MIAMI-DADE COUNTY

Carlos A. Gimenez, Mayor

Miami-Dade Water and Sewer Department
P.O. Box 330316 • 3071 SW 38th Avenue
Miami, Florida 33233-0316
T 305-665-7471

miamidade.gov

November 21, 2012

Electronic Correspondence/
Original via Certified Mail/
Return Receipt Requested
7001 0360 0001 6783 7072
CCN: 56961

Mr. Syed Arif, P.E.
Florida Department of Environmental Protection
Division of Air Resource Management
Permitting Section
2600 Blair Stone Road MS 5505
Tallahassee, Florida 32399-2400
Email: Syed.Arif@dep.state.fl.us

Subject: Application for an Air Construction Permit to Replace Two Existing 1.2 Megawatt Engine Generators at the Central District Wastewater Treatment Plant Cogeneration Facility, Facility I.D. No. 0250476

Dear Mr. Arif:

As per discussions with our respective staffs during the year, enclosed is an original application for the replacement of two (2) existing 1.2 MW Engine-Generators at the Central District Wastewater Treatment Plant cogeneration facility.

As the designated Responsible Official of this facility, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. Please contact me at (786) 552-8116 or Mr. Richard M. O'Rourke at (786) 552-8123 if there are any questions regarding the application.

Sincerely,

Vicente E. Arrebola, P.E.
Assistant Director,
Wastewater System Operations

Enclosure

ec: Mr. Edward Svec, FDEP/TAL, Ed.Svec@dep.state.fl.us
Mr. Joe Lurix, FDEP/SED, Joe.Lurix@dep.state.fl.us

Delivering Excellence Every Day

Department of Environmental Protection

Division of Air Resource Management

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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: Miami-Dade Water and Sewer Department	
2. Site Name: Central District Wastewater Treatment Plant	
3. Facility Identification Number: 0250476	
4. Facility Location... Street Address or Other Locator: 3869 Rickenbacker Causeway City: Miami County: Miami-Dade Zip Code: 33146	
5. Relocatable Facility? ☐ Yes ☒ No	6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: Richard O'Rourke
2. Application Contact Mailing Address... Organization/Firm: Miami-Dade Water and Sewer Department Street Address: P.O. Box 330316 City: Miami State: FL Zip Code: 33233-0316
3. Application Contact Telephone Numbers... Telephone: (786) 552 - 8123 ext. Fax: (786) 552 - 8640
4. Application Contact E-mail Address: rorou01@miamidade.gov

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 12-3-12	3. PSD Number (if applicable):
2. Project Number(s): 0250476-011-AC	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 Comment

This application is submitted to obtain a Title V Air Construction Permit to replace two (2)of the four (4) existing 1.2 MW Digester Gas fueled Superior Model 16GTLB engine-generators by installing two (2) new 1.2 MW Digester Gas fueled Superior Model 16GTLD engines at the Central District Wastewater Treatment Plant (CDWWTP) and to modify or lower the maximum allowable emission rates for NOx for units No. 007, 009, the two (2) existing 1.2 MW Digester Gas fueled Superior Model 16GTLB engine-generators to remain from 7.6 pounds per hour (lb/hr) to 7.45 lb/hr NOx.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
New Emission Units			
021	1.2 MW Digester Gas Electric Cogenerator Cooper-Superior Model 16GTLD (Cogen#3)	AC1B	--
022	1.2 MW Digester Gas Electric Cogenerator Cooper-Superior Model 16GTLD (Cogen#4)	AC1B	--
Existing Emission Units Remaining On Site			
007	1.2 MW Digester Gas Electric Cogenerator Cooper-Superior Model 16GTLB (Cogen#1)	AC1B	--
009	1.2 MW Digester Gas Electric Cogenerator Cooper-Superior Model 16GTLB (Cogen#2)	AC1B	--
Existing Emission Units Removed Site			
010	1.2 MW Digester Gas Electric Cogenerator Cooper-Superior Model 16GTLB (Cogen#3)	--	--
011	1.2 MW Digester Gas Electric Cogenerator Cooper-Superior Model 16GTLB (Cogen#4)	--	--

Application Processing Fee

Check one: ☐ Attached - Amount: $_____ ☒ Not Applicable

APPLICATION INFORMATION

Owner/Authorized Representative Statement

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

1. Owner/Authorized Representative Name :
   Vicente E. Arrebola, P.E.
2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: Miami-Dade Water and Sewer Department
   Street Address: P.O. Box 330316
   City: Miami State: FL Zip Code: 33233-0316
3. Owner/Authorized Representative Telephone Numbers...
   Telephone: (786) 552 - 8116 ext. Fax: (786) 552 - 8638
4. Owner/Authorized Representative E-mail Address: arrebv@miamidade.gov
5. Owner/Authorized Representative Statement:

   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.

   Signature

   11-21-12
   Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Richard M. O'Rourke
   Registration Number: 42683
2. Professional Engineer Mailing Address...
   Organization/Firm: Miami-Dade Water and Sewer Department
   Street Address: P.O. Box 330316
   City: Miami State: FL Zip Code: 33233-0316
3. Professional Engineer Telephone Numbers...
   Telephone: (786) 552 - 8123 ext. Fax: (786) 552 - 8640
4. Professional Engineer E-mail Address: rorou01@miamidade.gov
5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(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

(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.

(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, 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.

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, 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 ☐, 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.

(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 , 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.

Signature (seal) 42683

11/21/2012
Date

* Attach any exception to certification statement.

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:

2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):

- ☐ 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.
- ☐ For a partnership or sole proprietorship, a general partner or the proprietor, respectively.
- ☐ For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.
- ☐ The designated representative at an Acid Rain source or CAIR source.

3. Application Responsible Official Mailing Address...
Organization/Firm:
Street Address:
City: State: Zip Code:

4. Application Responsible Official Telephone Numbers...
Telephone: ( ) - ext. Fax: ( ) -

5. Application Responsible Official E-mail Address:

6. Application Responsible Official Certification:

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.

Signature Date

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone 17 East (km) 585.19 North (km) 2848.09		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) 25/44/54 Longitude (DD/MM/SS) 80/09/02	
3. Governmental Facility Code: 3	4. Facility Status Code: A	5. Facility Major Group SIC Code: 49	6. Facility SIC(s): 4952
7. Facility Comment : The Central District WWTP is a publicly owned treatment works.			

Facility Contact

1. Facility Contact Name: Bennie Walton, Jr.
2. Facility Contact Mailing Address... Organization/Firm: Miami-Dade Water and Sewer Department Street Address: PO Box 330316 City: Miami State: FL Zip Code: 33233-0316
3. Facility Contact Telephone Numbers: Telephone: (786) 268 - 5866 ext. Fax: (305) 365 - 5617
4. Facility Contact E-mail Address: bwalt@miamidade.gov

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
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. ☐ Small Business Stationary Source	☐ Unknown
2. ☐ Synthetic Non-Title V Source	
3. ☒ Title V Source	
4. ☒ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. ☐ Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. ☐ Major Source of Hazardous Air Pollutants (HAPs)	
7. ☐ Synthetic Minor Source of HAPs	
8. ☐ One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. ☐ One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. ☒ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. ☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	

12. Facility Regulatory Classifications Comment:

This facility is classified as a Major Source of Air Pollution or Title V Source with regard to regulated air pollutants (criteria pollutants) because potential emissions of nitrogen oxides (NOx) exceed 100 tons per year.

This facility is not within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. However, because overall potential facility emissions of nitrous oxides (NOx), a regulated air pollutant, exceed 250 tons per year, it is a subject to the preconstruction review requirements of Rule 62-212.400, Prevention of Significant Deterioration (PSD).

For the purpose of 40 CFR Part 63 Subpart ZZZZ – *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, this facility is an area source of HAPs emissions.

For the purpose of 40 CFR Part 98 – *Mandatory Greenhouse Gas Reporting*, this facility has the potential under the existing Title V Air Operation Permit to emit a reportable quantity of CO2e (25,000 tonnes or above) and CO2e emissions are being tracked. In the first two reporting years, the reporting threshold was not reached.

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
CO Carbon Monoxide	A	N
NOX Nitrogen Oxides	A	Y
PM Particulate Matter – Total	B	N
PM10 Particulate Matter – PM10	B	N
PM2.5 Particulate Matter – PM2.5	B	N
SO2 Sulfur Dioxide	A	N
VOC Volatile Organic Compounds	A	N

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility-Wide Cap [Y or N]? (all units)	3. Emissions Unit ID's Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap
NOx	N	007, 009, 021, 022		81.47*	ESCPSD
NOx	N	013, 014, 015, 019, 020		137.6	ESCPSD

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

* Refer to Section B for Emission Unit 021 for detailed explanation of the change in Emission cap. Subject units also carry individual limitations on NOx emissions under the existing Title V Air Operating permit as follows:

A. 1. The maximum allowable emission rates for NOx for units No. 007 and 009, 010, 011 shall not exceed 7.6 pounds per hour (lb/hr) each and 99.9 tons per year (TPY) combined.
[Rule 62-210.200, F.A.C., Definitions: Potential to-Emit, and 0250476-004-AC]

A.4. The combined hours of operation for the units No. 007, 009, 010, and 011 shall not exceed 26,280 hours in any consecutive 12-month period.
[Rule 62-210.200, F.A.C., Definitions: Potential to-Emit, and 0250476-004-AC]

B.1. Emission of NOx from each of the model 20-645E4B engine (i.e., emission units 013, 014 and 015) shall not exceed 2.15 lb/MMBtu. Emission of NOx from each of the model 20-645F4B engine (i.e., emission units 019 and 020) shall not exceed 2.75 lb/MMBtu. Emission of NO x is limited to 137.6 tons per year combined.
[Rule 62-212.400(6), F.A.C.]

This application seeks to revise condition A.1. to:
A. 1. The maximum allowable emission rates for NOx shall not exceed 7.45 pounds per hour (lb/hr) for units Nos. 007 and 009 each and 3.7 lb/hr for units Nos. 021 and 022 each. The maximum NOx emissions for units Nos. 007, 009, 021, and 022 combined shall not exceed 81.47 tons per year (TPY).
And add a new condition to A for new unit 021 and 022:
The maximum allowable emission rates for CO shall not exceed 10.8 pounds per hour (lb/hr) (3.0 g/HP-Hr) for units Nos. 021 and 022 each

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)
   ☒ Attached, Document ID: A ☐ 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)
   ☒ Attached, Document ID: B ☐ Previously Submitted, Date: _____

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)
   ☒ Attached, Document ID: C ☐ Previously Submitted, Date: _____

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location:
   ☐ Attached, Document ID: _____ ☒ Not Applicable (existing permitted facility)

2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL):
   ☒ Attached, Document ID: D

3. Rule Applicability Analysis:
   ☒ Attached, Document ID: E

4. List of Exempt Emissions Units:
   ☒ Attached, Document ID: F ☐ Not Applicable (no exempt units at facility)

5. Fugitive Emissions Identification:
   ☐ Attached, Document ID: _____ ☒ Not Applicable

6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.):
   ☐ Attached, Document ID: _____ ☒ Not Applicable

7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.):
   ☐ Attached, Document ID: _____ ☒ Not Applicable

8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.):
   ☐ Attached, Document ID: _____ ☒ Not Applicable

9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.):
   ☐ Attached, Document ID: _____ ☒ Not Applicable

10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.):
    ☐ Attached, Document ID: _____ ☒ Not Applicable

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications

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:_____
   ☐ 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:_____
   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

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

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

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 an initial, revised or renewal 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. 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 an 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 or 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. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes 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.

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:
Low BTU Fuel Cogeneration Engine, New Emission Unit ID
1.2 MW Digester Gas Electric Cogenerator, Cooper Superior Model 16GTLD, No. 3

3. Emissions Unit Identification Number: 021

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:
A	Unknown	NA	49

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

☐ Acid Rain Unit

☐ CAIR Unit

☐ Hg Budget Unit

9. Package Unit:
Manufacturer: Superior Model Number: 16GTLD

10. Generator Nameplate Rating: 1.2 MW

11. Emissions Unit Comment: This emission unit is to replace one (1) (EU 007) of four (4) 1.2 MW digester gas-fired co-generators that are listed individually but regulated collectively. These units generate heat for anaerobic digesters and produce electricity for in-plant use. The units are four-stroke spark ignition reciprocating internal combustion engine driven generators equipped with lean-burn low-combustion technology to reduce NOx emission.

Emissions Unit Control Equipment/Method: Control N/A of N/A

1. Control Equipment/Method Description: None – There are no post combustion emission control devices to be installed
2. Control Device or Method Code: N/A

B. EMISSIONS UNIT CAPACITY INFORMATION
(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate: 1.2 MW	
3. Maximum Heat Input Rate: 12.496 million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	7 days/week
52 weeks/year	8760 hours/year

6. Operating Capacity/Schedule Comment:

The maximum production rate of 1.2 MW and maximum heat input rate of 12.496 million Btu/hr is for this one (1) engine only, not the bank of four (4) engines. The maximum heat input rate was based on the Brake Specific Fuel Consumption of 7,100 btu/bhp-hr from a Manufacturer Specification Sheet for a similar Superior Model 16SGTD

The only fuel for the engine will be low BTU fuel (digester gas).

Note that existing Title V Air Operation Permit No. 0250476-007-AV restricts the bank of the four (4) cogeneration units to a collective total of 26,280 hours (continuous operations) as below:

A.4 The combined hours of operation for existing Units No. 007, 009, 010, and 011 shall not exceed 26,280 hours in any consecutive 12-month period [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit, and 0250476-004-AC]

No significant change to this condition is sought by this permit application; other than replacing emission units 010 and 011 with 021 and 022 so that condition A.4. would read:

A.4 The combined hours of operation for Emission Units No. 007, 009, 021, and 021 shall not exceed 26,280 hours in any consecutive 12-month period.

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: CG-3	2. Emission Point Type Code: 3	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: Each generator is equipped with a horizontal exhaust stack with silencer.		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: H	6. Stack Height: 38 feet	7. Exit Diameter: 1.50 feet
8. Exit Temperature: 875 °F	9. Actual Volumetric Flow Rate: 10,259 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): 585.13 North (km): 2,847.93	14. Emission Point Latitude/Longitude... Latitude (25/44/49) Longitude (80/09/04)	
15. Emission Point Comment: There are four similar stacks, one for each cogeneration engine, located on the north roof of the cogeneration building. Cogeneration unit #1 (EU 007) is the easternmost stack and cogeneration unit #4 (EU 011) is the westernmost stack. Emission point is representative for all 4 cogeneration units.		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): Digester gas combustion (emissions related to million cubic feet burned)* *see comments		
2. Source Classification Code (SCC): 2-03-007-02*	3. SCC Units: Million cubic feet burned*	
4. Maximum Hourly Rate: 0.01785	5. Maximum Annual Rate: 156.379	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.321%	8. Maximum % Ash:	9. Million Btu per SCC Unit: 700

10. Segment Comment:

* The best SCC match for this segment is 2-03-007-02 (Internal Combustion Engines > Commercial/Institutional > Digester Gas > Reciprocating: POTW Digester Gas) however the Factor Information Retrieval (FIRE) system available through the EPA Technology Transfer Network (TTN) website includes no information on emissions of criteria pollutants for that SCC. Factors from related SCCs will be used as appropriate and noted.

The maximum hourly and annual rates are for this one (1) engine only, not the bank of four (4) engines. This fuel usage of 0.01785 MMcf/hr (297.5 cf/minute) represents the, therefore presenting a worst-case scenario.

Digester gas heating values vary between 650 Btu/cf and 730 Btu/cf. An average of 700 Btu/cf is used in the application.

The total annual rate for the bank of four (4) collectively regulated units is 469.237MMcf based on two different consumption rates for the two different cogeneration unit models and the permit limitation of 26,280 hours (equivalent to continuous operation of 3 units) per year for the four (4) emissions units combined.

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
CO	-	-	EL
NOX	-	-	EL
PM10	-	-	EL
SO2	-	-	EL
VOC	-	-	EL

Notes:
Emissions-limited (EL) pollutant based on restricted hours of operation to escape PSD

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:
3. Potential Emissions: 10.8 lb/hour 47.30 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 10.8 lb/hr Reference: Requested by Permittee	7. Emissions Method Code: 0
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

10.8 lb/hr x 8760 hr/yr x ton/2000lb = 47.30tons/yr

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

CO Emission factor of 10.8 lb/hr (3.0 g/HP-Hr) is requested by permittee to avoid PSD. Manufacturer provided letter indicated CO emissions at 2.2 g/HP-Hr, CO emissions are also limited by Table 1 to Subpart JJJJ of Part 60 to 5.0 g/bhp-hr or 610 ppmvd at 15% O2

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

CO emissions are being synthetically limited by requesting a maximum allowable emission rate for CO of 10.8 lb/hr for the replacement cogeneration units Nos. 021 and 022 to be installed so CO emissions will be insignificant. Manufacturer provided letter indicates that CO emissions should be lower, about 8.6 lb/hr. Allowable CO emissions under Table 1 of Subpart JJJJ of Part 60 would be higher, about 19.4 lb/hr.

CO emissions will also be synthetically limited by the permit condition limiting the combined hours of operation for the bank of the four (4) cogeneration emissions units to 26,280 hours (continuous operations) in any consecutive 12-month period.

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: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 10.8 lb/hr E.U. 021 and 22	4. Equivalent Allowable Emissions: 10.8 lb/hr 47.30 tons/year
5. Method of Compliance: Compliance with the allowable emission limiting standards for CO for E.U. 021 and 022 shall be demonstrated by using EPA Method 10, as described in 40 CFR 60, Appendix A, adopted by reference in Rule 62-204.800, F.A.C., and adopted in Rule 62-297.401, F.A.C.	
6. Allowable Emissions Comment (Description of Operating Method): CO emissions are synthetically limited by limiting the maximum allowable emission rate for CO to 10.8 lb/hr for the two (2) new replacement cogeneration units and the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period. To escape PSD review, the permittee is requesting the following additional limitation to the permit by this application: *The maximum allowable emission rates for CO shall not exceed 10.8 pounds per hour (lb/hr) (3.0 g/HP-Hr) for units Nos. 021 and 022 each.*	

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: NOx	2. Total Percent Efficiency of Control:
3. Potential Emissions: 3.7 lb/hour 16.21 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 3.7 lb/hr Reference: Requested by Permittee	7. Emissions Method Code: 0
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

3.7 lb/hr x 8760 hr/yr x ton/2000lb = 16.21 tons/yr

NOx Emission factor of 3.7 lb/hr is requested by permittee to avoid PSD.

Manufacturer provided letter, NOx emissions at 0.7 g/HP-Hr, NOx emissions are also limited by Table 1 to Subpart JJJJ of Part 60 to 2.0 g/bhp-hr; (2.0 g/bhp-hr x 1760 bhp = 3520 g/hr x 0.0022046 lb/g = 7.76 lb/hr) or 150 ppmvd at 15% O_2

The emissions shown are for this one (1) engine only, not the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

NOx emissions are to be synthetically limited by permit conditions limiting the maximum allowable emission rate for NOx to 7.45 lb/hr for existing cogeneration units Nos. 007 and 009 to remain and 3.7 lb/hr for the replacement cogeneration units Nos. 021 and 022 to be installed as well as by limiting the combined hours of operation for the bank of four (4) emissions units to 26,280 hours (continuous operations) in any consecutive 12-month period.

Note that the existing Title V Air Operation Permit No. 0250476-007-AV synthetically limits the maximum allowable NOx emissions and rates for the existing units as indicated below:

A. 1. The maximum allowable emission rates for NOx for units No. 007, 009, 010, and 011 shall not exceed 7.6 pounds per hour (lb/hr) each and 99.9 tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential to-Emit, and 0250476-004-AC]

To escape PSD review, the permittee is requesting the following change to those limitations by this permit application:

A. 1. The maximum allowable emission rates for NOx shall not exceed 7.45 pounds per hour (lb/hr) for units Nos. 007 and 009 each and 3.7 lb/hr for units Nos. 021 and 022 each. The maximum NOx emissions for units Nos. 007, 009, 021, and 022 combined shall not exceed 81.47 tons per year (TPY).

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: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: E.U. 007, 009, 021, and 22 combined	4. Equivalent Allowable Emissions: 81.47 tons/year combined

5. Method of Compliance:

Compliance with the allowable emission limiting standards for NOx shall be demonstrated each federal fiscal year (Oct.1-Sept. 30), if applicable, by using EPA Method 7 or 7E, as described in 40 CFR 60, Appendix A, adopted by reference in Rule 62-204.800, F.A.C., and adopted in Rule 62-297.401, F.A.C.

6. Allowable Emissions Comment (Description of Operating Method):

NOx emissions are synthetically limited by permit conditions limiting the maximum allowable emission rate for NOX to 7.6 lb/hr per engine and the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

Note that the existing Title V Air Operation Permit No. 0250476-007-AV synthetically limits the maximum allowable NOx emissions and rates for the existing units as indicated below:

A. 1. The maximum allowable emission rates for NOx for units No. 007, 009, 010, and 011 shall not exceed 7.6 pounds per hour (lb/hr) each and 99.9 tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential to-Emit, and 0250476-004-AC]

To escape PSD review, the permittee is requesting the following change to those limitations by this permit application:

A. 1. The maximum allowable emission rates for NOx shall not exceed 7.45 pounds per hour (lb/hr) for units Nos. 007 and 009 each and 3.7 lb/hr for units Nos. 021 and 022 each. The maximum NOx emissions for units Nos. 007, 009, 021, and 022 combined shall not exceed 81.47 tons per year (TPY).

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: PM10	2. Total Percent Efficiency of Control:
3. Potential Emissions: 0.18 lb/hour 0.79 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 10.11 lb/MMcf Reference: EPA FIRE SCC 20300201	7. Emissions Method Code: 4
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

10.11 lb/MMcf x 156.379 MMcf/year x 1/2000 ton/lb = 0.79 tons/year
10.11 lb/MMcf x 156.379 MMcf/year x 1/8,760 hr/year = 0.18 lb/hour

EPA FIRE includes no PM10 emission factor for SCC 2-03-007-02. SCC 20300201is a similar process and EPA FIRE provides a PM10 factor of 10.11 lb/MMcf for that SCC.

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

No change to this limitation is sought by this permit application.

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:
3. Potential Emissions: 5.36 lb/hour 23.49 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 300.4 lb/MMcf Reference: Materials balance	7. Emissions Method Code: 2
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

300.4 lb/MMcf x 156.379 MMcf/year x 1/2000 ton/lb = 23.49 tons/year
300.4 lb/MMcf x 156.379 MMcf/year x 1/8,760 hr/year = 5.36 lb/hour

SO_2 Emission factor is derived by mass balance, based on maximum monthly average scrubber digester gas H2S concentration in last 5 years of 105.2 grains /100cf

105.2 grains H2S/100cf x 7000grain/Lb x (64 SO2/34 H2S) x 1000000cf / MMscf = 300.4 Lbs/MMscf

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

No change to this limitation is sought by this permit application.

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: VOC	2. Total Percent Efficiency of Control:
3. Potential Emissions: 3.88 lb/hour 16.99 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 1.0 g/bhp-hr Reference: Table 1 to Subpart JJJJ of Part 60	7. Emissions Method Code: 0
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

1.0 g/bhp-hr x 1760 bhp = 1760 g/hr x 0.0022046 lb/g = 3.88 lb/hr
3.88 lb/hr x 8760 hr/yr x ton/2000lb = 16.99 tons/yr

The emissions shown are for this one (1) engine only, not the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

1.0 g/bhp-hr x 1760 bhp = 1760 g/hr x 0.0022046 lb/g = 3.88 lb/hr
3.88 lb/hr x 26,280 hr/year x 1/2000 ton/lb = 50.98 tons/year

No change to those limitations is sought by this permit application.

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: VE20	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: 20 % Exceptional Conditions: 40 % Maximum Period of Excess Opacity Allowed: 2 min/hour	
4. Method of Compliance: Compliance with the visible emission limitation shall be determined each federal fiscal year (Oct. 1-Sept.30) using EPA Method 9 contained in 40 CFR 60, Appendix A and adopted by reference in Rule 62-297, F.A.C. The minimum requirements for stationary point sources emission test procedures and reporting shall be in accordance with Rule 62-297, F.A.C. and 40 CFR 60 Appendix A.	
5. Visible Emissions Comment: Note that existing Title V Air Operation Permit No. 0250476-007-AV includes the following condition: *C.2. Excess Emission. Excess emission resulting from start-up, shutdown or malfunction of any emission unit shall be permitted providing (1) best operational practices to minimize emission are adhered to, and (2) the duration of excess emission shall be minimized, but in no case exceeds two hours in any 24 hour period unless specifically authorized by the Department for longer duration. Excess emission which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. [Rule 62-210.700 (1) & (4), F.A.C., Permit No. 0250476-002-AC and PSD FL-240]* No change to this condition is sought by this permit application.	

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor N/A of N/A

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

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)
   ☒ Attached, Document ID: B ☐ Previously Submitted, Date _____

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)
   ☒ Attached, Document ID: G ☐ Previously Submitted, Date _____

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)
   ☐ Attached, Document ID: None ☐ 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)
   ☒ Attached, Document ID: H ☐ Previously Submitted, Date _____
   ☒ 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)
   ☒ Attached, Document ID: I ☐ Previously Submitted, Date _____
   ☐ Not Applicable

6. Compliance Demonstration Reports/Records:
   ☐ Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☒ To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ 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:
   ☐ Attached, Document ID: _____ ☒ Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications

1.	Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☒ Not Applicable
2.	Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☒ Not Applicable
3.	Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1.	Identification of Applicable Requirements: ☐ Attached, Document ID: _____
2.	Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ ☒ Not Applicable
3.	Alternative Methods of Operation: ☐ Attached, Document ID: _____ ☒ Not Applicable
4.	Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements Comment

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 an initial, revised or renewal 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. 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 an 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 or 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. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes 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.

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:
Low BTU Fuel Cogeneration Engine, New Emission Unit ID
1.2 MW Digester Gas Electric Cogenerator, Cooper Superior Model 16GTLD, No. 4

3. Emissions Unit Identification Number: 022

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:
A	Unknown	NA	49

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

☐ Acid Rain Unit

☐ CAIR Unit

☐ Hg Budget Unit

9. Package Unit:
Manufacturer: Superior Model Number: 16GTLD

10. Generator Nameplate Rating: 1.2 MW

11. Emissions Unit Comment: This emission unit is to replace one (1) (EU 009) of four (4) 1.2 MW digester gas-fired co-generators that are listed individually but regulated collectively. These units generate heat for anaerobic digesters and produce electricity for in-plant use. The units are four-stroke spark ignition reciprocating internal combustion engine driven generators equipped with lean-burn low-combustion technology to reduce NOx emission.

Emissions Unit Control Equipment/Method: Control N/A of N/A

1. Control Equipment/Method Description: None – There are no post combustion emission control devices to be installed
2. Control Device or Method Code: N/A

B. EMISSIONS UNIT CAPACITY INFORMATION
(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate: 1.2 MW	
3. Maximum Heat Input Rate: 12.496 million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	7 days/week
52 weeks/year	8760 hours/year

6. Operating Capacity/Schedule Comment:

The maximum production rate of 1.2 MW and maximum heat input rate of 12.496 million Btu/hr is for this one (1) engine only, not the bank of four (4) engines. The maximum heat input rate was based on the Brake Specific Fuel Consumption of 7,100 btu/bhp-hr from a Manufacturer Specification Sheet for a similar Superior Model 16SGTD

The only fuel for the engine will be low BTU fuel (digester gas).

Note that existing Title V Air Operation Permit No. 0250476-007-AV restricts the bank of the four (4) cogeneration units to a collective total of 26,280 hours (continuous operations) as below:

A.4 The combined hours of operation for existing Units No. 007, 009, 010, and 011 shall not exceed 26,280 hours in any consecutive 12-month period [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit, and 0250476-004-AC]

No significant change to this condition is sought by this permit application; other than replacing emission units 010 and 011 with 021 and 022 so that condition A.4. would read:

A.4 The combined hours of operation for Emission Units No. 007, 009, 021, and 021 shall not exceed 26,280 hours in any consecutive 12-month period.

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: CG-4	2. Emission Point Type Code: 3	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: Each generator is equipped with a horizontal exhaust stack with silencer.		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: H	6. Stack Height: 38 feet	7. Exit Diameter: 1.50 feet
8. Exit Temperature: 875 °F	9. Actual Volumetric Flow Rate: 10,259 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): 585.13 North (km): 2,847.93	14. Emission Point Latitude/Longitude... Latitude (25/44/49) Longitude (80/09/04)	
15. Emission Point Comment: There are four similar stacks, one for each cogeneration engine, located on the north roof of the cogeneration building. Cogeneration unit #1 (EU 007) is the easternmost stack and cogeneration unit #4 (EU 011) is the westernmost stack. Emission point is representative for all 4 cogeneration units.		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type):

   Digester gas combustion (emissions related to million cubic feet burned)*

   *see comments

2. Source Classification Code (SCC): 2-03-007-02*	3. SCC Units: Million cubic feet burned*	
4. Maximum Hourly Rate: 0.01785	5. Maximum Annual Rate: 156.379	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.321%	8. Maximum % Ash:	9. Million Btu per SCC Unit: 700

10. Segment Comment:

* The best SCC match for this segment is 2-03-007-02 (Internal Combustion Engines > Commercial/Institutional > Digester Gas > Reciprocating: POTW Digester Gas) however the Factor Information Retrieval (FIRE) system available through the EPA Technology Transfer Network (TTN) website includes no information on emissions of criteria pollutants for that SCC. Factors from related SCCs will be used as appropriate and noted.

The maximum hourly and annual rates are for this one (1) engine only, not the bank of four (4) engines. This fuel usage of 0.01785 MMcf/hr (297.5 cf/minute) represents the, therefore presenting a worst-case scenario.

Digester gas heating values vary between 650 Btu/cf and 730 Btu/cf. An average of 700 Btu/cf is used in the application.

The total annual rate for the bank of four (4) collectively regulated units is 469.237MMcf based on two different consumption rates for the two different cogeneration unit models and the permit limitation of 26,280 hours (equivalent to continuous operation of 3 units) per year for the four (4) emissions units combined.

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
CO	-	-	EL
NOX	-	-	EL
PM10	-	-	EL
SO2	-	-	EL
VOC	-	-	EL

Notes:
Emissions-limited (EL) pollutant based on restricted hours of operation to escape PSD

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:
3. Potential Emissions: 10.8 lb/hour 47.30 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 10.8 lb/hr Reference: Requested by Permittee	7. Emissions Method Code: 0
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☒ 5 years ☐ 10 years

10. Calculation of Emissions:

10.8 lb/hr x 8760 hr/yr x ton/2000lb = 47.30tons/yr

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

CO Emission factor of 10.8 lb/hr (3.0 g/HP-Hr) is requested by permittee to avoid PSD. Manufacturer provided letter indicated CO emissions at 2.2 g/HP-Hr, CO emissions are also limited by Table 1 to Subpart JJJJ of Part 60 to 5.0 g/bhp-hr or 610 ppmvd at 15% O2

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

CO emissions are being synthetically limited by requesting a maximum allowable emission rate for CO of 10.8 lb/hr for the replacement cogeneration units Nos. 021 and 022 to be installed so CO emissions will be insignificant. Manufacturer provided letter indicates that CO emissions should be lower, about 8.6 lb/hr. Allowable CO emissions under Table 1 of Subpart JJJJ of Part 60 would be higher, about 19.4 lb/hr.

CO emissions will also be synthetically limited by the permit condition limiting the combined hours of operation for the bank of the four (4) cogeneration emissions units to 26,280 hours (continuous operations) in any consecutive 12-month period.

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: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 10.8 lb/hr E.U. 021 and 22	4. Equivalent Allowable Emissions: 10.8 lb/hr 47.30 tons/year

5. Method of Compliance:

Compliance with the allowable emission limiting standards for CO for E.U. 021 and 022 shall be demonstrated by using EPA Method 10, as described in 40 CFR 60, Appendix A, adopted by reference in Rule 62-204.800, F.A.C., and adopted in Rule 62-297.401, F.A.C.

6. Allowable Emissions Comment (Description of Operating Method):

CO emissions are synthetically limited by limiting the maximum allowable emission rate for CO to 10.8 lb/hr for the two (2) new replacement cogeneration units and the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

To escape PSD review, the permittee is requesting the following additional limitation to the permit by this application:

The maximum allowable emission rates for CO shall not exceed 10.8 pounds per hour (lb/hr) (3.0 g/HP-Hr) for units Nos. 021 and 022 each.

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: NOx	2. Total Percent Efficiency of Control:
3. Potential Emissions: 3.7 lb/hour 16.21 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 3.7 lb/hr Reference: Requested by Permittee	7. Emissions Method Code: 0
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

3.7 lb/hr x 8760 hr/yr x ton/2000lb = 16.21 tons/yr

NOx Emission factor of 3.7 lb/hr is requested by permittee to avoid PSD.

Manufacturer provided letter, NOx emissions at 0.7 g/HP-Hr, NOx emissions are also limited by Table 1 to Subpart JJJJ of Part 60 to 2.0 g/bhp-hr; (2.0 g/bhp-hr x 1760 bhp = 3520 g/hr x 0.0022046 lb/g = 7.76 lb/hr) or 150 ppmvd at 15% O_2

The emissions shown are for this one (1) engine only, not the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

NOx emissions are to be synthetically limited by permit conditions limiting the maximum allowable emission rate for NOx to 7.45 lb/hr for existing cogeneration units Nos. 007 and 009 to remain and 3.7 lb/hr for the replacement cogeneration units Nos. 021 and 022 to be installed as well as by limiting the combined hours of operation for the bank of four (4) emissions units to 26,280 hours (continuous operations) in any consecutive 12-month period.

Note that the existing Title V Air Operation Permit No. 0250476-007-AV synthetically limits the maximum allowable NOx emissions and rates for the existing units as indicated below:

A. 1. The maximum allowable emission rates for NOx for units No. 007, 009, 010, and 011 shall not exceed 7.6 pounds per hour (lb/hr) each and 99.9 tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential to-Emit, and 0250476-004-AC]

To escape PSD review, the permittee is requesting the following change to those limitations by this permit application:

A. 1. The maximum allowable emission rates for NOx shall not exceed 7.45 pounds per hour (lb/hr) for units Nos. 007 and 009 each and 3.7 lb/hr for units Nos. 021 and 022 each. The maximum NOx emissions for units Nos. 007, 009, 021, and 022 combined shall not exceed 81.47 tons per year (TPY).

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: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: E.U. 007, 009, 021, and 22 combined	4. Equivalent Allowable Emissions: 81.47 tons/year combined

5. Method of Compliance:

Compliance with the allowable emission limiting standards for NOx shall be demonstrated each federal fiscal year (Oct.1-Sept. 30), if applicable, by using EPA Method 7 or 7E, as described in 40 CFR 60, Appendix A, adopted by reference in Rule 62-204.800, F.A.C., and adopted in Rule 62-297.401, F.A.C.

6. Allowable Emissions Comment (Description of Operating Method):

NOx emissions are synthetically limited by permit conditions limiting the maximum allowable emission rate for NOX to 7.6 lb/hr per engine and the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

Note that the existing Title V Air Operation Permit No. 0250476-007-AV synthetically limits the maximum allowable NOx emissions and rates for the existing units as indicated below:

A. 1. The maximum allowable emission rates for NOx for units No. 007, 009, 010, and 011 shall not exceed 7.6 pounds per hour (lb/hr) each and 99.9 tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential to-Emit, and 0250476-004-AC]

To escape PSD review, the permittee is requesting the following change to those limitations by this permit application:

A. 1. The maximum allowable emission rates for NOx shall not exceed 7.45 pounds per hour (lb/hr) for units Nos. 007 and 009 each and 3.7 lb/hr for units Nos. 021 and 022 each. The maximum NOx emissions for units Nos. 007, 009, 021, and 022 combined shall not exceed 81.47 tons per year (TPY).

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: PM10	2. Total Percent Efficiency of Control:
3. Potential Emissions: 0.18 lb/hour 0.79 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 10.11 lb/MMcf Reference: EPA FIRE SCC 20300201	7. Emissions Method Code: 4
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

10.11 lb/MMcf x 156.379 MMcf/year x 1/2000 ton/lb = 0.79 tons/year
10.11 lb/MMcf x 156.379 MMcf/year x 1/8,760 hr/year = 0.18 lb/hour

EPA FIRE includes no PM10 emission factor for SCC 2-03-007-02. SCC 20300201is a similar process and EPA FIRE provides a PM10 factor of 10.11 lb/MMcf for that SCC.

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

No change to this limitation is sought by this permit application.

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:
3. Potential Emissions: 5.36 lb/hour 23.5 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 300.4 lb/MMcf Reference: Materials balance	7. Emissions Method Code: 2
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

300.4 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 23.5 tons/year
300.4 lb/MMcf x 156.429 MMcf/year x 1/8,760 hr/year = 5.36 lb/hour

SO_2 Emission factor is derived by mass balance, based on maximum monthly average scrubber digester gas H2S concentration in last 5 years of 105.2 grains /100cf

105.2 grains H2S/100cf x 7000grain/Lb x (64 SO2/34 H2S) x 1000000cf / MMscf = 300.4 Lbs/MMscf

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

300.4 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb x 3 units = 70.48 tons/year

No change to this limitation is sought by this permit application.

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: VOC	2. Total Percent Efficiency of Control:
3. Potential Emissions: 3.88 lb/hour 16.99 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 1.0 g/bhp-hr Reference: Table 1 to Subpart JJJJ of Part 60	7. Emissions Method Code: 0
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

1.0 g/bhp-hr x 1760 bhp = 1760 g/hr x 0.0022046 lb/g = 3.88 lb/hr
3.88 lb/hr x 8760 hr/yr x ton/2000lb = 16.99 tons/yr

The emissions shown are for this one (1) engine only, not the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

1.0 g/bhp-hr x 1760 bhp = 1760 g/hr x 0.0022046 lb/g = 3.88 lb/hr
3.88 lb/hr x 26,280 hr/year x 1/2000 ton/lb = 50.98 tons/year

No change to those limitations is sought by this permit application.

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: VE20	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: 20 % Exceptional Conditions: 40 % Maximum Period of Excess Opacity Allowed: 2 min/hour	
4. Method of Compliance: Compliance with the visible emission limitation shall be determined each federal fiscal year (Oct. 1-Sept.30) using EPA Method 9 contained in 40 CFR 60, Appendix A and adopted by reference in Rule 62-297, F.A.C. The minimum requirements for stationary point sources emission test procedures and reporting shall be in accordance with Rule 62-297, F.A.C. and 40 CFR 60 Appendix A.	
5. Visible Emissions Comment: Note that existing Title V Air Operation Permit No. 0250476-007-AV includes the following condition: *C.2. Excess Emission. Excess emission resulting from start-up, shutdown or malfunction of any emission unit shall be permitted providing (1) best operational practices to minimize emission are adhered to, and (2) the duration of excess emission shall be minimized, but in no case exceeds two hours in any 24 hour period unless specifically authorized by the Department for longer duration. Excess emission which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. [Rule 62-210.700 (1) & (4), F.A.C., Permit No. 0250476-002-AC and PSD FL-240]* No change to this condition is sought by this permit application.	

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor N/A of N/A

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION
Section [2] of [4]

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)
   ☒ Attached, Document ID: B ☐ Previously Submitted, Date _____

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)
   ☒ Attached, Document ID: G ☐ Previously Submitted, Date _____

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)
   ☐ Attached, Document ID: None ☐ 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)
   ☒ Attached, Document ID: H ☐ Previously Submitted, Date _____
   ☒ 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)
   ☒ Attached, Document ID: I ☐ Previously Submitted, Date _____
   ☐ Not Applicable

6. Compliance Demonstration Reports/Records:
   ☐ Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☒ To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ 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:
   ☐ Attached, Document ID: _____ ☒ Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: ☐ Attached, Document ID: _____
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements Comment

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 an initial, revised or renewal 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. 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 an 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 or 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. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes 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.

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:
Low BTU Fuel Cogeneration Engine, Existing Emission Unit ID 007
1.2 MW Digester Gas Electric Cogenerator, Superior Model 16GTLB, No. 1

3. Emissions Unit Identification Number: 007 (Existing to Remain)

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:
A	Unknown	NA	49

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

☐ Acid Rain Unit

☐ CAIR Unit

☐ Hg Budget Unit

9. Package Unit:
Manufacturer: Superior Model Number: 16GTLB

10. Generator Nameplate Rating: 1.2 MW

11. Emissions Unit Comment: This emission unit (EU 007) to remain is one (1) of four (4) 1.2 MW digester gas-fired co-generators that are listed individually but regulated collectively. These units generate heat for anaerobic digesters and produce electricity for in-plant use. The units are four-stroke spark ignition reciprocating internal combustion engine driven generators equipped with lean-burn low-combustion technology to reduce NOx emission.

Emissions Unit Control Equipment/Method: Control N/A of N/A

1. Control Equipment/Method Description: None – There are no post combustion emission control devices to be installed
2. Control Device or Method Code: N/A

B. EMISSIONS UNIT CAPACITY INFORMATION
(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate: 1.2 MW	
3. Maximum Heat Input Rate: 12.5 million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	7 days/week
52 weeks/year	8760 hours/year

6. Operating Capacity/Schedule Comment:

The maximum production rate of 1.2 MW and maximum heat input rate of 12.5 million Btu/hr is for this one (1) engine only, not the bank of four (4) engines. The maximum heat input rate was based on the Brake Specific Fuel Consumption of 7,100 btu/bhp-hr from a Manufacturer Specification Sheet for a similar Superior Model 16SGTD

The only fuel for the engine will be low BTU fuel (digester gas).

Note that existing Title V Air Operation Permit No. 0250476-007-AV restricts the bank of the four (4) cogeneration units to a collective total of 26,280 hours (continuous operations) as below:

A.4 The combined hours of operation for existing Units No. 007, 009, 010, and 011 shall not exceed 26,280 hours in any consecutive 12-month period [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit, and 0250476-004-AC]

No significant change to this condition is sought by this permit application; other than replacing emission units 010 and 011 with 021 and 022 so that condition A.4. would read:

A.4 The combined hours of operation for Emission Units No. 007, 009, 021, and 021 shall not exceed 26,280 hours in any consecutive 12-month period.

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: CG-1	2. Emission Point Type Code: 3	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: Each generator is equipped with a horizontal exhaust stack with silencer.		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: H	6. Stack Height: 38 feet	7. Exit Diameter: 1.50 feet
8. Exit Temperature: 875 °F	9. Actual Volumetric Flow Rate: 10,259 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): 585.13 North (km): 2,847.93	14. Emission Point Latitude/Longitude... Latitude (25/44/49) Longitude (80/09/04)	
15. Emission Point Comment: There are four similar stacks, one for each cogeneration engine, located on the north roof of the cogeneration building. Cogeneration unit #1 (EU 007) is the easternmost stack and cogeneration unit #4 (EU 011) is the westernmost stack. Emission point is representative for all 4 cogeneration units.		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): Digester gas combustion (emissions related to million cubic feet burned)* *see comments		
2. Source Classification Code (SCC): 2-03-007-02*	3. SCC Units: Million cubic feet burned*	
4. Maximum Hourly Rate: 0.01786	5. Maximum Annual Rate: 156.429	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.321%	8. Maximum % Ash:	9. Million Btu per SCC Unit: 700

10. Segment Comment:

* The best SCC match for this segment is 2-03-007-02 (Internal Combustion Engines > Commercial/Institutional > Digester Gas > Reciprocating: POTW Digester Gas) however the Factor Information Retrieval (FIRE) system available through the EPA Technology Transfer Network (TTN) website includes no information on emissions of criteria pollutants for that SCC. Factors from related SCCs will be used as appropriate and noted.

The maximum hourly and annual rates are for this one (1) engine only, not the bank of four (4) engines. This fuel usage of 0.01786 MMcf/hr (297.6 cf/minute) represents the, therefore presenting a worst-case scenario.

Digester gas heating values vary between 650 Btu/cf and 730 Btu/cf. An average of 700 Btu/cf is used in the application.

The total annual rate for the bank of four (4) collectively regulated units is 469.237MMcf based on two different consumption rates for the two different cogeneration unit models and the permit limitation of 26,280 hours (equivalent to continuous operation of 3 units) per year for the four (4) emissions units combined.

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
CO	-	-	EL
NOX	-	-	EL
PM10	-	-	EL
SO2	-	-	EL
VOC	-	-	EL

Notes:
Emissions-limited (EL) pollutant based on restricted hours of operation to escape PSD

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:
3. Potential Emissions: 6.05 lb/hour 31.21 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 399 lb/10^6 scf Reference: EPA FIRE SCC 20300201	7. Emissions Method Code: 4
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

399 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 31.21 tons/year
399 lb/MMcf x 156.429 MMcf/year x 1/8,760 hr/year = 6.05 lb/hour

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

399 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 31.21 tons/year
399 lb/MMcf x 156.429 MMcf/year x 1/8,760 hr/year = 6.05 lb/hour

No change to this limitation is sought by this permit application.

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 0 of 1

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions:
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: NOx	2. Total Percent Efficiency of Control:
3. Potential Emissions: 7.45 lb/hour 32.63 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 7.45 lb/hr Reference: Requested by Permittee	7. Emissions Method Code: 0
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

7.45 lb/hr x 8760 hr/yr x ton/2000lb = 32.63 tons/yr

NOx Emission factor of 7.45 lb/hr is requested by permittee to avoid PSD.

This will reduce the currently permitted NOx emission rate from 7.6 lb/hr to 7.45 lb/hr.

The emissions shown are for this one (1) engine only, not the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

NOx emissions are to be synthetically limited by permit conditions limiting the maximum allowable emission rate for NOx to 7.45 lb/hr for existing cogeneration units Nos. 007 and 009 to remain and 3.7 lb/hr for the replacement cogeneration units Nos. 021 and 022 to be installed as well as by limiting the combined hours of operation for the bank of four (4) emissions units to 26,280 hours (continuous operations) in any consecutive 12-month period.

Note that the existing Title V Air Operation Permit No. 0250476-007-AV synthetically limits the maximum allowable NOx emissions and rates for the existing units as indicated below:

A. 1. The maximum allowable emission rates for NOx for units No. 007, 009, 010, and 011 shall not exceed 7.6 pounds per hour (lb/hr) each and 99.9 tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential to-Emit, and 0250476-004-AC]

To escape PSD review, the permittee is requesting the following change to those limitations by this permit application:

A. 1. The maximum allowable emission rates for NOx shall not exceed 7.45 pounds per hour (lb/hr) for units Nos. 007 and 009 each and 3.7 lb/hr for units Nos. 021 and 022 each. The maximum NOx emissions for units Nos. 007, 009, 021, and 022 combined shall not exceed 81.47 tons per year (TPY).

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: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: E.U. 007, 009, 021, and 22 combined	4. Equivalent Allowable Emissions: 81.47 tons/year combined

5. Method of Compliance:

Compliance with the allowable emission limiting standards for NOx shall be demonstrated each federal fiscal year (Oct.1-Sept. 30), if applicable, by using EPA Method 7 or 7E, as described in 40 CFR 60, Appendix A, adopted by reference in Rule 62-204.800, F.A.C., and adopted in Rule 62-297.401, F.A.C.

6. Allowable Emissions Comment (Description of Operating Method):

NOx emissions are synthetically limited by permit conditions limiting the maximum allowable emission rate for NOX to 7.6 lb/hr per engine and the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

Note that the existing Title V Air Operation Permit No. 0250476-007-AV synthetically limits the maximum allowable NOx emissions and rates for the existing units as indicated below:

A. 1. The maximum allowable emission rates for NOx for units No. 007, 009, 010, and 011 shall not exceed 7.6 pounds per hour (lb/hr) each and 99.9 tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential to-Emit, and 0250476-004-AC]

To escape PSD review, the permittee is requesting the following change to those limitations by this permit application:

A. 1. The maximum allowable emission rates for NOx shall not exceed 7.45 pounds per hour (lb/hr) for units Nos. 007 and 009 each and 3.7 lb/hr for units Nos. 021 and 022 each. The maximum NOx emissions for units Nos. 007, 009, 021, and 022 combined shall not exceed 81.47 tons per year (TPY).

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: PM10	2. Total Percent Efficiency of Control:
3. Potential Emissions: 0.18 lb/hour 0.79 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 10.11 lb/MMcf Reference: EPA FIRE SCC 20300201	7. Emissions Method Code: 4
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

10.11 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 0.79 tons/year
10.11 lb/MMcf x 156.429 MMcf/year x 1/8,760 hr/year = 0.18 lb/hour

EPA FIRE includes no PM10 emission factor for SCC 2-03-007-02. SCC 20300201is a similar process and EPA FIRE provides a PM10 factor of 10.11 lb/MMcf for that SCC.

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

10.11 lb/MMcf x 156.429 MMcf/year x 3 units x 1/2000 ton/lb = 2.37 tons/year

No change to this limitation is sought by this permit application.

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:
3. Potential Emissions: 5.36 lb/hour 23.5 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 300.4 lb/MMcf Reference: EPA FIRE SCC 20300201	7. Emissions Method Code: 4
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

300.4 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 23.5 tons/year
300.4 lb/MMcf x 156.429 MMcf/year x 1/8,760 hr/year = 5.36 lb/hour

SO_2 Emission factor is derived by mass balance, based on maximum monthly average scrubber digester gas H2S concentration in last 5 years of 105.2 grains /100cf

105.2 grains H2S/100cf x 7000grain/Lb x (64 SO2/34 H2S) x 1000000cf / MMscf = 300.4 Lbs/MMscf

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

300.4 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb x 3 units = 70.48 tons/year

No change to this limitation is sought by this permit application.

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: VOC	2. Total Percent Efficiency of Control:
3. Potential Emissions: 2.07 lb/hour 9.07 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 116 lb/MMcf Reference: EPA FIRE SCC 20300201	7. Emissions Method Code: 4
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

116 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 9.07 tons/year
116 lb/MMcf x 156.429 MMcf/year x 1/8,760 hr/year = 2.07 lb/hour

EPA FIRE includes no VOC emission factor for SCC 2-03-007-02. SCC 20300201is a similar process and EPA FIRE provides a VOC factor of 116 lb/MMcf for that SCC.

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

116 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 9.07 tons/year

No change to those limitations is sought by this permit application.

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: VE20	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: 20 % Exceptional Conditions: 40 % Maximum Period of Excess Opacity Allowed: 2 min/hour	
4. Method of Compliance: Compliance with the visible emission limitation shall be determined each federal fiscal year (Oct. 1-Sept.30) using EPA Method 9 contained in 40 CFR 60, Appendix A and adopted by reference in Rule 62-297, F.A.C. The minimum requirements for stationary point sources emission test procedures and reporting shall be in accordance with Rule 62-297, F.A.C. and 40 CFR 60 Appendix A.	
5. Visible Emissions Comment: Note that existing Title V Air Operation Permit No. 0250476-007-AV includes the following condition: *C.2. Excess Emission. Excess emission resulting from start-up, shutdown or malfunction of any emission unit shall be permitted providing (1) best operational practices to minimize emission are adhered to, and (2) the duration of excess emission shall be minimized, but in no case exceeds two hours in any 24 hour period unless specifically authorized by the Department for longer duration. Excess emission which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. [Rule 62-210.700 (1) & (4), F.A.C., Permit No. 0250476-002-AC and PSD FL-240]* No change to this condition is sought by this permit application.	

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor N/A of N/A

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION
Section [3] of [4]

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)
   ☒ Attached, Document ID: B ☐ Previously Submitted, Date _____

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)
   ☒ Attached, Document ID: G ☐ Previously Submitted, Date _____

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)
   ☐ Attached, Document ID: None ☐ 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)
   ☒ Attached, Document ID: H ☐ Previously Submitted, Date _____
   ☒ 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)
   ☒ Attached, Document ID: I ☐ Previously Submitted, Date _____
   ☐ Not Applicable

6. Compliance Demonstration Reports/Records:
   ☐ Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☒ To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ 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:
   ☐ Attached, Document ID: _____ ☒ Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: ☐ Attached, Document ID: _____
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements Comment

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 an initial, revised or renewal 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. 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 an 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 or 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. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes 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.

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:
Low BTU Fuel Cogeneration Engine, Existing Emission Unit ID 009
1.2 MW Digester Gas Electric Cogenerator, Superior Model 16GTLB, No. 2

3. Emissions Unit Identification Number: 009 (Existing to Remain)

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:
A	Unknown	NA	49

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

☐ Acid Rain Unit

☐ CAIR Unit

☐ Hg Budget Unit

9. Package Unit:
Manufacturer: Superior Model Number: 16GTLB

10. Generator Nameplate Rating: 1.2 MW

11. Emissions Unit Comment: This emission unit (EU 009) to remain is one (1) of four (4) 1.2 MW digester gas-fired co-generators that are listed individually but regulated collectively. These units generate heat for anaerobic digesters and produce electricity for in-plant use. The units are four-stroke spark ignition reciprocating internal combustion engine driven generators equipped with lean-burn low-combustion technology to reduce NOx emission.

Emissions Unit Control Equipment/Method: Control N/A of N/A

1. Control Equipment/Method Description: None – There are no post combustion emission control devices to be installed
2. Control Device or Method Code: N/A

B. EMISSIONS UNIT CAPACITY INFORMATION
(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:	
2. Maximum Production Rate: 1.2 MW	
3. Maximum Heat Input Rate: 12.5 million Btu/hr	
4. Maximum Incineration Rate: pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	7 days/week
52 weeks/year	8760 hours/year

6. Operating Capacity/Schedule Comment:

The maximum production rate of 1.2 MW and maximum heat input rate of 12.5 million Btu/hr is for this one (1) engine only, not the bank of four (4) engines. The maximum heat input rate was based on the Brake Specific Fuel Consumption of 7,100 btu/bhp-hr from a Manufacturer Specification Sheet for a similar Superior Model 16SGTD

The only fuel for the engine will be low BTU fuel (digester gas).

Note that existing Title V Air Operation Permit No. 0250476-007-AV restricts the bank of the four (4) cogeneration units to a collective total of 26,280 hours (continuous operations) as below:

A.4 The combined hours of operation for existing Units No. 007, 009, 010, and 011 shall not exceed 26,280 hours in any consecutive 12-month period [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit, and 0250476-004-AC]

No significant change to this condition is sought by this permit application; other than replacing emission units 010 and 011 with 021 and 022 so that condition A.4. would read:

A.4 The combined hours of operation for Emission Units No. 007, 009, 021, and 021 shall not exceed 26,280 hours in any consecutive 12-month period.

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: CG-2	2. Emission Point Type Code: 3	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: Each generator is equipped with a horizontal exhaust stack with silencer.		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: H	6. Stack Height: 38 feet	7. Exit Diameter: 1.50 feet
8. Exit Temperature: 875 °F	9. Actual Volumetric Flow Rate: 10,259 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): 585.13 North (km): 2,847.93	14. Emission Point Latitude/Longitude... Latitude (25/44/49) Longitude (80/09/04)	
15. Emission Point Comment: There are four similar stacks, one for each cogeneration engine, located on the north roof of the cogeneration building. Cogeneration unit #1 (EU 007) is the easternmost stack and cogeneration unit #4 (EU 011) is the westernmost stack. Emission point is representative for all 4 cogeneration units.		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): Digester gas combustion (emissions related to million cubic feet burned)* *see comments		
2. Source Classification Code (SCC): 2-03-007-02*	3. SCC Units: Million cubic feet burned*	
4. Maximum Hourly Rate: 0.01786	5. Maximum Annual Rate: 156.429	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.321%	8. Maximum % Ash:	9. Million Btu per SCC Unit: 700

10. Segment Comment:

* The best SCC match for this segment is 2-03-007-02 (Internal Combustion Engines > Commercial/Institutional > Digester Gas > Reciprocating: POTW Digester Gas) however the Factor Information Retrieval (FIRE) system available through the EPA Technology Transfer Network (TTN) website includes no information on emissions of criteria pollutants for that SCC. Factors from related SCCs will be used as appropriate and noted.

The maximum hourly and annual rates are for this one (1) engine only, not the bank of four (4) engines. This fuel usage of 0.01786 MMcf/hr (297.6 cf/minute) represents the, therefore presenting a worst-case scenario.

Digester gas heating values vary between 650 Btu/cf and 730 Btu/cf. An average of 700 Btu/cf is used in the application.

The total annual rate for the bank of four (4) collectively regulated units is 469.237MMcf based on two different consumption rates for the two different cogeneration unit models and the permit limitation of 26,280 hours (equivalent to continuous operation of 3 units) per year for the four (4) emissions units combined.

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
CO	-	-	EL
NOX	-	-	EL
PM10	-	-	EL
SO2	-	-	EL
VOC	-	-	EL

Notes:
Emissions-limited (EL) pollutant based on restricted hours of operation to escape PSD

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:
3. Potential Emissions: 6.05 lb/hour 31.21 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 399 lb/10^6 scf Reference: EPA FIRE SCC 20300201	7. Emissions Method Code: 4
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

399 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 31.21 tons/year
399 lb/MMcf x 156.429 MMcf/year x 1/8,760 hr/year = 6.05 lb/hour

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

No change to this limitation is sought by this permit application.

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 0 of 1

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions:
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: NOx	2. Total Percent Efficiency of Control:
3. Potential Emissions: 7.45 lb/hour 32.63 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 7.45 lb/hr Reference: Requested by Permittee	7. Emissions Method Code: 0
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

7.45 lb/hr x 8760 hr/yr x ton/2000lb = 32.63 tons/yr

NOx Emission factor of 7.45 lb/hr is requested by permittee to avoid PSD.

This will reduce the currently permitted NOx emission rate from 7.6 lb/hr to 7.45 lb/hr.

The emissions shown are for this one (1) engine only, not the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

NOx emissions are to be synthetically limited by permit conditions limiting the maximum allowable emission rate for NOx to 7.45 lb/hr for existing cogeneration units Nos. 007 and 009 to remain and 3.7 lb/hr for the replacement cogeneration units Nos. 021 and 022 to be installed as well as by limiting the combined hours of operation for the bank of four (4) emissions units to 26,280 hours (continuous operations) in any consecutive 12-month period.

Note that the existing Title V Air Operation Permit No. 0250476-007-AV synthetically limits the maximum allowable NOx emissions and rates for the existing units as indicated below:

A. 1. The maximum allowable emission rates for NOx for units No. 007, 009, 010, and 011 shall not exceed 7.6 pounds per hour (lb/hr) each and 99.9 tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential to-Emit, and 0250476-004-AC]

To escape PSD review, the permittee is requesting the following change to those limitations by this permit application:

A. 1. The maximum allowable emission rates for NOx shall not exceed 7.45 pounds per hour (lb/hr) for units Nos. 007 and 009 each and 3.7 lb/hr for units Nos. 021 and 022 each. The maximum NOx emissions for units Nos. 007, 009, 021, and 022 combined shall not exceed 81.47 tons per year (TPY).

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: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: E.U. 007, 009, 021, and 22 combined	4. Equivalent Allowable Emissions: 81.47 tons/year combined

5. Method of Compliance:

Compliance with the allowable emission limiting standards for NOx shall be demonstrated each federal fiscal year (Oct.1-Sept. 30), if applicable, by using EPA Method 7 or 7E, as described in 40 CFR 60, Appendix A, adopted by reference in Rule 62-204.800, F.A.C., and adopted in Rule 62-297.401, F.A.C.

6. Allowable Emissions Comment (Description of Operating Method):

NOx emissions are synthetically limited by permit conditions limiting the maximum allowable emission rate for NOX to 7.6 lb/hr per engine and the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

Note that the existing Title V Air Operation Permit No. 0250476-007-AV synthetically limits the maximum allowable NOx emissions and rates for the existing units as indicated below:

A. 1. The maximum allowable emission rates for NOx for units No. 007, 009, 010, and 011 shall not exceed 7.6 pounds per hour (lb/hr) each and 99.9 tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential to-Emit, and 0250476-004-AC]

To escape PSD review, the permittee is requesting the following change to those limitations by this permit application:

A. 1. The maximum allowable emission rates for NOx shall not exceed 7.45 pounds per hour (lb/hr) for units Nos. 007 and 009 each and 3.7 lb/hr for units Nos. 021 and 022 each. The maximum NOx emissions for units Nos. 007, 009, 021, and 022 combined shall not exceed 81.47 tons per year (TPY).

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: PM10	2. Total Percent Efficiency of Control:
3. Potential Emissions: 0.18 lb/hour 0.79 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 10.11 lb/MMcf Reference: EPA FIRE SCC 20300201	7. Emissions Method Code: 4
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

10.11 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 0.79 tons/year
10.11 lb/MMcf x 156.429 MMcf/year x 1/8,760 hr/year = 0.18 lb/hour

EPA FIRE includes no PM10 emission factor for SCC 2-03-007-02. SCC 20300201is a similar process and EPA FIRE provides a PM10 factor of 10.11 lb/MMcf for that SCC.

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

10.11 lb/MMcf x 156.429 MMcf/year x 3 units x 1/2000 ton/lb = 2.37 tons/year

No change to this limitation is sought by this permit application.

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:
3. Potential Emissions: 5.36 lb/hour 23.5 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 300.4 lb/MMcf Reference: EPA FIRE SCC 20300201	7. Emissions Method Code: 4
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

300.4 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 23.5 tons/year
300.4 lb/MMcf x 156.429 MMcf/year x 1/8,760 hr/year = 5.36 lb/hour

SO_2 Emission factor is derived by mass balance, based on maximum monthly average scrubber digester gas H2S concentration in last 5 years of 105.2 grains /100cf

105.2 grains H2S/100cf x 7000grain/Lb x (64 SO2/34 H2S) x 1000000cf / MMscf = 300.4 Lbs/MMscf

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

300.4 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb x 3 units = 70.48 tons/year

No change to this limitation is sought by this permit application.

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: VOC	2. Total Percent Efficiency of Control:
3. Potential Emissions: 2.07 lb/hour 9.07 tons/year	4. Synthetically Limited? ☒ Yes ☐ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: 116 lb/MMcf Reference: EPA FIRE SCC 20300201	7. Emissions Method Code: 4
8.a. Baseline Actual Emissions (if required): tons/year	8.b. Baseline 24-month Period: From: To:
9.a. Projected Actual Emissions (if required): tons/year	9.b. Projected Monitoring Period: ☐ 5 years ☐ 10 years

10. Calculation of Emissions:

116 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 9.07 tons/year
116 lb/MMcf x 156.429 MMcf/year x 1/8,760 hr/year = 2.07 lb/hour

EPA FIRE includes no VOC emission factor for SCC 2-03-007-02. SCC 20300201is a similar process and EPA FIRE provides a VOC factor of 116 lb/MMcf for that SCC.

The potential emissions shown are for this one (1) engine only, not for the bank of four (4) engines.

Please see next page for continuation with Field 11.

11. Potential, Fugitive, and Actual Emissions Comment:

Emissions are synthetically limited by permit conditions limiting the combined hours of operation for the bank of four (4) engines to 26,280 hours (continuous operations) in any consecutive 12-month period.

116 lb/MMcf x 156.429 MMcf/year x 1/2000 ton/lb = 9.07 tons/year

No change to those limitations is sought by this permit application.

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: VE20	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: 20 % Exceptional Conditions: 40 % Maximum Period of Excess Opacity Allowed: 2 min/hour	

4. Method of Compliance:

Compliance with the visible emission limitation shall be determined each federal fiscal year (Oct. 1-Sept.30) using EPA Method 9 contained in 40 CFR 60, Appendix A and adopted by reference in Rule 62-297, F.A.C. The minimum requirements for stationary point sources emission test procedures and reporting shall be in accordance with Rule 62-297, F.A.C. and 40 CFR 60 Appendix A.

5. Visible Emissions Comment:

Note that existing Title V Air Operation Permit No. 0250476-007-AV includes the following condition:

C.2. Excess Emission. Excess emission resulting from start-up, shutdown or malfunction of any emission unit shall be permitted providing (1) best operational practices to minimize emission are adhered to, and (2) the duration of excess emission shall be minimized, but in no case exceeds two hours in any 24 hour period unless specifically authorized by the Department for longer duration. Excess emission which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. [Rule 62-210.700 (1) & (4), F.A.C., Permit No. 0250476-002-AC and PSD FL-240]

No change to this condition is sought by this permit application.

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor N/A of N/A

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

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)
   ☒ Attached, Document ID: B ☐ Previously Submitted, Date _____

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)
   ☒ Attached, Document ID: G ☐ Previously Submitted, Date _____

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)
   ☐ Attached, Document ID: None ☐ 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)
   ☒ Attached, Document ID: H ☐ Previously Submitted, Date _____
   ☒ 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)
   ☒ Attached, Document ID: I ☐ Previously Submitted, Date _____
   ☐ Not Applicable

6. Compliance Demonstration Reports/Records:
   ☐ Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☒ To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   ☐ 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:
   ☐ Attached, Document ID: _____ ☒ Not Applicable

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications

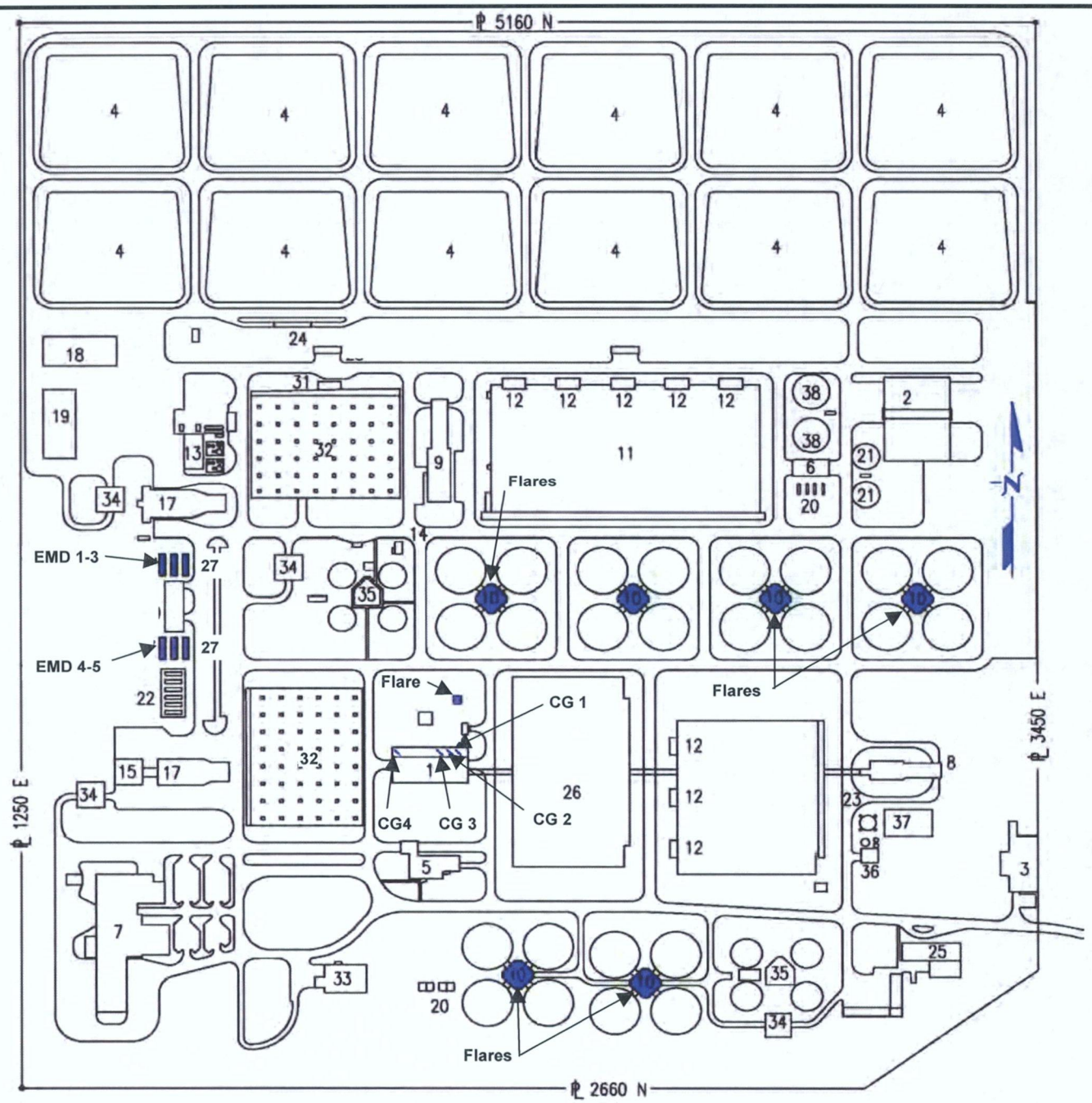
1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): ☐ Attached, Document ID: _____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: ☒ Attached, Document ID: Report
2. Compliance Assurance Monitoring: ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Alternative Methods of Operation: ☐ Attached, Document ID: _____ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading): ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements Comment

Attachment A
Facility Plot Plan

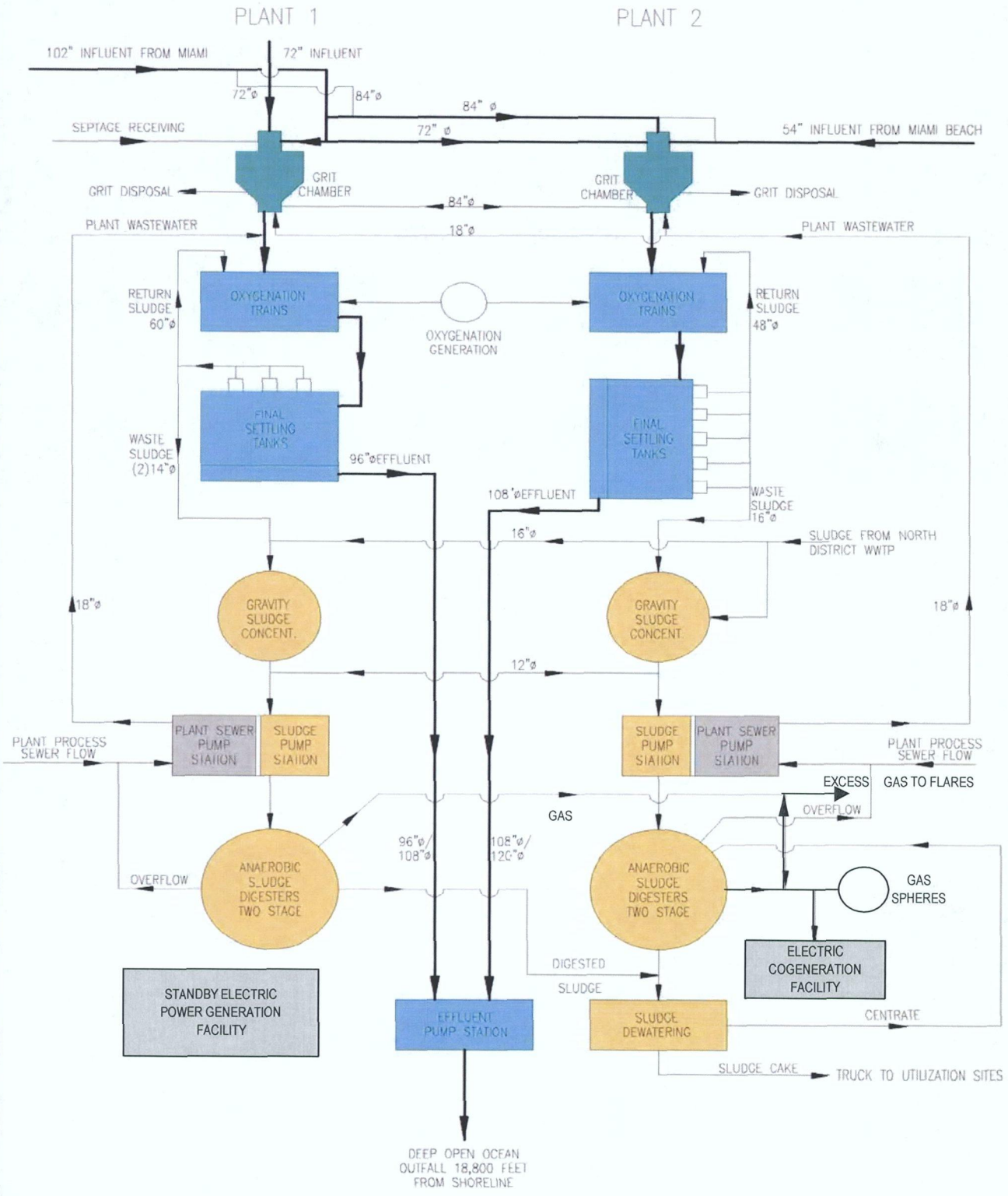


LEGEND

1. Cogeneration Bldg.
2. Dewatering Bldg.
3. Effluent Pump Station
4. Drying Beds (N.I.S.)
5. Maintenance Bldg. No. 1
6. Gas Compression Bldg.
7. Maintenance Bldg. No. 2
8. Chlorine Bldg. 1
9. Chlorine Bldg. 2
10. Digester Clusters
11. Final Settling Tanks
12. Pump Houses, Finals
13. Oxygen Plant Bldg.
14. Polymer Bldg.
15. Septage Unloading Bldg.
17. Screening & Grit Chambers
18. Sludge Storage Bldg. 1
19. Sludge Storage Bldg. 2
20. Digester Gas Scrubbers
21. Gravity Thickers
22. Fuel Storage
23. Potable Water Tower
24. Sludge Weigh Station
25. Administration Bldg.
26. Aeration Tanks
27. Standby Generators (Existing & Future)
31. Oxygenations Trains Control Building
32. Oxygenation Trains
33. Warehouse Storage Building
34. Air Scrubber Building
35. Potable Water Building
37. Potable Water Reservoir
38. Gas Storage Spheres

	Central District Wastewater Treatment Plant Facility Site Plan	**Attachment A**

Attachment B
Process Flow Diagram



	Central District Wastewater Treatment Plant Process Flow Diagram	**Attachment B**

Attachment C
Precaution to Prevent Emissions of Unconfined Particulate Matter

Attachment C
Precautions To Prevent Emissions of Unconfined Particulate Matter
Central District Wastewater Treatment Plant

Due to the nature of activities conducted at Central District Wastewater Treatment Plant (WWTP), suppression of airborne particulate matter is extremely important. The Central District WWTP will take the following precautions to prevent the release of unconfined particulate matter:

- Paving and maintenance of roads, parking areas, and yards.
- Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing.
- Application of asphalt, water, oil, chemicals, or other dust suppressants to unpaved roads, yards, open stock piles, and similar sources.
- Removal of particulate matter from buildings or work area to prevent particulate from becoming airborne.
- Landscaping or planting of vegetation.
- Use of hoods, fans, filters, and similar equipment to contain and or vent particulate matter.
- Confining abrasive blasting, where possible.

Attachment D
Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL)

Application for Title V Air Construction Permit
Central District Wastewater Treatment Plant
Application Technical Report

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Executive Summary

In this Title V air construction permit application, Miami-Dade Water and Sewer Department (MDWASD) seeks to replace of two (2) of its four (4) older digester gas (biogas) fueled 1.2 megawatt Superior Model 16GTLBs electrical cogeneration engines Nos. 3 and 4, Emissions Unit ID Nos. 010 and 011 with two (2) new 1.2 megawatt Superior Model 16GTLD engine driven cogenerator units at its Central District Wastewater Treatment Plant, Facility ID No. 0250476 (CDWWTP) located on Virginia Key, Florida.

These four (4) engine driven cogeneration units are operated collectively and play a vital role in facility's operation by providing necessary heat to the plant's digester operations to achieve and meet the requirements for Processes to Significantly Reduce Pathogens (PSRPs) and to reduce Vector Attraction in the production of biosolids for beneficial use; while serving as a valuable waste-to-energy role by using digester gas (biogas) that has been scrubbed to reduce hydrogen sulfide (H2S) to produce electricity for the facility and which would otherwise be flared unscrubbed increasing Sulfur Dioxide (SO_2) emissions.

This application is to replace two (2) of the units. Since these four (4) engine driven cogeneration units regulated singularly as a group of emission units, in addition to the replacement of units, the application also seeks to reduce the emission limitations of remaining units to remain a minor modification. No reduction in the combined hours of the permitted operations for the units is being sought to allow for future additional digester gas production and additional beneficial waste-to-energy recovery.

Section 1. Introduction

The Miami-Dade Water and Sewer Department (MDWASD) operates the Central District Wastewater Treatment Plant located at 3869 Rickenbacker Causeway in Miami, Florida (Virginia Key). This facility is registered with the State of Florida as a Major Source of Air Pollution, i.e. Title V source, with facility ID 0250476 and is currently permitted under Air Operation Permit No. 02540476-010-AV. Major source regulated air emissions units at this facility includes four (4) digester gas (biogas) fueled engine cogeneration units (EU ID Nos. 007, 009 – 011) and five (5) diesel-driven standby electrical generators (EU ID Nos. 013 – 015, 19, 20) used for emergencies. The unregulated emission units include the wastewater treatment plant liquid processes (EU ID No. 008) and the digester gas (biogas) flares (EU ID No. 018).

MDWASD is seeking an air construction permit under Chapters 62-210, and 62-212, F.A.C. for the replacement of two (2) of its four (4) existing digester gas (biogas) fueled electrical cogeneration engines at its Central District Wastewater Treatment Plant, Facility ID No. 0250476 (CDWWTP) located on Virginia Key, Florida. The cogeneration units to be replaced are described in the current air operation permit as EU ID Nos. 010 and 011.

Section 2. Facility Description

The CDWWTP is engaged in wastewater treatment activities and is publicly owned. The first treatment facilities at the Virginia Key site became operational in 1956 with a capacity of 47 mgd. Since that time numerous additions and modifications to the plant have been made, including the change from aeration to oxygenation in the original plant. The facility consists of two parallels wastewater treatment trains, Plant No. 1 and Plant No. 2, Plant 1 is rated at 60

mgd annual average daily flow and Plant 2 is rated for 83 mgd annual average daily flow. The total facility is permitted to treat 143 mgd annual average daily flow.

Figure 2-1 Aerial Photograph of the Central District Wastewater Treatment Plant

The Miami-Dade Water and Sewer Department is a large public utility in the southeast United States and the sixth largest in the country, providing direct services to approximately 410,000 retail customers. Additionally, wholesale water and/or wastewater service is provided to 18 municipalities in the county. Miami-Dade County's current population of 2.3 million is expected to reach the 2.8 million mark by the year 2030.

The facility is located at 3869 Rickenbacker Causeway on Virginia Key in the city of Miami, Miami-Dade County, Florida. UTM coordinates are: Zone 17; 585.19 km E and 2848.09 km N.

Section 3. Permit Status

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

This facility is not within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. The facility is currently operating under Title V Air Operation Permit 0250476-010-AV which expires on April 20, 2015.

Section 4. Existing Emissions Units

CDWWTP is equipped with four digester gas-fired cogeneration engines (E.U. Nos. 007, 009, 010 and 011), that burn scrubbed digester gas (biogas) produced in the anaerobic digesters. These cogeneration units provide necessary heat for the anaerobic digesters to achieve and meet the requirements for Processes to Significantly Reduce Pathogens (PSRPs) and reduce Vector Attraction in the production of biosolids applied to Agricultural Land, Forests, or Reclamation Sites for beneficial use. These cogeneration units also serve a valuable waste-to-energy role by using the digester gas (biogas) that has been scrubbed to reduce hydrogen sulfide (H_2S) to produce electricity for the facility. The scrubbed digester gas (biogas) has an approximate higher heating value of 700 btus/scf and in 2011 the average hydrogen sulfide (H_2S) concentration was 105.2 grains per 100 scf. Each cogenerator set consists of a four stroke lean burn spark ignition (4SLBSI) reciprocating internal combustion engine (RICE), a Superior Model 16 GTLB 1,700 hp turbocharged prime mover coupled to a 1,200 kWA electrical generator. The Superior Model 16 GTLB engines use pre-combustion chambers (PCC) and are equipped with electronic timing lean-burn technology to reduce NOx emissions. These cogeneration units are only allowed to burn digester gas (biogas) as fuel. Commercial operation began in July 1989.

In October 2009, the failure of the engine lubricating oil pump drive caused a loss of lubrication to Cogenerator #3 (E.U. 010) during operation under full load that resulted in catastrophic damages to the engines main bearings and crankshaft. With Cogenerator #3 (E.U. 010) now out of service and Cogenerator #1 (E.U. 007) being out of service since March 2008 due to cylinder jacket water leaks and the inability to able to satisfactorily repair or obtain replacement for the upper portion of the engine block to obtain proper cylinder jacket water seals; there was only two (2) operational cogenerator units remaining in service to produce the heat needed for the anaerobic digesters. Since there were only two (2) cogeneration units operable, Cogenerator #2 and #4, and the damage to Cogenerator #3 did not affect the upper portion of the engine block; a decision to remove the upper portion of Cogenerator #3 (E.U. 010)'s engine block to effect the repair of Cogenerator #1 (E.U. 007) was made. Repairs were made to and emissions testing was conducted of Cogenerator #1 (E.U. 007) on November 24, 2010 before returning to service in January 2011.

To ensure that there would be adequate and reliable heating capacity available for the anaerobic digesters to meet the treatment requirements to Significantly Reduce Pathogens (PSRPs) and Vector Attraction in the production of biosolids and to reduce potential increasing flaring raw unscrubbed digester gas (and facilities SO2 emissions); it was determined that the most environmentally responsible action was to replace two (2) Cogenerators # 3 and #4 (E.U.s 010 and 011) both Cooper Superior Model GTLBs as soon as possible.

Section 5. Emissions from Existing Units (Baseline)

The 24-month period from January 2010 to December 2011, inclusive, was selected using reported values from the Annual Operating Reports to determine the baseline actual emissions for Emission Units 007, 009, 010, and 011, as shown in Table 5-1 below. This period conforms

to the requirement of Chapter 62-210 F.A.C., *Stationary Sources - General Requirements*, that the period selected to determine Baseline Actual Emissions be "within the 5-year period immediately preceding the date a complete permit application is received by the Department". Consistent with the requirement of Chapter 62-212 F.A.C., *Stationary Sources – Preconstruction Review*, for the Baseline Actual-to-Potential applicability test for Construction of New Emission Units where a combination of new and existing emissions units are involved, the historic baseline emissions are being determined for all existing cogeneration units.

Table 5-1 Historical Emissions
Four Existing 1.2 MW Superior Model GTLB
Digester Gas Electric Cogenerators (E.U. 007, 009-011)
Central District Wastewater Treatment Plant

Year	Hours of Operation Runtime	Digester Gas Consumption (10^6 FT^3)	CO (tons)	NOX (tons)	PM10 (tons)	SO2 (tons)	VOC (tons)
2007	12,502	277.55	55.37	26.97	1.40	35.25	16.10
2008	14,063	323.10	64.46	26.84	1.63	41.03	18.74
2009	14,500	334.15	66.66	35.20	1.69	44.61	19.38
2010	15,047	346.83	69.19	45.95	1.75	46.82	20.12
2011	14,818	340.43	67.92	38.44	1.72	45.96	19.74
Sum 2-Yr 2010-11	29,865	687.26	137.11	84.39	3.47	92.78	39.86
Annual Aver. 2010-11	14,932	343.63	68.55	42.19	1.73	46.39	19.93

Table 5-2 Baseline Emissions
Four Existing 1.2 MW Superior Model GTLB
Digester Gas Electric Cogenerators (E.U. 007, 009-011)
Central District Wastewater Treatment Plant

Average annual operations: Jan. 2010 – Dec. 2011 (hours)			14,932
Average annual fuel consumption: (digester gas (biogas) in 10^6 scf)			343.63
	Factor	Unit	Annual Emissions (ton/yr)
Carbon Monoxide (CO)	399	lb/10^6 scf	68.55
Nitrogen Oxides (NOx)	See Table 5-1		42.19
PM10	10.11	lb/10^6 scf	1.74
Sulfur Oxides (SO_2)*	270	lb/10^6 scf	46.39
VOC	116	lb/10^6 scf	19.93

Notes:
Emissions factors other than NOx and SO_2 based on USEPA WebFIRE;
NOx as per Table 5-1. SO_2 Emission factor is derived by mass balance
Emissions (ton/year) = (emissions factor [lbs/unit]) x (units) / 2000 lbs/ton

Section 6. Proposed Replacement Units

The Superior Model GTLBs Cogenerator units (E.U. 010 and 011) each driving a 1200 KVA generator began service in 1989. These two digester gas (biogas) fueled engine generator sets are to be removed and replaced by two nearly identical Superior Model 16GTLDs each driving a 1200 KVA generator.

Figure 6-1 SUPERIOR® Engine

The Model 16GTLD engine is a sixteen-cylinder engine in Superior's line of natural gas fueled engines. The Superior ® brand name has a long-standing reputation for high quality engine and compressor products, dating back to 1889. Since 1976, when the Superior brand was purchased by Cameron, over 10,000 Superior engines and compressor frames have been manufactured and installed worldwide in a variety of high-speed and medium speed applications. Superior turbocharged gas engines are medium-speed and built for continuous, heavy-duty service. The optimal fuel/air mixing in the cylinder through the use of pre-combustion chambers, timed fuel injection, and turbocharged air inter-cooling, result in smoother more complete combustion reducing fuel consumption and lower emissions. The low compression (8.75:1) pistons keep dynamic stresses at a conservative level, provide for more stable operation and enhance engine tolerance to variations in types of fuel, such as landfill or digester bio-gas. The conservative horsepower rating of Superior engines provides ample reserve for emergency situations. Inter-cooling with optimal valve overlap results in cooler combustion chamber parts while assuring lower fuel consumption, greater efficiency, longer service life and trouble-free operation.

Section 7. Projected Emissions from Existing and Proposed Units

The projected emissions associated with this project are the typical pollutants from combustion of digester gas (biogas) fuel in spark ignited four stroke lean burn reciprocating internal combustion engines equipped with pre-combustion chambers (PCC). The primary pollutants associated with this project are NOx, CO, and SO_2. The potential emissions for the two existing single-fuel digester gas (biogas) fired Superior Model 16GTLB 1760 HP engines to remain operating continuously are shown in Table 7-1 and the two proposed replacement single-fuel digester gas (biogas) fired Superior Model 16GTLD 1760 HP engines operating continuously are shown in Table 7-2.

Table 7-1 Potential Emissions
Existing Superior Model 16GTLB
1.2 MW Digester Gas Electric Cogenerators (EU 007 and 009 to remain)
Central District Wastewater Treatment Plant

Operations	EU 007	EU 009	Total
Hours of Operation	8,760	8,760	17,520
Horsepower	1,700		
Brake Specific Fuel Consumption (btu/bhp-hr)	7,100		
Fuel Consumption (MMbtu/hr)	12.5		
Annual Fuel consumption (MMBtu)	109,500	109,500	219,000
Digester Gas Heat Value (MMBtu/MMscf)	700		
Annual Digester Gas Consumption (MMscf)	156.429	156.429	312.858

	Emission Factor	Units	Source, SCC	Annual Emissions in Tons		
Carbon Monoxide (CO)	399	lb/10^6 scf	20300201	31.21	31.21	62.42
Nitrogen Oxides (NOx)	7.45	Lbs/Hr	Requested	32.63	32.63	65.26
Sulfur Oxides (SO_2)	300.4	lb/10^6 scf	Derived	23.50	23.50	47.00
PM_{10}, Primary	10.11	lb/10^6 scf	20300201	0.79	0.79	1.37
$PM_{2.5}$, Primary	10.11	lb/10^6 scf	20300201	0.79	0.79	1.37
Volatile Organic Compounds (VOC)	116	lb/10^6 scf	20300201	9.07	9.07	18.14

Notes:
CO, PM, VOC Emission factors, based on USEPA WebFIRE for a similar, but different, process, natural gas.
NOx Emission factor, a revised limit of 7.45 lb/hr is requested by permittee based on historic testing. Presently NOx emissions are synthetically limited by permit condition to a maximum allowable emission rate of 7.6 lb/hr
SO_2 Emission factor is derived by mass balance, based on maximum monthly average scrubber digester gas H2S concentration in last 5 years of 105.2 grains /100cf
105.2 grains H2S/100cf x 7000grain/Lb x (64 SO2/34 H2S) x 1000000cf / MMscf = 300.4 Lbs/MMscf
Emissions (ton/year) = (emissions factor [lbs or grams/unit(s)]) x (units) / 2000 lbs/ton

Table 7-2 Potential Emissions Proposed New Replacement Superior Model 16GTLD 1.2 MW Digester Gas Electric Cogenerators (EU 021 and 022) Central District Wastewater Treatment Plant						
Operations				EU 021	EU 022	Total
Hours of Operation				8,760	8,760	17,520
Horsepower				1,760		
Brake Specific Fuel Consumption (btu/bhp-hr)				7,100		
Fuel Consumption (MMbtu/hr)				12.496		
Annual Fuel consumption (MMBtu)				109,465	109,465	218,930
Digester Gas Heat Value (MMBtu/MMscf)				700		
Annual Digester Gas Consumption (MMscf)				156.379	156.379	312.758
	Emission Factor	Units	Source, SCC[10]	Annual Emissions in Tons		
Carbon Monoxide (CO)	10.8	Lbs/Hr	Requested	47.30	47.30	94.60
Nitrogen Oxides (NOx)	3.7	Lbs/Hr	Requested	16.21	16.21	32.42
Sulfur Oxides (SO_2)	300.4	Lb/MMscf	Derived	23.49	23.49	46.98
PM_{10}, Primary	10.11	Lb/MMscf	20300201	0.79	0.79	1.37
$PM_{2.5}$, Primary	10.11	Lb/MMscf	20300201	0.79	0.79	1.37
Volatile Organic Compounds (VOC)	1.0	g/HP-Hr	Table 1, Subpart JJJJ	16.99	16.99	33.98

Notes:
CO Emission factor of 10.8 lb/hr (3.0 g/HP-Hr) is requested by permittee, Manufacturer provided letter indicated CO emissions at 2.2 g/HP-Hr, CO emissions are also limited by Table 1 to Subpart JJJJ of Part 60 to 5.0 g/bhp-hr or 610 ppmvd at 15% O_2
NOx Emission factor of 3.7 lb/hr is requested by permittee to escape PDS review. Manufacturer provided letter with NOx emissions at 0.7 g/HP-Hr, NOx emissions are also limited by Table 1 to Subpart JJJJ of Part 60 to 2.0 g/bhp-hr; (2.0 g/bhp-hr x 1760 bhp = 3520 g/hr x 0.0022046 lb/g = 7.76 lb/hr) or 150 ppmvd at 15% O_2
SO_2 Emission factor is derived by mass balance
The maximum monthly average scrubber digester gas H2S concentration in last 5 years is 105.2 grains /100cf
105.2 grains H2S/100cf x 7000grain/Lb x (64 SO2/34 H2S) x 1000000cf / MMscf = 300.4 Lbs/MMscf
PM Emissions factor is based on USEPA WebFIRE for a similar, but different, process, natural gas.
VOC Emission factor, limited by Table 1 to Subpart JJJJ of Part 60 to 1.0 g/bhp-hr or 80 ppmvd at 15% O_2(emissions of formaldehyde should not be included)
Emissions (ton/year) = (emissions factor [lbs or grams/unit(s)]) x (units) / 2000 lbs/ton

Since the total potential emissions from the combined operations of the existing and proposed digester gas fuel cogeneration units will continue to be synthetically limited so that combined hours of operation for the all digester gas fuel cogeneration units' No. 007, 009, 021, and 022

shall not exceed 26,280 hours in any consecutive 12-month period; the potential worst case emissions of pollutants for the two extreme ranges of potential operational combinations of the four units are summarized in Table 7-3.

Table 7-3 Potential Emissions
Existing Superior Model 16GTLB and New Superior Model 16GTLD
1.2 MW Digester Gas Electric Cogenerators (EUs 007, 009, 021, 022)
Central District Wastewater Treatment Plant

Operational Combination	2 – 16GTLBs, 1 – 16 GTLD	1 – 16GTLB, 2 – 16 GTLDs	Maximum Potential
Hours of Operation	26,280	26,280	26,280
Annual Digester Gas Consumption (MMscf)	469.237	469.187	469.237
	Annual Emissions in Tons		
Carbon Monoxide (CO)	99.81	125.81	125.81
Nitrogen Oxides (NOx)	81.47	65.05	81.47
Sulfur Oxides (SO2)	70.49	70.48	70.49
PM_{10}, Primary	2.16	2.16	2.16
$PM_{2.5}$, Primary	2.16	2.16	2.16
Volatile Organic Compounds (VOC)	35.13	43.05	43.05

Note:
The potential emissions represent the two ranges of potential operations between the two different models of digester gas fueled cogeneration units under the existing limitation of 26,280 hours of combined operations for all four units.

Section 8. Emissions Analysis

The existing cogenerator units #3 and #4 are digester gas (biogas) fired four stroke lean burn spark ignition reciprocating internal combustion engines. Accordingly, replacing these engines with similarly digester gas (biogas) fired four stroke lean burn spark ignition reciprocating internal combustion engines would be expected to have similar emissions. This is confirmed by the analysis conducted here, which also demonstrates that the emissions associated with this project are not significant and is not a major modification or subject to a Prevention of Significant Deterioration (PSD) program review.

Given that baseline operations for these four cogeneration units have been historically less than the maximum allowable 26,280 hours of operations contained in the current Title V Operating Permit 0250476-010-AV for all four (4) existing cogeneration units combined, the emissions of CO, NOx, SO2, PM10, PM2.5, and VOC are expected to increase but remain below the threshold increases for a major modification as defined in Chapter 62-210 F.A.C.

This project consists of replacing an existing engine with a new engine, therefore a Baseline Actual-to-Projected Actual Applicability Test as required under Rule 62-212.400 *Prevention of Significant Deterioration (PSD)* was performed to determine if a significant emissions increase of a PSD pollutant would result. The results are shown in Table 8-1 below. For this applicability

test, the period from January 2010 to December 2011, inclusive, was chosen to determine the baseline actual emissions. This period conforms to the requirement of Chapter 62-210 F.A.C., *Stationary Sources - General Requirements*, that the period selected to determine Baseline Actual Emissions be "within the 5-year period immediately preceding the date a complete permit application is received by the Department"

Referring to Table 5-2, the baseline actual (reported) emissions for the existing Cogenerators (EUs 007, 009, 010, and 011) and to Table 7-3 for the range potential usage of the remaining and replacement Cogenerators (EUs 007, 009, 021, and 022) it can be seen that proposed actual potential usages of the will yield higher emissions than the baseline emissions but the increase is well below the significant increase levels that define a major modification under Chapter 62-210 F.A.C., as shown in Table 8-1, below.

Table 8-1 Netting Analysis
Replacement Cogenerators #3 and #4
Central District Wastewater Treatment Plant

Line	Description	Source	CO (tons)	NOx (tons)	SO2 (tons)	PM_{10} (tons)	$PM_{2.5}$ (tons)	VOC (tons)
A	Actual	Table 5-2	68.55	42.19	46.39	1.74	1.74	19.93
Projected emissions								
B	Projected Actual	Table 7-3	125.81	81.47	70.49	2.16	2.16	43.05
C	Change	B - A	57.26	39.28	24.10	1.99	1.99	20.84
PSD Significance Levels[1]		Rule	100	40	40	15	10	40
Applicability to PSD Review?			No	No	No	No	No	No

Note: All emissions values are in tons/year.
[1] Florida Administrative Code 212.400-2

Section 9. Regulatory Analysis

Under Chapter 62-210 F.A.C. Stationary Sources - General Requirements, section 62-210.300(1), unless exempt from permitting pursuant to paragraph 62-210.300(3)(a) or (b), F.A.C., or Rule 62-4.040, F.A.C., an air construction permit shall be obtained by the owner or operator of any proposed new, reconstructed, or modified facility or emissions unit prior to the beginning of construction or modification of the facility or emissions unit.

Section 62-210.300(3) covers both categorical and generic exemptions, neither of which apply to this modification. Therefore this modification is subject to Chapter 62-212 F.A.C., Stationary Sources – Preconstruction Review. The preceding analysis shows that this modification is not major for the purposes of the referenced Chapter and this modification is therefore, not subject to preconstruction review under subsections 62-212.400(4) through (12), F.A.C.

A number of new regulations that could potentially impact have been promulgated since the expiration of the subject permit and MDWASD addresses these below.

Standards of Performance

For the purposes of 40 CFR Part 60 Subpart JJJJ – *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*, replacement Cogeneration units #3 and #4 (E.U. 021 and 022) are considered new sources and must comply with new standards of performance in Subpart JJJJ §§ 60.4233(e) and (f)(5) for emission standards found in Table 1 to Subpart JJJJ of Part 60 CFR. Since the replacement Cogeneration units #3 and #4 (E.U. 021 and 022) are not voluntarily being certified by the manufacturer as per 40 CFR Part 60 § 60.4241 (g); MDWASD as the owner operator, under Subpart JJJJ § 60.4243(a)(1)(i)(2), must conduct a performance test to demonstrate initial compliance with the emission standards in Subpart JJJJ § 60.4233(f). These initial performance tests of the replacement Cogeneration units #3 and #4 (E.U. 021 and 022) must adhere to the test methods and procedures prescribed in Subpart JJJJ § 60.4244; however since the stationary units are non-certified SI engines, MDWASD may choose to comply with the emission standards in units of either g/HP-hr or in ppmvd at 15 percent O_2.

RICE NESHAP

For the purposes of 40 CFR Part 63 Subpart ZZZZ – *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines* (RICE NESHAP), replacement Cogeneration units #3 and #4 (E.U. 021 and 022) are a new sources. Subpart ZZZZ § 63.6590(b)(3)(iii) states:

Since the replacement Cogenerator Units 3 and 4 (E.U. 021 and 022), Superior 16GTLDs were manufactured after July 1, 2007 and also after July 1, 2010; they are considered new units for the purpose of RICE NESHAP.

The cogenerator units (E.U. 021 and 022) are spark-ignited four-stroke lean-burn stationary reciprocating internal combustion engines (SI 4SLB RICE) greater than 500 brake horsepower (bhp) fueled by digester gas (biofuel) located at an area source (any source that is not a major source of HAPs) and are neither an emergency nor limited use units.

MDWASD shall take all required steps to assure compliance with the RICE NESHAP including but not necessarily limited to:

- Subject to Regulations under 40 CFR Part 60 (§ 63.6590) new or reconstructed spark ignition units to meet the requirements of 40 CFR part 60 subpart JJJJ.
- Notification of Intent (§ 63.6645) shall be made at less 60 days prior to a performance test if required to be conducted.
- Initial performance test/compliance demonstration (§ 63.6612) shall be performed within 30 days following successful startup of Cogenerator units (E.U. 021 and 022). Manufacturer's supplied information indicates that it is likely that emissions will comply with the applicable standards of 2.0 g/HP-hr and 150 ppmvd NOx at 15% O2, 5.0 g/HP-hr and 610 ppmvd CO at 15% O_2, and 1.0 g/HP-hr and 80 ppmvd VOC at 15% O2. (§ 63.6595).
- Reporting and Records (§§ 63.6650 and 63.6655) as needed to demonstrate that percentage of heat input provided by landfill gas or digester gas is equivalent to 10 percent or more of total fuel consumption on an annual basis.

- Requirements for Existing Stationary RICE (§§ 63.6603 and 63.6640) found in Table 2d to Subpart ZZZZ of Part B for non-emergency, non-black start landfill or digester gas-fired stationary RICE.

Greenhouse Gas (GHG) Monitoring

Under 40 CFR Part 98 – *Mandatory Greenhouse Gas Reporting* (GHG Rule), the USEPA mandated greenhouse gas reporting requirements for owners and operators of certain facilities that directly emit GHG as well as for certain fossil fuel suppliers and industrial GHG suppliers. The first reports were due by September 30, 2011 for emissions that occurred in CY 2010.

Reportable greenhouse gasses include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), perfluorochemicals (PFCs), and other fluorinated gases (e.g., nitrogen trifluoride, hydrofluorinated ethers [HFEs]). For reporting purposes, these gasses are all converted to a carbon dioxide equivalent (CO2e) and only CO2e is reported.

MDWASD's regional water and wastewater treatment facilities, including the CDWWTP, are potential sources under Subpart C – *General Stationary Fuel Combustion Sources* of the GHG Rule given their capacity to exceed the reporting threshold of 25,000 tonnes CO2e under existing permit limitations. Preliminary screening of the CDWWTP indicated that it had not exceeded the reporting threshold in all previous years and most likely would not be subject to the reporting requirement for CY 2010. Since the CDWWTP has the potential to emit reportable amount of CO2e emissions under the Title V Air Operating Permit, MDWASD has monitored the reportable CO2e emissions for CY 2010 as 16,010.9 tonnes and CY 2011 as 16,010.9 tonnes. Accordingly, no reporting of CO2e emissions was required per 40 CFR Part 98 for CY 2010 and CY2011.

MDWASD will continue to monitor the CDWWTP together with all of its regional facilities and report under the GHG monitoring program, if and as required. Subpart C includes all fuel combusted at stationary generators, pumps, etc) and the GHG emissions from the replacement Cogenerator units (E.U. 021 and 022) will be included in future calculations of GHG emissions at CDWWTP.

Section 10. Conclusion

In accordance with Chapter 62-212 Stationary Sources – Preconstruction Review Rule 62-212.400(2)(a), and based on a baseline actual-to-potential/projected applicability test in accordance with Rule 62-212.400(2)(a)3 Hybrid Test for Multiple Types of Emissions Units as described herein, no emissions increase of a PSD pollutant results from the proposed modifications and construction, and no major modification to the source facility is engendered by this application. Therefore subsections 62-212.400(4) through (12), F.A.C. do not apply to this modification.

This application is submitted per the requirements of Chapters 62-210 and 62-212 F.A.C. and will ensure that the Central District Wastewater Treatment Plant is able to continue with the recovery and beneficial use of digester gas as a biofuel for the supplemental generation of electrical power and necessary heat recovery to achieve and meet biosolids treatment requirements to reduce pathogens and vector attraction for beneficial use of biosolids, and to

help reduce greenhouse gas emissions while ensuring that the wastewater treatment and water reclamation needs of the most populous county in Florida can be met.

Report prepared by:

11/21/2012

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Attachment E
Rule Applicability Analysis

Attachment E
Rule Applicability Analysis

The applicable regulations identified in this attachment are for the new cogeneration engines; however they are also applicable to the existing cogeneration engines remaining on site. These regulations should replace the regulations in the previous Title V permit application identified for the "Digester Gas Fueled Cogeneration Engines" as there have been changes to the regulations since the submittal of the last application.

The applicable regulations identified in the previous Title V permit application should not be completely replaced with this attachment as they identify regulations for other sources and the site as a whole.

Attachment E. Summary of Applicable Regulations for the Two New Cogeneration Engines			
Regulated Pollutant	Citation	Requirement	In Compliance?
Emissions	62-210.700(1)	Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration.	Yes
Emissions	62-210.700(4)	Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited	Yes
Odor	62-296.320(2)	No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.	Yes
Opacity	62-296.320(4)(b)1	No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20 percent opacity).	Yes
PM	62-296.320(4)(c)1	No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity, including vehicular movement; transportation of materials; construction, alteration, demolition or wrecking; or industrially related activities such as loading, unloading, storing or handling; without taking reasonable precautions to prevent such emissions.	Yes

Attachment E. Summary of Applicable Regulations for the Two New Cogeneration Engines			
Regulated Pollutant	Citation	Requirement	In Compliance?
VOC and NOx	62-296.500(1)(b)	In addition to the applicable requirements of this rule the specific emission limiting standards and other requirements of Rule 62-296.570, F.A.C., shall apply in Broward, Dade, and Palm Beach counties to major VOC-emitting facilities not regulated in whole under Rules 62-296.501 through 62-296.516, F.A.C., and major NOx-emitting facilities, except those new and modified major VOC- and NOx-emitting facilities which have been or would be subject to review pursuant to 40 C.F.R. 52.21 or Rule 17-2.17 (repealed), 17-2.500 (transferred), 17-2.510 (transferred), 62-212.400, or 62-212.500, F.A.C.	Yes
VOC	62-296.570(4)(b)11	Emissions of VOC from any emissions unit subject to this rule but specifically exempted from any of the control technology requirements of Rules 62-296.501 through 62-296.516, F.A.C., shall not exceed the applicable exemption criteria.	Yes
PM	62-296.712(2)	No owner or operator of a miscellaneous manufacturing process operation shall cause, permit, or allow emissions of particulate matter in excess of 0.03 gr/dscf, or any visible emissions greater than 5 percent opacity. However the owner or operator may exceed these emission limits if he utilizes a pollution control device or system for control of particulate matter which has an actual particulate matter collection efficiency of at least 98 percent.	Yes
HAPs	40 CFR 63 Subpart ZZZZ	Comply by complying with 40 CFR Part 60 Subpart JJJJ	Yes
NOx, CO and VOC	40 CFR 60 Subpart JJJJ	Comply with Table 1 of this subsection for Landfill/Digester Gas (7/1/2010) as follows: NOx – 2 g/HP-hr CO – 5 g/HP-hr VOC – 1 g/HP-hr	Yes

Notes:

40 CFR – Chapter 40 of the US Code of Federal Regulations

NESHAPS – National Emission Standards for Hazardous Air Pollutants

NSPS – New Sources Performance Standard

HAP – Hazardous Air Pollutant

62 FAC – Chapter 62 of the Florida Administration Code

Attachment F
List of Exempt Emissions Units

Attachment F
List of Exempt Emissions Units

Unregulated Emissions Units and/or Activities. An emissions unit which emits no emissions limited pollutant" and which is subject to no unit-specific work practice standard, though it may be subject to regulations applied on a facility-wide basis (e.g., unconfined emissions, odor, general opacity) or to regulations that require only that it be able to prove exemption from units specific emissions or work practice standards. The below listed emissions units and/or activities are neither 'regulated emissions units' nor 'insignificant emissions units'.

E.U. ID No.	Brief Description of Emissions Units and/or Activity
018	Four clusters of 4 anaerobic digesters at Plant # 1, and 2 clusters at Plant # 2 This emissions unit includes 11 flares, with a maximum capacity of 18,000 scf/hr each
008	Wastewater Treatment Processes

The facilities, emissions units, or pollutant- specified in Rule 62-210.300(3)(b) 1., F.A. C., Generic emitting activities listed in Rule 62-210.300(3)(a), FAC., Categorical Exemptions, or that meet the criteria Emissions Unit Exemption, are exempt from the permitting requirements of Chapters 62-210, 62-212 and 62-4, F.A.C.; provided, however, that exempt emissions units shall be subject to any applicable emission limiting standards and the emissions from exempt emissions units or activities shall be considered in determining the potential emissions of the facility containing such emissions units. Emissions units and pollutant-emitting activities exempt from permitting under Rules 62-210.300(3)(a) and (b)1., F.A.C., shall not be exempt from the permitting requirements of Chapter 62-213, F.A.C., if they are contained within a Title V source; however, such emissions units and activities shall be considered insignificant for Title V purposes provided they also meet the criteria of Rule 62-213.430(6)(b), F.A.C. No emissions unit shall be entitled to an exemption from permitting under Rules 62-210.300(3)(a) and (b)1., F.A.C., if its emissions, in combination with the emissions of other units and activities at the facility, would cause the facility to emit or have the potential to emit any pollutant in such amount as to make the facility a Title V source. The below listed emissions units and/or activities are considered insignificant pursuant to Rule 62-213.430(6), FAC.

1. Diesel fuel storage for emergency generators.
2. Fuel storage for vehicles.
3. Unleaded gasoline fuel storage for vehicles.
4. Maintenance (painting, vehicles, parts degreaser unit).
5. Laboratory (exhaust hoods).
6. Diesel-driven starting air compressor(s) for standby generators.
7. Relocatable engine-driven pump used temporarily for emergencies, and/or facility maintenance and repair.
8. Relocatable engine-driven generators used temporarily for emergencies, and/or facility maintenance and repair.
9. Wastewater Treatment Plant-Solid Handling Processes.

Attachment G
Fuel Analysis and Specification

Miami-Dade Water and Sewer Department
Central District Wastewater Treatment Plant
Anaerobic Digester Operating Fuel Production and Consumption

	Source									
	Effluent Flow 10^6 Gal	CH_3 Digester Gas (10^6 FT^3)								
Month	Wastewater Treatment Plant - Liquid Processes	Gas Prod.; MCF	Gas Used; MCF	H_2S grains /100cf Combined Raw	H_2S grains /100cf Scrubbed	1700 HP Cogen. Engine #1	1700 HP Cogen. Engine #2	1700 HP Cogen. Engine #3	1700 HP Cogen. Engine #4	Digester Flares
Jan-2007	2791.6	41.707	24.372	289.0	90.0	0.00	4.05	8.90	11.42	17.34
Feb-2007	2525.3	37.080	29.077	289.0	97.0	0.00	4.93	13.24	10.91	8.00
Mar-2007	3099.7	44.449	26.394	285.0	93.0	0.00	11.78	5.39	9.23	18.06
Apr-2007	3457.5	41.260	24.152	288.0	96.0	0.00	12.98	8.62	2.55	17.11
May-2007	4133.2	42.006	28.621	263.0	91.0	9.86	8.04	3.36	7.36	13.39
Jun-2007	4372.5	42.314	1.012	305.0	110.0	0.00	0.00	0.77	0.24	41.30
Jul-2007	3831.9	43.892	26.038	263.0	93.0	8.67	8.27	7.46	1.64	17.85
Aug-2007	3292.5	42.410	25.285	279.0	95.0	10.24	14.00	1.04	0.00	17.13
Sep-2007	3536.7	39.438	15.502	266.0	92.0	1.88	10.06	1.21	2.35	23.94
Oct-2007	4859.9	45.097	16.733	267.0	91.0	5.44	4.26	0.18	6.85	28.36
Nov-2007	3677.7	40.053	27.447	264.0	92.0	8.99	7.23	6.14	5.09	12.61
Dec-2007	3096.9	38.103	32.909	268.0	94.0	0.00	16.45	11.20	5.26	5.19
Jan-2008	2948.9	42.697	30.422	272.0	90.0	1.80	6.97	13.44	8.21	12.28
Feb-2008	2665.7	39.738	29.915	282.0	94.0	5.75	12.60	2.83	8.74	9.82
Mar-2008	2743.6	40.885	32.498	281.0	92.0	6.61	11.84	12.94	1.10	8.39
Apr-2008	3640.0	41.362	31.526	283.0	98.0	0.00	3.10	15.91	12.52	9.84
May-2008	2917.4	44.613	31.162	288.0	100.0	0.00	8.51	11.49	11.16	13.45
Jun-2008	3269.3	40.489	21.127	280.0	99.0	0.00	0.00	10.53	10.60	19.36
Jul-2008	3669.3	43.479	31.644	286.0	98.0	0.00	0.00	15.86	15.79	11.84
Aug-2008	4441.2	38.188	21.303	284.0	95.0	0.00	0.00	11.53	9.77	16.89
Sep-2008	4393.3	34.671	28.968	282.0	98.0	0.00	6.39	8.06	14.53	5.70
Oct-2008	5290.0	32.124	20.546	276.0	97.0	0.00	0.18	12.09	8.28	11.58
Nov-2008	3264.0	30.377	21.202	271.0	97.0	0.00	0.00	14.89	6.32	9.18
Dec-2008	2769.6	35.365	22.788	265.0	97.0	0.00	0.00	11.42	11.37	12.58
Jan-2009	2615.4	41.500	29.300	281.0	99.0	0.00	1.82	12.82	14.77	12.20
Feb-2009	2512.0	29.100	28.600	279.0	98.0	0.00	9.77	5.50	13.30	0.50
Mar-2009	3561.6	38.900	33.000	273.0	97.0	0.00	11.17	7.45	14.38	5.90
Apr-2009	3328.8	40.900	30.300	271.0	97.0	0.00	11.83	5.70	12.77	10.60
May-2009	3986.7	41.000	34.000	273.0	98.0	0.00	15.92	15.13	2.95	7.00
Jun-2009	5233.4	36.100	29.500	322.0	101.0	0.00	15.89	13.65	0.00	6.60
Jul-2009	4131.1	40.200	25.400	294.0	100.0	0.00	14.89	10.34	0.14	14.80
Aug-2009	3812.4	35.800	30.500	285.0	99.0	0.00	15.02	15.52	0.00	5.30
Sep-2009	4589.8	38.100	26.800	290.0	99.0	0.00	14.65	12.14	0.00	11.30
Oct-2009	4017.9	42.200	26.000	291.0	101.0	0.00	14.19	7.97	3.98	16.20
Nov-2009	4151.2	42.600	22.100	294.0	100.0	0.00	7.79	0.00	14.36	20.50
Dec-2009	4367.9	42.200	18.300	291.0	102.0	0.00	7.11	0.00	11.23	23.90
Jan-2010	3705.0	45.900	27.490	289.0	98.0	0.00	12.79	0.00	14.70	18.41
Feb-2010	2842.8	41.100	24.990	296.0	100.0	0.00	12.65	0.00	12.34	16.11
Mar-2010	2899.6	45.600	31.400	288.0	98.0	0.00	15.46	0.00	15.94	14.20
Apr-2010	3115.1	44.600	28.750	284.0	103.0	0.00	15.18	0.00	13.57	15.85
May-2010	2965.7	46.000	32.360	289.0	103.0	0.00	15.79	0.00	16.58	13.64
Jun-2010	3127.7	38.700	28.910	285.0	100.0	0.00	14.01	0.00	14.90	9.79
Jul-2010	3023.6	37.100	25.390	290.0	99.0	0.00	12.77	0.00	12.63	11.71
Aug-2010	3245.5	38.900	29.050	291.0	101.0	0.00	14.01	0.00	15.04	9.85
Sep-2010	4191.7	37.800	30.040	296.0	99.0	0.00	15.43	0.00	14.61	7.76
Oct-2010	3709.0	34.900	28.130	290.0	100.0	0.09	11.50	0.00	16.54	6.77
Nov-2010	2850.5	39.900	28.980	291.0	102.0	0.62	13.06	0.00	15.30	10.92
Dec-2010	2614.2	38.600	31.330	297.0	101.0	0.00	15.89	0.00	15.43	7.27
Jan-2011	2638.8	41.437	31.740	293.0	102.0	4.88	13.29	0.00	13.57	9.70
Feb-2011	2398.9	38.886	27.347	296.0	105.0	3.34	10.30	0.00	13.71	11.54
Mar-2011	2815.0	43.329	26.703	297.0	102.0	6.88	9.82	0.00	10.01	16.63
Apr-2011	2576.0	41.193	29.279	297.0	102.0	7.45	10.58	0.00	11.25	11.91
May-2011	2986.0	37.980	33.120	295.0	100.0	8.53	11.09	0.00	13.50	4.86
Jun-2011	2926.0	38.151	30.061	296.0	106.0	12.10	11.02	0.00	6.95	8.09
Jul-2011	3809.0	35.444	30.038	307.0	114.0	14.24	3.82	0.00	11.98	5.41
Aug-2011	4171.0	34.305	29.463	303.0	105.0	10.95	7.41	0.00	11.11	4.84
Sep-2011	4159.0	33.210	27.232	300.0	106.0	13.09	3.34	0.00	10.81	5.98
Oct-2011	5050.0	32.746	22.908	297.0	111.0	6.07	5.06	0.00	11.78	9.84
Nov-2011	4171.0	36.923	25.070	302.0	105.0	0.69	11.18	0.00	13.20	11.85
Dec-2011	3005.0	37.370	27.462	301.0	104.0	11.64	15.46	0.00	0.37	9.91

Engineers
Planners
Economists
Scientists

October 13, 1994

Mr. Mike Ridge, Manager
Environmental Engineering
South Florida Environmental Services
6821 Vista Parkway North
West Palm Beach, FL 33411

Dear Mr. Ridge:

Subject: Digester Gas Composition, Virginia Key, Black Point WWTPs

As you requested, the Heating Value of the scrubbed methane gas used at the Virginia Key and Black Point WWTPs is 700 BTU/SCF. The sources for this information are the Air Construction Permit Applications and supplementary information for the methane gas engines at the two plants. Attached is one of the sources.

If you have any questions, please call me at (305) 426-4008.

Sincerely,

CH2M HILL

Alvaro A. Linero 10/13

Alvaro A. Linero, P.E.
Environmental Engineer

MIA1001403E.WP5
cc: Bertha Goldenberg, P.E., MDWASD
Len Drago/DFB

CH2M HILL
2828 Coral Way Building, 2828 Coral Way, Suite 440
Miami, Florida 33145-3214
305.443.6401
FAX 305.443.8856

TABLE 2
DIGESTER GAS CHARACTERISTICS

	BEFORE SCRUBBING		AFTER SCRUBBING	
	Dr. Moore	Mr. Pascul	Dr. Moore	Mr. Pascul
*CH_4%	66.2	63.4	71.6	72.6
CO_2%	33.8	36.6	28.4	27.4
HHV BTU/SCF	617	N/A	703	N/A

*Note CH_4% - 100 - CO_2% assumed

TABLE 3
RAW GAS HYDROGEN SULFIDE LEVEL - GRAINS/100 SCF

MONTH	1976	1977	1978	1979	1980	1981
January	290	400	350	500	540	N/A
February	225	350	250	353	515	N/A
March	285	300	390	395	905	N/A
April	325	320	350	365	514	
May	305	305	310	600	N/A	
June	345	280	290	315	N/A	
July	255	348	290	360	N/A	
August	340	185	223	320	N/A	
September	285	285	260	435	245	
October	215	245	260	450	N/A	
November	310	400	285	470	N/A	
December	380	400	325	345	N/A	

TABLE 4
SCRUBBED GAS HYDROGEN SULFIDE LEVEL - GRAINS/100 SCF

MONTH	1976	1977	1978	1979	1980	1981
January	41.2	42	30	40	41	20
February	42	38	30	34	38	18.2
March	33.4	35	35	36	39	26
April	34	47	41	25	37	
May	34	41	35	33	37	
June	35	40	39	26	32	
July	30	35	35	25	32	
August	36	35	35	30	28	
September	38	25	40	30	30	
October	43	27	38	30	20	
November	37	33	40	30	20	
December	43	27	39	37	19	

Attachment H
Procedures for Startup and Shutdown

B. AUTOMATIC (REMOTE STARTING LOGIC) STARTING SYSTEM

The Starting System section of the panel controls the starting events once the crank signal is sent to the panel. When the engine is running, the starting system sustains the control signals to the ignition ground switch, and to the Fuel Valves.

SEQUENCE OF EVENTS - STARTING

The starting sequence consists of three parts:

Purging, Starting, and Running. See Figure B-1 for reference.

The Purging Cycle begins as soon as the crank signal is sent to the starter motor control valve and the panel CONNECTION 16. The engine begins to crank to expel fuel from the cylinders and exhaust system before the ignition is turned on. The purge timer is to be set for 10 seconds.

During this cycle, the ignition system is grounded, the Start Fuel Valve is closed, and the Run Fuel Valve is in the vent position.

The Starting Cycle begins when the timer "times out" and the engine has been purged.

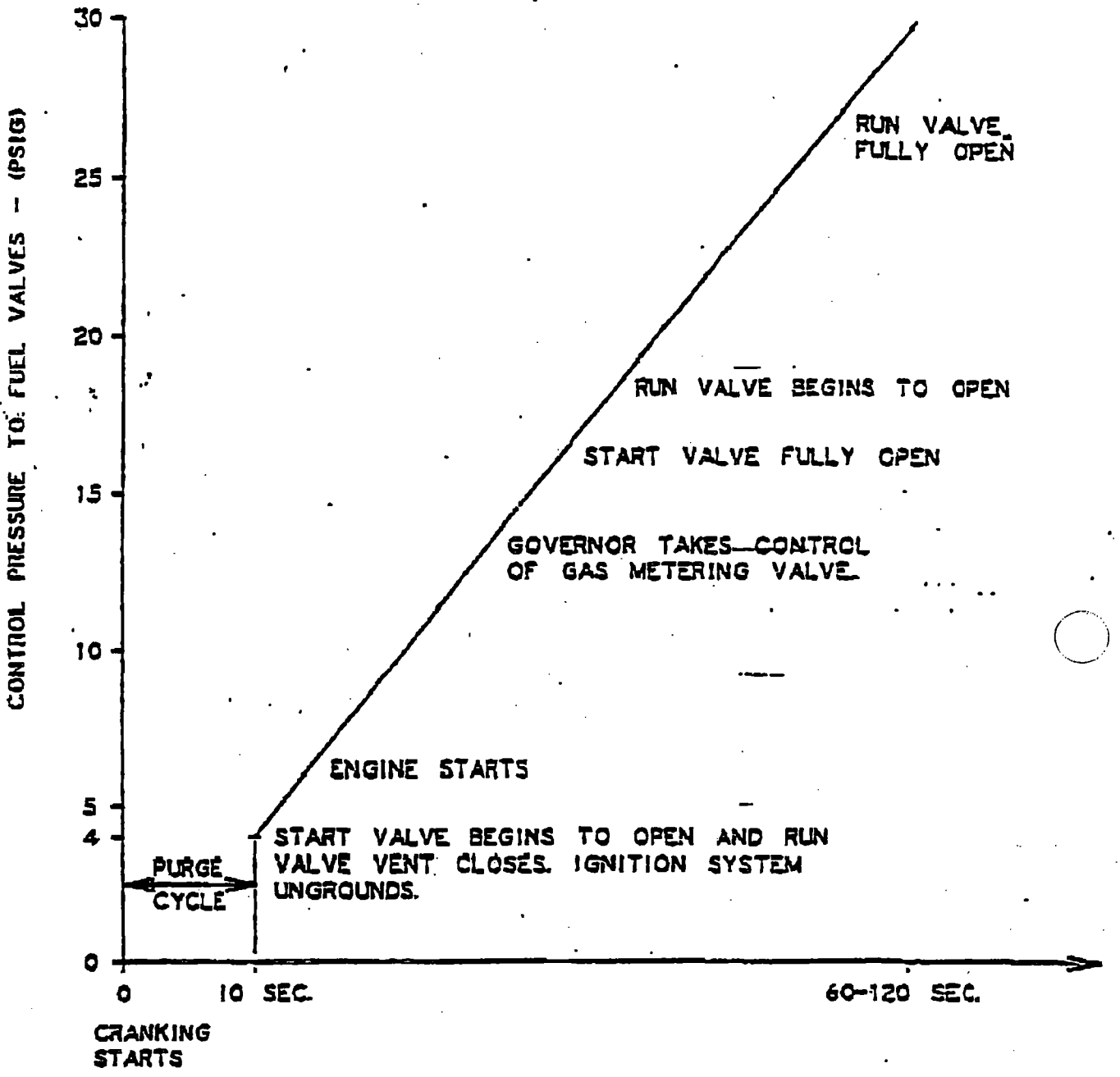
The following then occurs:

- Ignition system is ungrounded.
- Run Fuel Valve shuttles from the vent to the closed position.
- Start Fuel Valve begins to open at a controlled rate, gradually increasing the gas manifold pressure.

When there is sufficient fuel in the pre-chamber and main combustion chamber, the engine will start and begin to accelerate to idle speed. When the Start Fuel Valve is almost fully open, the governor will begin controlling engine speed by positioning the gas metering valve.

When the engine reaches 150-200 RPM, a run confirm pressure signal must be sent to CONNECTION 3 (CP) to maintain activation of the starting sequence upon loss of signal from CONNECTION 16 (CP).

The Running Cycle begins as the Run Fuel Valve opens, and is complete when the valve is fully open.



SEQUENCE OF STARTING EVENTS

FIGURE B-1

SEQUENCE OF EVENTS - STOPPING

The engine will continue to run until the Permissive Supply (CONN. B) is removed or the run confirm signal (CONN. 3) is lost. In either case, the following events occur:

- Start Fuel Valve closes.
- Run Fuel Valve shuttles to vent.
- Ignition system grounds after 10-20 seconds.

OPERATION

Operationally, this section of the panel has three segments: Inputs, Adjustments, and Outputs. See Figure B-2 for reference.

The INPUTS are:

Control Air Supply	- a permissive from the unit control shutdown circuitry.
Engine Cranking Signal	- initiates starting sequence in conjunction with cranking motor actuation.
Run Confirm Signal	- sustains the control signals to the fuel valves and ignition for continued running operation.
Ignition Ground	- signal pressure ungrounds the ignition system; loss of pressure grounds the system (CONNECTION 7).
Fuel Valves' Control Signal	- This is a multi-function signal. It controls the opening rate of the Start Fuel Valve, and the three-position Run Fuel Valve. Loss of pressure will cause the engine to stop (CONNECTION 6).

(See Figure B-3)

Attachment I
Operation and Maintenance Plan

The following schedule outlines minimum requirement which may be enlarged upon as conditions or experience warrants.

The time intervals are to be used as guidelines under normal conditions. Varying conditions or applications may indicate less or more time between intervals of maintenance.

MAINTENANCE OPERATION	DAILY	WEEKLY	MONTHLY	SEMI-ANNUALLY	ANNUALLY OR AS NEEDED
CONTROLS					
CHECK AIR-FUEL CONTROL PANEL CALIBRATION				●	
CHECK AIR-LOAD AND PNEUMATIC AIR-FUEL PANELS FOR RUNNING ON PROPER LINE	●				
CHECK ELECTRONIC AIR-FUEL PANEL L.E.D.'S FOR PROPER OPERATION	●				
CHECK STARTING SYSTEM CONTROL CALIBRATION				●	
CHECK INSTRUMENT AIR OR GAS SUPPLY QUALITY		●			●
PERFORM SAFETY SHUTDOWN SYSTEM TESTS				●	
CHECK CALIBRATION OF ALL THERMOMETERS AND PRESSURE GAUGES				●	
COOLANT SYSTEM					
CHECK JACKET WATER LEVEL	●				
CHECK FOR COOLANT LEAKS	●				
CHECK JACKET WATER TEMPERATURE	●				
INSPECT WATER PUMP DRIVE BELTS (IF APPLICABLE)			●		
TAKE COOLANT SAMPLE FOR ANALYSIS OR AS RECOMMENDED BY COOLANT SUPPLIER				●	
CRANKCASE					
CHECK CRANKCASE VACUUM	●				
CLEAN ENGINE CRANKCASE BREATHER				●	
CHECK "OVERPRESSURE" RELIEF VALVE					●

MAINTENANCE OPERATION	DAILY	WEEKLY	MONTHLY	SEMI-ANNUALLY	ANNUALLY OR AS NEEDED
POWER CYLINDER					
CHECK CYLINDER TEMPERATURES	●				
CHECK ALL POWER CYLINDER COMPRESSION PRESSURES				●	
CHECK CONDITION OF PISTON SKIRTS AND LOWER PART OF CYLINDER LINERS				●	
MAKE INTERNAL INSPECTION OF ALL POWER CYLINDERS WITH A BORESCOPE INSERTED THROUGH THE SPARK PLUG HOLE, CHECK CONDITION OF EXHAUST AND INLET VALVES				●	
STARTER SYSTEM					
CHECK FOR GAS OR AIR LEAKAGE	●				
CHECK OIL LEVEL OF STARTER LUBRICATOR	●				
CHECK LUBRICATOR STRAINERS		●			
CLEAN AND FILL LUBRICATOR BOWL WITH A 10W NON-DETERGENT OIL (AS NEEDED)		●			
TURBOCHARGER (WHEN APPLICABLE)					
CHECK BLOWER WHEEL FOR CLEANLINESS				●	
CHECK TURBOCHARGER FOR VIBRATION		●			
INSPECT FOR OIL LEAKAGE AND LOW PRESSURE	●				
INSPECT COOLANT INLET AND OUTLET LINES FOR LEAKS	●				
INSPECT BLOWER BEARING, INCLUDING THRUST COLLAR (COOPER TURBO)				●	
INSPECT TURBINE BEARING					●
VALVE TRAIN					
LISTEN FOR UNUSUAL NOISES	●				
CHECK ENGINE VALVE CLEARANCE			●		
REMOVE COVERS AND INSPECT CAMSHAFT DRIVE CHAIN FOR TIGHTNESS AND ALIGNMENT				●	

MAINTENANCE OPERATION	DAILY	WEEKLY	MONTHLY	SEMI-ANNUALLY	ANNUALLY OR AS NEEDED
INTAKE SYSTEM					
CHECK AIR MANIFOLD TEMP.	●				
CHECK FOR LEAKAGE.	●				
CHECK CONDITION OF AIR CLEANER ELEMENTS, CHANGE AS NEEDED		●			
CHECK INTAKE PIPING FOR CLEANLINESS (AND INTERCOOLER IF APPLICABLE)					●
LUBRICATING SYSTEM					
CHECK LUBE OIL LEVEL	●				
CHECK FOR OIL LEAKS	●				
CHECK LUBE OIL PRESS. AND TEMP.	●				
TAKE ENGINE OIL SAMPLE FOR ANALYSIS			●		
CHANGE ENGINE OIL AND OIL FILTER ELEMENTS (INSPECT CRANKCASE FOR WEAR METALS)	OIL FILTER ELEMENTS SHOULD BE CHANGED AT 1000 HR. INTERVALS OR WHEN A DIFFERENTIAL PRESSURE OF 15 TO 20 PSI HAS BEEN REACHED. THE ENGINE OIL SHOULD BE CHANGED AT 1000 HOUR INTERVALS OR AT THE RECOMMENDATION OF A REPUTABLE OIL ANALYSIS COMPANY.				
REPLACE "O" RINGS ON L.O. COOLER (IF APPLICABLE)					●
MECHANICAL/OPERATING SYSTEM					
CHECK FOUNDATION BOLT TORQUES				●	
CHECK BOLT TORQUES FOR MAIN AND CONNECTING ROD BOLTS, FLYWHEEL AND DRIVE COUPLING BOLTS				●	
CHECK ENGINE-COMPRESSOR COUPLING EQUIPMENT FOR ALIGNMENT				●	
INSPECT IGNITION DRIVE GEARS, CHECK GEAR BACKLASH				●	
CHECK GOVERNOR DRIVE GEAR LASH				●	
CHECK GEAR LASH AND GEAR CONDITION OF LUBE OIL PUMP DRIVE				●	
REMOVE AND INSPECT BEARINGS, SHAFT SEALS OF WATER AND LUBRICATING OIL PUMPS					●
CHECK THRUST BEARING CLEARANCES (CAMSHAFT AND CRANKSHAFT)					●
BOUNCE CHECK MAIN AND CONNECTING ROD BEARINGS USING A DIAL INDICATOR					●

MAINTENANCE OPERATION	DAILY	WEEKLY	MONTHLY	SEMI-ANNUALLY	ANNUALLY OR AS NEEDED
EXHAUST SYSTEM					
CHECK WASTEGATE VALVE ASSEMBLY (SEALS, ACTUATOR, COUPLING, TUBING)			●		
CHECK FOR EXHAUST LEAKS	●				
OBSERVE COLOR OF EXHAUST GAS	●				
CHECK PYROMETER CALIBRATION				●	
CHECK EXHAUST BACKPRESSURE (OR IMMEDIATELY AFTER SEVERE BACKFIRE)				●	
VISUALLY INSPECT THERMOCOUPLES				●	
FUEL GAS SYSTEM					
CHECK FOR GAS LEAKS	●				
CHECK FUEL GAS PRESSURES	●				
INSPECT FUEL FILTERS			●		
CONDUCT FUEL GAS ANALYSIS					●
INSPECT/CLEAN PRE-CHAMBER PILOT GAS SUPPLY SYSTEM (CHECK VALVES, TUBING, ORIFICE, FILTER)	NORMALLY PERFORMED SEMIANNUALLY, BUT MAY REQUIRE ADDITIONAL ATTENTION IF INDIVIDUAL CYLINDER TEMPERATURES WARRANT.				
GOVERNOR SYSTEM					
CHECK SPEED VS. SIGNAL PRESSURE CALIBRATION ON PG STYLE GOVERNORS				●	
CHECK LUBE OIL LEVEL IN GOVERNOR	●				
CHECK THROTTLE CONNECTIONS AND BEARINGS FOR FREE MOVEMENT (IF APPLICABLE)		●			
CHECK CONDITION OF GOVERNOR LINKAGE LUBRICATE BALL ENDS			●		
DRAIN, FLUSH, REFILL GOVERNOR OIL SUPPLY AS NEEDED				●	
IGNITION AND CONTROL SYSTEM					
CHECK IGNITION GROUND SWITCH CALIBRATION				●	
CHECK ALTERNATOR, PRIMARY WIRE HARNESS COIL TERMINALS, HIGH TENSION WIRES, SPARK PLUG CONNECTORS			●		
REPLACE SPARK PLUGS AS NEEDED			●		
CHECK ALTERNATOR BEARING GREASE FITTING (IF APPLICABLE)			●		
CHECK IGNITION TIMING (VERIFY TIMING VS. SPEED FOR CleanBurn)			●		