compliance (limit to 60 characters): EPA Reference Method 7E	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Vendor data EU-011 is also subject to less stringent NSPS Subpart KKKK NO_x emission limit.	

Allowable Emissions Allowable Emissions ___ 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, FUGITIVE, AND ACTUAL EMISSIONS**
(Optional for unregulated emissions units.)

Complete a Subsection F1 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 operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: CO		2. Total Percent Efficiency of Control: N/A	
3. Potential Emissions: 9.0 lb/hour 39.4 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): N/A to tons/year			
8. Emission Factor: 0.0546 lb/10⁶ Btu, HHV Reference: Vendor Data		9. Emissions Method Code: 5	
8.a. Baseline Actual Emissions (if required): tons/year N/A	8.b. Baseline 24-month Period: N/A From: To:		
9.a. Projected Actual Emissions (if required): tons/year N/A	9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years N/A		
10. Calculation of Emissions: $\text{CO} = (0.0546 \text{ lb}/10^6 \text{ Btu, HHV}) \times (165.0 \times 10^6 \text{ Btu/hr}) = 9.0 \text{ lb/hr}$ $\text{CO} = (9.0 \text{ lb/hr}) \times (8,760 \text{ hr/yr}) \times (1 \text{ ton} / 2,000 \text{ lb}) = 39.4 \text{ ton/yr}$			
11. Potential, Fugitive, and Actual Emissions Comment: Potential emission rates based on CO concentration of 25 ppmvd @ 15% O₂ and heat input of 165.0 x 10⁶ Btu/hr, HHV at ISO conditions.			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
 ALLOWABLE EMISSIONS**

Complete Subsection F2 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: OTHER	2. Future Effective Date of Allowable Emissions: N/A
3. Requested Allowable Emissions and Units: 25.0 ppmvd @ 15% O₂	4. Equivalent Allowable Emissions: 9.0 lb/hour 39.4 tons/year
5. Method of Compliance (limit to 60 characters): EPA Reference Method 10	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Vendor data	

Allowable Emissions Allowable Emissions ___ 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, FUGITIVE, AND ACTUAL EMISSIONS**
(Optional for unregulated emissions units.)

Complete a Subsection F1 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 operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: SO₂	2. Total Percent Efficiency of Control: N/A
3. Potential Emissions: 4.5 lb/hour 19.9 tons/year	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): N/A to tons/year	
6. Emission Factor: 10 grains S / 100 ft³ natural gas Reference: FERC tariff limit	7. Emissions Method Code: 2
8.a. Baseline Actual Emissions (if required): tons/year N/A	8.b. Baseline 24-month Period: N/A From: To:
9.a. Projected Actual Emissions (if required): tons/year N/A	9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years N/A
10. Calculation of Emissions: $\text{SO}_2 = (158,645.8 \text{ ft}^3/\text{hr NG}) \times (10 \text{ grains S} / 100 \text{ ft}^3 \text{ NG})$ $\times (1 \text{ lb S} / 7,000 \text{ grains}) \times (2 \text{ lb SO}_2 / \text{lb S})$ $\text{SO}_2 = 4.5 \text{ lb/hr}$ $\text{SO}_2 = (4.5 \text{ lb/hr}) \times (8,760 \text{ hr/yr}) \times (1 \text{ ton} / 2,000 \text{ lb}) = 19.9 \text{ ton/yr}$	
11. Potential, Fugitive, and Actual Emissions Comment:	

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
 ALLOWABLE EMISSIONS**

Complete Subsection F2 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: OTHER	2. Future Effective Date of Allowable Emissions: N/A
3. Requested Allowable Emissions and Units: 10 grains S / 100 scf	4. Equivalent Allowable Emissions: 4.5 lb/hour 19.9 tons/year
5. Method of Compliance (limit to 60 characters): Federal Energy Regulatory Commission (FERC) tariff	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): Field 3 sulfur content is the maximum tariff limit specified by the FERC. EU-011 is also subject to less stringent NSPS Subpart KKKK SO₂ emission limit.	

Allowable Emissions Allowable Emissions ___ 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 Subsection G 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: VE 10	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: 10 % Exceptional Conditions: N/A % Maximum Period of Excess Opacity Allowed: N/A min/hour	
4. Method of Compliance: EPA Reference Method 9	
5. Visible Emissions Comment: Rule 62-4.070(3), F.A.C. (Reasonable Assurance)	

Visible Emissions Limitation: Visible Emissions Limitation 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 Subsection H if this emissions unit is or would be subject to continuous monitoring.

NOT APPLICABLE

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:	

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>11/26/2008</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>11/26/2008</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: _____ <input checked="" type="checkbox"/> Not Applicable
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: Previously Submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable
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: _____ 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>June 27, 2011</u> Test Date(s)/Pollutant(s) Tested: <u>May 13, 2011; CO, NO_x, and 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

ATTACHMENT A

**EMERGENCY GENERATOR ENGINE
POTENTIAL EMISSION RATES**

**Table A-1. FGT Compressor Station 12
Summary of Emergency Generator Engine Potential Emission Rates**

Source	Potential Emission Rates (tpy)						
	NO _x	CO	VOC	PM/PM ₁₀ / PM _{2.5}	SO ₂	Maximum HAP	Total HAPs
Two Emergency Generator Internal Combustion (IC) Engines	1.0	2.0	0.50	0.041	0.059	0.044	0.069
Insignificant Emission Rate*	5.0	5.0	5.0	5.0	5.0	0.5	1.3
Exceed Insignificant Emission Rate (Y/N)	No	No	No	No	No	No	No

*Rule 62-213.430(6)(b)3., F.A.C.

**Table A-2. FGT Compressor Station 12
Natural Gas-Fired Emergency Engine - Criteria Pollutant Emission Estimates**

A. Emission Estimate Methodology

References - NSPS Subpart JJJJ (NO_x, CO, and VOC), EPA AP-42, Table 3.2-3. (PM), and Mass Balance (SO₂).

$$E_1 = EF \times P$$

$$E_2 = EF \times P \times OP \times (1 \text{ ton}/2,000 \text{ lb})$$

$$EFSO_2 = FOFLOW \times FODENSITY \times (FOSULFUR/100) \times (1 \text{ lb S}/7,000 \text{ grains S}) \times (1/P) \times (2 \text{ lb SO}_2/\text{lb S}) \times (453.59 \text{ g/lb})$$

where:

E₁ = hourly emission rate; pounds per hour (lb/hr)
 E₂ = annual emission rate; tons per year (tpy)
 EF = emission factor; grams per brake horsepower-hour (g/bhp-hr)
 P = engine output; brake horsepower-hour (bhp-hr)
 OP = annual operating hours; hours per year (hr/yr)
 EFSO₂ = SO₂ emission factor; grams per brake horsepower hour (g/bhp-hr)
 FOFLOW = Natural gas flow rate; cubic feet per hour (ft³/hr)
 FODENSITY = Natural gas density; pounds per cubic foot (lb/ft³)
 FOSULFUR = Natural gas sulfur content; grains S per 100 cubic foot (gr S/100 ft³)

B. Input Data

Engine Data	Units	Emergency Generator Engine
Engine Manufacturer	-	Generac
Generator Set No.	-	SG300
Engine Output	bhp	454
	kW	339
Engine Operating Hours	hr/yr	500
Natural Gas Flow Rates	ft ³ /hr	4,100
	10 ⁶ ft ³ /yr	2.05
Natural Gas Heat Content	Btu/ft ³ , HHV	1,040
Natural Gas Sulfur Content	gr S/100 ft ³	10.0
Natural Gas Density	lb/ft ³	0.0455
Engine Heat Input	106 Btu/hr, HHV	4.26

C. Criteria Pollutant Emission Estimates

Criteria Pollutants and CO ₂	Emergency Generator Engine
NO_x	
lb/10 ⁶ Btu	0.47
g/bhp-hr *	2.0
lb/hr	2.0
tpy	0.50
CO	
lb/10 ⁶ Btu	0.94
g/bhp-hr *	4.0
lb/hr	4.0
tpy	1.0
VOC	
lb/10 ⁶ Btu	0.23
g/bhp-hr *	1.0
lb/hr	1.0
tpy	0.25
PM₁₀/PM_{2.5}	
lb/10 ⁶ Btu †	0.0194
g/bhp-hr	0.08
lb/hr	0.083
tpy	0.021
SO₂	
lb/10 ⁶ Btu	0.027
g/bhp-hr ‡	0.12
lb/hr	0.12
tpy	0.029

*NSPS Subpart JJJJ, Table 1, Emergency Engines > 130 hp.

†EPA AP-42, Table 3.2-3.

‡Mass balance.

Table A-3. FGT Compressor Station 12

Natural Gas-Fired Emergency Engine - Hazardous Air Pollutant Emission Estimates

A. Emission Estimate Methodology

Reference - EPA AP-42, Table 3.2-3 (4SRB), July 2000.

$$E_1 = EF \times HI$$

$$E_2 = EF \times HI \times OP \times (1 \text{ ton}/2,000 \text{ lb})$$

$$EFSO_2 = FOFLOW \times FODENSITY \times (FOSULFUR/100) \times (1 \text{ lb S}/7,000 \text{ grains S}) \times (1/P) \times (2 \text{ lb SO}_2/\text{lb S}) \times (453.59 \text{ g}/\text{lb})$$

where:
 E_1 = hourly emission rate; pounds per hour (lb/hr)
 E_2 = annual emission rate; tons per year (tpy)
 EF = emission factor; pounds per million British thermal units (lb/10⁶ Btu)
 HI = engine heat input; million British thermal units per hour (10⁶ Btu/hr)
 OP = annual operating hours; hours per year (hr/yr)

B. Fuel Flow Rate and Heat Input

Engine/Gas Turbine	Annual Hours (hr/yr)	NG Fuel Flow		Heat Input	
		10 ⁶ ft ³ /hr	10 ⁶ ft ³ /yr	10 ⁶ Btu/hr, HHV	10 ⁶ Btu/yr, HHV
Emergency Engine: NG-Fired	500	0.0041	2.05	4.26	2,132

C. Hazardous Air Pollutant Emissions Rates: Emergency Generator Engine

Hazardous Air Pollutant	FDEP Code	CAS No.	Emission Factor * (lb/10 ⁶ Btu, HHV)	Potential Emission Rates			Significant † HAP (Yes/No)
				Hourly (lb/hr)	Annual		
					lb/yr	tpy	
1,1,2,2-Tetrachloroethane	H166	79-34-5	2.53E-05	1.08E-04	0.054	2.70E-05	No
1,1,2-Trichloroethane	H175	79-00-5	1.53E-05	6.52E-05	0.033	1.63E-05	No
1,1-Dichloroethane	H094	75-34-3	1.13E-05	4.82E-05	0.024	1.20E-05	No
1,2-Dichloroethane	H089	107-06-2	1.13E-05	4.82E-05	0.024	1.20E-05	No
1,2-Dichloropropane	H156	78-87-5	1.30E-05	5.54E-05	0.028	1.39E-05	No
1,3-Butadiene	H026	106-99-0	6.63E-04	2.83E-03	1.414	7.07E-04	No
1,3-Dichloropropene	H064	542-75-6	1.27E-05	5.42E-05	0.027	1.35E-05	No
Acetaldehyde	H001	75-07-0	2.79E-03	1.19E-02	5.948	2.97E-03	No
Acrolein	H006	107-02-8	2.63E-03	1.12E-02	5.607	2.80E-03	No
Benzene	H017	71-43-2	1.58E-03	6.74E-03	3.369	1.68E-03	No
Carbon Tetrachloride	H033	56-23-5	1.77E-05	7.55E-05	0.038	1.89E-05	No
Chlorobenzene	H041	108-90-7	1.29E-05	5.50E-05	0.028	1.38E-05	No
Chloroform	H043	67-66-3	1.37E-05	5.84E-05	0.029	1.46E-05	No
Ethylbenzene	H085	100-41-4	2.48E-05	1.06E-04	0.053	2.64E-05	No
Ethylene Dibromide	H088	106-93-4	2.13E-05	9.08E-05	0.045	2.27E-05	No
Formaldehyde	H095	50-00-0	2.05E-02	8.74E-02	43.706	2.19E-02	No
Methanol	H115	67-56-1	3.06E-03	1.30E-02	6.524	3.26E-03	No
Methylene Chloride	H128	75-09-2	4.12E-05	1.76E-04	0.088	4.39E-05	No
Naphthalene	H132	91-20-3	9.71E-05	4.14E-04	0.207	1.04E-04	No
Polycyclic Aromatic Hydrocarbons (PAH)	H151	65996-93-2	1.41E-04	6.01E-04	0.301	1.50E-04	No
Styrene	H163	100-42-5	1.19E-05	5.07E-05	0.025	1.27E-05	No
Toluene	H169	108-88-3	5.58E-04	2.38E-03	1.190	5.95E-04	No
Vinyl Chloride	H184	108-88-3	7.18E-06	3.06E-05	0.015	7.65E-06	No
Xylene	H186	1330-20-7	1.95E-04	8.31E-04	0.416	2.08E-04	No
Maximum HAP (Formaldehyde)	H095	50-00-0	2.05E-02	0.087	43.7	0.022	No
Total HAPs	HAPs	N/A	3.25E-02	0.138	69.2	0.035	No

*EPA AP-42, Table 3.2-3 (4SRB), July 2000.

†Rule 62-213.430(6)(b)3., F.A.C.