

David,

As we discussed. Please make sure  
this check gets checked with the  
BG-E application.

Thanks,

Sam

RECEIVED

APR 03 2008

BUREAU OF AIR REGULATION

From: Origin ID: KYOA (813)287-1717  
 Debra Groh  
 GOLDER ASSOCIATES  
 5100 W. LEMON STREET, SUITE 114  
 TAMPA, FL 33609



CLS 128787/2124

Ship Date: 02APR08  
 ActWgt: 1 LB  
 System#: 1593190/INET8011  
 Account#: S \*\*\*\*\*

Delivery Address Bar Code



Ref # 073-89628-0100  
 Invoice #  
 PO #  
 Dept #

SHIP TO: 850-414-7268

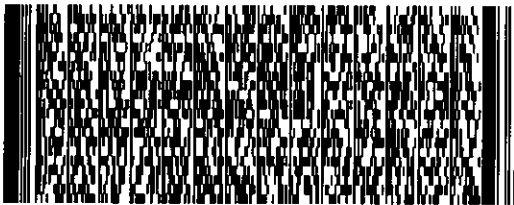
BILL SENDER

**DAVID READ**  
**FDEP**  
**111 S. MAGNOLIA DR.**  
**SUITE 4**  
**TALLAHASSEE, FL 32301**

THU - 03APR A2

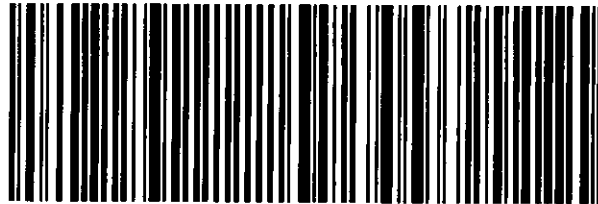
TRK# 7926 7587 9868  
 0201

PRIORITY OVERNIGHT



**XH TLHA**

32301  
 FL-US  
 TLH



Shipping Label: Your shipment is complete

1. Use the 'Print' feature from your browser to send this page to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.**

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

**RECEIVED**

APR 03 2008

BUREAU OF AIR MAIL REGISTRATION

**Golder Associates Inc.**  
5100 West Lemon Street  
Suite 114  
Tampa, FL USA 33609  
Telephone: (813) 287-1717  
Fax: (813) 287-1716



RECEIVED

April 1, 2008

APR 02 2008

Our Ref.: 073-89628

DEP/DARM  
South Permitting Section  
Division of Air Resource Management  
2600 Blair Stone Road MS 5500  
Tallahassee, Florida 32399-2400

BUREAU OF AIR REGULATION

Attention: Mr Al Linero, P.E.

**RE: Air Construction Permit Application  
Biomass Gas & Electric (BG&E) Tallahassee Renewable Energy Center**

Dear Mr. Linero:

Biomass Gas & Electric of Tallahassee, L.L.C. (d/b/a Biomass Gas & Electric of Tallahassee), or BG&E, a new electricity provider in Florida, is proposing that the Tallahassee Renewable Energy Center power project (the Project), which would use biomass to generate electricity. Specifically, biomass will be gasified, and the product gas that is produced will be combusted in energy-efficient, combined cycle combustion turbines to produce electricity. The proposed project will generate a nominal net 42 megawatts (MW) of electricity.

Biomass gasification units such as the ones being proposed by BG&E represent an excellent opportunity for the State by providing a reliable, renewable energy source, as well as helping to curb the State's GHG emissions. In addition, projects such as this will help Florida's utilities meet Governor Crist's Executive Order No. 07-027, proposing a 20 percent renewable energy requirement.

This letter serves to transmit BG&E's minor source air construction permit application for the proposed Tallahassee Renewable Energy Center. One original and three copies are enclosed. In addition, enclosed are application forms for an Acid Rain permit, a Certificate of Representation and a check for \$9,000 to cover the permit processing fee. Finally, one of the process schematic diagrams, referenced in the application (Figure 2-5), is being claimed as company confidential and will be transmitted under separate cover.

If you should have any questions regarding the enclosed application package, please don't hesitate to contact either Glenn Farris of BG&E at (770) 662-0256 or me at (813) 287-1717. Thank you in advance for your timely processing of this application.

Sincerely,

**GOLDER ASSOCIATES INC.**



Scott Osbourn, P.E.  
Senior Consultant and Project Manager

Attachment

cc: Glenn Farris, BG&E  
Angela Morrison Uhland, HG&S

**Golder Associates Inc.**  
5100 West Lemon Street  
Suite 114  
Tampa, FL USA 33609  
Telephone: (813) 287-1717  
Fax: (813) 287-1716



**AIR CONSTRUCTION PERMIT APPLICATION  
BIOMASS GAS & ELECTRIC (BG&E)  
TALLAHASSEE RENEWABLE ENERGY CENTER**

*Submitted to:*

*Florida Department of Environmental Protection*

*Submitted on behalf of:*

*BG&E of Tallahassee, L.L.C. (d/b/a Biomass Gas & Electric of Tallahassee)  
3500 Parkway Lane  
Suite 440  
Norcross, Georgia 30092*

*Submitted by:*

*Golder Associates Inc.  
5100 West Lemon Street  
Suite 114  
Tampa, Florida 33609*

**Distribution:**

4 Copies - Florida Department of Environmental Protection  
1 Copy - BG&E  
1 Copy - Golder Associates Inc.

April 2008

073-89628

## TABLE OF CONTENTS

1.0	INTRODUCTION .....	1
2.0	PROJECT DESCRIPTION .....	3
2.1	Description of Emission Units .....	4
2.1.1	Material Handling System Description .....	4
2.1.2	Gasifier System .....	6
2.1.3	Gas Clean-up .....	8
2.1.4	Power Generation .....	9
2.1.5	Utilities and Infrastructure .....	10
2.2	Proposed Operating Modes .....	11
2.2.1	Startup and Shutdown Modes .....	11
2.2.2	Combined Cycle Operation .....	16
3.0	PROPOSED SOURCE EMISSIONS AND CONTROLS .....	18
3.1	Power Block .....	18
3.2	Gasifier/Combustor System .....	19
3.3	Material Handling System Description .....	21
3.4	Feedstock Dryer .....	21
3.5	Auxiliary Boiler .....	21
3.6	Flare System .....	22
3.7	Cooling Towers .....	22
3.8	Site Layout, Structures, and Stack Sampling Facilities .....	23
4.0	AIR QUALITY REVIEW REQUIREMENTS AND APPLICABILITY .....	24
4.1	New Source Review (NSR) Requirements .....	24
4.2	New Source Performance Standards (NSPS) .....	25
4.2.1	NSPS 40 CFR 60 Subpart Da (Electric Utility Steam Generating Units) .....	25
4.2.2	NSPS 40 CFR 60 Subpart Dc (Standards for Small Industrial- Commercial-Institutional Steam Generating Units) .....	26
4.2.3	NSPS for Stationary Combustion Turbines and Duct Burners (40 CFR 60, Subpart KKKK) .....	26
4.2.4	NSPS Subpart Eb (Municipal Waste Combustion Units; Commercial) .....	27
4.2.5	NSPS 40 CFR 60 Subpart CCCC (Industrial Solid Waste Incineration Units) .....	27
4.2.6	NSPS 40 CFR 60 Subpart RRR (VOC Emissions from SOCMI Reactor Processes) .....	28
4.3	National Emission Standards for Hazardous Air Pollutants (MACT Standards) .....	28
4.4	Florida Rules .....	28
4.4.1	Rule 62-296.401, F.A.C., Incinerator Rule .....	28
4.4.2	Rule 62-296.410, F.A.C., Carbonaceous Fuel Burning Equipment .....	29
4.5	Other Clean Air Act Requirements .....	29
4.5.1	The Acid Rain Program .....	29
4.5.2	Regional Haze .....	30
4.5.3	Clean Air Interstate Rule (CAIR) .....	30
4.5.4	Greenhouse Gas (GHG) Rulemaking .....	31

## LIST OF TABLES

Table 2-1	Typical Product Gas Composition
Table 2-2	Summary of Project Startup and Shutdown Emissions
Table 3-1	Summary of Total Project Emissions
Table 3-2	Operating and Emission Data for the Combustion Turbines/HRSGs and Duct Burners
Table 3-3	HAP Emission Data for the Combustion Turbines/HRSGs and Duct Burners
Table 3-4	Emissions for Gasifier/Combustor System
Table 3-5	Material Handling Emissions
Table 3-6	Feedstock Dryer Emissions
Table 3-7	Emissions for Auxiliary Boiler
Table 3-8	Flare System Emissions
Table 3-9	Cooling Tower Emissions

## LIST OF FIGURES

Figure 2-1	Project Site Location
Figure 2-2	Project Site Layout
Figure 2-3	Overall Process Schematic
Figure 2-4	Material Handling Process Schematic
Figure 2-5	Gasification Process Schematic

## APPLICATION FORMS

## APPENDICES

Appendix A	Life Cycle Assessment
------------	-----------------------

## 1.0 INTRODUCTION

To improve domestic energy sources and to address global climate change issues, the State of Florida is encouraging the expanded use of *biomass-based* energy, both for transportation needs and electrical generation. Governor Crist's Action Team on Energy and Climate Change has recommended that the State expand its biomass-based energy sources, citing several benefits including economic development, energy security, fuel diversity, and reliability as well as helping the State achieve its greenhouse gas (GHG) emissions reduction objectives. Biomass (which is a broad term covering various types of non-fossil organic material, such as agricultural crops and byproducts, landscape and yard trimmings, logging and lumber mill residues, untreated wood materials, etc.) is relatively abundant in Florida as well as the southeastern U.S., and is a proven, reliable source of renewable energy which can be considered carbon-neutral.

Biomass can be combusted in a traditional boiler to produce electricity, or biomass can be processed to form either a gas or a liquid "biofuel" that can then be used efficiently in a boiler or a combustion turbine. Biomass Gas & Electric of Tallahassee, L.L.C. (d/b/a Biomass Gas & Electric of Tallahassee), or BG&E, a new electricity provider in Florida, is proposing that the Tallahassee Renewable Energy Center power project (the Project) generate "product gas". Specifically, biomass will be gasified, and the product gas that is produced will be combusted in energy-efficient, combined cycle combustion turbines to produce electricity. The proposed project will generate a nominal net 42 megawatts (MW) of electricity.

Biomass gasification units such as the ones being proposed by BG&E represent an excellent opportunity for the State by providing a reliable, renewable energy source, as well as helping to curb the State's GHG emissions. In addition, projects such as this will help Florida's utilities meet Governor Crist's Executive Order No. 07-027, proposing a 20 percent renewable energy requirement.

This application contains the information required by FDEP Form No. 62-210.900(1), Effective: 3/16/08, Application for Air Permit – Long Form. This air application report is divided into the following major sections:

- Section 1.0 provides the Project introduction;
- Section 2.0 presents a description of the Project;



- Section 3.0 provides a description of individual emission units and controls;
- Section 4.0 provides a review of the air requirements applicable to the Project; and
- Attachment: FDEP Form No. 62-210.900(1), Application for Air Permit – Long Form.

## 2.0 PROJECT DESCRIPTION

BG&E of Tallahassee, LLC, d.b.a. Biomass Gas & Electric of Tallahassee, is proposing to construct a biomass-based electrical generating power plant at the Florida State University in Tallahassee Florida. The proposed project will generate a nominal net 42 megawatts (MW) of electricity. Construction is proposed to commence in September 2008, with a proposed in-service date of July 2010.

The project consists of a biomass fuel "wood chips" delivery/ handling system, a biomass gasification system, a biomass dryer, a gas cleanup system, two gas combustion turbines, two heat recovery steam generators (HRSG) with duct burner firing, condensing steam turbine generator, an auxiliary natural gas fired package boiler for start-up use only, an emergency flare system, cooling towers, and auxiliary support equipment such as air systems. The biomass fuel "wood chips" will be chipped to size and screened at a remote location. The fuel preparation process will be owned and operated by others. Biomass fuel will be delivered using approximately 100 railroad cars per shipment to the power plant. Anticipated fuel delivery frequency is one shipment every 7 to 10 days. All fuel deliveries will be by railroad and there are no provisions in the project to receive fuel by truck or other methods.

At the power plant, the railcars will be unloaded into a pit located under a new railroad siding where the fuel is conveyed, via a covered belt conveyor, to the fuel storage building. The fuel storage building will contain 10 to 14 days of fuel storage. The storage building will be under roof with the sides of the storage being open.

From the fuel storage building, the fuel will be conveyed to a dryer where the moisture is reduced from as high as 37 percent to approximately 23 percent. Leaving the dryer, the fuel will be conveyed via a covered conveyor system to the gasification process area where it is stored in a metering/storage bin. Approximately 730 tons per day (dry basis) of biomass will be fed to the gasifier.

In the gasifier, product gas is formed from the introduction of biomass fuel, which is rapidly pyrolyzed in an oxygen-starved environment by hot sand (olivine). During this process, the olivine temperature diminishes, while the breakdown of the fuel results in the production of char particles (carbon), product gas and a small amount of condensable organic compounds (tars). The resultant char and olivine are separated from the gas stream exiting the gasifier in dual, two-stage gasifier cyclones. The olivine and char are recirculated to the combustor where the char is burned and serves

as a fuel source to reheat the circulating olivine. The reheated olivine is then transported back to the gasifier to supply the energy necessary for the gasification of the incoming wood feedstock.

Flue gas from the combustor flows through an additional cyclone, heat recovery exchangers and a baghouse before exhausting to the atmosphere. Product gas from the gasifier is directed to the gas clean-up system for removal of impurities prior to utilization in the two Solar Model T-130 combustion turbines (CTs). The CTs will produce 29.0 MW at an average atmospheric temperature of 59° F. Exhaust gases from the CTs will pass thru two heat recovery steam generators (HRSG's) equipped with duct burners (DBs) to generate high-pressure steam. Product gas is also used to fire the two DBs. The high-pressure steam generated using the HRSG's will be piped to a steam turbine generator to produce 20.7 MW at an average atmospheric temperature of 59° F. The parasitic electrical loads are estimated to be 8.3 MW. Therefore, the net electrical power available at an average atmospheric temperature of 59° F is 41.4 MW. The typical product gas composition is provided in Table 2-1.

## **2.1 Description of Emission Units**

The following sections provide a more detailed discussion of the processes and emission units associated with the BG&E of Tallahassee Project (the Project). The project location and site map is provided in Figure 2-1. A proposed project site layout is presented in Figure 2-2. A process schematic of the entire process, from delivery of feedstock to the power generation block, is provided in Figure 2-3, highlighting the emission points. Finally, Figures 2-4 and 2-5 provide more in-depth diagrams of the material handling and gasification processes, respectively.

### **2.1.1 Material Handling System Description**

The feedstock material handling process is depicted in Figure 2-4. All woody biomass will be delivered to a remote fuel preparation area. At this remote area, the feedstock will be sorted, screened and chipped to size. Deleterious material such as nails, glass and metal will be removed for landfill disposal. The wood feedstock moisture content will be between 30 percent and 40 percent. The fuel preparation process will be owned and operated by others. Prepared woody biomass feedstock will be delivered to the gasification site by rail.

The feedstock delivery system to the site will consist of bottom discharge double collection hoppers for receiving processed wood chips from railroad cars. Each rail car has a capacity up to ~ 7,000 cubic feet (cf), with the feedstock density estimated at ~ 17 lb/cf (@ 30 percent moisture), for a total of ~ 80 to 90 tons per rail car. The railroad cars will be positioned over the receiving hoppers and the car hopper gates will be opened, allowing the chips to be discharged from them (Figure 2-4, point BC-1). The hoppers will have an integral dust collection system to collect dust that may be discharged from the top of the hoppers during the unloading process. From the bottom of the two collection hoppers, the wood chips will be transferred to a collecting belt conveyor via vibratory feeders which are enclosed (BC-2). A dust collection system will collect dust at the transfer point from the discharge chutes to the unloading reclaim conveyor.

From the railcar unloading reclaim conveyor, the material will be conveyed to the material storage building via belt conveyors. Detectors will be installed on this conveyor to remove deleterious material from the material stream prior to stockpiling the fuel. The fuel storage building will contain 10 days of live storage, and will be stockpiled using an automated stacker/reclaimer which receives material from a ground level conveyor inside the building during stacking, and returns the fuel to the same belt conveyor during reclaiming activities. The feedstock will be evenly distributed in piles up to an average of 10 feet high. The fuel storage building will contain 10 to 14 days of fuel storage. The storage building will be under roof, with the sides of the storage being open. Approximately 1,000 wet tons per day of wood will be received (based on 30 percent moisture), which will produce 730 tons per day feed to the gasifier (dry basis).

From the fuel storage building, the fuel will be conveyed to a dryer (BC-3 and BC-4) where the moisture is reduced from as high as 37 percent to approximately 23 percent. Belt conveyors will then transport the feedstock to a 12-hour storage silo adjacent to the gasifier (BC-5). The belt conveyors will be equipped with belt covers to protect the material from the weather and to prevent the wind from blowing material off of the conveyor belt during transport to the storage silo. Material will be reclaimed from the storage silo via an internal screw discharger, which will deposit the material on a belt conveyor contained primarily inside the silo structure. This belt conveyor (BC-6) will transfer the wood fuel to a vertical elevator that will discharge the fuel via an enclosed chute system to the gasifier fuel feed bin. Approximately 730 tons per day (dry basis) of biomass will be fed to the gasifier. All transfer systems from conveyor to conveyor employ totally enclosed head boxes, chutes, and skirtboard systems to contain the fuel and any dust that may be produced at the transfer points. Particulate emissions from these transfer points are kept to a minimum through

special designs. The feed bin has a bin vent on top of it to filter out the exhaust produced from transfer of wood into the bin through a rotary valve.

### 2.1.2 Gasifier System

Figure 2-5 provides a schematic diagram of the gasification process. Due to the claim of confidentiality, this figure has been provided under separate cover. The gasifier, combustor, gas clean-up system, cyclones and baghouse are the primary equipment components of the gasification process. Within these components, circulated olivine, a sand-like material is used as a heat transfer medium to support the reactions occurring in the gasifier and combustor. In addition, there are small natural gas-fired start-up burners associated with the gasifier and combustor. These small burners are more fully described in the section addressing startup emissions. It is estimated that there will be approximately 6 startups per year and that the amount of natural gas to be fired will be minimal, at less than 5 percent of total operating hours.

#### 2.1.2.1 *Gasifier*

In the gasifier, product gas is formed from the introduction of biomass fuel, which is rapidly pyrolyzed in an oxygen-free environment by hot olivine. Steam is used in the gasifier to provide assist forced air which provides the initial conveying medium to begin olivine circulation through the system. Olivine recirculation starts when the vessel temperature has reached approximately 800 °F. The recirculating olivine provides the majority of thermal energy to heat up the gasifier. The gasifier must be heated to at least 1,300 °F prior to the introduction of wood so that the pyrolysis reactions can take place without producing excessive amounts of tar. Once these reactions begin, the resulting product gas provides the primary motive force for the conveying of the olivine and char through the gasifier vessel. Air is gradually reduced once wood feed has started, and is completely turned off once 1,300 °F is reached.

During this process, the olivine temperature diminishes, while the breakdown of the fuel results in the production of char particles (carbon), product gas and a small amount of condensable organic compounds (tars). The resultant char and olivine are separated from the gas stream exiting the gasifier in the dual two-stage gasifier cyclones. Product gas from the gasifier is directed to the gas clean-up system for removal of impurities prior to utilization in the two Solar Model T-130 combustion turbines (CTs). The product gas contains hydrogen sulfide, which is scrubbed out

downstream in the gas clean-up system, using an aqueous scrubber. The formation of hydrogen sulfide in the gasifier, in effect, minimizes the amount of fuel sulfur that subsequently enters the combustor.

#### 2.1.2.2 *Combustor*

At the gasifier exit, the product gas is separated from the olivine and unpyrolyzed char. The char, which is separated out with the olivine in the cyclone, is carried into the combustor. The char contains pyrophoric carbon at 55 percent by weight, 5 percent hydrogen, and 40 percent ash. Air is introduced into the combustor to support the combustion of the char particles with the resultant release of thermal energy, providing additional heat to the recirculating olivine. The reheated olivine is then transported back to the gasifier to supply the energy necessary for the gasification of the incoming wood feedstock.

The combustor cyclone separates the olivine from the flue gas and ash before sending the olivine back to the gasifier. The efficiency of the combustor cyclone is greater than 99.9 percent removal, so that the loss of olivine from the entire system is minimized. The flue gas, smaller ash and traces of fine olivine particles remain entrained in the gas and proceed to the ash cyclone. Due to the very high efficiency of the combustor cyclone, the targeted ash removal efficiency of the ash cyclone is ~ 85 percent. The ash cyclone is followed by a baghouse, which removes >99 percent of the remaining particulate before exhausting to the atmosphere.

It is important to note that the flue gas from the combustor contains very little sulfur, as the organic sulfur remains in the product gas as hydrogen sulfide. This is because the pyrolysis process in the product gas gasifier operates in a reducing environment in the absence of oxygen. As a consequence, organic sulfur compounds in the wood decompose into hydrogen sulfide. This component of the gas stream is ultimately eliminated in the product gas clean-up system.

Ash, essentially wood ash, is a waste byproduct of the gasification process and must be continuously removed and disposed of off-site as a non-hazardous solid waste. In addition, it is estimated that about 300 lbs of makeup olivine may be required per day. It is currently proposed that olivine be delivered by truck, and unloaded pneumatically into a storage silo. The silo would be equipped with a baghouse for particulate control. However, it is possible that the use of super sacks may be as

efficient and less costly than a pneumatic unloading system. Final details will be provided when available.

### 2.1.3 Gas Clean-up

Product gas from the gasifier, after exhausting through several cyclones, is directed to the gas clean-up system. Tar is formed in the gasifier and includes a wide spectrum of organic compounds consisting of several aromatic rings. Tars are often categorized as “heavy” and “light” tars. The gas clean-up system is designed primarily to remove these tars from the product gas, after exiting the gasifier and before going to the combustion turbines, but also includes components for removal of other impurities. These include:

- Particulates;
- Organic impurities (tars mentioned above);
- Inorganic impurities, such as  $\text{NH}_3$ ,  $\text{HCl}$ ,  $\text{H}_2\text{S}$ ; and
- Volatile (alkali) metals

The clean-up system will first remove the dust particles at temperatures  $> 400$  deg C to avoid condensing tars and water. Cyclones will be used to remove these dust particles. Tars are removed next at temperatures above the water dew point. Inorganic impurities can be removed in an aqueous scrubber.

Tar removal is accomplished in a two-stage scrubber utilizing a special scrubbing oil. The heavy tars are removed in the first scrubber, condensed, separated from the scrubbing oil and recycled to the combustor. The light tars are similarly scrubbed with a different scrubbing oil. The light tars are separated from the scrubbing oil and also recycled to the combustor. Recycling of the tars to the combustor contributes to the energy efficiency of the gasification process and further reduces potential  $\text{NO}_x$  emissions from the combustor. This is due to the tendency of the tars to preferentially react with oxygen, rather than nitrogen in the combustion air. Finally,  $\text{NO}_x$  is further minimized by the manner in which the fuel bound nitrogen is converted to ammonia ( $\text{NH}_3$ ) rather than  $\text{NO}_x$  in the gasifier. As stated earlier, ammonia is one of the inorganic impurities ultimately removed from the product gas in the gas cleanup system.

After the typical impurities have been removed from the product gas, a small slipstream of the gas is further processed in a pressure swing adsorption unit to remove carbon dioxide, thereby concentrating the hydrogen fuel content. Special adsorptive materials are used to preferentially adsorb the target gas species at high pressure. The process then swings to low pressure to desorb the adsorbent material. A concentrated hydrogen gas stream will be produced and transported by pipeline for use by the Florida State University (FSU) research facilities. The off-gas from this process will be blended with the product gas and sent to the power generation unit as a fuel.

#### 2.1.4 Power Generation

##### 2.1.4.1 *Gas Turbines*

The power generation component of the Project is a biomass-fired 42 MW (net) combined cycle generation facility. The combined cycle system will be fired with a product gas derived from wood waste biomass through the proprietary gasification process discussed earlier. Power will be generated by two Solar Model T-130 combustion turbines (CTs), with a maximum heat input of 145 MMBtu/hr (LHV) for each CT when firing product gas (100 percent capacity, 59°F). The two gas turbines will produce approximately 14.8 MW each. The projected heat rate for the power generation facility, including the product gas process, is estimated at 7,200 Btu/kW-hr.

A start-up compressor will be provided to supply high pressure natural gas to start up the gas turbines. As stated earlier, it is estimated that there will be approximately 6 startups per year. Therefore, no more than 750 hours of operation on natural gas are requested per year. The gas turbine fuel feed will be switched over to product gas when the turbines are operating in a stabilized condition. Product gas from gas cleanup at approximately 110° F and 10 psig will be split to the two compression and gas turbine trains. The product gas will be compressed in a two-stage compressor to feed each gas turbine.

##### 2.1.4.2 *Duct Burners (DBs)/Heat Recovery Steam Generators, HSRG*

Each of the gas turbine exhaust streams will be routed to a dedicated HSRG, to recover the energy in the gas turbine exhaust stream. Steam generated in the two HSRG units will be combined with steam generated in the gasifier island and sent to a steam turbine generator. Duct burners within each of the HSRG units (rated at ~28 MMBtu/hr each) will be started up with fuel from a slip-stream on the



product gas compressor. The exhaust from each HSRG is routed to a selective catalytic reduction (SCR) system for NO<sub>x</sub> removal and then to a stack for discharge to the atmosphere.

Aqueous ammonia is added to the SCR for the NO<sub>x</sub> removal reaction. Aqueous ammonia will be delivered by rail car. The rail car storage vessel will remain onsite until a replacement is needed. There will be negligible ammonia emissions from rail car breathing losses.

#### *2.1.4.3 Steam Turbine*

The high-pressure steam generated using the HRSG's will be piped to a steam turbine generator to produce approximately 20.7 MW at an average atmospheric temperature of 59° F. Additional onsite power will be required for the power island and for compression, as well as for product gas cleanup, the gasifier process and the fuel yard. The parasitic electrical loads are estimated to be 8.3 MW. Therefore, the net electrical power available at an average atmospheric temperature of 59° F is approximately 41.4 MW.

### 2.1.5 Utilities and Infrastructure

#### *2.1.5.1 Auxiliary Boiler*

A natural gas-fired auxiliary boiler will provide steam as the start-up conveying medium to begin olivine circulation through the gasifier. The steam also aids in increasing the gasifier temperature to 400 deg F so olivine circulation can be started. Additional steam will be used to preheat the steam turbine generator during start-up. The boiler, rated at approximately 62 MMBtu/hr, will be operated for less than 500 hours per year.

#### *2.1.5.2 Cooling Tower*

Cooling towers will be required for the steam turbine and for the cooling of compressor gases. The wet surface air condenser (~ 7,050 gallons per minute [gpm]) is the condenser for the steam turbine provided in the project and employs a different technology than a traditional surface heat exchanger (condenser) and cooling tower. The traditional steam turbine heat exchanger (condenser) and cooling tower employ a two-stage method for condensing the steam for both latent and sensible heat rejection. The wet surface air condenser uses one stage that is latent heat rejection. This provides a closer

approach to the wet bulb temperature than other methods and is more thermally effective. The air is drawn over the surface of the steam condenser tubes which are sprayed with recirculating water.

In a traditional cooling tower, such as the one to be used for cooling of compressor gases, the cooling water is sprayed onto surfaces and cooled by evaporation of air drawn across the surfaces. This water (~ 3,800 gpm) is then used in a heat exchanger to cool or condense the fluid. The mechanics of the two different types of equipment account for the difference in their drift rates. Particulate emissions from each of the two cooling towers will be controlled by specifying drift eliminators that will result in a low drift rate (0.002 and 0.005 percent drift, respectively).

### *2.1.5.3 Flare System*

A safety vent and flare system, located downstream of the heat recovery section of the gasification plant, provides a means for emergency venting of the product gas to a flare. There are three operating conditions under which the flare system may potentially be needed: startup, planned shutdown and emergency shutdown (i.e., in the event of a gasifier trip). The flare system is provided with a pilot fuel to continuously operate the flare pilots. The large combustion chamber in each of the two flares provides a stable environment to burn the gas produced during process upsets.

## **2.2 Proposed Operating Modes**

### **2.2.1 Startup and Shutdown Modes**

The expected startup and shutdown procedures for the Project are presented in the following paragraphs. The procedures address operation of two separate components of the Project: 1) the gasification process and, 2) the power block. A full description of the procedures is not provided here, as it contains much proprietary information not germane to air emissions. A summary of estimated annual emissions from startups and shutdowns is presented in Table 2-2.

#### *2.2.1.1 Gasifier Operation*

Emissions vary depending on whether the system is in start-up, normal operation or shutdown mode. The modes are discussed individually in the following paragraphs.

Start-up. During start-up, gasifier offgas is routed to the flare. The gasifier and combustor systems are heated to the desired temperature using natural gas-fired burners. The combustor burner is rated at 17 MMBtu/hr and the gasifier burner is rated at 25 MMBtu/hr. Sparging and fluidizing flow is started to begin circulating sand and to bring the sand inventory to the desired temperature. As wood feedstock flow is started, the burner duty is reduced. When the gasifier is in a partial oxidation mode, the gasifier air flow is reduced as the gasifier reaction provides the gas velocity required for sand circulation. Steam flow and feedstock flow are ramped up to design rates to avoid overheating. When steam and wood rates have stabilized and the oxygen content in the produce gas is near zero, the product gas can be rerouted from the flare to the gas clean-up system.

Shutdown. There are two shutdown scenarios:

- Emergency shutdown for power outage
- Routine Shutdowns for annual turnarounds and unanticipated, but orderly short shutdowns

The routine shutdowns are of two types:

- Short shutdowns followed by “hot” starts, where the refractory lined vessels and ductwork remain hot and do not require slow heat up rates;
- Longer shutdowns, where the refractory lined vessels and ductwork cool down to the point where slow reheating is required. This typically will happen twice a year, with refractory rework part of the list of tasks to be performed during the shutdown.

Estimates of emissions for shutdowns are done only for NO<sub>x</sub> and PM, since the emissions for the other constituents, such as VOC and SO<sub>x</sub> are already very low.

Emergency shutdown is defined as total loss or shutdown of incoming electrical power, so that all the process motors stop in a few seconds. Another term used to describe this is an emergency electrical trip. Emergency backup electrical power will be available to provide electrical power to the process control system, and a limited number of other electrical users. In general, gas flow through the plant will ramp down rapidly to zero in a space of 3 to 4 minutes.

An integral part of the emergency shutdown system is the inert gas purging system. This system provides for storage of five times the volume of the gasifier and its associated cyclones. Upon an emergency trip, the product gas will be routed to the flare for several minutes, until the flowrate of

gas drops off to essentially zero. At this point, the inert gas system is activated by the emergency electrical power system, and forces an inert gas through the gasifier and its cyclones in sufficient volume that any combustible gases in the vessels are reduced in concentration. The reduction in the concentration is sufficient to dilute the combustible gases below their lower explosive limit in an ambient air environment. An ancillary aspect is to reduce the concentration of oxygen in the gasifier equipment to a level where it will not support combustion, which is nominally below a 5 percent by volume concentration.

Typically, the inert gas system will contain nitrogen at elevated pressure in the gaseous state, so that the full volume of the inert gas system can be charged through the gasifier and its associated equipment in less than one minute. Specifics on this system are currently the subject of preliminary engineering design. Such an emergency shutdown has an unknown frequency of occurring, since it can be tripped by natural phenomena such as a thunderstorm.

For an emergency shutdown using inert gas, the gas should be flared to purge the system of flammable gases. During the initial part of the flaring, there will be a substantial flow of flammable gas to the flare, followed by a rapid decrease in the rate of burning flared gas as it is displaced by inert gas. There will be some continued production of gases and pyrophoric char in the gasifier after the initial purging of the vessels with inert gas. Continued purging with sparge gas – inert gas with less than 5 percent oxygen - will be performed, and the CO and CO<sub>2</sub> levels monitored. The drop in the CO and CO<sub>2</sub> levels to steady, low levels will indicate that the residual materials in the gasifier that could burn, have been burned out by the sparge gas.

Routine shutdowns will generally occur more often over a year than emergency shutdowns, and are planned in advance and thus are orderly. These are short shutdowns that do not require cooling of the refractory vessels. Duration can be from minutes to a number of hours. The basic sequence for the gasifier is:

- Prepare system for shutdown by reducing wood flowrate to 50 percent of design rate.
- Start the gasifier blower, opening the bypass to minimize initial airflow into the gasifier.
- Turn off the wood flow, and monitor the product gas flowrate, and CO and CO<sub>2</sub> composition of the product gas.
- Gradually increase the gasifier blower airflow to the gasifier, using the CO and CO<sub>2</sub> levels to determine when all the wood and carbon have been burned out of the gasifier.

- At the same time, gradually reduce the steam flow to the distributors until it is reduced to zero.
- Maintain an upward adequate airflow velocity during the transition from steam to air.
- Stop airflow to the gasifier when the CO and CO<sub>2</sub> levels indicate all the carbon has been burned out of the gasifier.

The combustor has no sequence; airflow is maintained at the full design flowrate to ensure fluidization. The combustor blower is turned off when the gasifier blower is turned off.

Wood NO<sub>x</sub> emissions during the shutdown will occur for a 3 to 4 minute period while the wood is being burned out with air. For 3 minutes, the amount of wood will be at 50 percent of the feedrate, which is about 30,000 lb/hr, or 500 lb/minute. Under the worst case conditions mentioned in AP-42, of 33 lb/hr NO<sub>x</sub> per ton of feedstock (Table 1.1.3 in AP-42, for a bituminous cyclone furnace), the NO<sub>x</sub> emissions thus could be as high as 8.25 lb/minute. For three minutes, this results in about 25 lbs of NO<sub>x</sub>. Assuming four such shutdowns during the year, the NO<sub>x</sub> emissions from the wood will be on the order of 100 lb/yr (0.05 tpy).

PM emissions from olivine may occur during this period from the gasifier, since the circulation of olivine will still be occurring, although at reduced rates. Determining the exact amount of PM emissions during the routine shutdown is a complex calculation. However, if it is assumed that the entire amount of olivine in the system inventory is lost out the flare stack during this period, the maximum potential loss can be calculated. Attrition tests have indicated that the attrition loss of olivine from a recirculating olivine system is about 0.1 percent of the total inventory over a 120 day operating period. Since the amount of time for the turnaround shutdown and cool off will be at most one day, the total amount of olivine which could be lost during a single day is on the order of 0.1 percent/120 or 0.0008 percent of the olivine inventory. The inventory is estimated to be on the order of 30,000 lbs. An 0.0008 percent loss results in 0.24 lbs. The actual amount should be less, since the recirculation of olivine will not go on for a full day.

For turnaround shutdown, the sequence here is the same, except that the gasifier and combustor blowers remain on to help cool down the equipment faster. Their flow rates are reduced to where the cooling rate on the refractory is less than 100° F/hr. There is no fired equipment used during this final period, so there are no NO<sub>x</sub> or VOC emissions from combustion. The emissions will be about the same as listed above for wood NO<sub>x</sub> emissions.

Since there are two turnaround shutdowns per annum, the NO<sub>x</sub> emissions from the wood during turnaround shutdown should be no more than about 50 lbs/yr, and in all probability will be less than one-half that amount. PM emissions from olivine may occur during this period from the gasifier, since the circulation of olivine will still be occurring, although at reduced rates.

Since the turnaround shutdown will go on for a much longer period than a routine shutdown, the amount of emissions expected should be higher. However, the estimate already developed assumes that all the olivine is lost, and it uses a 24 hour period as a basis. This is so conservative that this approach is reused to estimate the amount lost during the turnaround, then increased by a factor of 10 to consider the longer period of time the turnaround shutdown runs its blowers. The inventory was estimated to be on the order of 30,000 lbs. An 0.0008 percent loss results in 0.24 lbs. Multiplying this by ten yields 2.4 pounds or, for two annual turnarounds, 5 pounds per year.

Therefore, based on the startup and shutdown procedures described above, it is requested that up to 4 hours of allowable excess emissions be provided in a 24 hour period to address anticipated emissions during startup and shutdown events.

#### *2.2.1.2 Power Block Operation*

Emissions calculations for the startup and shutdown emissions from the power block, as well as the gasification operation are presented in Table 2-1. The start-up and shutdown sequencing required for the biomass gasification combined cycle operation will require an excess emission allowance greater than two hours provided under the FDEP rules. During cold start-up, the operating load of the CTs is limited by the amount of steam that can be accepted by the steam turbine and will result in excess emissions. The excess emission allowance requested for the power block is similar to that of other combined cycle projects, with the exception that this is a gasification process. The proposed condition for power block follows:

*"Excess Emissions Allowed from Combined Cycle Combustion Turbines: As specified in this condition, excess emissions resulting from startup, shutdown, fuel switches and documented malfunctions are allowed provided that operators employ the best operational practices to minimize the amount and duration of emissions during such incidents. A "documented malfunction" means a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail. For each gas turbine/HRSG system, excess emissions resulting from startup, shutdown, or documented malfunctions shall not exceed two hours in any 24-hour period except for the following specific cases.*

- a. *Steam Turbine/HRSG System Cold Startup:* For cold startup of the steam turbine system, excess emissions from any gas turbine/HRSG system shall not exceed four (4) hours in any 24-hour period. A cold "startup of the steam turbine system" is defined as startup of the 2-on-1 combined cycle system following a shutdown of the steam turbine lasting at least 48 hours.
- {Permitting Note: During a cold startup of the steam turbine system, each gas turbine/HRSG system is sequentially brought on line at low load to gradually increase the temperature of the steam-electrical turbine and prevent thermal metal fatigue. Note that shutdowns and documented malfunctions are separately regulated in accordance with the requirements of this condition.}*
- b. *Gas Turbine/HRSG System Cold Startup:* For cold startup of a gas turbine/HRSG system, excess emissions shall not exceed four hours in any 24-hour period. "Cold startup of a gas turbine/HRSG system" is defined as a startup after the pressure in the high-pressure (HP) steam drum falls below 450 psig for at least a one-hour period.
- c. *Steam Turbine/HRSG System Warm Startup:* For warm startup of the steam turbine system, excess emissions from any gas turbine/HRSG system shall not exceed three (3) hours in any 24-hour period. "Warm startup of the steam turbine system" is defined as startup of the 2-on-1 combined cycle system following a shutdown of the steam turbine lasting more than 8 hours and less than 48 hours.
- d. *Shutdown Combined Cycle Operation:* For shutdown of the steam turbine system, excess emissions from any gas turbine/HRSG system shall not exceed three (3) hours in any 24-hour period.
- e. *Fuel Switching:* For fuel switching, excess emissions shall not exceed two (2) hours in any 24-hour period.

As authorized by Rule 62-210.700(5), F.A.C., the above conditions allow excess emissions for each CT only for specifically defined periods of startup, shutdown, fuel switching and documented malfunction of the gas turbines or the SCR systems. [Design; Rules 62-212.400(BACT) and 62-210.700, F.A.C.]

### 2.2.2 Combined Cycle Operation

The Project will be configured as a 2-on-1 combined cycle unit for base load service. The CTs will use combustion technology when firing product gas and natural gas (during startup) to minimize NO<sub>x</sub> formation. An SCR system will be installed in each HRSG to further reduce NO<sub>x</sub> emissions. Product gas will be the primary fuel and natural gas will be limited to the equivalent of 750 hours per year (hr/yr) to address startups.

For the Solar T-130 CTs, the maximum heat input is 147 MMBtu/hr (LHV) for each CT when firing product gas or natural gas (100 percent capacity, 59°F). The corresponding fuel usage is about 333,333 cubic feet per hour (cf/hr) of product gas (based on a heating value of 435 Btu/cf- LHV) or about 148,000 cf/hr of natural gas for each CT (based on a heating value of 980 Btu/cf- LHV). Maximum potential annual fuel usage at 59°F turbine inlet temperature would be about 5.8 billion cubic feet per year (cf/yr) of product gas for the 2-on-1 combined cycle unit using the Solar T-130 Class CTs. Assuming no more than 750 hr/yr of natural gas-firing for startups, annual natural gas usage would be approximately 225 million cf/yr. This represents approximately 6 startups per year and less than 10 percent of total operating hours. Of course, for every hour of natural gas firing, there will be one hour less of product gas firing reflected in the above figures.

Each of the two duct burners, one for each HRSG, will have a maximum product gas firing rate of 28 MMBtu/hr. The hourly fuel usage for each duct burner is about 64,400 cf/hr (based on a product gas heating value of 435 Btu/cf—LHV). The maximum potential annual product gas usage for the duct burners is calculated to be about 1.1 billion cf/yr (based on both DBs operating for 8,760 hr/yr). Product gas will be the only fuel fired in the duct burners. Plant performance for each of the CTs under consideration for the Project was developed for product gas-firing at 100 percent load and turbine inlet temperatures of 25°F, 59°F and 95°F.



### 3.0 PROPOSED SOURCE EMISSIONS AND CONTROLS

Estimated maximum hourly emissions, annual emissions and proposed control technology information representative of each emission unit during normal operation are provided in the following sections. Table 3-1 provides a summary of total project emissions, including mercury and other hazardous air pollutants. Individual process units were described in detail in Section 2.0 of this report. The following is a summary listing of the process units considered in this emissions evaluation:

- Power Block, consisting of CT/DB Trains 1A and 1B;
- Gasifier Combustor
- Material Handling (i.e., feedstock conveying and storage);
- Feedstock Dryer;
- Auxiliary Boiler;
- Flare Systems; and
- Cooling Towers

The above-listed emission units can be located on Figure 2-3 (Overall Process Schematic) and referenced to ID Nos. 1 through 7.

#### 3.1 Power Block

The CT/HRSG case operating at base-load is presented in Table 3-2 for product gas firing in combined cycle mode. These units are identified as ID Nos. 1A and 1B on Figure 2-3. Plant performance for each of the CTs and DBs was developed for product gas-firing at 100 percent load and turbine inlet temperatures of 25°F, 59°F and 95°F. The maximum short-term emission rates in pounds per hour (lb/hr) generally occur at base load operation at 25°F, where the CT has the greatest output and greatest fuel consumption. The CTs will be equipped to operate concurrent with DB firing in the HRSG. Therefore, this analysis assumes that the maximum short-term emission rate occurs at base load, 25°F operation, with DB firing. On an annual basis, this analysis assumes that the CTs will each operate at an annual average temperature of 59°F, up to 8,760 hours per year. In addition, each DB is assumed to fire up to 8,760 hours per year.

Emissions of CO and VOCs will be minimized through good combustion practices. SO<sub>2</sub> emissions will be minimized through utilization of natural gas during startups and the gas clean-up system on the product gas.

When firing product gas, NO<sub>x</sub> emissions from the turbines and duct burners will be controlled using good combustion techniques and SCR systems, to approximately 27 parts per million or less by volume dry (ppmvd), corrected to 15 percent O<sub>2</sub>. The SCR reactors will be located in each HRSG to provide the proper operating temperature range for the required reaction between ammonia and NO<sub>x</sub> to achieve additional NO<sub>x</sub> reductions. The ammonia handling system will include diluent air blowers (each sized for 100-percent capacity), ammonia flow control and measurement devices, an ammonia/air mixing chamber, distribution header(s), and an ammonia injection grid (AIG). Overall control of the system will be by a distributed control system (DCS).

Emission factors for hazardous air pollutants (HAPs) were evaluated based on AP-42, the U.S. Environmental Protection Agency (EPA) Combustion Turbine Emissions Database, and the combustion turbine Maximum Achievable Control Technology (MACT) standards. The HAP emissions are based on the April 2000 revision of EPA's AP-42 emission factors for stationary combustion turbines. CT/DB HAP emissions are presented in Table 3-3. It is assumed that the product gas composition, relative to the composition of natural gas, allows for a similar application of these factors.

### **3.2 Gasifier/Combustor System**

Table 3-4 provides a summary of emission estimates from the gasifier/combustor system. This emission point is identified as ID No. 2 on Figure 2-3. A schematic diagram of the gasification process was previously provided in Figure 2-5. The gasifier, combustor, cyclones and baghouse are the primary equipment components of the gasification process. In addition, there are small natural gas-fired start-up burners associated with the gasifier and combustor. These small burners are more fully described in the section addressing startup emissions.

Flue gas from the combustor flows through an additional cyclone, heat recovery exchangers and a baghouse before exhausting to the atmosphere. Product gas from the gasifier is directed to the gas clean-up system for removal of impurities prior to utilization in the two Solar Model T-130 combustion turbine generators (CTs).

The emissions produced by the combustor have been estimated based on the use of the same emission factors as anthracite coal burned in a conventional fluidized bed combustor boiler.<sup>1</sup> Anthracite was chosen because it has a higher carbon content and lower volatile content than lower ranked coals. Since nearly all the volatile components of the biomass are removed in the gasification process and the resultant char is nearly all carbon and ash, anthracite is a reasonable estimate without specific test data.

While the conventional AP-42 factor is considered conservative, char combustion NO<sub>x</sub> emissions will be inherently lower because combustion in the combustor will take place at reduced excess air levels as compared to a traditional fluidized bed boiler, which can run 10 to 20 percent excess air by comparison. Based on information in a 1989 Battelle Report, excess air in the combustor was approximately 0.5 percent to 2.5 percent. According to AP-42 Chapter 1, Section 1.1 for Bituminous and Subbituminous Coal Combustion, low excess air combustion results in a 10 percent to 20 percent reduction in NO<sub>x</sub> emissions. The upper range of the control efficiency was applied to the char combustion emission factor based on the extremely low levels of excess air in the combustor as presented in the Battelle Report. Note that the anthracite coal combustion section did not discuss the impact of low excess air on NO<sub>x</sub> emissions. However, it is assumed that the reductions discussed in relation to bituminous and subbituminous would also apply to char combustion.

SO<sub>x</sub> emissions are a combination of sulfur dioxide, SO<sub>2</sub>, with traces of SO<sub>3</sub>, sulfur trioxide. Typically, less than 0.1 percent sulfur would be expected in the feedstock. Sulfur, which goes into the product gas or the combustor flue gas, is considered to be primarily derived from the decomposition of organic sulfur sources. In the product gas, the primary sulfur-containing constituent is H<sub>2</sub>S, while in the combustor flue gas it will be SO<sub>2</sub>. Organic sulfur in the amino acids in the biomass typically runs at a concentration of about 10 percent that of the nitrogen content of the amino acids. From vendor analyses received by BG&E, sulfur concentrations average around 0.01 to 0.04 percent. For instance, the emission estimate based on a sulfur content of 0.04 percent sulfur would have organic sulfur emissions at 10 percent of this, or 0.004 percent.

Filterable PM is that material which will ultimately exit the baghouse. Condensable PM consists of fine droplets, typically sulfates and nitrates. Condensables are not significant in the analysis, as the constituents that would comprise condensable PM are controlled in the reactions between the gasifier

---

<sup>1</sup> AP-42 Chapter 1, Section 1.2 for Anthracite Coal Combustion.

and the combustor, as well as the downstream gas cleanup system. Emissions from the gasifier combustor system are provided in Table 3-4.

### **3.3 Material Handling System Description**

Emission estimates from the material handling system are presented in Table 3-5. This component of the process operation is depicted by ID No. 7 on Figure 2-3. In addition, a more detailed process schematic of the handling system was presented in Figure 2-4. Finally, the ash and olivine transfer and storage systems are depicted in Figure 2-5. Woody biomass feedstock preparation will occur at a remote site that will be owned and operated by others. A description of the material handling system was provided earlier. Emissions are primarily associated with the transport and storage of the biomass feedstock on the site. The feedstock received will have a moisture content of 30 to 40 percent, minimizing the potential for fugitive dust. In addition, all conveying systems will be enclosed and transfer points equipped with bin vent and/or baghouse controls. The feedstock storage building is proposed to be under roof and mostly enclosed, except for an open area that allows for feedstock ventilation.

### **3.4 Feedstock Dryer**

The dryer is depicted as ID No. 3 on Figure 2-3. Emission estimates for the feedstock dryer are presented in Table 3-6. The dryer will use waste heat (i.e., no combustion involved) at a temperature of ~ 175 degrees F and a flow rate of ~110,000 scfm. It is assumed that the feedstock throughput will be approximately 1,000 wet tons per day of wood (based on 30 percent moisture), which would produce 730 tons per day of feed to the gasifier (dry basis).

### **3.5 Auxiliary Boiler**

Table 3-7 presents estimated performance and emissions information for the future auxiliary boiler. This emission unit is designated as ID No. 4 on Figure 2-3. Provisions for an auxiliary boiler are included in the Project design to assist in gasifier and combined cycle startup, if required in the future. Once sufficient quality and quantity of steam is available from the HRSG, steam from the auxiliary boiler is not required. The future steam boiler will be a Nebraska Boiler or equivalent with steam capacity of 50,000 lb/hr and a heat input rating of up to 62 MMBtu/hr. It was conservatively assumed

that the annual operation of the auxiliary boiler would be 500 hr/yr or less. The proposed controls for the auxiliary boiler include good combustion practices to limit emissions of NO<sub>x</sub>, CO and VOC. Natural gas is the cleanest fossil fuel and will minimize the emissions of PM and SO<sub>2</sub> to low emission levels. The auxiliary boiler will also limit NO<sub>x</sub> emissions using low-NO<sub>x</sub> burners. The emission limits and control technology proposed will meet the Florida-specific small boiler BACT requirements (62-296.406, F.A.C.), as well as NSPS Subpart Dc.

### **3.6 Flare System**

A safety vent and flare system, located downstream of the heat recovery section of the gasification plant, provides a means for emergency venting of the product gas to a flare. The two proposed flares are depicted as ID Nos. 5A and 5B on Figure 2-3. There are three operating conditions under which the flare system may potentially be needed: startup, planned shutdown and emergency shutdown (i.e., in the event of a gasifier trip). The flare system is provided with a pilot fuel to continuously operate the flare pilots. The large combustion chamber in each of the two flares provides a stable environment to burn the gas produced during process upsets.

The flare type would likely be of an open design with a height close to 30 feet. Estimated emissions are presented in Table 3-8. A typical composition of the product gas to be flared was previously presented in Table 2-1. This would occur in the event of a process trip or malfunction.

### **3.7 Cooling Towers**

Cooling towers will be required for the steam turbine and for the cooling of compressor gases. The wet surface air condenser (~ 7,050 gpm) is the condenser for the steam turbine provided in the project and employs a different technology than a traditional surface heat exchanger (condenser) and cooling tower. In a traditional cooling tower, such as the one to be used for cooling of compressor gases, the cooling water is sprayed onto surfaces and cooled by evaporation of air drawn across the surfaces. This water (~ 3,800 gpm) is then used in a heat exchanger to cool or condense the fluid. Particulate emissions from each of the two cooling towers will be controlled by specifying drift eliminators that will result in a low drift rate (0.002 and 0.005 percent drift, respectively). The mechanics of the two different types of equipment account for the difference in their drift rates. In addition, the total

dissolved solids (TDS) content of the cooling water is very low. Estimated emissions are presented in Table 3-9.

### **3.8 Site Layout, Structures, and Stack Sampling Facilities**

A plot plan of the proposed project was previously presented in Figure 2-2 (Project Site Layout). The approximate dimensions of the buildings and structures are also presented in this figure. Stack sampling facilities will be constructed in accordance with Rule 62-297.310(6), F.A.C.

## **4.0 AIR QUALITY REVIEW REQUIREMENTS AND APPLICABILITY**

The following discussion pertains to the federal, state, and local air regulatory requirements and their applicability to the Project. These requirements must be satisfied before the proposed facility can begin construction and/or operation.

The FDEP regulations require any new source to obtain an air permit prior to construction. New sources must meet the appropriate requirements and obtain the required permits and approvals for air pollution sources, including Prevention of Significant Deterioration (PSD) (if major), applicable New Source Performance Standards (NSPS), applicable National Emission Standards for Hazardous Air Pollutants (NESHAP), Permit to Construct, and Permit to Operate. The requirements for construction permits and approvals are contained in Rules 62-4.030, 62-4.050, 62-4.210, 62-210.300(1), and 62-212.400, F.A.C. Specific emission standards are set forth in Chapter 62-296, F.A.C., and 40 CFR Parts 60, 61, and 63.

FDEP has nonattainment provisions (Rule 62-212.500, F.A.C.) that apply to all major new facilities located in a nonattainment area. In addition, for major facilities that are located in an attainment or unclassifiable area, the nonattainment review procedures apply if the source or modification is located within the area of influence of a nonattainment area. The Project is located in Leon County, which is classified as an attainment area for all criteria pollutants. Therefore, nonattainment new source requirements are not applicable. There are currently no local air quality regulations more stringent than those at the state level.

### **4.1 New Source Review (NSR) Requirements**

Under federal and Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed, and a pre-construction permit issued. As Florida's EPA approved State Implementation Plan (SIP) includes PSD regulations, the Florida Department of Environmental Protection (FDEP) has PSD approval authority.

A "major facility" is defined as any 1 of 28 named source categories that have the potential to emit 100 TPY or more or any other stationary facility that has the potential to emit 250 TPY or more of any pollutant regulated under CAA. "Potential to emit" means the capability, at maximum design

capacity, to emit a pollutant after the application of control equipment. The Project is not classified as any of the listed 28 source categories; therefore, the threshold for a major facility classification is 250 TPY of any pollutant. The project emissions summary, presented in Table 3-1, indicates that all pollutants are below the applicable threshold.

## 4.2 New Source Performance Standards (NSPS)

The New Source Performance Standards (NSPS) are national emission standards, 40 CFR 60, that apply to specific categories of new sources. As stated in the 1977 Clean Air Act Amendments, these standards "shall reflect the degree of emission limitation and the percentage reduction achievable through application of the best technological system of continuous emission reduction the Administrator determines has been adequately demonstrated."

### 4.2.1 NSPS 40 CFR 60 Subpart Da (Electric Utility Steam Generating Units)

This rule applies to combined cycle combustion turbines associated with an integrated gasification combined cycle (IGCC) system if: (1) the turbine is capable of combusting more than 73 MW (250 MMBtu/hr) heat input of fossil fuel (either alone or in combination with any other fuel); and (2) the turbine is designed and intended to burn fuels containing 50 percent (by heat input) or more solid-derived fuel not meeting the definition of natural gas on a 12-month rolling average basis. "Solid-derived fuel" means "any solid, liquid, or gaseous fuel derived from solid fuel for the purpose of creating useful heat and includes, but is not limited to, solvent refined coal, liquefied coal, synthetic gas, gasified coal, gasified petroleum coke, *gasified biomass*, and gasified tire derived fuel." The heat input to each of BG&E's turbines is a nominal 145 MMBtu/hour, which is less than the threshold level of 250 MMBtu/hour. Therefore, this rule does not apply to the combustion turbines. This rule could also apply to the duct burners if the turbines were subject to Subpart Da or if the duct burners themselves had a heat input of more than 250 MMBtu/hour. Because the turbines are not subject to Subpart Da and the maximum heat input rate for each of the duct burners is only 28 MMBtu/hr, this NSPS therefore does not apply to the proposed turbines or the duct burners.



#### 4.2.2 NSPS 40 CFR 60 Subpart Dc (Standards for Small Industrial-Commercial-Institutional Steam Generating Units)

The proposed auxiliary boiler will be an affected facility to which this subpart applies, as it will be constructed after June 9, 1989 and will have a maximum design heat input capacity of 100 million British thermal units per hour (MMBtu/hr) or less, but greater than or equal to 10 MMBtu/hr. The proposed use of natural gas and limited operating hours (i.e., 500 hours per year, or less than a 10 percent capacity factor) will easily allow compliance with the applicable standards.

#### 4.2.3 NSPS for Stationary Combustion Turbines and Duct Burners (40 CFR 60, Subpart KKKK)

EPA promulgated new NSPS for Stationary Combustion Turbines (40 CFR 60, Subpart KKKK) that commence construction after February 18, 2005. This new final rule was effective on July 6, 2006. The stationary combustion turbines subject to Subpart KKKK, 40 CFR 60 (i.e., 10 MMBtu/hr or greater), are exempt from the requirements of 40 CFR 60, Subpart GG for combustion turbines. Heat recovery steam generators and duct burners subject to Subpart KKKK are exempt from the requirements of 40 CFR 60, Subparts Da, Db and Dc for duct burners. The Subpart KKKK emission limits apply not only the combustion turbines but also to emissions from any associated duct burners and heat recovery steam generating units.

NO<sub>x</sub> emissions for these proposed units (i.e., firing fuels other than natural gas, with a heat input > 50 MMBtu/hr and < 850 MMBtu/hr) are limited by Subpart KKKK to 74 ppmvd corrected to 15-percent O<sub>2</sub> (or 3.6 lb/MW-hr). SO<sub>2</sub> emissions are limited to 0.90 lb/MW-hr or 0.60 lb/SO<sub>2</sub>/MMBtu heat input while firing product gas and a sulfur content of no greater than 20 grains of sulfur per 100 standard cubic feet for natural gas-firing. In addition to emission limitations, there are requirements for performance testing and monitoring in 40 CFR Subpart KKKK. There are also applicable notification, reporting, and recordkeeping requirements in the general provisions of 40 CFR Subpart A. These are summarized below:

##### 40 CFR 60.7 Notification and Record Keeping

- (a)(1) Notification of the date of construction - 30 days after such date.
- (a)(3) Notification of actual date of initial start-up - within 15 days after such date.
- (a)(5) Notification of date which demonstrates CEM - not less than 30 days prior to date.

60.7 (b) Maintain records of all start-ups, shutdowns, and malfunctions.

- (c) Excess emissions reports – semi-annually by the 30th day following six-month period (required even if no excess emissions occur).
- (d) Maintain file of all measurements for two years.

#### 60.8 Performance Tests

- (a) must be performed within 60 days after achieving maximum production rate but no later than 180 days after initial start-up.
- (d) Notification of Performance tests at least 30 days prior to them occurring.

#### 4.2.4 NSPS Subpart Eb (Municipal Waste Combustion Units; Commercial)

Subpart Eb applies to new municipal waste combustor units with a combustion capacity of greater than 250 tons per day of municipal solid waste. Qualifying small power production facilities, as defined in section 3(17)(c) of the Federal Power Act, that burn homogenous waste (excluding refuse-derived fuel) for the production of electricity are not subject to Subpart Eb. The owner or operator of such a facility must notify EPA of the exemption and provide supporting documentation. The Project is a qualifying small power production facility and will use only homogenous woody biomass as a feedstock for the gasifier, with a small percentage of it constituting “municipal solid waste” (e.g., yard trimmings). It is estimated that no more than 30 TPD, quarterly average, would be utilized as feedstock. If appropriate, documentation to support this exemption can be provided to EPA and the Department.

#### 4.2.5 NSPS 40 CFR 60 Subpart CCCC (Industrial Solid Waste Incineration Units)

This rule applies to new commercial and industrial solid waste incineration (CISWI) units, although the definition of “commercial and industrial solid waste incineration units” has been vacated and remanded to EPA. (*Natural Resources Defense Council v. EPA*, 489 F.3d 1250 (D.C. Cir. June 2007)). Without this critical definition, applicability of this standard is indeterminable. In addition, “qualifying small power production facilities” and “chemical recovery units” (conversion of hydrocarbon solids to syngas) are both exempt from this rule. Subpart CCCC is therefore not applicable to the Project’s gasifier, at least at this time.

#### 4.2.6 NSPS 40 CFR 60 Subpart RRR (VOC Emissions from SOCOMI Reactor Processes)

According to 60.700(a), this subpart applies to a process unit that produces any of the listed chemicals as a product, co-product, byproduct or intermediate. Product is defined as any compound or chemical listed in 60.707 that is produced for sale as a final product as a chemical or for use in the production of other chemicals or compounds. It also states that co-product, byproducts and intermediates are considered products. Since the Project is not using the product gas to sell as a final product or for use in producing other chemicals or compounds, this regulation does not apply.

#### 4.3 **National Emission Standards for Hazardous Air Pollutants (MACT Standards)**

BG&E's Tallahassee Project is not major for HAPs. The standards under 40 CFR Part 63 are, therefore, not applicable.

#### 4.4 **Florida Rules**

Florida has adopted the NSR program requirements, NSPS and NESHAPs by reference. Therefore, the facility is required to meet the same emissions, performance testing, monitoring, reporting, and record keeping as those described in the previous sections.

##### 4.4.1 Rule 62-296.401, F.A.C., Incinerator Rule

BG&E has determined that Florida's rule applicable to "incinerators" would not apply to this Project. The Department's rules broadly define "incinerator" as a "combustion apparatus designed for the ignition and burning of solid, semi-solid, liquid or gaseous combustible wastes." The Tallahassee unit is expected to use some waste forms of biomass as a feedstock for the gasifier system (e.g., agricultural waste, clean construction and demolition debris, urban yard trimmings, etc.). The gasifier, however, will use a pyrolysis system (absence of air) to convert biomass to product gas, which is not "combustion" or "ignition and burning." Residual char from the pyrolysis system will be combusted in the chamber associated with the gasifier, but the "char" is not a waste. The product gas produced from the gasifier, also not a waste, will subsequently be combusted in the combustion turbines and duct burners. Therefore, no waste is incinerated through a combustion process, and this rule should not apply.

#### 4.4.2 Rule 62-296.410, F.A.C., Carbonaceous Fuel Burning Equipment

Carbonaceous fuel is defined in the Department's rules as solid materials composed primarily of vegetative matter such as tree bark, wood waste, or bagasse. The vegetative matter (biomass) to be used as the feedstock in the primary chamber of the gasifier is not "burned" or combusted. The biomass will be heated with olive in the absence of oxygen without combustion. The resulting "char" will then be combusted in the second chamber of the gasifier, although the material is not a fuel or "vegetative" matter at that point. The primary "fuel burning" is to occur in the combustion turbines and duct burners, however, the fuel is product gas and not a solid. This rule, therefore, does not appear applicable to the Project.

#### 4.4.3 Rule 62-296.416, F.A.C., Waste-to-Energy

The Department's rules define the term "waste-to-energy facility" as a facility that uses controlled combustion to thermally break down solid, liquid, or gaseous combustible solid waste to an ash residue that contains little or no combustible material and that produces electricity, steam, or other energy as a result. The term does not include facilities that primarily burn fuels other than solid waste, even if the facilities also burn some solid waste as a fuel supplement. The term also does not include facilities that burn vegetative, agricultural, or silvicultural wastes, bagasse, clean dry wood, methane or other landfill gas, wood fuel derived from construction or demolition debris, or waste tires, alone or in combination with fossil fuel [Rule 62-210.200(331), F.A.C.]. Because wood waste is being used as the primary feedstock and product gas is being used as the primary fuel, this rule would not apply to the Project.

### **4.5 Other Clean Air Act Requirements**

#### 4.5.1 The Acid Rain Program

The 1990 Clean Air Act Amendments established the Acid Rain Program to reduce the release of acidic deposition precursors, SO<sub>2</sub> and NO<sub>x</sub>. EPA's final regulations were promulgated on January 11, 1993, and included permit provisions (Part 72), allowance system (Part 73), continuous emission monitoring (Part 75), excess emission procedures (Part 77), and appeal procedures (Part 78).

This Acid Rain Program generally applies to all existing and new utility units. "Utility unit" is defined to mean "a unit owned and operated by a utility .... that serves a generator in any State that produces electricity for sale." "Utility" is defined to mean "any person that sells electricity." Under these definitions, BG&E would be considered a "utility" and the proposed combined cycle turbine units would be considered "utility units." There are exceptions to the Acid Rain Program for certain types of units (e.g., small units serving generators with nameplate capacities of less than 25 MWs, pre-1991 small simple cycle combustion turbines, cogenerating facilities, qualifying facilities and independent power producers with contracts in effect as of 1990, solid waste incineration units, etc.), none of which appear applicable to the Tallahassee project. The Acid Rain Program therefore appears applicable to the Project. Accordingly, applications for an Acid Rain permit and a Certificate of Representation are also included in this air permit application package.

#### 4.5.2 Regional Haze

The Department's Best Available Retrofit Technology (BART) rule applies to facilities in existence on August 7, 1977, and that have the potential to emit 250 tons per year or more of any air pollutant (Rule 62-296.340, F.A.C.). The Project does not meet these criteria and therefore the BART rule does not apply. Similarly, the Department's Reasonable Further Progress rule applies to units in existence as of August 30, 1999. Therefore, this rule is also not applicable to the Project (Rule 62-296.341, F.A.C.).

#### 4.5.3 Clean Air Interstate Rule (CAIR)

Generally, the CAIR program applies to stationary boilers and combustion turbines that fire any amount of fossil fuel at any time and serve a generator with a nameplate capacity of more than 25 MWs, producing electricity for sale. As the nameplate capacities of the individual generators proposed for the Project are less than 25 MW, CAIR is not applicable to this Project. Specifically, each of the two combustion turbines are rated at a nominal 14.8 MW and the steam turbine is rated at a nominal 20.7 MW.

#### 4.5.4 Greenhouse Gas (GHG) Rulemaking

The use of biomass is generally recognized as “carbon neutral.”<sup>2</sup> The U.S. EPA found that because biomass fuels are of biogenic origin, it is assumed that the carbon released during the consumption of biomass is recycled as forests and crops regenerate, causing no net addition of CO<sub>2</sub> to the atmosphere.<sup>3</sup> In addition, the Intergovernmental Panel on Climate Change (IPCC) recently found that bioenergy and the use of dedicated energy crops were key climate change mitigation technologies that should be pursued and “could contribute substantially to the share of renewable energy in the mitigation portfolio”.<sup>4</sup>

When biomass is used as a feedstock or a fuel, the carbon involved is on a relatively “short-cycle”—i.e., the carbon dioxide (CO<sub>2</sub>) is produced from the oxidation of current or recently-living biomass. Since the CO<sub>2</sub> was recently in circulation in the atmosphere, there is no net addition of new CO<sub>2</sub> when it is returned to the atmosphere. For example, when the grass in a person’s front yard grows, it removes some CO<sub>2</sub> from the air during photosynthesis and growth. When the yard is mowed, the cut grass decomposes, returning the CO<sub>2</sub> to the atmosphere within days. For other types of biomass, the cycle may take months or even a few years to complete, but the timeframe is still relatively short, and the carbon dioxide released when that biomass is burned or decomposed is not a “new” net addition to the total. The CO<sub>2</sub> balance would be zero. Even when the entire “life cycle” is considered, the use of biomass is still considered carbon neutral.

A complete “life cycle” assessment, which is appropriate for use in considering project’s CO<sub>2</sub> emissions, is where the environmental benefits and impacts are quantified in a cradle-to-grave manner to cover resource consumption and all processes necessary for a power generation system.<sup>5</sup> A life cycle assessment for a biomass facility would include energy and resources used for crop cultivation, preparation, and transportation; construction and operation of the power generation system;

---

<sup>2</sup> Intergovernmental Panel on Climate Change, *Greenhouse Gas Inventory Reference Manual: Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, Vol. 3, p. 6.28 (1997); The Climate Registry, *General Reporting Protocol for the Voluntary Reporting Program, Draft for Public Comment* (October 29, 2007), p. 22 (separate reporting for carbon dioxide emissions from biogenic sources); California Environmental Protection Agency, Air Resources Board, *Staff Report: Initial Statement of Reasons for Rulemaking, Proposed Regulation for Mandatory Reporting of Greenhouse Gas Emissions Pursuant to the California Global Warming Solutions Act of 2006 (Assembly Bill 32)* (October 19, 2007), pp. 5, 12 (carbon dioxide emissions from biomass-derived fuels are to be separately identified during reporting; biomass emissions are generally considered “carbon neutral”).

<sup>3</sup> U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006* (February 22, 2008), Public Review Draft, p. 3-1.

<sup>4</sup> Intergovernmental Panel on Climate Change, *Contribution of Working Group III to the Fourth Assessment Report* (2007), pp. 10, 16.

emissions; and wastes. Such analyses have indicated that biomass-based power generation systems have neutral or very minimal CO<sub>2</sub> emissions, in part because, as mentioned above, trees and plants absorb CO<sub>2</sub> as they grow and also because CO<sub>2</sub> can accumulate in the soil.<sup>6</sup> When waste biomass is used, the greenhouse gas emissions are further reduced because of the avoided methane generation associated with biomass decomposition that would have occurred had the waste biomass not been used by the power generation system.<sup>7</sup> This results in a net reduction of greenhouse gas emissions.

---

<sup>5</sup> Governor's Action Team on Energy and Climate Change. *Phase 1 Report: Florida's Energy and Climate Change Action Plan Pursuant to Executive Order 07-127* (November 1, 2007), p. 24 (life cycle assessments are appropriate).

<sup>6</sup> National Renewable Energy Laboratory, *Life Cycle Assessment Comparisons of Electricity from Biomass, Coal, and Natural Gas*, Margaret K. Mann and Pamela L. Spath (November 2002); National Renewable Energy Laboratory, *Life Cycle Assessment of Biomass Gasification Combined-Cycle System*, Margaret K. Mann and Pamela L. Spath (December 1997); Biomass and Energy 25, *Life Cycle Assessment of a Willow Bioenergy Cropping System*, Martin C. Heller, Gregory A. Keoleian, Timothy A. Volk (2003), pp. 147-165.

<sup>7</sup> National Renewable Energy Laboratory, *Life Cycle Assessment Comparisons of Electricity from Biomass, Coal, and Natural Gas*, Margaret K. Mann and Pamela L. Spath (November 2002).

## **TABLES**



**Table 2-1. Typical Product Gas Composition<sup>1</sup>**

<b>Component</b>	<b>Product Gas Composition (Volume %)</b>
Methane	15.61
Ethylene	5.26
Ethane	0.68
Carbon Monoxide	45.8
Carbon Dioxide	11.03
Hydrogen	20.7
Water Vapor	0.22
Hydrogen Sulfide	0.02
Nitrogen	0.68
Heating Value (Btu/scf) LHV	435.4

<sup>1</sup> Analysis provided by SilvaGas

**Table 2-2. Startup and Shutdown Emissions Summary**

Emission Component	Source	Turnaround Shutdowns, TPY	Emergency Shutdowns, TPY	Start-up, TPY	Controlled Emissions, TPY	Total Annual Emissions (TPY)
NOx	Combustion Duct Burner			0.06		
	Gasifier Duct Burner			0.09		
	Char			0.36		
	Wood Combustion			3.56		
	Gasifier Island	0.025	0.05	0.82		
	<b>Total NOx</b>		<b>0.025</b>	<b>0.05</b>	<b>4.89</b>	
PM <sub>10</sub>		0.0025	0.0005	0.51	0.01	<b>0.523</b>
PM		0.0025	0.0005	0.51	0.01	<b>0.523</b>
Based upon information from SilvaGas						

**TABLE 3-1  
BG&E PROJECT SUMMARY OF POTENTIAL AIR EMISSIONS**

<b>Pollutant (TPY)</b>	<b>CTs/DBs (1A &amp; 1B)</b>	<b>Gasifier Combustor</b>	<b>Cooling Tower</b>	<b>Material Handling</b>	<b>Auxiliary Boiler</b>	<b>Flare</b>	<b>Dryer</b>	<b>Total Emissions</b>
SO <sub>2</sub>	71.8	10.7			0.09	0.80		83
PM	63.0	26.7	0.04	24.0	0.03	neg	0.10	114
PM <sub>10</sub>	63.0	26.7	0.04	24.0	0.03	neg	0.01	114
NO <sub>x</sub>	167.4	27.2			1.47	0.70		197
CO	187.6	11.2			1.24	3.80		204
VOC (as methane)	10.9	5.6			0.08	1.50		18
Fluoride	neg	neg						0
Lead	neg	neg						0
Total HAPs	4.0	0.9						5

\* Based on emissions at 59F.

**Table 3-2. Combustion Turbine and Duct Burner Emissions**  
**BGE POWER PLANT STANDARD EMISSIONS**

Annual Hour Basis: 8760

**SOLAR TURBINES**

**Emissions at Full Load Operations**

GTU Fuel (MMBtu/hr LHV)			
Temp F	25	59	95
Each	157.4	146.9	132.4
Total	314.9	293.7	264.8

**HRSIG Duct Burner Emission Rate (lb/MMBtu HHV)**

Nox	0.15
CO	0.08
UHC	0.03
Pm	0.01

**GTU Pm Emission**

0.0413 lb/MMBtu HHV

Rev B: No change in emissions - changes in Silva Steam to reflect reduced fuel production  
 Rev C: Revised Fired Case capacity, added stack dia of 78 inches

**Unfired Duct Duct Burner Case**

Fuel Available 378 MMBtu/hr LHV

Reduction: 90%

EMISSIONS ARE FOR ONE UNIT - TWO REQUIRED																						
		Gas Turbine Outlet (80-100%)						Duct Burner Contribution					After Duct Burner / Before SCR					After SCR (Stack Outlet) Nox Reduction of 90%				
Ambient Temp F	GTU Exh Flow gph	Exh Temp F	Nox ppm	CO ppm	UHC ppm	NH3 ppm	Duct Burner Mass Flow	Nox ppm	CO ppm	UHC ppm	NH3 ppm	Mass Flow gph	Nox ppm	CO ppm	UHC ppm	NH3 ppm	Stack Exh Flow gph	Exh Temp F	Nox ppm	CO ppm	UHC ppm	NH3 ppm
25	425,858	916	325.0	50.0	25.0			0.0	0.0	0.0	0.0	425,858	325.0	50.0	25.0	0.0			32.5	50.0	25.0	9.8
59	403,569	932	325.0	50.0	25.0			0.0	0.0	0.0	0.0	403,569	325.0	50.0	25.0	0.0			32.5	50.0	25.0	9.8
95	368,788	972	325.0	50.0	25.0			0.0	0.0	0.0	0.0	368,788	325.0	50.0	25.0	0.0			32.5	50.0	25.0	9.8
Temp F	25	59	95																			
		gph	197.9	18.6	5.3			0	0	0	0		197.9	18.6	5.3	0.0			19.8	18.5	5.3	2.2
		gph	184.0	17.2	4.9			0	0	0	0		184.0	17.2	4.9	0.0			18.4	17.2	4.9	2.0
		gph	163.4	15.3	4.4			0	0	0	0		163.4	15.3	4.4	0.0			16.3	15.3	4.4	1.8
Temp F	25	59	95																			
		TPY	867.0	81.2	23.2			0	0	0	0		867.0	81.2	23.2	0.0			86.7	81.2	23.2	9.5
		TPY	806.1	75.5	21.5			0	0	0	0		806.1	75.5	21.5	0.0			80.8	75.5	21.5	8.8
		TPY	715.9	67.1	19.1			0	0	0	0		715.9	67.1	19.1	0.0			71.8	67.1	19.1	7.8

**Fired Duct Duct Burner Maximum 56.8 MMBtu/hr LHV Fuel/Duct Burner**

Silva fuel Usage			
Temp F	25	59	95
Total Fuel Available	378.0	378.0	378.0
Fuel/Train	189.0	189.0	189.0
GTU Fuel/Train	157.4	146.9	132.4
HRSIG Fuel/Train	31.50	42.0	56.5

Stack Diameter 78 inches HRSIG Performance per Train (Typ 2)			
Ambient Temp F	Fuel MMBtu/hr	Steam Flow gph	Stack Temp F
25	31.5	75,483	373
59	42.0	83,750	384
95	56.5	98,084	332

Total Available Steam @ Full Load				
Ambient Temp F	HRSIG 1	HRSIG 2	Silva Gas	Total Steam Production
25	75,483	75,483	47,000	197,966
59	83,750	83,750	47,000	214,500
95	98,084	98,084	47,000	239,128

Total Unfired Steam Full Load				
Ambient Temp F	HRSIG 1	HRSIG 2	Silva Gas	Total Steam Production
25	48,549	48,549	47,000	144,098
59	48,033	48,549	47,000	143,582
95	48,547	48,547	47,000	144,094

Reduction: 90%

EMISSIONS ARE FOR ONE UNIT - TWO REQUIRED																						
		Gas Turbine Outlet						Duct Burner Contribution					After Duct Burner / Before SCR					After SCR (Stack Outlet) Nox Reduction of 90%				
Ambient Temp F	GTU Exh Flow gph	Exh Temp F	Nox ppm	CO ppm	UHC ppm	NH3 ppm	Duct Burner Mass Flow	Nox ppm	CO ppm	UHC ppm	NH3 ppm	Mass Flow gph	Nox ppm	CO ppm	UHC ppm	NH3 ppm	Stack Exh Flow gph	Exh Temp F	Nox ppm	CO ppm	UHC ppm	NH3 ppm
25	425,858	916	325	50	25	0	4,981					430,839	278.9	48.7	25.5	0.0	430,839	373	27.9	48.7	25.5	9.7
59	403,569	932	325	50	25	0	8,641					410,210	263.5	48.3	25.6	0.0	410,210	364	26.3	48.3	25.6	9.7
95	368,788	972	325	50	25	0	8,934					377,720	241.5	47.4	25.8	0.0	377,720	352	24.2	47.4	25.8	9.7
Temp F	25	59	95																			
		gph	197.9	18.6	5.3	0	5.24	3.1	1.18	0		203.8	21.7	6.5	0.0				20.4	21.7	6.5	2.6
		gph	184.0	17.2	4.9	0	6.98	4.2	1.57	0		191.9	21.4	6.5	0.0				19.2	21.4	6.5	2.6
		gph	163.4	15.3	4.4	0	9.39	5.6	2.11	0		174.2	20.9	6.5	0.0				17.4	20.9	6.5	2.6
Temp F	25	59	95																			
		TPY	867.0	81.2	23.2	0	0.0	22.9	13.8	5.2	0.0	899.9	95.0	28.4	0.0				89.0	95.0	28.4	11.4
		TPY	806.1	75.5	21.5	0	0.0	30.6	18.3	6.9	0.0	836.7	93.8	28.4	0.0				83.7	93.8	28.4	11.4
		TPY	715.9	67.1	19.1	0	0.0	41.1	24.7	9.2	0.0	757.0	81.7	28.4	0.0				76.7	81.7	28.4	11.4

72

**Table 3-3. Hazardous Air Pollutant Emission Factors and Emissions for the BG&E Project  
Natural Gas and Product Gas-Firing**

Parameter	Emission Rate (lb/hr) firing Gas for Operating Conditions of Base Load (1)			Natural Gas Maximum Annual Emissions (TPY) (2)	
	25 F	59 °F	95 F	59 °F 1	59 °F 2
	Ambient Temperature (°F):			CT/HRSG	CTs/HRSGs
HIR (MMBtu/hr)	157	147	132		
<b>HAPs (Section 112(b) of Clean Air Act)</b>					
1,3-Butadiene	0.000068	0.000063	0.000057	0.0003	0.0006
Acetaldehyde	0.0063	0.0059	0.0053	0.0257	0.0515
Acrolein	0.0010	0.0009	0.0008	0.0041	0.0082
Benzene	0.0019	0.0018	0.0016	0.0077	0.0154
Ethylbenzene	0.0050	0.0047	0.0042	0.0206	0.0412
Formaldehyde	0.403	0.427	0.403	1.8712	3.7423
Naphthalene	0.00020	0.00019	0.00017	0.0008	0.0017
Polycyclic Aromatic Hydrocarbons (PAH) (3)	0.00035	0.00032	0.00029	0.0014	0.0028
Propylene Oxide	0.0046	0.0043	0.0038	0.0187	0.0373
Toluene	0.0052	0.0048	0.0044	0.0212	0.0425
Xylene	0.010	0.009	0.008	0.0412	0.0824
Antimony	0.0	0.0	0.0	0.00	0.0000
Arsenic	0.0	0.0	0.0	0.00	0.0000
Beryllium	0.0	0.0	0.0	0.00	0.0000
Cadmium	0.0	0.0	0.0	0.00	0.0000
Chromium	0.0	0.0	0.0	0.00	0.0000
Lead	0.0	0.0	0.0	0.00	0.0000
Manganese	0.0	0.0	0.0	0.00	0.0000
Mercury	0.0	0.0	0.0	0.00	0.0000
Nickel	0.0	0.0	0.0	0.00	0.0000
Selenium	0.0	0.0	0.0	0.00	0.0000
HAPs (Total)	0.438	0.460	0.432	2.01	4.0

(1) Emissions based on the following emission factors and conversion factors for firing natural gas:

Emission Factors	Value	Reference
Sulfuric acid mist	5 %	Conversion of SO <sub>2</sub> to SO <sub>3</sub> in gas turbine
1,3-Butadiene (a)	0.43 lb/10 <sup>12</sup> Btu;	AP-42, Table 3.1-3. EPA 2000
Acetaldehyde	40 lb/10 <sup>12</sup> Btu;	AP-42, Table 3.1-3. EPA 2000
Acrolein	6.4 lb/10 <sup>12</sup> Btu;	AP-42, Table 3.1-3. EPA 2000
Benzene	12 lb/10 <sup>12</sup> Btu;	AP-42, Table 3.1-3. EPA 2000
Ethylbenzene	32 lb/10 <sup>12</sup> Btu;	AP-42, Table 3.1-3. EPA 2000
Formaldehyde	0.091 ppmvd @15% O <sub>2</sub>	(see Table 15a)
Naphthalene	1.3 lb/10 <sup>12</sup> Btu;	AP-42, Table 3.1-3. EPA 2000
Polycyclic Aromatic Hydrocarbons (PAH)	2.2 lb/10 <sup>12</sup> Btu;	AP-42, Table 3.1-3. EPA 2000
Propylene Oxide (a)	29 lb/10 <sup>12</sup> Btu;	AP-42, Table 3.1-3. EPA 2000
Toluene	33 lb/10 <sup>12</sup> Btu;	AP-42, Table 3.1-3. EPA 2000. Database
Xylene	64 lb/10 <sup>12</sup> Btu;	AP-42, Table 3.1-3. EPA 2000
Antimony	0.00E+00	
Arsenic	0.00E+00	
Beryllium	0.00E+00	
Cadmium	0.00E+00	
Chromium	0.00E+00	
Lead	0.00E+00	
Manganese	0.00E+00	
Mercury	0.00E+00	
Nickel	0.00E+00	
Selenium	0.00E+00	

(a) Based on 1/2 the detection limit; expected emissions are lower.

(2) Annual emissions based on ambient temperature of 59 °F firing gas for following hours.

8,760

(3) Assumed to be representative of Polycyclic Organic Matter (POM) emissions, a regulated HAP.

**Table 3-3. (continued) Estimated HAP Emissions from Gasification Process**

<b>HAP</b>	<b>Feed (ug/g)</b>	<b>Feed (lb/hr)</b>	<b>Emission (lb/hr)</b>	<b>Emissions, (TPY)</b>
Mercury	6.7 x 10 <sup>-6</sup> lb/ton wood	60,800	0.0002	0.0009
Arsenic	90	5.4	0.00081	0.003443
Cobalt	4	0.24	0.000036	0.000153
Molybdenum	16	0.96	0.000144	0.000612
Silver	5	0.3	0.000045	0.000191
Thallium	26	1.56	0.000234	0.000995
Zirconium	3.4	0.204	3.06E-05	0.00013
Sodium	4726	283.56	0.042534	0.18077
Potassium	4299	257.94	0.038691	0.164437
Cerium	2	0.12	0.000018	7.65E-05
Lithium	<1	0	0	0
Calcium	8721	523.26	0.078489	0.333578
Magnesium	4790	287.4	0.04311	0.183218
Barium	173	10.38	0.001557	0.006617
Strontium	152	9.12	0.001368	0.005814
Phosphorus	365	21.9	0.003285	0.013961
Antimony	4	0.24	0.000036	0.000153
Chromium	492	29.52	0.004428	0.018819
Copper	1239	74.34	0.011151	0.047392
Lead	66	3.96	0.000594	0.002525
Nickel	26	1.56	0.000234	0.000995
Tungsten	< 0.5	0	0	0
			<b>Total</b>	<b>0.965</b>

**Table 3-4. Gasifier Combustor Emissions**


---

<u>Performance</u>	
Product Gas Produced (MMBtu/hr)	376
Quantity of Residual Char (%)	33.0
Heat Input from Residual Char (MMBtu/hr)	124
Char Heating Value (Btu/lb)	14,500
Hours of Operation	8,760
 <u>Stack Parameters</u>	
Diameter (ft)	TBD
Height (ft)	TBD
Temperature ( °F)	TBD
Velocity (ft/sec)	TBD
Flow (acfm)	TBD
 <u>Emissions</u>	
SO <sub>2</sub> -Basis is feedstock organic sulfur content (%)	0.004
Feedstock Rate (dry TPD)	730
(lb/hr)	2.4
(tpy)	10.7
NO <sub>x</sub> - (lb/MMBtu) Battelle Report, 1989	0.05
(lb/hr)	6.2
(tpy)	27.2
CO - (lb/ton) AP-42, Table 1.2-2	0.6
Char produced (ton/hr)	4.3
(lb/hr)	2.6
(tpy)	11.2
VOC - (lb/ton) AP-42, Table 1.2-6	0.3
Char produced (ton/hr)	4.3
(lb/hr)	1.3
(tpy)	5.6
PM/PM10-(lb/ton) AP-42, Table 1.2-3	71.2
Char produced (ton/hr)	4.3
(lb/hr)	304.6
Cyclone/Baghouse Efficiency (%)	98.0
(tpy)	26.7

---

**Table 3-5. Material Handling Emissions**

<b>Vibrating Grate Baghouse (FS001)</b>			
Parameters		Value	Units Source
Flow Rating of Baghouse (V)		2,300	scfm ASSUMED
Emission Factor (EF)		0.03	gr/dscf Default EF from 62-296 711 FAC
Emission Rate (ER)		2.82	tpy ER = EF * V * 60 * 8760 / 2000 / 7000

<b>Front End Loader Fugitive PM<sub>10</sub> Emissions (FS002)</b>			
Parameters		Value	Units Source
<b>Vehicle Data</b>			
Vehicle weight (W <sub>L</sub> )	Loaded	30.00	ton ASSUMED
(W <sub>U</sub> )	Unloaded	27.25	ton ASSUMED
(W <sub>Avg</sub> )	Average	28.625	ton W <sub>Avg</sub> = (W <sub>L</sub> + W <sub>U</sub> ) / 2
Material throughput (M)	Annual	365,000	tons-yr ASSUMED
Vehicle capacity (C)		2.8	ton C = W <sub>L</sub> - W <sub>U</sub>
Number of vehicles (V)	Annual	132,727	vehicles V = M / C
Distance traveled/vehicle/route (D)	Per trip	0.076	miles Assume 400 feet (width of building across and back)
VMT (D <sub>VMT</sub> )	Annual	10,051.1	VMT/yr D <sub>VMT</sub> = D <sub>T</sub> * V
<b>General Site Characteristics</b>			
Days of precipitation greater than or equal to 0.254 mm (P)	Annual	0	days Located under covered area
Silt content (s)		8.4	% AP-42 13.2.2 Unpaved Roads
Particle size multiplier, PM <sub>10</sub> (k)		1.5	lb-VMT AP-42 13.2.2 Unpaved Roads
<b>Emission Factor Equation</b>			
FF <sub>UnC</sub> (lb-VMT)			$FF_{UnC} = k * s^{1.2} * (W_{Avg}/3)^{0.11} * (365 - P)^{0.385}$
AP-42 13.2.2 eq. 1a			
Calculated PM <sub>10</sub> Emission Factor Uncontrolled (EF <sub>UnC</sub> )	Annual	3.00	lb-VMT AP-42 13.2.2 eq. 1a
<b>Calculated PM<sub>10</sub> Emission Rates</b>			
Uncontrolled Emissions (E <sub>UnC</sub> )	Annual	15.1	tpy E <sub>UnC</sub> = EF <sub>UnC</sub> * D <sub>VMT</sub> / 2000

<b>Stacker Transfer Point Baghouse (FS003)</b>			
Parameters		Value	Units Source
Flow Rating of Baghouse (V)		1,000	scfm ASSUMED
Emission Factor (EF)		0.03	gr/dscf Default EF from 62-296 711 FAC
Emission Rate (ER)		1.13	tpy ER = EF * V * 60 * 8760 / 2000 / 7000

<b>Stacker Conveyor Dropping Material onto Pile (FS004)</b>			
Parameters		Value	Units Source
Material throughput (M)	Annual	365,000	tons-yr ASSUMED
Mean Wind Speed		6.3	mph AP-42 Table 7.1.9 Tallahassee, FL
Material Moisture Content (U)		4.8	% (A)
K		0.35	AP-42 Table 13.2.4
EF		0.00044	lb-ton EF = k * 0.0032 * ((U/5) <sup>1.3</sup> ) / ((M/2) <sup>1.4</sup> )
E	Annual	0.08	tpy E = M * EF

<b>Front End Loader Dropping Material onto Reclaimer Elevator (FS005)</b>			
Parameters		Value	Units Source
Material throughput (M)	Annual	365,000	tons-yr ASSUMED
Mean Wind Speed		6.3	mph AP-42 Table 7.1.9 Tallahassee, FL
Material Moisture Content (U)		4.8	% (A)
K		0.35	AP-42 Table 13.2.4
EF		0.00044	lb-ton EF = k * 0.0032 * ((U/5) <sup>1.3</sup> ) / ((M/2) <sup>1.4</sup> )
E	Annual	0.08	tpy E = M * EF

<b>Drier/Fuel Silo Baghouse (FS006)</b>			
Parameters		Value	Units Source
Flow Rating of Baghouse (V)		1,000	scfm ASSUMED - Probably will be higher for a drier
Emission Factor (EF)		0.03	gr/dscf Default EF from 62-296 711 FAC
Emission Rate (ER)		1.13	tpy ER = EF * V * 60 * 8760 / 2000 / 7000

<b>Fuel Silo Screw Auger Baghouse (FS007)</b>			
Parameters		Value	Units Source
Flow Rating of Baghouse (V)		1,000	scfm ASSUMED
Emission Factor (EF)		0.03	gr/dscf Default EF from 62-296 711 FAC
Emission Rate (ER)		1.13	tpy ER = EF * V * 60 * 8760 / 2000 / 7000

<b>Gasifier Fuel Silo Vent Filter (FS008)</b>			
Parameters		Value	Units Source
Material throughput (M)	Annual	365,000	tons-yr ASSUMED
Emission Factor (EF)		0.0063	lb-ton AP-42 9.9.1-1 Storage Bin
Control (C)		99.9%	ASSUMED
Emission Rate (ER)	Annual	0.00	tpy E = M * EF * (1-C)/1

<b>Sand (Olivine) System Baghouse (FS009)</b>			
Parameters		Value	Units Source
Material throughput (M)	Annual	37	lb/hr MATERIAL BALANCE
Emission Factor (EF)		162.1	tpy 8,760 hr/yr
Control (C)		99.9%	ASSUMED
Emission Rate (ER)	Annual	0.16	tpy E = M * (8,760/2000) * (1-C)/1

<b>Ash System Baghouse (FS010)</b>			
Parameters		Value	Units Source
Material throughput (M)	Annual	530	lb/hr MATERIAL BALANCE
Emission Factor (EF)		2409	tpy 8,760 hr/yr
Control (C)		99.9%	ASSUMED
Emission Rate (ER)	Annual	2.41	tpy E = M * (8,760/2000) * (1-C)/1

<b>Total PM<sub>10</sub> Emissions</b>			
Parameters		Value	Units Source
Total PM <sub>10</sub> Emissions from fugitive sources	Annual	24.0	tpy Sum of Fugitive Sources

(A) Wet wood is 10% moisture, however, this emission factor is only valid for material up to a moisture content of 4.8%. This value has been used which is conservative.



**Table 3-6. Feedstock Dryer Emissions**Performance

Dry wood produced            266,450   dry tpy                            Dry wood from dryer

Emissions

PM -    Emission Factor        0.72   lb/ton dry wood        AP42 Table 10.6-1  
           Control                    99.9%   Baghouse Efficiency  
           Emission Rate        **0.10**   tpy                            Emission Rate = Emission Factor \* Dry Wood Produced

PM<sub>10</sub> -    Emission Factor        0.062   lb/ton dry wood        AP42 Table 10.6-1  
           Control                    99.9%   Baghouse Efficiency  
           Emission Rate        **0.01**   tpy                            Emission Rate = Emission Factor \* Dry Wood Produced

---

AP-42, Table 10.6-1 also provides factors for SO<sub>2</sub>, NO<sub>x</sub>, CO, and CO<sub>2</sub> emissions for indirect dryers; however, drying is by heat exchange, there is no combustion proposed.

**Table 3-7. Performance, Stack Parameters and Emissions for Auxiliary Boiler**


---

<u>Performance</u>	
Fuel Usage (scf/hr-gas)	60,713
Heat Input (mmBtu/hr-HHV)	62.00
Hours per Year	500
Maximum Fuel Usage (mmscf/yr)	30.36
<u>Stack Parameters</u>	
Diameter (ft)	2.75
Height (ft)	50
Temperature ( °F)	296
Velocity (ft/sec)	81
Flow (acfm)	29,000
<u>Emissions</u>	
SO <sub>2</sub> -Basis (grains S/100 scf-gas; %S diesel)	2.00
(lb/hr)	0.35
(tpy)	0.09
NO <sub>x</sub> - (lb/mmBtu)	0.095
(lb/hr)	5.89
(tpy)	1.47
CO - (lb/mmBtu)	0.08
(lb/hr)	4.96
(tpy)	1.24
VOC - (lb/mmBtu)	0.005
(lb/hr)	0.31
(tpy)	0.08
PM/PM10 - (lb/10 <sup>6</sup> ft <sup>3</sup> )	1.90
(lb/hr)	0.12
(tpy)	0.03

---

**Table 3-8. Flare System Emissions**

<u>Parameter</u>		<u>Value</u>	<u>Units</u>	<u>Source/Description</u>
Fuel Flow		19,627	lbm/hr	Gas Analysis 18-Oct -07, Solar
Energy Density		7,337	Btu/lbm	Gas Analysis 18-Oct -07, Solar, Low Heating Value of fuel
Energy Input to Flare		144	MMBtu/hr	Energy Input = Fuel Flow * Energy Density / 1,000,000
<u>Emissions</u>				
TOC -	Emission Factor	0.14	lb/MMBtu	AP-42 Table 13.5-1
	Emission Rate	<b>20.2</b>	lb/hr	Emission Rate = Emission Factor * Energy Input
	Emission Rate	<b>1.5</b>	tpy	Emission Rate (tpy) = Emission Rate (lb/hr) * 8760 /2000
CO -	Emission Factor	0.37	lb/MMBtu	AP-42 Table 13.5-1
	Emission Rate	<b>53.3</b>	lb/hr	Emission Rate = Emission Factor * Energy Input
	Emission Rate	<b>3.8</b>	tpy	Emission Rate (tpy) = Emission Rate (lb/hr) * 8760 /2000
NO <sub>x</sub> -	Emission Factor	0.068	lb/MMBtu	AP-42 Table 13.5-1
	Emission Rate	<b>9.8</b>	lb/hr	Emission Rate = Emission Factor * Energy Input
	Emission Rate	<b>0.7</b>	tpy	Emission Rate (tpy) = Emission Rate (lb/hr) * 8760 /2000
SO <sub>2</sub> (Based on Mass Balance) -	Heating Value	435.0	Btu/scf	Heating Value of Syngas @ 14.7 psia & 60°F
	Syngas Flow	331,042.1	scf/hr	144 MMBtu * 1,000,000 / 435 btu/scf
	H2S in syngas	0.02	% by vol	Gas Analysis 18-Oct -07, Solar
	H2S Flow	66.2	scf/hr	86687 scfm * 0.0002 vol %
	gas constant	0.0029	cf-atm/mol-K	Constant
	H2S Molar Flow	79.1	g-mol/hr	n= (1 atm) * (17.34 scfm) / (0.0029 cf-atm/mol-K) / (288.7K)
	MW SO2	64.1	g/g-mol	1 mol of H2S forms 1 mol of SO2
	SO2 Mass Flow	5,072.8	g/hr	20.7 gmol/hr * 64.1 g/gmol
	SO2 Mass Flow	<b>11.2</b>	lb/hr	5072 g/hr / 453.59 g/lb
SO2 Mass Flow	<b>0.8</b>	tpy	11.2 lb/hr * 8760 / 2000	
Soot (PM) -	AP-42, Table 13.5-1--- fuels with a C:H ratio of less than 0.33 tend not to soot. The average C:H ratio in the syngas is less than 0.33.			

**Table 3-9. Physical, Performance, and Emissions Data for the Mechanical Draft Cooling Towers**

Parameter	Steam Turbine Cooling	Compressor Gas Cooling
<b>Physical Data</b>		
Number of Cells	2	3
Deck Dimensions, ft		
Length	96.5	16.4
Width	33.5	12.2
Height(Tower Height)	32.3	17.5
Stack Dimensions		
Height, ft	10.0	5.2
Stack Top Effective Inner Diameter, per cell, ft	21.5	9.0
Effective Diameter, all cells, ft	TBD	TBD
<b>Performance Data (per cell)</b>		
Discharge Velocity, ft/min	1,690	1,799
Circulating Water Flow Rate (CWFR), gal/min	7,050	3,800
Design hot water temperature, °F	113.7	95
Design Air Flow Rate per cell, acfm, (estimated)	1,061,664	114,386
Hours of operation	8,760	8,760
<b>Emission Data</b>		
Drift Rate <sup>a</sup> (DR), percent	0.0020	0.0050
Total Dissolved Solids (TDS) Concentration <sup>b</sup> , average ppm	2,000	1,000
Solution Drift <sup>c</sup> (SD), lb/hr	70.2	94.6
PM Drift <sup>d</sup> , lb/hr	0.14	0.09
tons/year	0.6	0.4
PM <sub>10</sub> Drift <sup>e</sup>		
PM <sub>10</sub> Emissions, lb/hr	0.09	0.08
tons/year	0.4	0.3

<sup>a</sup> Drift rate is the percent of circulating water.

<sup>b</sup> The TDS values assumed are conservative and include cycling.

<sup>c</sup> Includes water and based on circulating water flow rate and drift rate (CWFR x DR x 8.3 lb/gal x 60 min/hr).

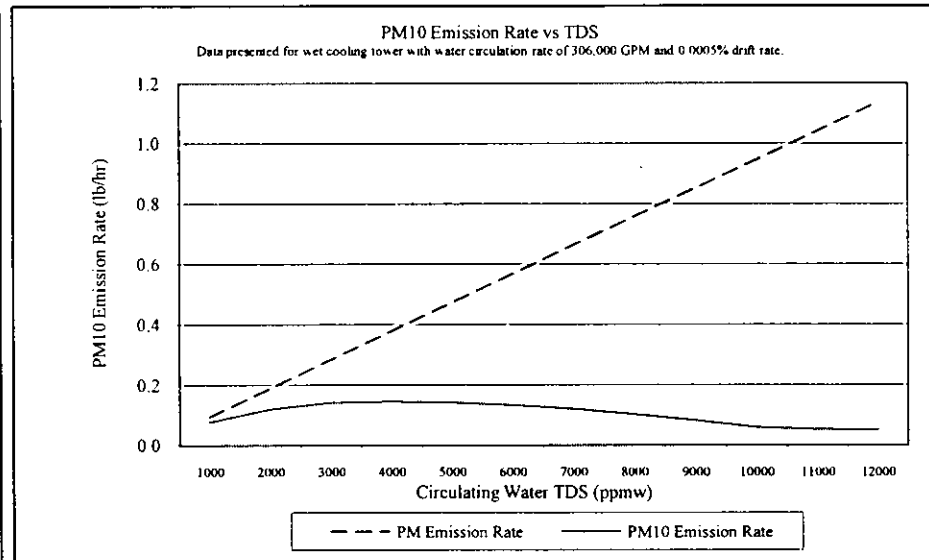
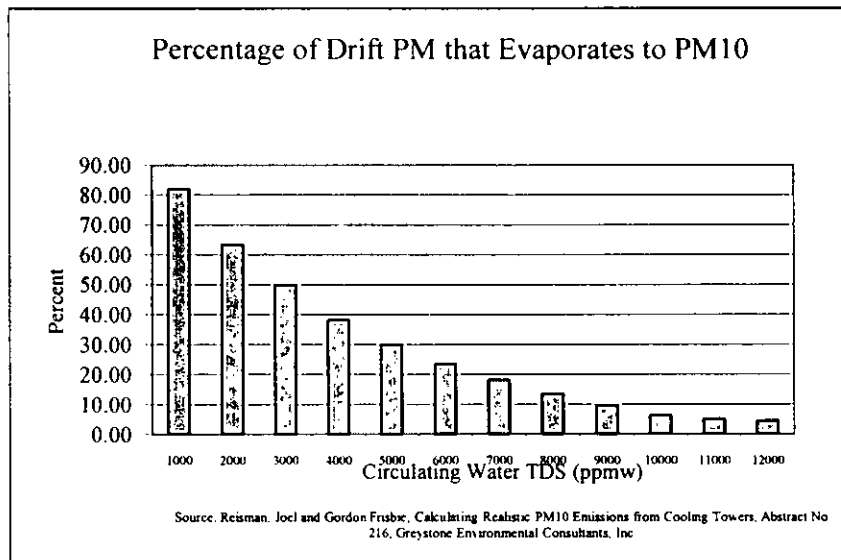
<sup>d</sup> PM calculated based on total dissolved solids and solution drift (TDS x SD).

<sup>e</sup> PM<sub>10</sub> based on Cooling Tower PM<sub>10</sub> emissions study see Attachment A.

Source: Solar, 2008; Golder, 2008.

TDS (ppmw)	PM Emission Rate (lb/hr)	Percent of Emissions < or = PM10 %	PM10 Emissions (lb/hr)	Tower Circulation Rate (GPM)	Drift Rate %	Calculated PM10 % < or = PM10 %
1000	0.09	82.04	0.078	3,800	0.005	82.04
2000	0.19	63.50	0.120			63.50
3000	0.28	50.00	0.142			50.00
4000	0.38	38.33	0.145			38.33
5000	0.47	29.97	0.142			29.97
6000	0.57	23.59	0.134			23.59
7000	0.66	18.20	0.121			18.20
8000	0.76	13.57	0.103			13.57
9000	0.85	9.65	0.082			9.65
10000	0.95	6.28	0.059			6.28
11000	1.04	5.11	0.053			5.11
12000	1.14	4.46	0.051			4.46
25307	2.39	1.07	0.026			1.07
29000	2.74	0.82	0.023			0.82
89600	8.48	0.22	0.019			0.22

Tower Circulation Rate (GPM)	Drift Rate %
3,800	0.005
water density (lb/gal)	
8.3	

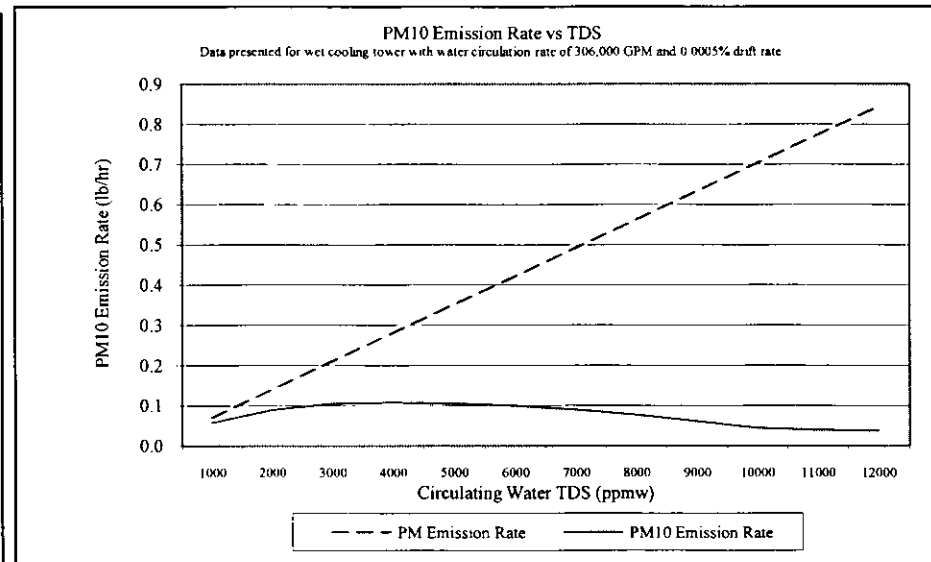
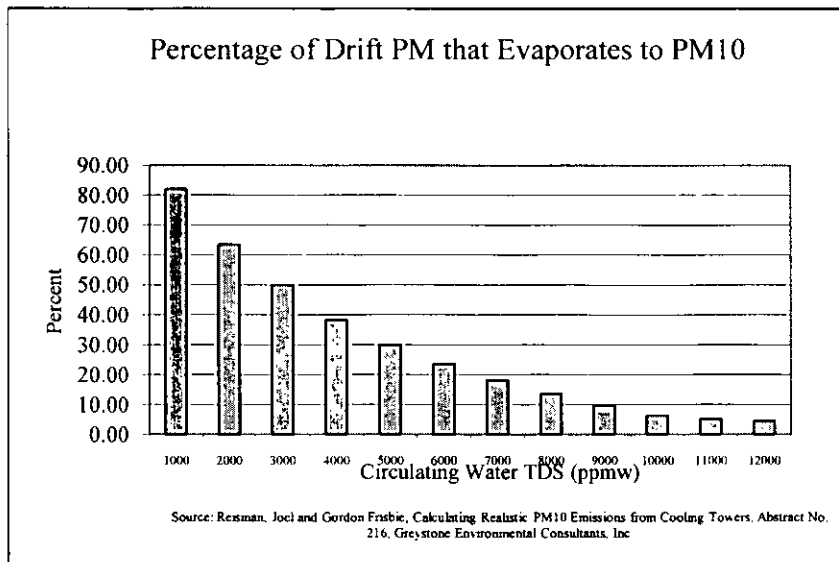


Reisman, Joel and Gordon Frisbie, *Calculating Realistic PM10 Emissions from Cooling Towers*, Abstract No. 216, Greystone Environmental Consultants, Inc.

TDS (ppmw)	PM Emission Rate (lb/hr)	Percent of Emissions < or = PM10 %	PM10 Emissions (lb/hr)	Tower Circulation Rate (GPM)	Drift Rate %	Calculated PM10 % < or = PM10 %
1000	0.07	82.04	0.058	7,056	0.002	82.04
2000	0.14	63.50	0.089			63.50
3000	0.21	50.00	0.105			50.00
4000	0.28	38.33	0.108			38.33
5000	0.35	29.97	0.105			29.97
6000	0.42	23.59	0.099			23.59
7000	0.49	18.20	0.090			18.20
8000	0.56	13.57	0.076			13.57
9000	0.63	9.65	0.061			9.65
10000	0.70	6.28	0.044			6.28
11000	0.77	5.11	0.040			5.11
12000	0.84	4.46	0.038			4.46
25307	1.78	1.07	0.019			1.07
29000	2.04	0.82	0.017			0.82
89600	6.30	0.22	0.014	0.22		

Parameter	Value
water density (lb/gal)	8.3



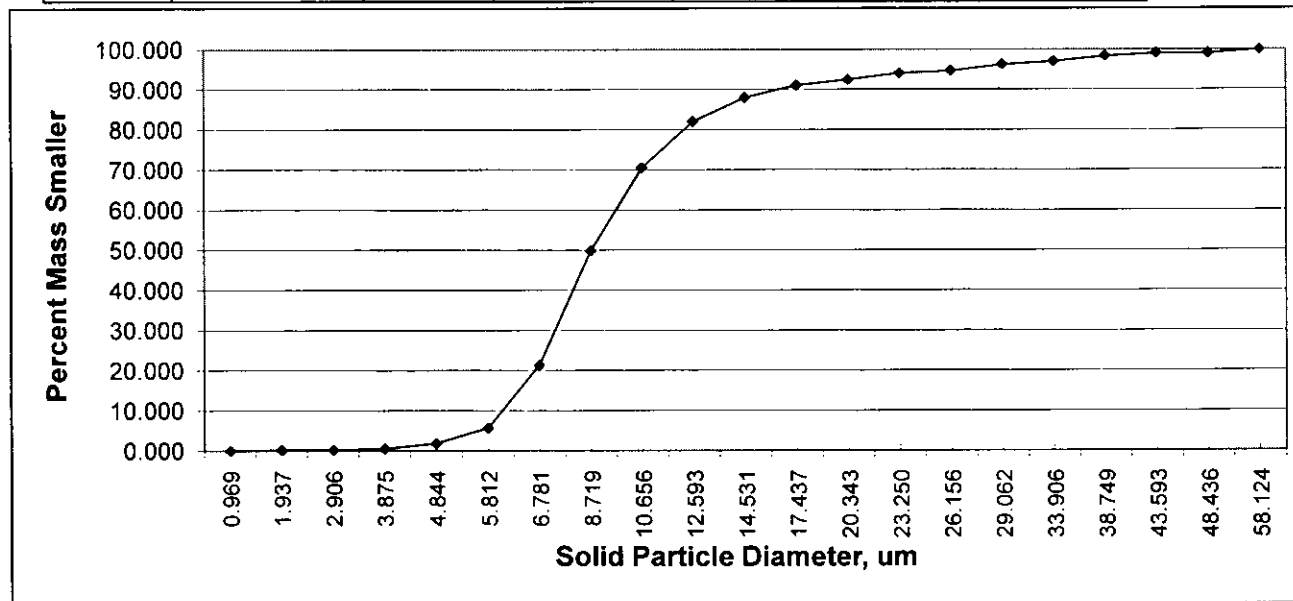
Reisman, Joel and Gordon Frisbie, *Calculating Realistic PM10 Emissions from Cooling Towers*, Abstract No. 216, Greystone Environmental Consultants, Inc.

Table ST Cooling. Resultant Solid Particulate Size Distribution (TDS = 2000 ppmw)

EPRI Droplet Diameter (um)	Droplet Volume (um <sup>3</sup> )	Droplet Mass (ug)	Particulate Mass (Solids) (ug)	Solid Particulate Volume (um <sup>3</sup> )	Solid Particulate Diameter (um)	EPRI % Mass Smaller
10	523.6	5.24E-04	1.05E-06	0.48	0.969	0.000
20	4188.8	4.19E-03	8.38E-06	3.81	1.937	0.196
30	14137.2	1.41E-02	2.83E-05	12.85	2.906	0.226
40	33510.3	3.35E-02	6.70E-05	30.46	3.875	0.514
50	65449.8	6.54E-02	1.31E-04	59.50	4.844	1.816
60	113097.3	1.13E-01	2.26E-04	102.82	5.812	5.702
70	179594.4	1.80E-01	3.59E-04	163.27	6.781	21.348
90	381703.5	3.82E-01	7.63E-04	347.00	8.719	49.812
110	696910.0	6.97E-01	1.39E-03	633.55	10.656	70.509
130	1150346.5	1.15E+00	2.30E-03	1045.77	12.593	82.023
150	1767145.9	1.77E+00	3.53E-03	1606.50	14.531	88.012
180	3053628.1	3.05E+00	6.11E-03	2776.03	17.437	91.032
210	4849048.3	4.85E+00	9.70E-03	4408.23	20.343	92.468
240	7238229.5	7.24E+00	1.45E-02	6580.21	23.250	94.091
270	10305994.7	1.03E+01	2.06E-02	9369.09	26.156	94.689
300	14137166.9	1.41E+01	2.83E-02	12851.97	29.062	96.288
350	22449297.5	2.24E+01	4.49E-02	20408.45	33.906	97.011
400	33510321.6	3.35E+01	6.70E-02	30463.93	38.749	98.340
450	47712938.4	4.77E+01	9.54E-02	43375.40	43.593	99.071
500	65449846.9	6.54E+01	1.31E-01	59499.86	48.436	99.071
600	113097335.5	1.13E+02	2.26E-01	102815.76	58.124	100.000

Calculated PM10 %  
fraction to < or = PM10  
PM10 %

0.66140 63.5

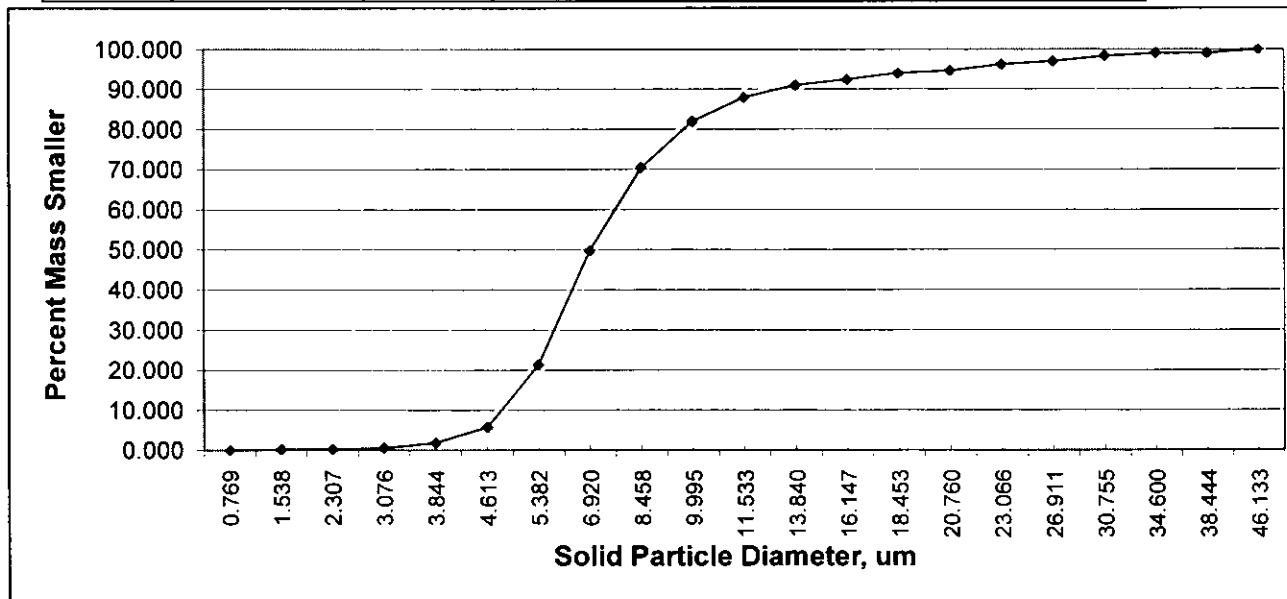


**Table #. Resultant Solid Particulate Size Distribution (TDS = 1000 ppmw)**

EPRI Droplet Diameter (um)	Droplet Volume (um3)	Droplet Mass (ug)	Particulate Mass (Solids) (ug)	Solid Particulate Volume (um3)	Solid Particulate Diameter (um)	EPRI % Mass Smaller
10	523.6	5.24E-04	5.24E-07	0.24	0.769	0.000
20	4188.8	4.19E-03	4.19E-06	1.90	1.538	0.196
30	14137.2	1.41E-02	1.41E-05	6.43	2.307	0.226
40	33510.3	3.35E-02	3.35E-05	15.23	3.076	0.514
50	65449.8	6.54E-02	6.54E-05	29.75	3.844	1.816
60	113097.3	1.13E-01	1.13E-04	51.41	4.613	5.702
70	179594.4	1.80E-01	1.80E-04	81.63	5.382	21.348
90	381703.5	3.82E-01	3.82E-04	173.50	6.920	49.812
110	696910.0	6.97E-01	6.97E-04	316.78	8.458	70.509
130	1150346.5	1.15E+00	1.15E-03	522.88	9.995	82.023
150	1767145.9	1.77E+00	1.77E-03	803.25	11.533	88.012
180	3053628.1	3.05E+00	3.05E-03	1388.01	13.840	91.032
210	4849048.3	4.85E+00	4.85E-03	2204.11	16.147	92.468
240	7238229.5	7.24E+00	7.24E-03	3290.10	18.453	94.091
270	10305994.7	1.03E+01	1.03E-02	4684.54	20.760	94.689
300	14137166.9	1.41E+01	1.41E-02	6425.98	23.066	96.288
350	22449297.5	2.24E+01	2.24E-02	10204.23	26.911	97.011
400	33510321.6	3.35E+01	3.35E-02	15231.96	30.755	98.340
450	47712938.4	4.77E+01	4.77E-02	21687.70	34.600	99.071
500	65449846.9	6.54E+01	6.54E-02	29749.93	38.444	99.071
600	113097335.5	1.13E+02	1.13E-01	51407.88	46.133	100.000

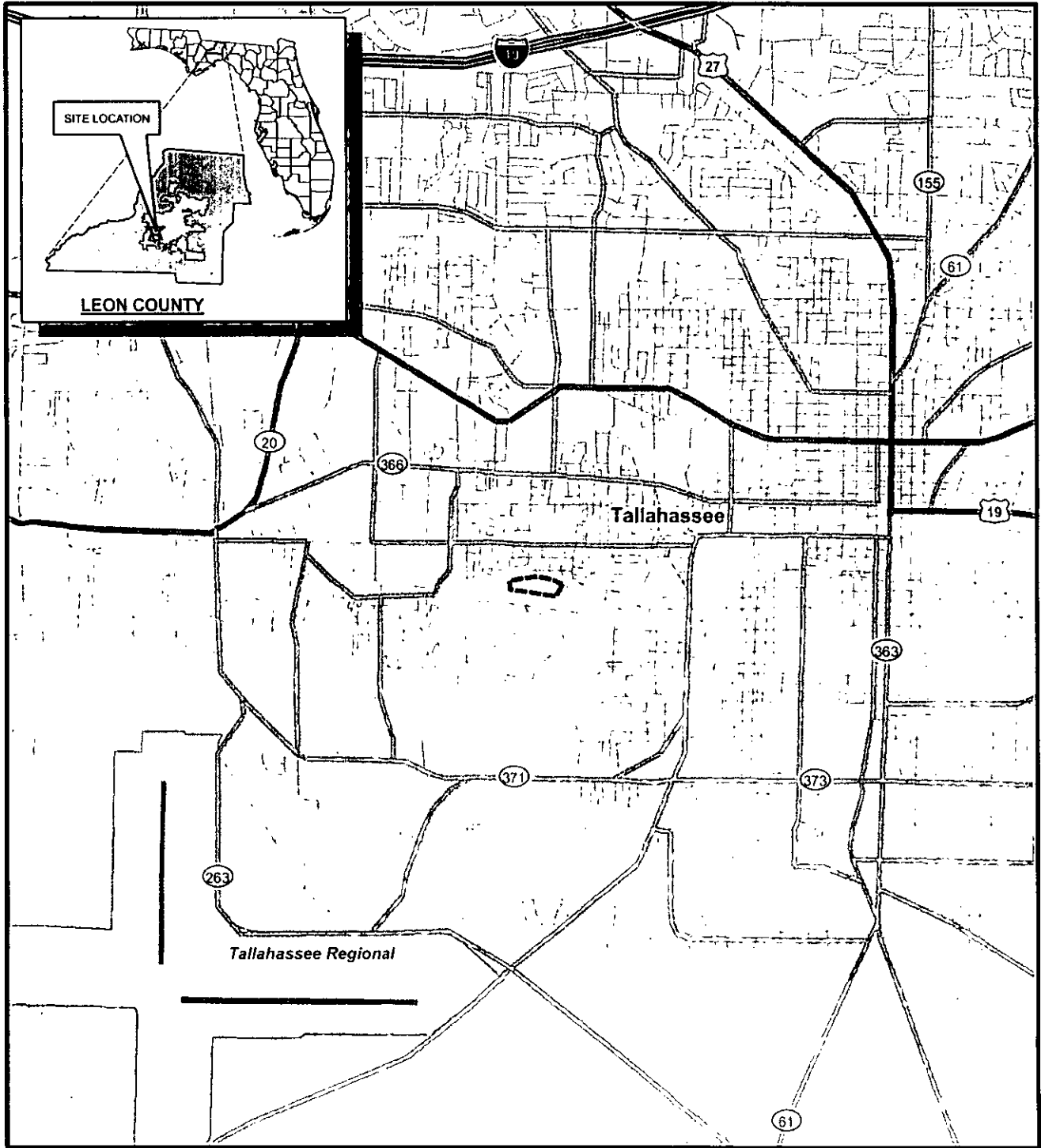
Calculated PM10 %	
fraction to PM10	< or = PM10 %

0.00296	82.0
---------	------



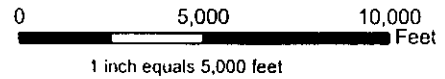



## **FIGURES**



**LEGEND**

 Project Location



PROJECT		BG&E LEON COUNTY, FLORIDA	
TITLE		PROJECT SITE LOCATION	
PROJECT No 073-89524		SCALE AS SHOWN	REV 0
DESIGN	PB 01/00/08	 <b>Golder Associates</b> Tampa, Florida	
CIS	PB 01/00/08		
CHECK	RZ 01/00/08		
REVIEW	RZ 01/00/08		

**REFERENCES**

1. County boundaries - Florida Department of Environmental Protection
2. Roads & Railroads - ESRI StreetMap

**DRAFT**

**FIGURE 2-1**

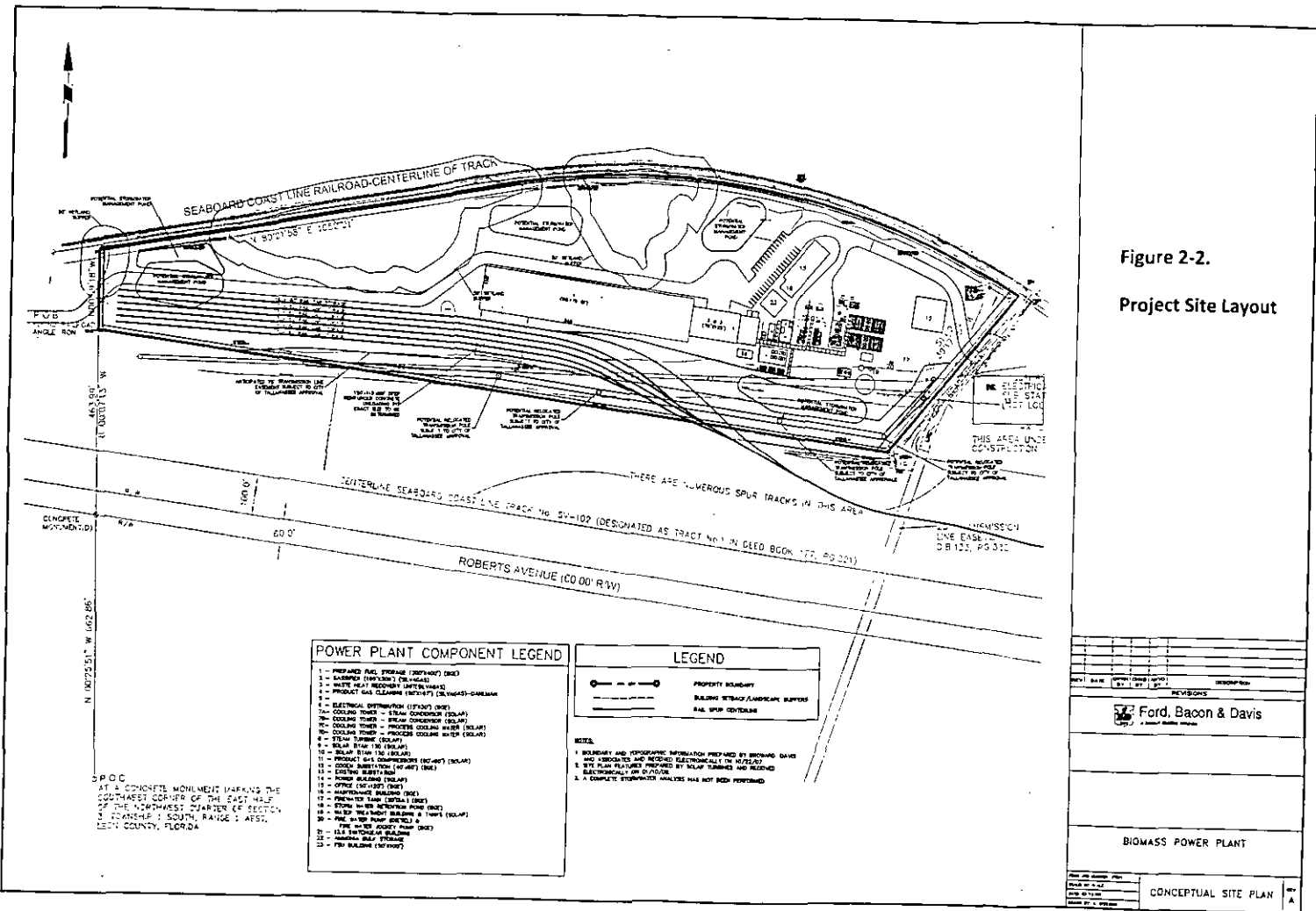


Figure 2-2.  
Project Site Layout

POWER PLANT COMPONENT LEGEND	
1	- PREPARED FUEL STORAGE (STOCKPILE) (SOLAR)
2	- LANDFILL (STATION) (SOLAR)
3	- WASTE HEAT RECOVERY (SOLAR)
4	- PRODUCT GAS CLEANING (SOLAR) (SOLAR)
5	- ELECTRICAL DISTRIBUTION (SOLAR) (SOLAR)
6	- COOLING TOWER - STEAM CONDENSER (SOLAR)
7	- COOLING TOWER - PROCESS COOLING WATER (SOLAR)
8	- COOLING TOWER - PROCESS COOLING WATER (SOLAR)
9	- STEAM GENERATOR (SOLAR)
10	- STEAM TURBINE (SOLAR)
11	- PRODUCT GAS COMPRESSORS (SOLAR) (SOLAR)
12	- COOLING WATER TOWER (SOLAR)
13	- EXHAUST SYSTEM (SOLAR)
14	- OFFICE (SOLAR) (SOLAR)
15	- STORAGE (SOLAR)
16	- PREPARED FUEL STORAGE (SOLAR)
17	- STEAM TURBINE (SOLAR)
18	- STEAM TURBINE (SOLAR)
19	- STEAM TURBINE (SOLAR)
20	- STEAM TURBINE (SOLAR)
21	- STEAM TURBINE (SOLAR)
22	- STEAM TURBINE (SOLAR)
23	- STEAM TURBINE (SOLAR)
24	- STEAM TURBINE (SOLAR)

LEGEND	
	PROPERTY BOUNDARY
	BUILDING STRIPS/LANDSCAPE BUFFERS
	RAIL SPUR CENTRELINES

NOTES:  
 1. DIMENSIONS AND GEOMETRIC INFORMATION PREPARED BY BROWN DAVIS AND ASSOCIATES AND RECEIVED ELECTRONICALLY OR IN HARD COPY.  
 2. THIS PLAN IS PREPARED BY BROWN DAVIS AND ASSOCIATES AND RECEIVED ELECTRONICALLY OR IN HARD COPY.  
 3. A COMPLETE SITE VISITATION ANALYSIS HAS NOT BEEN PERFORMED.

D.P.O.C.  
 AT A CONCRETE MONUMENT MARKING THE  
 SOUTHWEST CORNER OF THE EAST HALF  
 OF THE NORTHWEST QUARTER (E/2 SECTION  
 16 TOWNSHIP 1 SOUTH, RANGE 1 WEST,  
 LEVIN COUNTY, FLORIDA.

DATE	BY	REVISIONS
<b>Ford, Bacon &amp; Davis</b>		
BIOMASS POWER PLANT		
CONCEPTUAL SITE PLAN		

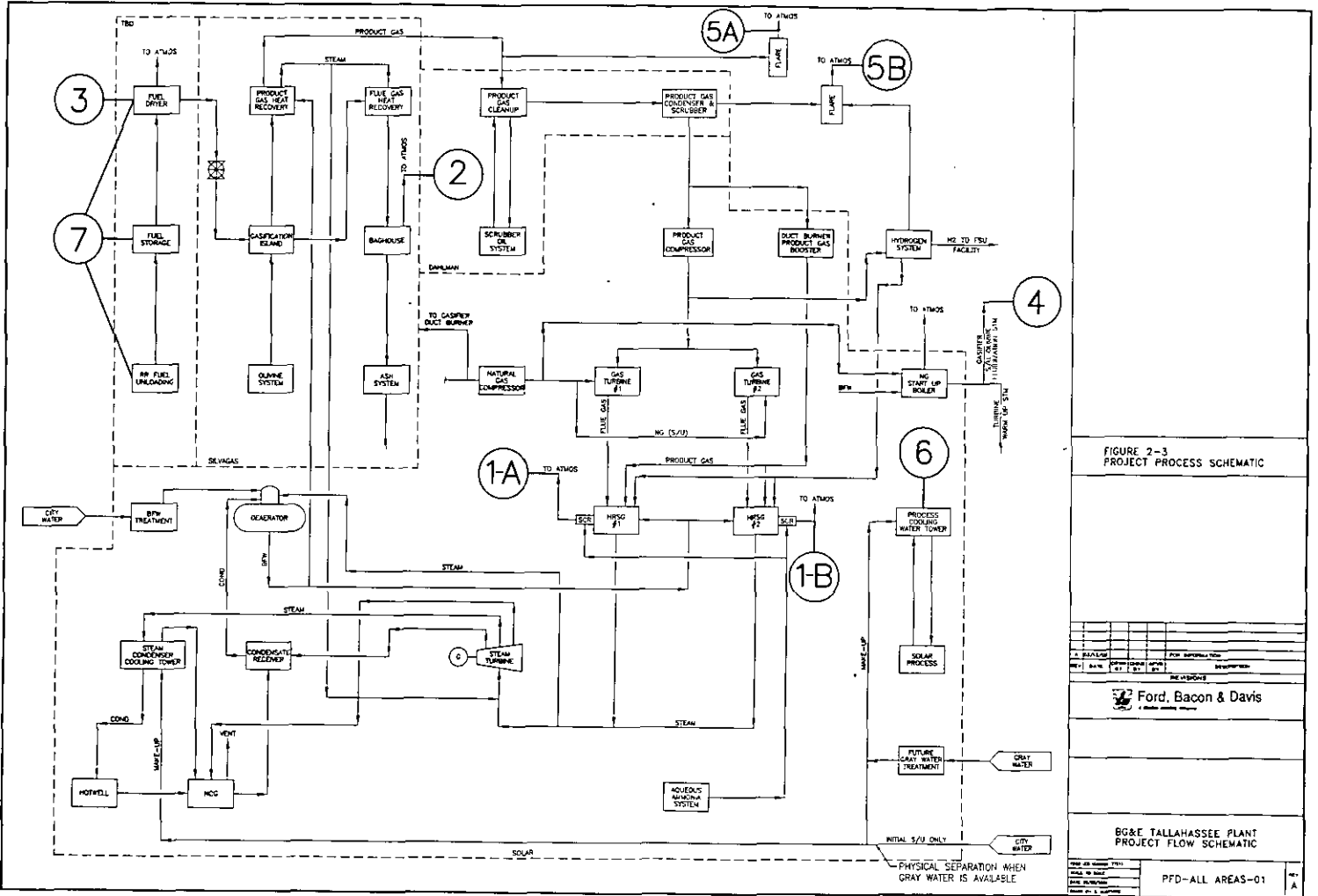
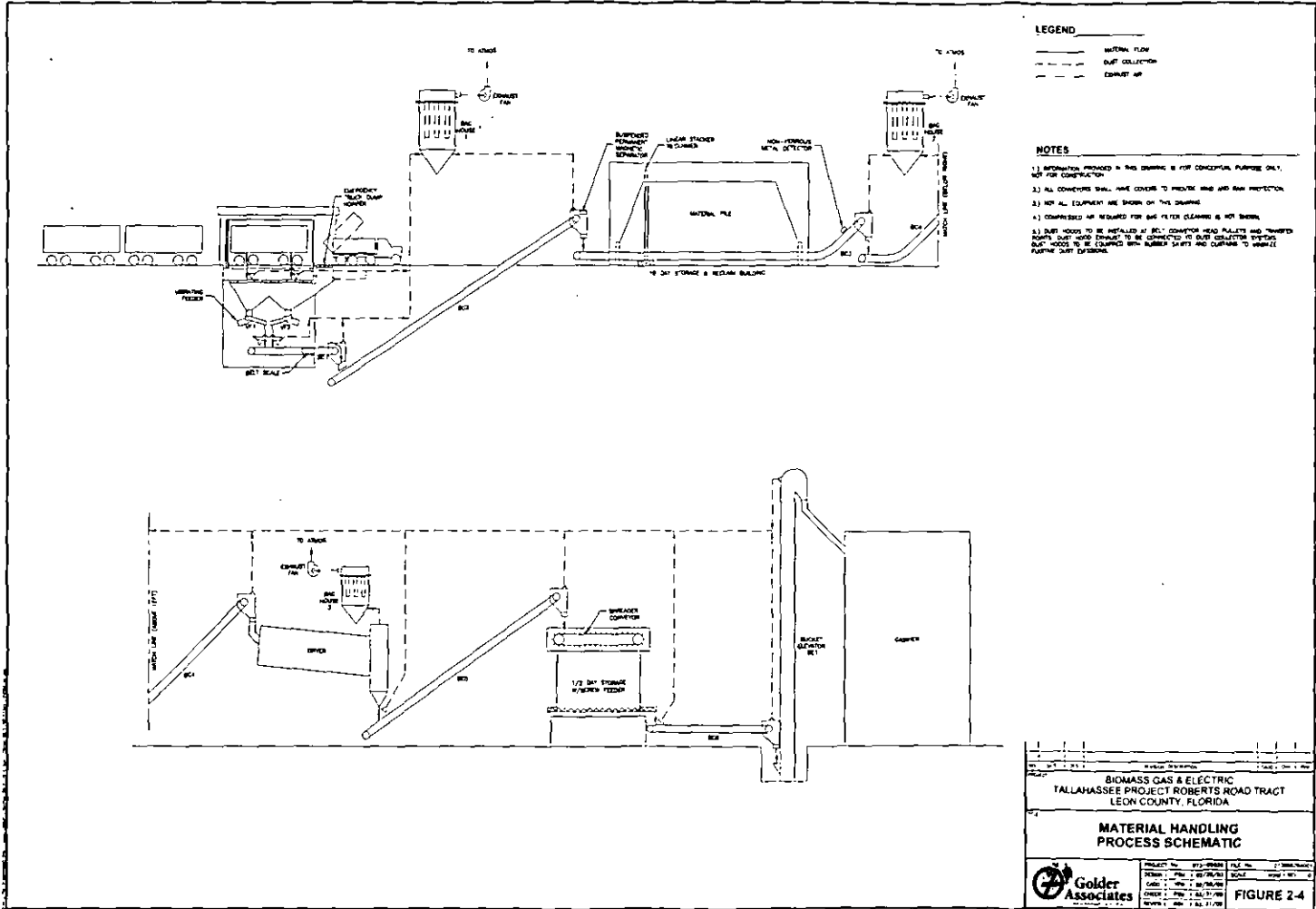



FIGURE 2-3  
PROJECT PROCESS SCHEMATIC

<b>BG&amp;E TALLAHASSEE PLANT PROJECT FLOW SCHEMATIC</b>	
<small>DATE: 08/19/93 DRAWN BY: JLD CHECKED BY: JLD SCALE: AS SHOWN</small>	<small>PROJECT: TALLAHASSEE PLANT SHEET: PFD-ALL AREAS-01 REV: 1</small>



PROJECT No. 973-0000		FILE No. 2388-0000
DESIGN No. 2676/01	SCALE	DATE: 1/18/02
DATE: 1/18/02	BY: J. W. W.	CHECK: J. W. W.
REVISION: 1/18/02		
 <b>Golden Associates</b> <small>INCORPORATED</small>		<b>FIGURE 2-4</b>

**APPENDIX A**  
**LIFE CYCLE ASSESSMENT**

LIFE CYCLE ASSESSMENT COMPARISONS OF ELECTRICITY FROM  
BIOMASS, COAL, AND NATURAL GAS

Margaret K. Mann and Pamela L. Spath  
National Renewable Energy Laboratory  
1617 Cole Blvd., MS-1613  
Golden, Colorado, USA 80401

Prepared for presentation at the 2002 Annual Meeting of the American Institute of Chemical Engineers  
November 2002

Keywords: renewable, LCA, environmental, biomass

Unpublished - AIChE shall not be responsible for statements or  
opinions contained in papers or printed in its publications.

## ABSTRACT

A series of life cycle assessments (LCA) have been conducted on biomass, coal, and natural gas systems in order to quantify the environmental benefits and drawbacks of each. The power generation options that were studied are: 1) a biomass-fired integrated gasification combined cycle (IGCC) system using a biomass energy crop, 2) a direct-fired biomass power plant using biomass residue, 3) a pulverized coal (PC) boiler representing an average U.S. coal-fired power plant, 4) a system cofiring biomass residue with coal, and 5) a natural gas combined cycle power plant. Each assessment was conducted in a cradle-to-grave manner to cover all processes necessary for the operation of the power plant, including raw material extraction, feed preparation, transportation, waste disposal, and recycling. A summary of the energy balance, global warming potential (GWP), air emissions, and resource consumption for each system is given.

## INTRODUCTION

The generation of electricity, and the consumption of energy in general, result in consequences to the environment. Using renewable resources and incorporating advanced technologies such as integrated gasification combined cycle (IGCC) may result in less environmental damage, but to what degree, and with what trade-offs? Life cycle assessment studies have been conducted on various power generating options in order to better understand the environmental benefits and drawbacks of each technology. Material and energy balances were used to quantify the emissions, energy use, and resource consumption of each process required for the power plant to operate. These include feedstock procurement (mining coal, extracting natural gas, growing dedicated biomass, collecting residue biomass), transportation, manufacture of equipment and intermediate materials (e.g., fertilizers, limestone), construction of the power plant, decommissioning, and any necessary waste disposal.

The systems that were studied are:

- \$ a biomass-fired integrated gasification combined cycle (IGCC) system using a biomass energy crop (hybrid poplar)
- \$ a direct-fired biomass power plant using biomass residue (urban, primarily)
- \$ a pulverized coal boiler with steam cycle, representing the average for coal-fired power plants in the U.S. today
- \$ a system cofiring biomass residue with coal (15% by heat input will be presented here)
- \$ a natural gas combined cycle power plant.

Each study was conducted independently and can therefore stand alone, giving a complete picture of each power generation technology. However, the resulting emissions, resource consumption, and energy requirements of each system can ultimately be compared, revealing the environmental benefits and drawbacks of the renewable and fossil based systems.

## RESULTS

### *System Energy Balance*

The total energy consumed by each system includes the fuel energy consumed plus the energy contained in raw and intermediate materials that are consumed by the systems. Examples of the first type of energy use are the fuel spent in transportation, and fossil fuels consumed by the fossil-based power plants. The second type of energy is the sum of the energy that would be released during combustion of



the material (if it is a fuel) and the total energy that is consumed in delivering the material to its point of use. Examples of this type of energy consumption are the use of natural gas in the manufacture of fertilizers and the use of limestone in flue-gas desulfurization. The combustion energy calculation is applied where non-renewable fuels are used, reflecting the fact that the fuel has a potential energy that is being consumed by the system. The combustion energy of renewable resources, those replenished at a rate equal to or greater than the rate of consumption, is not subtracted from the net energy of the system. This is because, on a life cycle basis, the resource is not being consumed. To determine the net energy balance of each system, the energy used in each process block is subtracted from the energy produced by the power plant. The total system energy consumption by each system is shown in Table 1.

Table 1: Total System Energy consumption

System	Total energy consumed (kJ/kWh)
Biomass-fired IGCC using hybrid poplar	231
Direct-fired biomass power plant using biomass residue	125
Average coal	12,575
Biomass / coal cofiring (15% by heat input)	10,118
Natural gas IGCC	8,377

In order to examine the process operations that consume the largest quantities of energy within each system, two energy measurement parameters were defined. First, the energy delivered to the grid divided by the total fossil-derived energy consumed by each system was calculated. This measure, known as the net energy ratio, is useful for assessing how much energy is generated for each unit of fossil fuel consumed. The other measure, the external energy ratio, is defined to be the energy delivered to the grid divided by the total non-feedstock energy to the power plant. That is, the energy contained in the coal and natural gas used at the fossil-based power plants is excluded. The external energy ratio assesses how much energy is generated for each unit of upstream energy consumed. Because the energy in the biomass is considered to be both generated and consumed within the boundaries of the system, the net energy ratio and external energy ratio will be the same for the biomass-only cases (biomass-fired IGCC and direct-fired biomass). In calculating the external energy ratio, we are essentially treating the coal and natural gas fed to the fossil power plants as renewable fuels, so that upstream energy consumption can be compared. Figure 1 shows the energy results for each case studied.

As expected, the biomass-only plants consume less energy overall, since the consumption of non-renewable coal and natural gas at the fossil plants results in net energy balances of less than one. The direct-fired biomass residue case delivers the most amount of electricity per unit of energy consumed. This is because the energy used to provide a usable residue biomass to the plant is fairly low. Despite its higher plant efficiency, the biomass IGCC plant has a lower net energy balance than the direct-fired plant because of the energy required to grow the biomass as a dedicated crop. Residue resource limitations, however, may necessitate the use of energy crops in the future. Cofiring biomass with coal

slightly increases the energy ratios over those for the coal-only case, even though the plant efficiency was derated by 0.9 percentage points.

In calculating the external energy ratios, the feedstocks to the power plants were excluded, essentially treating all feedstocks as renewable. Because of the perception that biomass fuels are of lower quality than fossil fuels, it was expected that the external energy ratios for the fossil-based systems would be substantially higher than those of the biomass-based systems. The opposite is true, however, due to the large amount of energy that is consumed in upstream operations in the fossil-based systems. The total non-feedstock energy consumed by the systems is shown in Table 2. In the coal case, 35% of this energy is consumed in operations relating to flue-gas cleanup, including limestone procurement. Mining the coal consumes 25% of this energy, while transporting the coal is responsible for 32%. Greater than 97% of the upstream energy consumption related to the natural gas IGCC system is due to natural gas extraction and pipeline transport steps, including fugitive losses. Although upstream processes in the biomass systems also consume energy, shorter transportation distances and the fact that flue-gas desulfurization is not required, reduce the total energy burden.

Table 2: Non-feedstock Energy Consumption

System	Non-feedstock energy consumed (kJ/kWh)
Biomass-fired IGCC using hybrid poplar	231
Direct-fired biomass power plant using biomass residue	125
Average coal	702
Biomass / coal cofiring (15% by heat input)	614
Natural gas IGCC	1,718

### ***Global Warming Potential***

Figure 2 shows the net emissions of greenhouse gases, using the 100-year values from the Intergovernmental Panel on Climate Change. CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O were quantified for these studies. The biomass IGCC system has a much lower GWP than the fossil systems because of the absorption of CO<sub>2</sub> during the biomass growth cycle. Sensitivity analyses demonstrated that even moderate amounts of soil carbon sequestration (1,900 kg/ha/seven-year rotation) would result in the biomass IGCC system having a zero-net greenhouse gas balance. Sequestration amounts greater than this would result in a negative release of greenhouse gases, and a system that removes carbon from the atmosphere overall. The base case presented here assumes that there will be no net change in soil carbon, as actual gains and losses will be very site specific.

The direct-fired biomass system has a highly negative rate of greenhouse gas emissions because of the avoided methane generation associated with biomass decomposition that would have occurred had the residue not been used at the power plant. Based on current disposal practices, it was assumed that 46% of the residue biomass used in the direct-fired and cofiring cases would have been sent to a landfill and

that the remainder would end up as mulch and other low-value products. Decomposition studies reported in the literature were used to determine that approximately 9% of the carbon in the biomass residue would end up as CH<sub>4</sub> were it not used at the power plant, while 61% would end up as CO<sub>2</sub>. The remaining carbon is resistant to decomposition in the landfill, either due to inadequate growth conditions for the microbes or because of the protective nature of the lignin compounds. Had all of the residue biomass been decomposed aerobically, the CO<sub>2</sub> produced would have been 1.85 kg/kg biomass. If the biomass residue was not used at the power plant, the decomposition pathways described above would have resulted in total greenhouse gas emissions of 2.48 kg CO<sub>2</sub>-equivalent/kg biomass (1.117 kg CO<sub>2</sub> + .065 kg CH<sub>4</sub>). The net difference is the reason for the negative greenhouse gas emissions associated with the direct-fired system.

The natural gas combined cycle has the lowest GWP of all fossil systems because of its higher efficiency, despite natural gas losses that increase net CH<sub>4</sub> emissions. Natural gas losses during extraction and delivery were assumed to be 1.4% of the gross amount extracted. Because of the potency of methane as a greenhouse gas, nearly one-quarter of the total GWP of this system is due to these losses.

Cofiring biomass with coal at 15% by heat input reduces the GWP of the average coal-fired power plant by 18%. The reduction in greenhouse gases is greater than the rate at which biomass is cofired because of the avoidance of methane emissions associated with decomposition that would have occurred had the biomass not been used at the power plant. Biomass disposal and decomposition emissions for this scenario are the same as those used in the direct-fired case.

#### ***Air Emissions***

Emissions of particulates, SO<sub>x</sub>, NO<sub>x</sub>, CH<sub>4</sub>, CO, and NMHCs are shown in Figure 3. Methane emissions are high for the natural gas case due to natural gas losses during extraction and delivery. The direct-fired biomass and coal/biomass cofiring cases have negative methane emissions, due to avoided decomposition processes (landfilling and mulching). CO and NMHCs are higher for the biomass case because of upstream diesel combustion during biomass growth and preparation. Cofiring reduces the coal system air emissions by approximately the rate of cofiring, with the exception of particulates, which are generated during biomass chipping and handling.

#### ***Resource Consumption***

Figure 4 shows the total amount of non-renewable resources consumed by the systems. Limestone is used in significant quantities by the coal-fired power plants for flue-gas desulfurization. The natural gas IGCC plant consumes almost negligible quantities of resources, with the exception of the feedstock itself, including that lost during extraction and delivery.

#### ***Sensitivity Analysis***

A sensitivity analysis was conducted on each system to determine which parameters had the most influence on the results and to pinpoint opportunities for reducing the environmental burden of the system. In general, parameters associated with increasing the system efficiency and reducing the fossil fuel usage had the largest effects. Additionally, for the biomass systems, variables associated with growing a dedicated feedstock and factors affecting how much CO<sub>2</sub> and CH<sub>4</sub> are avoided by using biomass residue significantly affected the GWP of the system. Overall, however, the sensitivity analyses demonstrated that the conclusions that can be drawn from these studies remain relatively constant as different parameters are varied.

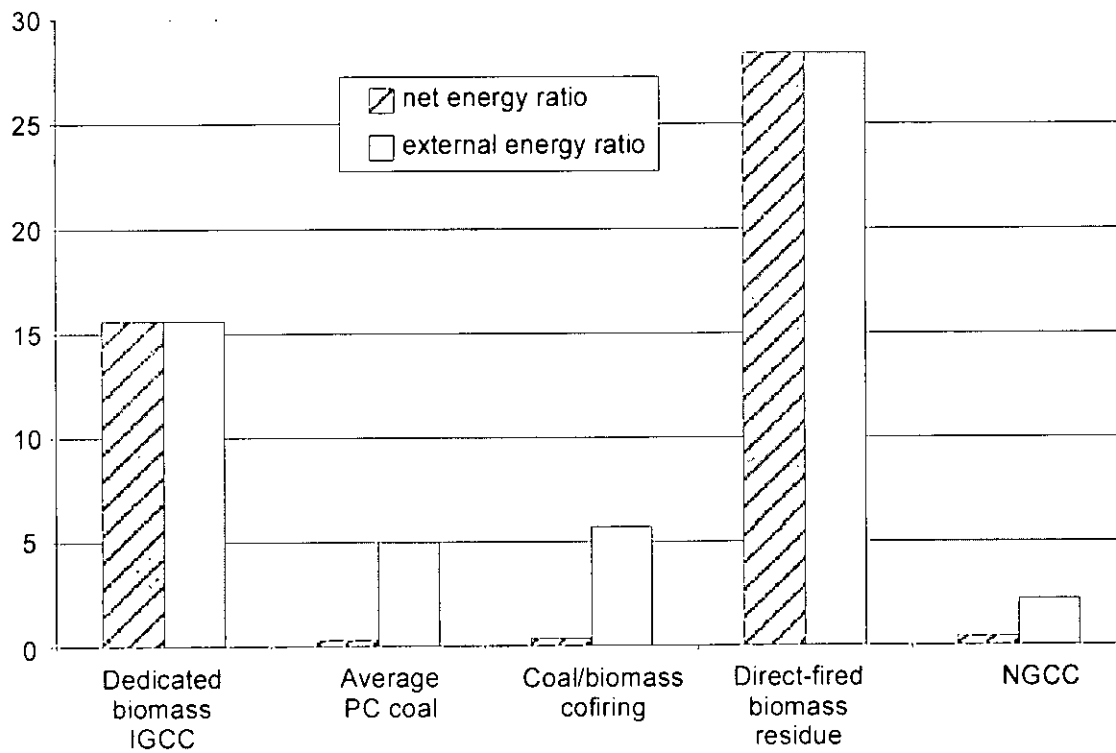
## SUMMARY

Completing several life cycle assessment studies has allowed us to determine where biomass power systems reduce the environmental burden associated with power generation. The key comparative results can be summarized as follows:

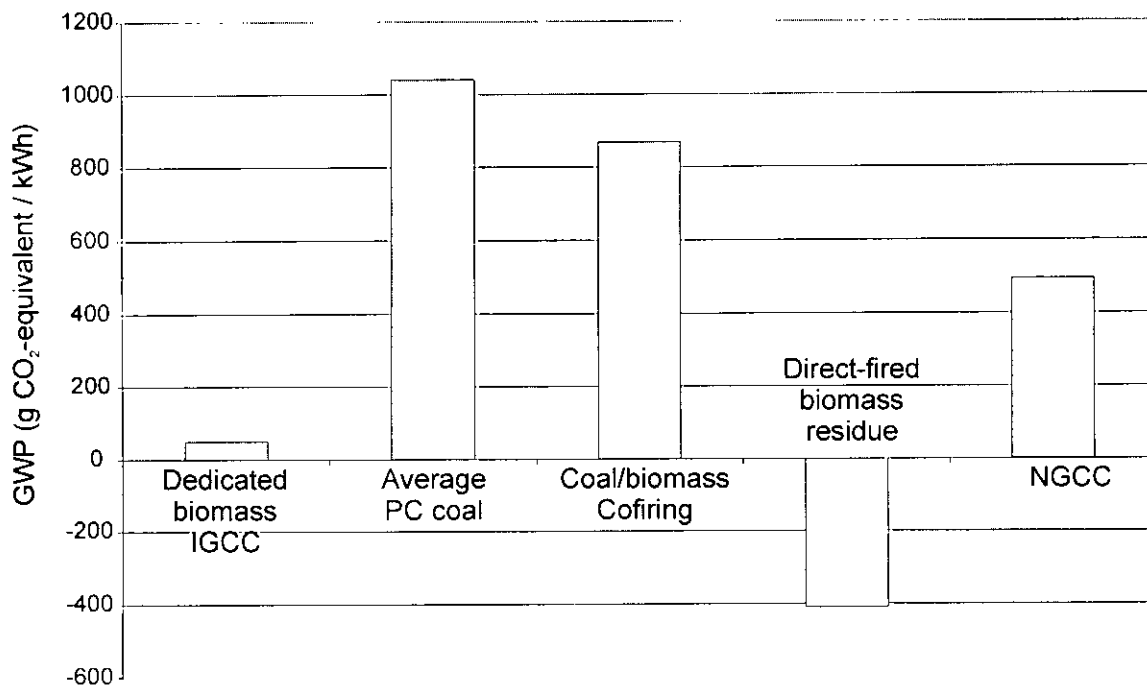
- The GWP of generating electricity using a dedicated energy crop in an IGCC system is 4.7% of that of an average U.S. coal power system.
- Cofiring residue biomass at 15% by heat input reduces the greenhouse gas emissions and net energy consumption of the average coal system by 18% and 12%, respectively.
- The life cycle energy consumption of the coal and natural gas systems are significantly lower than those of the biomass systems because of the consumption of non-renewable resources.
- Not counting the coal and natural gas consumed at the power plants in these systems, the net energy consumption is still lower than that of the biomass systems because of energy used in processes related to flue gas clean-up, transportation, and natural gas extraction and coal mining.
- The biomass systems produce very low levels of particulates, NO<sub>x</sub>, and SO<sub>x</sub> compared to the fossil systems.
- System methane emissions are negative when residue biomass is used because of avoided decomposition emissions.
- The biomass systems consume very small quantities of natural resources compared to the fossil systems.
- Other than natural gas, the natural gas IGCC consumes small amounts of resources.

These results demonstrate that overall, biomass power provides significant environmental benefits over conventional fossil-based power systems. In particular, biomass systems can significantly reduce the amount of greenhouse gases that are produced, per kWh of electricity generated. Additionally, because the biomass systems use renewable energy instead of non-renewable fossil fuels, they consume very small quantities of natural resources and have a positive net energy balance. Cofiring biomass with coal offers us an opportunity to reduce the environmental burdens associated with the coal-fired power systems that currently generate over half of the electricity in the United States. Finally, by reducing NO<sub>x</sub>, SO<sub>x</sub>, and particulates, biomass power can improve local air quality over coal-fired power generation.

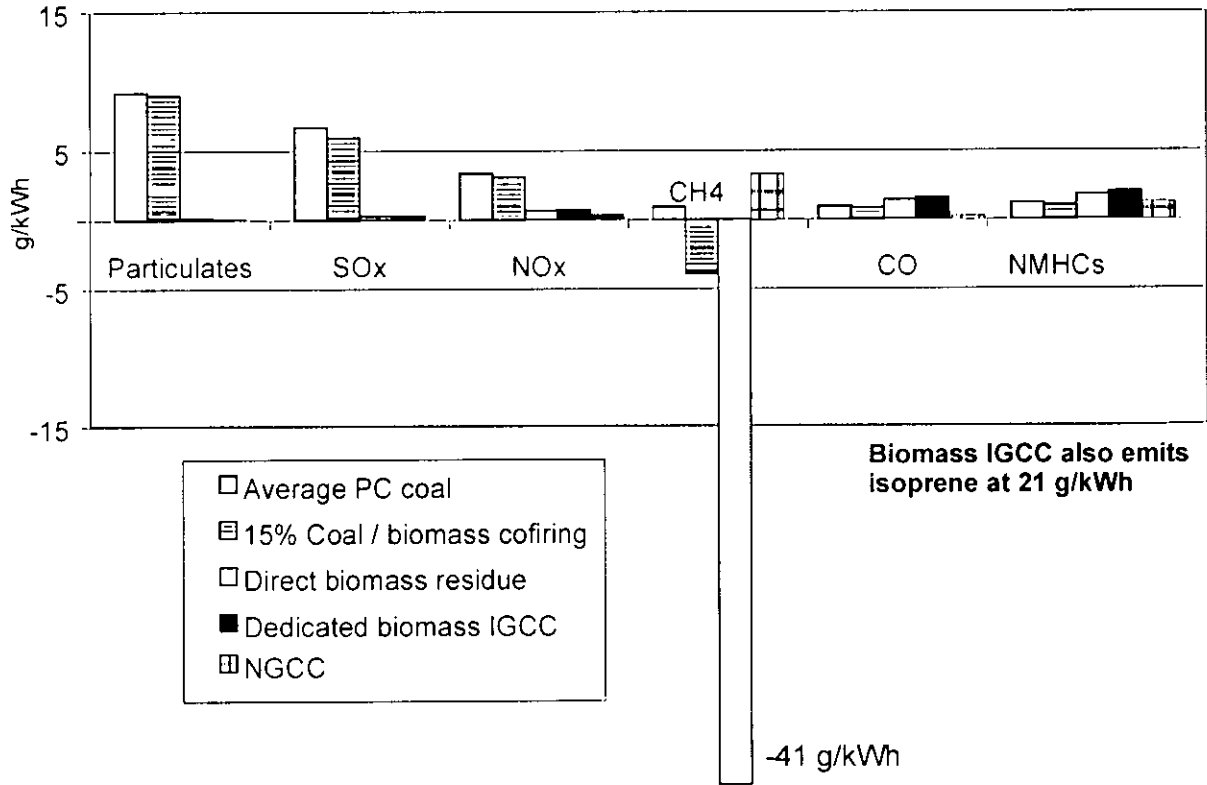
**Figure 1: Life Cycle Energy Balance**



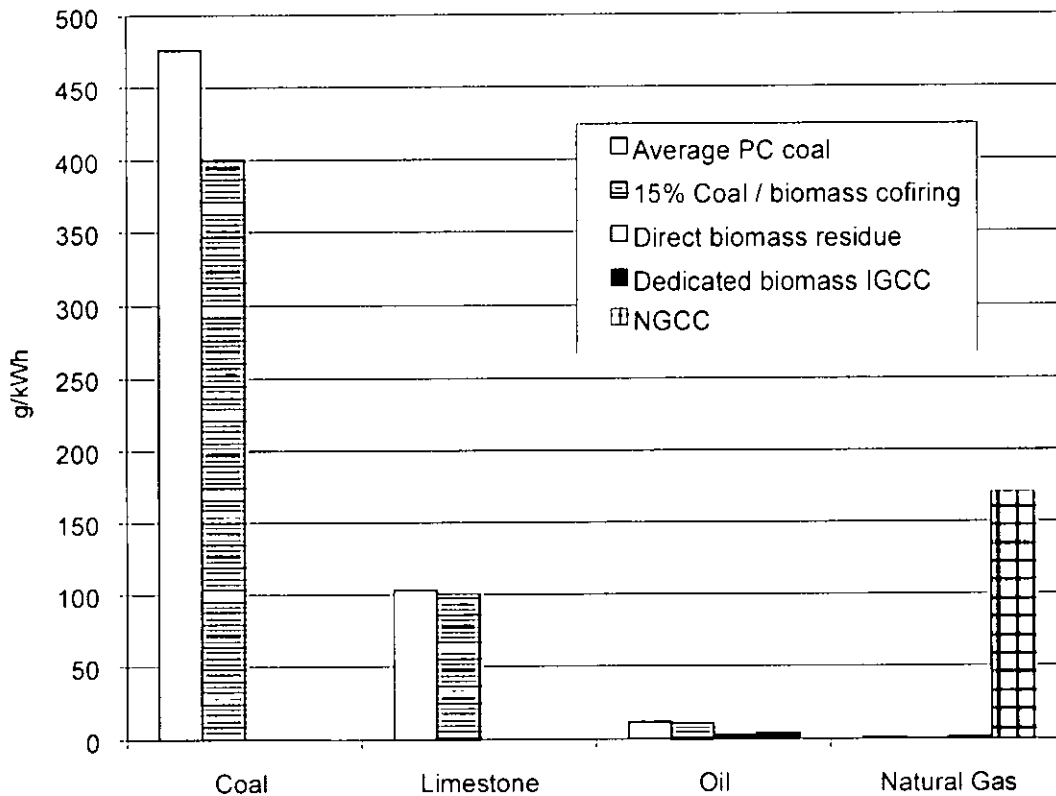
**Figure 2: Net Life Cycle Greenhouse Gas Emissions**



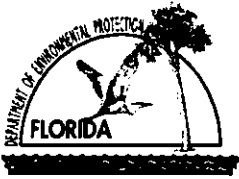
**Figure 3: Other Air Emissions**



**Figure 4: Resource Consumption**



## **APPLICATION FORMS**



# Department of Environmental Protection

## Division of Air Resource Management

### APPLICATION FOR AIR PERMIT - LONG FORM

#### I. APPLICATION INFORMATION

**Air Construction Permit** – Use this form to apply for an air construction permit:

- For 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: <b>BG&amp;E of Tallahassee, LLC</b>	
2. Site Name: <b>Tallahassee Renewable Energy Center</b>	
3. Facility Identification Number: <b>TBD</b>	
4. Facility Location...: <b>Lipona at Roberts Rd.</b> Street Address or Other Locator: City: <b>Tallahassee</b> County: <b>Leon</b> Zip Code: _____	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### Application Contact

1. Application Contact Name: <b>Glenn Farris, President &amp; CEO</b>	
2. Application Contact Mailing Address... Organization/Firm: <b>BG&amp;E</b> Street Address: <b>3500 Parkway Lane, Suite 400</b> City: <b>Atlanta</b> State: <b>GA</b> Zip Code: <b>30092</b>	
3. Application Contact Telephone Numbers... Telephone: <b>(770) 662-0256</b> ext. Fax: <b>(770) 662-0287</b>	
4. Application Contact Email Address: <b>glenn@biggreenenergy.com</b>	

#### Application Processing Information (DEP Use)

1. Date of Receipt of Application: <b>4/3/08</b>	3. PSD Number (if applicable):
2. Project Number(s): <b>0730/09-001-AE</b>	4. Siting Number (if applicable):



## APPLICATION INFORMATION

### Purpose of Application

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

#### **Air Construction Permit**

- Air construction permit.
- Air 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

**Application is for the construction of a nominal 42 MW (net) combined cycle unit consisting of two combustion turbines (CTs) and associated heat recovery steam generators (HRSGs) including HRSG duct burners, a material handling system, a biomass gasification system, a dryer, an auxiliary boiler, an emergency flare system, and two mechanical draft cooling towers.**

**APPLICATION INFORMATION**

**Scope of Application**

<b>Emissions Unit ID Number</b>	<b>Description of Emissions Unit</b>	<b>Air Permit Type</b>	<b>Air Permit Proc. Fee</b>
	CT/DB 1A & 1B	AC1A	5,000
	Gasifier Combuster	AC1A	2,000
	Dryer	AC1A	250
	Auxiliary Boiler	AC1A	250
	Emergency Flares	AC1A	250
	Cooling Towers	AC1A	250
	Material Handling	AC1A	1,000

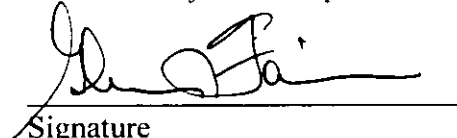
**Application Processing Fee**

**Check one:**  Attached - Amount: \$ 9,000  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 : <b>Glenn Farris, President &amp; CEO</b>
2. Owner/Authorized Representative Mailing Address... Organization/Firm: <b>BG&amp;E</b> Street Address: <b>3500 Parkway Lane, Suite 400</b> City: <b>Atlanta</b> State: <b>GA</b> Zip Code: <b>30092</b>
3. Owner/Authorized Representative Telephone Numbers... Telephone: <b>(770) 662-0256</b> ext. Fax: <b>(770) 662-0287</b>
4. Owner/Authorized Representative Email Address: <b>glenn@biggreenenergy.com</b>
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>   Signature  <u>3-27-08</u> Date

## APPLICATION INFORMATION

### Application Responsible Official Certification

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

1. Application Responsible Official Name:
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source, CAIR source, or Hg Budget 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 Email Address:

## APPLICATION INFORMATION

### 6. Application Responsible Official Certification:

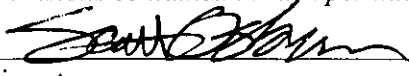
*I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, 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

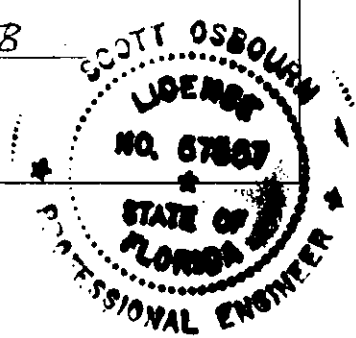
# APPLICATION INFORMATION

## Professional Engineer Certification

1. Professional Engineer Name: <b>Scott H. Osbourn</b> Registration Number: <b>57557</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Golder Associates Inc.**</b> Street Address: <b>5100 West Lemon Street, Suite 114</b> City: <b>Tampa</b> State: <b>FL</b> Zip Code: <b>33609</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(813) 287-1717</b> ext. <b>53304</b> Fax: <b>(813) 287-1716</b>
4. Professional Engineer Email Address: <b>sosbourn@golder.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i>  (1) <i>To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i>  (2) <i>To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i>  (3) <i>If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so). I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i>  (4) <i>If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so). I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i>  (5) <i>If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so). I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  Signature: <u></u> Date: <u>4/1/08</u>  (seal)

\* Attach any exception to certification statement.

\*\* Board of Professional Engineers Certificate of Authorization #00001670



## FACILITY INFORMATION

### II. FACILITY INFORMATION

#### A. GENERAL FACILITY INFORMATION

##### Facility Location and Type

1. Facility UTM Coordinates... Zone <b>16</b> East (km) <b>757,468.46</b> North (km) <b>3,369,550.44</b>		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) <b>30/25/58.4 N</b> Longitude (DD/MM/SS) <b>84/19/14.3 W</b>	
3. Governmental Facility Code: <b>0</b>	4. Facility Status Code: <b>A</b>	5. Facility Major Group SIC Code: <b>49</b>	6. Facility SIC(s): <b>4911</b>
7. Facility Comment : <b>The project consists of the construction of a nominal 42 MW (net) combined cycle unit consisting of two combustion turbines (CTs) and associated heat recovery steam generators (HRSGs) including HRSG duct burners, a material handling system, a biomass gasification system, a dryer, an auxiliary boiler, an emergency flare system, and two mechanical draft cooling towers.</b>			

##### Facility Contact

1. Facility Contact Name: <b>Glenn Farris, President &amp; CEO</b>
2. Facility Contact Mailing Address... Organization/Firm: <b>BG&amp;E</b> Street Address: <b>3500 Parkway Lane, Suite 400</b> City: <b>Atlanta</b> State: <b>GA</b> Zip Code: <b>30092</b>
3. Facility Contact Telephone Numbers: Telephone: <b>(770) 662-0256</b> ext. Fax: <b>(770) 662-0287</b>
4. Facility Contact Email Address: <a href="mailto:glenn@biggreenenergy.com">glenn@biggreenenergy.com</a>

##### 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 Email Address:

## FACILITY INFORMATION

### Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a “major source” and a “synthetic minor source.”

1. <input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:  <b>4. Less than major source threshold (250 TPY) for PSD applicability</b> <b>8. CT and HRSG Duct Burners – NSPS Subpart KKKK</b>	



**FACILITY INFORMATION**

**List of Pollutants Emitted by Facility**

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
<b>PM</b>	<b>A</b>	<b>N</b>
<b>PM<sub>10</sub></b>	<b>A</b>	<b>N</b>
<b>SO<sub>2</sub></b>	<b>A</b>	<b>N</b>
<b>NO<sub>x</sub></b>	<b>A</b>	<b>N</b>
<b>CO</b>	<b>A</b>	<b>N</b>
<b>VOC</b>	<b>A</b>	<b>N</b>

**FACILITY INFORMATION**

**B. EMISSIONS CAPS**

**Facility-Wide or Multi-Unit Emissions Caps**

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID No.s Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

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

## FACILITY INFORMATION

### C. FACILITY ADDITIONAL INFORMATION

#### Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Previously Submitted, Date: _____
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Previously Submitted, Date: _____

#### Additional Requirements for Air Construction Permit Applications

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

## FACILITY INFORMATION

### C. FACILITY ADDITIONAL INFORMATION

#### Additional Requirements for FESOP Applications

- |  |
|--|
| 1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1.. F.A.C.):<br><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> 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):<br><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> 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):<br><input type="checkbox"/> Attached, Document ID: _____<br><input type="checkbox"/> Not Applicable (revision application with no change in applicable requirements)  |
| 3. Compliance Report and Plan (Required for all initial/revision/renewal applications):<br><input type="checkbox"/> Attached, Document ID: _____<br>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):<br><input type="checkbox"/> Attached, Document ID: _____<br><input type="checkbox"/> Equipment/Activities On site but Not Required to be Individually Listed<br><input type="checkbox"/> Not Applicable  |
| 5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) :<br><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable   |
| 6. Requested Changes to Current Title V Air Operation Permit:<br><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable   |

**FACILITY INFORMATION**

**C. FACILITY ADDITIONAL INFORMATION**

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

<p>1. Acid Rain Program Forms:</p> <p>Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):</p> <p><input checked="" type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input type="checkbox"/> Not Applicable (not an Acid Rain source)</p> <p>Phase II NO<sub>x</sub> Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input type="checkbox"/> Not Applicable</p> <p>New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input type="checkbox"/> Not Applicable</p>
<p>2. CAIR Part (DEP Form No. 62-210.900(1)(b)):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input checked="" type="checkbox"/> Not Applicable (not a CAIR source)</p>
<p>3. Hg Budget Part (DEP Form No. 62-210.900(1)(c)):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input checked="" type="checkbox"/> Not Applicable (not a Hg Budget unit)</p>

**Additional Requirements Comment**

# Acid Rain Part Application

For more information, see instructions and refer to 40 CFR 72.30, 72.31, and 74; and Chapter 62-214, F.A.C.

This submission is:    New         Revised         Renewal

**STEP 1**

Identify the source by plant name, state, and ORIS or plant code.

Plant name <b>Tallahassee Renewable Energy Center</b>	State <b>FL</b>	<b>TBD</b> ORIS/Plant Code
---	-----------------	-------------------------------

**STEP 2**

Enter the unit ID# for every Acid Rain unit at the Acid Rain source in column "a."

If unit a SO<sub>2</sub> Opt-in unit, enter "yes" in column "b".

For new units or SO<sub>2</sub> Opt-in units, enter the requested information in columns "d" and "e."

a	b	c	d	e
Unit ID#	SO <sub>2</sub> Opt-in Unit? (Yes or No)	Unit will hold allowances in accordance with 40 CFR 72.9(c)(1)	New or SO <sub>2</sub> Opt-in Units  Commence Operation Date	New or SO <sub>2</sub> Opt-in Units  Monitor Certification Deadline
<b>001A</b>	<b>N</b>	Yes	<b>7/2010</b>	<b>1/2011</b>
<b>001B</b>	<b>N</b>	Yes	<b>7/2010</b>	<b>1/2011</b>
		Yes		
		Yes		
		Yes		
		Yes		
		Yes		
		Yes		
		Yes		
		Yes		
		Yes		
		Yes		
		Yes		
		Yes		

Plant Name (from STEP 1)

### STEP 3

#### Read the standard requirements.

#### Acid Rain Part Requirements.

- (1) The designated representative of each Acid Rain source and each Acid Rain unit at the source shall:
  - (i) Submit a complete Acid Rain Part application (including a compliance plan) under 40 CFR Part 72 and Rules 62-214.320 and 330, F.A.C., in accordance with the deadlines specified in Rule 62-214.320, F.A.C.; and
  - (ii) Submit in a timely manner any supplemental information that the DEP determines is necessary in order to review an Acid Rain Part application and issue or deny an Acid Rain Part.
- (2) The owners and operators of each Acid Rain source and each Acid Rain unit at the source shall:
  - (i) Operate the unit in compliance with a complete Acid Rain Part application or a superseding Acid Rain Part issued by the DEP; and
  - (ii) Have an Acid Rain Part.

#### Monitoring Requirements.

- (1) The owners and operators and, to the extent applicable, designated representative of each Acid Rain source and each Acid Rain unit at the source shall comply with the monitoring requirements as provided in 40 CFR Part 75, and Rule 62-214.420, F.A.C.
- (2) The emissions measurements recorded and reported in accordance with 40 CFR Part 75 shall be used to determine compliance by the unit with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program.
- (3) The requirements of 40 CFR Part 75 shall not affect the responsibility of the owners and operators to monitor emissions of other pollutants or other emissions characteristics at the unit under other applicable requirements of the Act and other provisions of the operating permit for the source.
- (4) For applications including a SO<sub>2</sub> Opt-in unit, a monitoring plan for each SO<sub>2</sub> Opt-in unit must be submitted with this application pursuant to 40 CFR 74.14(a). For renewal applications for SO<sub>2</sub> Opt-in units include an updated monitoring plan if applicable under 40 CFR 75.53(b).

#### Sulfur Dioxide Requirements.

- (1) The owners and operators of each source and each Acid Rain unit at the source shall:
  - (i) Hold allowances, as of the allowance transfer deadline, in the unit's compliance subaccount (after deductions under 40 CFR 73.34(c)), or in the compliance subaccount of another Acid Rain unit at the same source to the extent provided in 40 CFR 73.35(b)(3), not less than the total annual emissions of sulfur dioxide for the previous calendar year from the unit; and
  - (ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide.
- (2) Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.
- (3) An Acid Rain unit shall be subject to the requirements under paragraph (1) of the sulfur dioxide requirements as follows:
  - (i) Starting January 1, 2000, an Acid Rain unit under 40 CFR 72.6(a)(2); or
  - (ii) Starting on the later of January 1, 2000, or the deadline for monitor certification under 40 CFR Part 75, an Acid Rain unit under 40 CFR 72.6(a)(3).
- (4) Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.
- (5) An allowance shall not be deducted in order to comply with the requirements under paragraph (1) of the sulfur dioxide requirements prior to the calendar year for which the allowance was allocated.
- (6) An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain Part application, the Acid Rain Part, or an exemption under 40 CFR 72.7 or 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.
- (7) An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right.

Nitrogen Oxides Requirements. The owners and operators of the source and each Acid Rain unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides

#### Excess Emissions Requirements.

- (1) The designated representative of an Acid Rain unit that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR Part 77.
- (2) The owners and operators of an Acid Rain unit that has excess emissions in any calendar year shall:
  - (i) Pay without demand the penalty required, and pay upon demand the interest on that penalty, as required by 40 CFR Part 77; and
  - (ii) Comply with the terms of an approved offset plan, as required by 40 CFR Part 77.

#### Recordkeeping and Reporting Requirements.

- (1) Unless otherwise provided, the owners and operators of the source and each Acid Rain unit at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the EPA or the DEP:
  - (i) The certificate of representation for the designated representative for the source and each Acid Rain unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with Rule 62-214.350, F.A.C.; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such documents are superseded because of the submission of a new certificate of representation changing the designated representative;
  - (ii) All emissions monitoring information, in accordance with 40 CFR Part 75, provided that to the extent that 40 CFR Part 75 provides for a 3-year period for recordkeeping, the 3-year period shall apply;
  - (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program; and,

Plant Name (from STEP 1) **Tallahassee Renewable Energy Center**

**STEP 3,  
Continued.**

**Recordkeeping and Reporting Requirements (cont)**

(iv) Copies of all documents used to complete an Acid Rain Part application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program

(2) The designated representative of an Acid Rain source and each Acid Rain unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR Part 72, Subpart I, and 40 CFR Part 75

**Liability.**

(1) Any person who knowingly violates any requirement or prohibition of the Acid Rain Program, a complete Acid Rain Part application, an Acid Rain Part, or an exemption under 40 CFR 72.7 or 72.8, including any requirement for the payment of any penalty owed to the United States, shall be subject to enforcement pursuant to section 113(c) of the Act.

(2) Any person who knowingly makes a false, material statement in any record, submission, or report under the Acid Rain Program shall be subject to criminal enforcement pursuant to section 113(c) of the Act and 18 U.S.C. 1001.

(3) No permit revision shall excuse any violation of the requirements of the Acid Rain Program that occurs prior to the date that the revision takes effect.

(4) Each Acid Rain source and each Acid Rain unit shall meet the requirements of the Acid Rain Program.

(5) Any provision of the Acid Rain Program that applies to an Acid Rain source (including a provision applicable to the designated representative of an Acid Rain source) shall also apply to the owners and operators of such source and of the Acid Rain units at the source.

(6) Any provision of the Acid Rain Program that applies to an Acid Rain unit (including a provision applicable to the designated representative of an Acid Rain unit) shall also apply to the owners and operators of such unit. Except as provided under 40 CFR 72.44 (Phase II repowering extension plans) and 40 CFR 76.11 (NO<sub>x</sub> averaging plans), and except with regard to the requirements applicable to units with a common stack under 40 CFR Part 75 (including 40 CFR 75.16, 75.17, and 75.18), the owners and operators and the designated representative of one Acid Rain unit shall not be liable for any violation by any other Acid Rain unit of which they are not owners or operators or the designated representative and that is located at a source of which they are not owners or operators or the designated representative.

(7) Each violation of a provision of 40 CFR Parts 72, 73, 74, 75, 76, 77, and 78 by an Acid Rain source or Acid Rain unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

**Effect on Other Authorities.**

No provision of the Acid Rain Program, an Acid Rain Part application, an Acid Rain Part, or an exemption under 40 CFR 72.7 or 72.8 shall be construed as:

(1) Except as expressly provided in title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an Acid Rain source or Acid Rain unit from compliance with any other provision of the Act, including the provisions of title I of the Act relating to applicable National Ambient Air Quality Standards or State Implementation Plans;

(2) Limiting the number of allowances a unit can hold; *provided*, that the number of allowances held by the unit shall not affect the source's obligation to comply with any other provisions of the Act;

(3) Requiring a change of any kind in any state law regulating electric utility rates and charges, affecting any state law regarding such state regulation, or limiting such state regulation, including any prudence review requirements under such state law;

(4) Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or,

(5) Interfering with or impairing any program for competitive bidding for power supply in a state in which such program is established.

**STEP 4**

**For SO<sub>2</sub> Opt-in units only.**

**In column "f" enter the unit ID# for every SO<sub>2</sub> Opt-in unit identified in column "a" of STEP 2.**

**For column "g" describe the combustion unit and attach information and diagrams on the combustion unit's configuration.**

**In column "h" enter the hours.**

f	g	h (not required for renewal application)
Unit ID#	Description of the combustion unit	Number of hours unit operated in the six months preceding initial application



Plant Name (from STEP 1) **Tallahassee Renewable Energy**

**STEP 5**

For SO<sub>2</sub> Opt-in units only. (Not required for SO<sub>2</sub> Opt-in renewal applications.)

In column "i" enter the unit ID# for every SO<sub>2</sub> Opt-in unit identified in column "a" (and in column "f").

For columns "j" through "n," enter the information required under 40 CFR 74.20-74.25 and attach all supporting documentation required by 40 CFR 74.20-74.25.

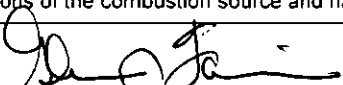
i	j	k	l	m	n
Unit ID#	Baseline or Alternative Baseline under 40 CFR 74.20 (mmBtu)	Actual SO <sub>2</sub> Emissions Rate under 40 CFR 74.22 (lbs/mmBtu)	Allowable 1985 SO <sub>2</sub> Emissions Rate under 40 CFR 74.23 (lbs/mmBtu)	Current Allowable SO <sub>2</sub> Emissions Rate under 40 CFR 74.24 (lbs/mmBtu)	Current Promulgated SO <sub>2</sub> Emissions Rate under 40 CFR 74.25 (lbs/mmBtu)

**STEP 6**

For SO<sub>2</sub> Opt-in units only.

Attach additional requirements, certify and sign.

- A. If the combustion source seeks to qualify for a transfer of allowances from the replacement of thermal energy, a thermal energy plan as provided in 40 CFR 74.47 for combustion sources must be attached.
- B. A statement whether the combustion unit was previously an affected unit under 40 CFR 74.
- C. A statement that the combustion unit is not an affected unit under 40 CFR 72.6 and does not have an exemption under 40 CFR 72.7, 72.8, or 72.14.
- D. Attach a complete compliance plan for SO<sub>2</sub> under 40 CFR 72.40.
- E. The designated representative of the combustion unit shall submit a monitoring plan in accordance with 40 CFR 74.61. For renewal application, submit an updated monitoring plan if applicable under 40 CFR 75.53(b).
- F. The following statement must be signed by the designated representative or alternate designated representative of the combustion source: "I certify that the data submitted under 40 CFR Part 74, Subpart C, reflects actual operations of the combustion source and has not been adjusted in any way."

Signature 	Date <b>3.27.08</b>
---	---------------------

**STEP 7**

Read the certification statement; provide name, title, owner company name, phone, and e-mail address; sign, and date.

**Certification (for designated representative or alternate designated representative only)**

I am authorized to make this submission on behalf of the owners and operators of the Acid Rain source or Acid Rain units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name <b>Glenn Farris</b>	Title <b>President &amp; CEO</b>
--------------------------	----------------------------------

Owner Company Name <b>Tallahassee Renewable Energy Center</b>
---

Phone <b>(770) 662-0256</b>	E-mail address <b>glenn@biggreenenergy.com</b>
-----------------------------	--

Signature 	Date <b>3.27.08</b>
---	---------------------



# Certificate of Representation

Page

For more information, see instructions and 40 CFR 72.24, 40 CFR 96.113, 96.213, or 96.313, or a comparable state regulation under the Clean Air Interstate Rule (CAIR) NO<sub>x</sub> Annual, SO<sub>2</sub>, and NO<sub>x</sub> Ozone Season Trading Programs, or 40 CFR 97.113, 97.213, or 97.313, as applicable.

This submission is:  New  Revised (revised submissions must be complete; see instructions)

## FACILITY (SOURCE) INFORMATION

**STEP 1**  
Provide information for the facility (source).

Facility (Source) Name <b>Tallahassee Renewable Energy Center</b>	State <b>FL</b>	Plant Code <b>TBD</b>
County Name <b>Leon</b>		
Latitude <b>30/25/58.4 N</b>	Longitude <b>84/19/14.3 W</b>	

**STEP 2**  
Enter requested information for the designated representative.

Name <b>Glenn Farris</b>	Title <b>President &amp; CEO</b>
Company Name <b>BG&amp;E of Tallahassee, LLC d/b/a Biomass Gas &amp; Electric of Tallahassee</b>	
Address <b>3500 Parkway Lane, Suite 440, Norcross, GA 30092</b>	
Phone Number <b>(770) 662-0256</b>	Fax Number <b>(770) 662-0287</b>
E-mail address <b>glenn@biggreenenergy.com</b>	

**STEP 3**  
Enter requested information for the alternate designated representative.

Name	Title
Company Name	
Address	
Phone Number	Fax Number
E-mail address	

Facility (Source) Name (from Step 1) **Tallahassee Renewable Energy Center**

**UNIT INFORMATION**

**STEP 4: Complete one page for each unit located at the facility identified in STEP 1** (i.e., for each boiler, simple cycle combustion turbine, or combined cycle combustion turbine.) Do not list duct burners. Indicate each program to which the unit is subject, and enter all other unit-specific information, including the name of each owner and operator of the unit and the generator ID number and nameplate capacity of each generator served by the unit. If the unit is subject to a program, then the facility (source) is also subject. (For units subject to the NO<sub>x</sub> Budget Trading Program, a separate "Account Certificate of Representation" form must be submitted to meet requirements under that program.)

Applicable Program(s): ~ Acid Rain ~ CAIR NO<sub>x</sub> Annual ~ CAIR SO<sub>2</sub> ~ CAIR NO<sub>x</sub> Ozone Season

Unit ID# <b>001A</b>	Unit Type: <b>CT</b>	Source Category <b>Industrial Turbine</b>	Generator ID Number	Acid Rain Capacity
		NAICS Code <b>22 -Utilities</b>	<b>Solar Model T-130</b>	<b>14.8</b>
Date unit began (or will begin) serving any generator producing electricity for sale (including test generation) (mm/dd/yyyy): <b>7/2010</b>		Check One: Actual ~ Projected ~		
Company Name: <b>Tallahassee Renewable Energy Center</b>			<input checked="" type="checkbox"/> Owner	<input type="checkbox"/> Operator
Company Name:			<input type="checkbox"/> Owner	<input type="checkbox"/> Operator
Company Name:			<input type="checkbox"/> Owner	<input type="checkbox"/> Operator
Company Name:			<input type="checkbox"/> Owner	<input type="checkbox"/> Operator
Company Name:			<input type="checkbox"/> Owner	<input type="checkbox"/> Operator

Facility (Source) Name (from Step 1) **Tallahassee Renewable Energy Center**

**UNIT INFORMATION**

**STEP 4: Complete one page for each unit located at the facility identified in STEP 1** (i.e., for each boiler, simple cycle combustion turbine, or combined cycle combustion turbine.) Do not list duct burners. Indicate each program to which the unit is subject, and enter all other unit-specific information, including the name of each owner and operator of the unit and the generator ID number and nameplate capacity of each generator served by the unit. If the unit is subject to a program, then the facility (source) is also subject. (For units subject to the NO<sub>x</sub> Budget Trading Program, a separate "Account Certificate of Representation" form must be submitted to meet requirements under that program.)

**Applicable Program(s):** ~ Acid Rain ~ CAIR NO<sub>x</sub> Annual ~ CAIR SO<sub>2</sub> ~ CAIR NO<sub>x</sub> Ozone Season

Unit ID#	Unit Type	Source Category	Generator ID Number	Acid Rain Capacity
			001B	CT
		NAICS Code 22 -Utilities		
Date unit began (or will begin) serving any generator producing electricity for sale (including test generation) (mm/dd/yyyy): 7/2010			Check One: Actual ~ Projected ~	
Company Name: Tallahassee Renewable Energy Center				<input checked="" type="checkbox"/> Owner ~ Operator
Company Name:				~ Owner ~ Operator
Company Name:				~ Owner ~ Operator
Company Name:				~ Owner ~ Operator
Company Name:				~ Owner ~ Operator

**STEP 5: Read the certifications, sign and date.**

Acid Rain Program

I certify that I was selected as the designated representative or alternate designated representative (as applicable) by an agreement binding on the owners and operators of the affected source and each affected unit at the source (i.e., the source and each unit subject to the Acid Rain Program, as indicated in Applicable Program(s) in Step 4).

I certify that I have all necessary authority to carry out my duties and responsibilities under the Acid Rain Program on behalf of the owners and operators of the affected source and each affected unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions.

I certify that the owners and operators of the affected source and each affected unit at the source shall be bound by any order issued to me by the Administrator, the permitting authority, or a court regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, an affected unit, or where a utility or industrial customer purchases power from an affected unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the designated representative or alternate designated representative (as applicable) and of the agreement by which I was selected to each owner and operator of the affected source and each affected unit at the source; and

Allowances, and proceeds of transactions involving allowances, will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of allowances, allowances and proceeds of transactions involving allowances will be deemed to be held or distributed in accordance with the contract.

Clean Air Interstate Rule (CAIR) NO<sub>x</sub> Annual Trading Program

I certify that I was selected as the CAIR designated representative or alternate CAIR designated representative (as applicable), by an agreement binding on the owners and operators of the CAIR NO<sub>x</sub> source and each CAIR NO<sub>x</sub> unit at the source (i.e., the source and each unit subject to the CAIR NO<sub>x</sub> Annual Trading Program, as indicated in Applicable Program(s) in Step 4).

I certify that I have all necessary authority to carry out my duties and responsibilities under the CAIR NO<sub>x</sub> Annual Trading Program on behalf of the owners and operators of the CAIR NO<sub>x</sub> source and each CAIR NO<sub>x</sub> unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions.

I certify that the owners and operators of the CAIR NO<sub>x</sub> source and each CAIR NO<sub>x</sub> unit at the source shall be bound by any order issued to me by the Administrator, the permitting authority, or a court regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, a CAIR NO<sub>x</sub> unit, or where a utility or industrial customer purchases power from a CAIR NO<sub>x</sub> unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the CAIR designated representative or alternate CAIR designated representative (as applicable) and of the agreement by which I was selected to each owner and operator of the CAIR NO<sub>x</sub> source and each CAIR NO<sub>x</sub> unit at the source; and

CAIR NO<sub>x</sub> allowances and proceeds of transactions involving CAIR NO<sub>x</sub> allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of CAIR NO<sub>x</sub> allowances by contract, CAIR NO<sub>x</sub> allowances and proceeds of transactions involving CAIR NO<sub>x</sub> allowances will be deemed to be held or distributed in accordance with the contract.

Clean Air Interstate Rule (CAIR) SO<sub>2</sub> Trading Program

I certify that I was selected as the CAIR designated representative or alternate CAIR designated representative (as applicable), by an agreement binding on the owners and operators of the CAIR SO<sub>2</sub> source and each CAIR SO<sub>2</sub> unit at the source (i.e., the source and each unit subject to the SO<sub>2</sub> Trading Program, as indicated in Applicable Program(s) in Step 4).

I certify that I have all necessary authority to carry out my duties and responsibilities under the CAIR SO<sub>2</sub> Trading Program, on behalf of the owners and operators of the CAIR SO<sub>2</sub> source and each CAIR SO<sub>2</sub> unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions.

I certify that the owners and operators of the CAIR SO<sub>2</sub> source and each CAIR SO<sub>2</sub> unit at the source shall be bound by any order issued to me by the Administrator, the permitting authority, or a court regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, a CAIR SO<sub>2</sub> unit, or where a utility or industrial customer purchases power from a CAIR SO<sub>2</sub> unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the CAIR designated representative or alternate CAIR designated representative (as applicable) and of the agreement by which I was selected to each owner and operator of the CAIR SO<sub>2</sub> source and each CAIR SO<sub>2</sub> unit at the source; and

CAIR SO<sub>2</sub> allowances and proceeds of transactions involving CAIR SO<sub>2</sub> allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of CAIR SO<sub>2</sub> allowances by contract, CAIR SO<sub>2</sub> allowances and proceeds of transactions involving CAIR SO<sub>2</sub> allowances will be deemed to be held or distributed in accordance with the contract.

Clean Air Interstate Rule (CAIR) NO<sub>x</sub> Ozone Season Trading Program

I certify that I was selected as the CAIR designated representative or alternate CAIR designated representative (as applicable), by an agreement binding on the owners and operators of the CAIR NO<sub>x</sub> Ozone Season source and each CAIR NO<sub>x</sub> Ozone Season unit at the source (i.e., the source and each unit subject to the CAIR NO<sub>x</sub> Ozone Season Trading Program, as indicated in Applicable Program(s) in Step 4).

I certify that I have all necessary authority to carry out my duties and responsibilities under the CAIR NO<sub>x</sub> Ozone Season Trading Program on behalf of the owners and operators of the CAIR NO<sub>x</sub> Ozone Season source and each CAIR NO<sub>x</sub> Ozone Season unit at the source and that each such owner and operator shall be fully bound by my representations, actions, inactions, or submissions.

I certify that the owners and operators of the CAIR NO<sub>x</sub> Ozone Season source and each CAIR NO<sub>x</sub> Ozone Season unit shall be bound by any order issued to me by the Administrator, the permitting authority, or a court regarding the source or unit.


Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, a CAIR NO<sub>x</sub> Ozone Season unit, or where a utility or industrial customer purchases power from a CAIR NO<sub>x</sub> Ozone Season unit under a life-of-the-unit, firm power contractual arrangement, I certify that:

I have given a written notice of my selection as the CAIR designated representative or alternate CAIR designated representative (as applicable) and of the agreement by which I was selected to each owner and operator of the CAIR NO<sub>x</sub> Ozone Season source and each CAIR NO<sub>x</sub> Ozone Season unit; and

CAIR NO<sub>x</sub> Ozone Season allowances and proceeds of transactions involving CAIR NO<sub>x</sub> Ozone Season allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement, except that, if such multiple holders have expressly provided for a different distribution of CAIR NO<sub>x</sub> Ozone Season allowances by contract, CAIR NO<sub>x</sub> Ozone Season allowances and proceeds of transactions involving CAIR NO<sub>x</sub> Ozone Season allowances will be deemed to be held or distributed in accordance with the contract.

General

I am authorized to make this submission on behalf of the owners and operators of the source or units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Signature (Designated Representative) 	Date 3.27.08
Signature (Alternate Designated Representative)	Date

## EMISSIONS UNIT INFORMATION

Section [1] of [7]  
Unit 1 CT/HRSG

### 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.



**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**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:  
**Two identical Solar Model T-130 CTs with HRSG duct burners. Units designated as 1A and 1B.**

3. Emissions Unit Identification Number: **1A and 1B**

4. Emissions Unit Status Code: <b>C</b>	5. Commence Construction Date: <b>9/2008</b>	6. Initial Startup Date: <b>7/2010</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
--	---	---	--

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

Acid Rain Unit

CAIR Unit

Hg Budget Unit

9. Package Unit:  
Manufacturer: \_\_\_\_\_ Model Number: \_\_\_\_\_

10. Generator Nameplate Rating: **(See comment below)** MW

11. Emissions Unit Comment:  
**The power block will have a nominal capacity of 50.3 MW (gross) and 42 MW (net) consisting of two CT/HRSG trains. Each CT is rated at 14.8 MW and the ST is rated at 20.7 MW. Emission unit information is presented for one CT/HRSG. Any differences in the information contained in the form and the emission calculations contained in the Report are due to round-off.**

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**Emissions Unit Control Equipment/Method: Control 1 of 3**

1. Control Equipment/Method Description:

- **Selective Catalytic Reduction (SCR)**

2. Control Device or Method Code: **25**

**Emissions Unit Control Equipment/Method: Control 2 of 3**

1. Control Equipment/Method Description:

- **Clean Fuels (Product Gas/Natural Gas)**

2. Control Device or Method Code: **28**

**Emissions Unit Control Equipment/Method: Control 3 of 3**

1. Control Equipment/Method Description:

- **Good Combustion Practices**

2. Control Device or Method Code: **65**

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

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**B. EMISSIONS UNIT CAPACITY INFORMATION**

(Optional for unregulated emissions units.)

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate:
2. Maximum Production Rate:
3. Maximum Heat Input Rate: <b>157.4 million Btu/hr</b>
4. Maximum Incineration Rate:     pounds/hr tons/day
5. Requested Maximum Operating Schedule: <b>24 hours/day</b> <b>7 days/week</b> <b>52 weeks/year</b> <b>8,760 hours/year</b>
6. Operating Capacity/Schedule Comment:  <b>Maximum heat input rate is for each CT firing product gas (natural gas used for startups), (LHV), 25°F. Each of the two DBs are rated at 28 MMBtu/hr (LHV).</b>

**EMISSIONS UNIT INFORMATION**Section [1] of [7]  
Unit 1 CT/HRSG**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: <b>See Report, ID Nos. 1A/1B</b>		2. Emission Point Type Code: <b>1</b>			
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:  <b>Exhausts through the HRSG stack.</b>					
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:					
5. Discharge Type Code: <b>V</b>		6. Stack Height: <b>TBD</b> feet		7. Exit Diameter: <b>TBD</b> feet	
8. Exit Temperature: <b>932 °F</b>		9. Actual Volumetric Flow Rate: <b>TBD</b> acfm		10. Water Vapor: <b>%</b>	
11. Maximum Dry Standard Flow Rate: <b>dscfm</b>			12. Nonstack Emission Point Height: <b>feet</b>		
13. Emission Point UTM Coordinates... Zone: East (km): North (km):			14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)		
15. Emission Point Comment:  <b>Emission point characteristics for baseload and product gas-firing at 59 degrees F.</b>					

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate: Segment 1 of 2**

1. Segment Description (Process/Fuel Type): <b>Internal Combustion Engines; Electric Generation; Product Gas; Turbine/DB</b>		
2. Source Classification Code (SCC): <b>2-01-002-01</b>		3. SCC Units: <b>Million cubic feet product gas burned</b>
4. Maximum Hourly Rate: <b>0.36</b>	5. Maximum Annual Rate: <b>2,960</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>0.002</b>	8. Maximum % Ash:	9. Million Btu per SCC Unit: <b>435</b>
10. Segment Comment: <b>Max hourly fuel usage based on baseload at 25 degrees F, 157.4 MMBtu/hr, and fuel LHV of 435 Btu/scf. Annual fuel usage based on 8,760 hours per year (hr/yr) operation at baseload and 59 degrees F. See Section 2.2.2. in Report for fuel usage during different operating conditions.</b>		

**Segment Description and Rate: Segment 2 of 2**

1. Segment Description (Process/Fuel Type): <b>Internal Combustion Engines; Electric Generation; Natural Gas; Turbine</b>		
2. Source Classification Code (SCC): <b>2-01-002-01</b>		3. SCC Units: <b>Million cubic feet natural gas burned</b>
4. Maximum Hourly Rate: <b>0.16</b>	5. Maximum Annual Rate: <b>112.5</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: <b>980</b>
10. Segment Comment: <b>Natural gas is only used as a startup fuel. Max hourly fuel usage based on baseload at 25 degrees F, 157.4 MMBtu/hr, and fuel LHV of 980 Btu/scf. Annual fuel usage based on 750 hours per year (hr/yr) operation at baseload and 59 degrees F. See Section 2.2.2. in Report for fuel usage during different operating conditions.</b>		

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]

Unit 1 CT/HRSG

**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
PM			EL
PM <sub>10</sub>			EL
SO <sub>2</sub>			EL
NO <sub>x</sub>	25, 28, 65	25, 28, 65	EL
CO			EL
VOC			EL

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**POLLUTANT DETAIL INFORMATION**

Page [1] of [6]  
Particulate Matter Total - PM

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>PM</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 7.2 lb/hour                      31.5 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>7.2 lb/hour</b>  Reference: <b>Solar, 2008; Golder, 2008.</b>		7. Emissions Method Code: <b>5</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>Emissions are for one CT/HRSG and represent product gas (worst-case). Specifically, for each hour on natural gas (startup), emissions will be less than represented for product gas. See Report, Table 3-2.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**POLLUTANT DETAIL INFORMATION**

Page [1] of [6]  
Particulate Matter Total - PM

**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 2**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>20% Opacity</b>	4. Equivalent Allowable Emissions: <b>7.2 lb/hour                      31.5 tons/year</b>
5. Method of Compliance: <b>Initial VE test using EPA Method 9.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Based on CT firing.</b>	

**Allowable Emissions Allowable Emissions 2 of 2**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>20% Opacity</b>	4. Equivalent Allowable Emissions: <b>lb/hour                      tons/year</b>
5. Method of Compliance: <b>Initial VE test using EPA Method 9.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Based on CT and DB firing.</b>	

**Allowable Emissions Allowable Emissions of**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: <b>lb/hour                      tons/year</b>
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	



**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**POLLUTANT DETAIL INFORMATION**

Page [2] of [6]  
Particulate Matter - PM10

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>PM10</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>7.2 lb/hour</b> <b>31.5 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>7.2 lb/hr</b>  Reference: <b>Solar, 2008; Golder, 2008.</b>		7. Emissions Method Code: <b>5</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>Emissions are for one CT/HRSG and represent product gas (worst-case). Specifically, for each hour on natural gas (startup), emissions will be less than represented for product gas. See Report, Table 3-2.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**POLLUTANT DETAIL INFORMATION**

Page [2] of [6]  
Particulate Matter Total - PM10

**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 2**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>20% Opacity</b>	4. Equivalent Allowable Emissions: <b>7.2 lb/hour                      31.5 tons/year</b>
5. Method of Compliance: <b>Initial VE test using EPA Method 9.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Based on CT firing.</b>	

**Allowable Emissions Allowable Emissions 2 of 2**

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>20% Opacity</b>	4. Equivalent Allowable Emissions: <b>lb/hour                      tons/year</b>
5. Method of Compliance: <b>Initial VE test using EPA Method 9.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Based on CT and DB firing.</b>	

**Allowable Emissions Allowable Emissions of**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: <b>lb/hour                      tons/year</b>
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**POLLUTANT DETAIL INFORMATION**

Page [3] of [6]  
Sulfur Dioxide - SO<sub>2</sub>

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>SO<sub>2</sub></b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>8.2 lb/hour                      35.9 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>20 ppm (0.002%)</b>  Reference: <b>Solar, 2008; Golder, 2008.</b>		7. Emissions Method Code: <b>5</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly emissions = Exhaust flow @ 410,210 lb/hr (CT and DB firing, 59°F, Base mode) x 20 ppm = 8.2 lb/hr.</b> <b>Annual Emissions = (8.2 lb/hr x 8,760 hr/yr) x ton/2,000 lb = 35.9 TPY.</b> <b>Emissions are for one CT/HRSG and represent product gas (worst-case). Specifically, for each hour on natural gas (startup), emissions will be less than represented for product gas. See Report, Table 3-2.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**POLLUTANT DETAIL INFORMATION**

Page [3] of [6]  
Sulfur Dioxide - SO<sub>2</sub>

**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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.002% S</b>	4. Equivalent Allowable Emissions: <b>8.2 lb/hour                      35.9 tons/year</b>
5. Method of Compliance: <b>Fuel sampling. Complies with NSPS, Subpart KKKK limit of 0.60 lb/MMBtu.</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: <b>lb/hour                      tons/year</b>
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: <b>lb/hour                      tons/year</b>
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**POLLUTANT DETAIL INFORMATION**

Page [4] of [6]  
Nitrogen Oxides - NO<sub>x</sub>

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>NOX</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>19.2 lb/hour                      83.7 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>26.3 ppmvd (corrected) product gas</b>  Reference: <b>Solar, 2008; Golder, 2008.</b>		7. Emissions Method Code: <b>5</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly emissions = 19.2 lb/hr (59°F, Base mode). Annual Emissions = (19.2 lb/hr x 8,760 hr/yr) x ton/2,000 lb = 83.7 TPY. Emissions are for one CT/HRSG and represent product gas (worst-case). Specifically, for each hour on natural gas (startup), emissions will be less than represented for product gas. See Report, Table 3-2.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**POLLUTANT DETAIL INFORMATION**

Page [4] of [6]  
Nitrogen Oxides - NO<sub>x</sub>

**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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>74 ppmvd @15% O2</b>	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: <b>EPA Method 20 and 7E; annual test.</b>	
6. Allowable Emissions Comment (Description of Operating Method):  <b>NSPS, Subpart KKKK allowable limit.</b>	

**Allowable Emissions Allowable Emissions of**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions Allowable Emissions of**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**POLLUTANT DETAIL INFORMATION**

Page [5] of [6]  
Carbon Monoxide - CO

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>CO</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>21.4 lb/hour                      93.8 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>48.3 ppmvd (corrected) product gas</b>  Reference: <b>Solar, 2008; Golder, 2008</b>		7. Emissions Method Code: <b>5</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly emissions = 21.4 lb/hr (59°F, Base mode). Annual Emissions = (21.4 lb/hr x 8,760 hr/yr) x ton/2,000 lb = 93.8 TPY. Emissions are for one CT/HRSG and represent product gas (worst-case). Specifically, for each hour on natural gas (startup), emissions will be less than represented for product gas. See Report, Table 3-2.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**POLLUTANT DETAIL INFORMATION**

Page [5] of [6]  
Carbon Monoxide - CO

**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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: <b>21.4 lb/hour                      93.8 tons/year</b>
5. Method of Compliance: <b>Annual test using EPA Method 10.</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	



**EMISSIONS UNIT INFORMATION**

Section [1] of [7]  
Unit 1 CT/HRSG

**POLLUTANT DETAIL INFORMATION**

Page [6] of [6]  
Volatile Organic Compounds - VOC

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>VOC</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>1.24 lb/hour                      5.43 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>See notes below. CT/DB; 1.24 ppmvd (corrected) product gas</b> Reference: <b>Solar, 2008; Golder, 2008.</b>		7. Emissions Method Code: <b>5</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Hourly emissions = 6.5 lb/hr (59°F, Base mode) x 20%* = 1.24 lb/hr. Annual Emissions = (1.24 lb/hr x 8,760 hr/yr) x ton/2,000 lb = 5.43 TPY. Emissions are for one CT/HRSG and represent product gas (worst-case). Specifically, for each hour on natural gas (startup), emissions will be less than represented for product gas. See Report, Table 3-2.</b>			
11. Potential, Fugitive, and Actual Emissions Comment: <b>Per Solar document (PIL 168, Rev 3) VOC emissions are 10-20% of the UHC emission rate. This estimate is based on a ratio of total non-methane hydrocarbons to total organic compounds. The use of 20% provides a conservative estimate of VOC emissions.</b>			

**EMISSIONS UNIT INFORMATION**Section [1] of [7]  
Unit 1 CT/HRSG**POLLUTANT DETAIL INFORMATION**Page [6] of [6]  
Volatile Organic Compounds - VOC**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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: <b>1.24 lb/hour                      5.43 tons/year</b>
5. Method of Compliance: <b>EPA Methods 18, 25, or 25A at base load. Initial test only.</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**Section [1] of [7]  
Unit 1 CT/HRSG**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 2

1. Visible Emissions Subtype: <b>VE20</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>20%</b> Exceptional Conditions: <b>100 %</b> Maximum Period of Excess Opacity Allowed: <b>60 min/hour</b>	
4. Method of Compliance: <b>EPA Method 9</b>	
5. Visible Emissions Comment:  <b>FDEP Rule 62-296.320(4)(b)1, F.A.C. requires 20% opacity. Excess emissions provided by Rule 62-210.700.</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation 2 of 2

1. Visible Emissions Subtype: <b>VE99</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: <b>EPA Method 9</b>	
5. Visible Emissions Comment: <b>FDEP Rule 62-210.700(2); allowed for 2 hours (120 minutes) per 24 hours for startup, shutdown and malfunction.</b>	

**EMISSIONS UNIT INFORMATION**Section [1] of [7]  
Unit 1 CT/HRSG**H. CONTINUOUS MONITOR INFORMATION****Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.****Continuous Monitoring System:** Continuous Monitor 1 of 2

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>NO<sub>x</sub></b>
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>not yet identified</b> Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: <b>CEM required pursuant to 40 CFR, Part 75. NO<sub>x</sub> monitoring includes diluent monitor (O<sub>2</sub> or CO<sub>2</sub>).</b>	

**Continuous Monitoring System:** Continuous Monitor 2 of 2

1. Parameter Code: <b>EM</b>	2. Pollutant(s): <b>O<sub>2</sub> or CO<sub>2</sub></b>
3. CMS Requirement:	<input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>not yet identified</b> Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: <b>Monitor required for diluent.</b>	

# EMISSIONS UNIT INFORMATION

Section [1] of [7]

Unit 1 CT/HRSG

## I. EMISSIONS UNIT ADDITIONAL INFORMATION

### Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Previously Submitted, Date _____ <input type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable

**EMISSIONS UNIT INFORMATION**

Section [1] of [7]

Unit 1 CT/HRSG

**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)):
<input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.):
<input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only)
<input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable

**Additional Requirements for Title V Air Operation Permit Applications**

1. Identification of Applicable Requirements:
<input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
2. Compliance Assurance Monitoring:
<input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
3. Alternative Methods of Operation:
<input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading):
<input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

**Additional Requirements Comment**

## EMISSIONS UNIT INFORMATION

Section [2] of [7]  
Gasification Combustor

### 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.

**EMISSIONS UNIT INFORMATION**

Section [2] of [7]  
Gasification Combustor

**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:  
**Gasification System Combustor**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: <b>C</b>	5. Commence Construction Date: <b>9/2008</b>	6. Initial Startup Date: <b>7/2010</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
--	---	---	--

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

Acid Rain Unit

CAIR Unit

Hg Budget Unit

9. Package Unit:  
Manufacturer: \_\_\_\_\_ Model Number: \_\_\_\_\_

10. Generator Nameplate Rating: **MW**

11. Emissions Unit Comment:  
**See Report, Section 3.2 for description. A process schematic is provided in Figure 2-5.**



**EMISSIONS UNIT INFORMATION**

Section [2] of [7]  
Gasification Combustor

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

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

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

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

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

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

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

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



**EMISSIONS UNIT INFORMATION**

Section [2] of [7]

Gasification Combustor

**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: <b>See Report</b>		2. Emission Point Type Code: <b>1</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: <b>V</b>	6. Stack Height: <b>TBD</b> feet	7. Exit Diameter: <b>1</b> feet	
8. Exit Temperature: <b>TBD</b> °F	9. Actual Volumetric Flow Rate: <b>TBD</b> acfm	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: <b>Table 3-4 presents emission point information.</b>			

**EMISSIONS UNIT INFORMATION**

Section [2] of [7]  
 Gasification Combustor

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate:** Segment 1 of 1

1. Segment Description (Process/Fuel Type): <b>Char Production</b>		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: <b>1,055</b>
10. Segment Comment: <b>Maximum annual rate based on 8,760 hr/yr operation. See Report, Section 3.2 and Table 3-4.</b>		

**Segment Description and Rate:** Segment \_\_\_\_ of \_\_\_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**EMISSIONS UNIT INFORMATION**

Section [2] of [7]

Gasification Combustor

**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			NS
PM/PM10			NS
NOx			NS
SO2			NS
VOC			NS

**EMISSIONS UNIT INFORMATION**

Section [2] of [7]  
 Gasification Combustor

**POLLUTANT DETAIL INFORMATION**

Page [1] of [5]  
 Carbon Monoxide - CO

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL/ESTIMATED FUGITIVE 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: <b>CO</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>2.6 lb/hour</b> <b>11.2 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.6 lb/ton</b>  Reference: <b>AP-42, Table 1.2-2</b>		7. Emissions Method Code: <b>3</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Report, Table 3-4.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [2] of [7]

Gasification Combustor

**POLLUTANT DETAIL INFORMATION**

Page [1] of [5]

Carbon Monoxide - CO

**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:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [2] of [7]  
 Gasification Combustor

**POLLUTANT DETAIL INFORMATION**

Page [2] of [5]  
 Nitrogen Oxides - NOx

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL/ESTIMATED FUGITIVE 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: <b>NOx</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>6.2 lb/hour                      27.2 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.05 lb/MMBtu</b>  Reference: <b>Battelle Report</b>		7. Emissions Method Code: <b>3</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Report, Table 3-4.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			



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

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

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: <b>SO2</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 2.4 lb/hour                      10.7 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor:  Reference: <b>See Table 3-4</b>		7. Emissions Method Code: <b>2</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Report, Table 3-4.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

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

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [2] of [7]  
 Gasification Combustor

**POLLUTANT DETAIL INFORMATION**

Page [4] of [5]  
 Particulate Matter - PM/PM10

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL/ESTIMATED FUGITIVE 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: <b>PM/PM10</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 6.1 lb/hour                      26.7 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>71.2 lb/ton</b>  Reference: <b>AP-42, Table 1.2-3</b>		7. Emissions Method Code: <b>3</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Report, Table 3-4.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [2] of [7]

Gasification Combustor

**POLLUTANT DETAIL INFORMATION**

Page [4] of [5]

Particulate Matter - PM/PM10

**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:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [2] of [7]  
 Gasification Combustor

**POLLUTANT DETAIL INFORMATION**

Page [5] of [5]  
 Volatile Organic Compounds - VOC

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL/ESTIMATED FUGITIVE 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: <b>VOC</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 1.3 lb/hour                      5.6 tons/year		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.3 lb/ton</b>  Reference: <b>AP-42, Table 1.2-6</b>		7. Emissions Method Code: <b>3</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Report, Table 3-4.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [2] of [7]  
Gasification Combustor

**POLLUTANT DETAIL INFORMATION**

Page [5] of [5]  
Volatile Organic Compounds - VOC

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

**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:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [2] of [7]  
Gasification Combustor

**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: <b>VE20</b>	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>20 %</b> Exceptional Conditions: <b>100 %</b> Maximum Period of Excess Opacity Allowed: <b>60 min/hour</b>	
4. Method of Compliance: <b>EPA Method 9</b>	
5. Visible Emissions Comment:  <b>Excess emissions provided by Rule 62-210.700.</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_ of \_\_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	



**EMISSIONS UNIT INFORMATION**

Section [2] of [7]  
Gasification Combustor

**H. CONTINUOUS MONITOR INFORMATION**

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

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_ of \_\_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_ of \_\_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

## EMISSIONS UNIT INFORMATION

Section [2] of [7]  
Gasification Combustor

### I. EMISSIONS UNIT ADDITIONAL INFORMATION

#### Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable

# EMISSIONS UNIT INFORMATION

Section [2] of [7]  
Gasification Combustor

## I. EMISSIONS UNIT ADDITIONAL INFORMATION

### 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)): <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: <b>See Report</b> <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable

### Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
2. Compliance Assurance Monitoring: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
3. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

### Additional Requirements Comment

--

## EMISSIONS UNIT INFORMATION

Section [3] of [7]

Dryer

### 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.

**EMISSIONS UNIT INFORMATION**

Section [3] of [7]

Dryer

**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:  
**Feedstock Dryer**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: <b>C</b>	5. Commence Construction Date: <b>9/2008</b>	6. Initial Startup Date: <b>7/2010</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
--	---	---	--

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

- Acid Rain Unit
- CAIR Unit
- Hg Budget Unit

9. Package Unit:  
Manufacturer: \_\_\_\_\_ Model Number: \_\_\_\_\_

10. Generator Nameplate Rating: **MW**

11. Emissions Unit Comment:  
**The feedstock dryer will use waste heat (i.e., heat exchange); no combustion is involved.**

**EMISSIONS UNIT INFORMATION**

**Section [3] of [7]**

**Dryer**

**Emissions Unit Control Equipment/Method: Control **1** of **2****

1. Control Equipment/Method Description:  
**Baghouse controls**

2. Control Device or Method Code: **018**

**Emissions Unit Control Equipment/Method: Control \_\_\_ of \_\_\_**

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method: Control \_\_\_ of \_\_\_**

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method: Control \_\_\_ of \_\_\_**

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**EMISSIONS UNIT INFORMATION**

Section [3] of [7]

Dryer

**B. EMISSIONS UNIT CAPACITY INFORMATION**

(Optional for unregulated emissions units.)

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate: <b>1,000 wet tons per day (WTPD)</b>		
2. Maximum Production Rate:		
3. Maximum Heat Input Rate:	million Btu/hr	
4. Maximum Incineration Rate:	pounds/hr	
	tons/day	
5. Requested Maximum Operating Schedule:		
	<b>24 hours/day</b>	<b>7 days/week</b>
	<b>52 weeks/year</b>	<b>8,760 hours/year</b>
6. Operating Capacity/Schedule Comment:		
<p>The throughput rate of 1,000 WTPD assumes an average feedstock moisture of ~30%. The feedstock leaves the dryer at ~ 23% moisture and 730 dry tons per day (DTPD).</p>		

**EMISSIONS UNIT INFORMATION**

Section [3] of [7]

Dryer

**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: <b>See Report</b>		2. Emission Point Type Code:	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:  <b>Exhaust gas exits at dryer baghouse. See Figure 2-4 (Material handling Process Schematic).</b>			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: <b>V</b>	6. Stack Height: <b>TBD</b> feet	7. Exit Diameter: <b>TBD</b> feet	
8. Exit Temperature: <b>175 °F</b>	9. Actual Volumetric Flow Rate: <b>110,000</b> acfm	10. Water Vapor: <b>%</b>	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:			



**EMISSIONS UNIT INFORMATION**

Section [3] of [7]

Dryer

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate:** Segment \_\_\_\_ of \_\_\_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**Segment Description and Rate:** Segment \_\_\_\_ of \_\_\_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**EMISSIONS UNIT INFORMATION**

Section [3] of [7]

Dryer

**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
PM	018		WP
PM10	018		WP

**EMISSIONS UNIT INFORMATION**

Section [3] of [7]  
Dryer

**POLLUTANT DETAIL INFORMATION**

Page [1] of [2]  
Particulate Matter Total - PM

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>PM</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.023 lb/hour                      0.1 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.72 lb/ton of dry wood</b>  Reference: <b>AP-42, Table 10.6-1</b>		7. Emissions Method Code: <b>2</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Table 3-6 in Report.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [3] of [7]

Dryer

**POLLUTANT DETAIL INFORMATION**

Page [1] of [2]  
 Particulate Matter Total - PM

**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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: <b>Method 9 VE Test</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [3] of [7]  
Dryer

**POLLUTANT DETAIL INFORMATION**

Page [2] of [2]  
Particulate Matter - PM10

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>PM10</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.0023 lb/hour                      0.01 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.062 lb/ton of dry wood</b>  Reference: <b>AP-42 Table 10.6-1</b>		7. Emissions Method Code: <b>2</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Table 3-6 in Report.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [3] of [7]  
Dryer

**POLLUTANT DETAIL INFORMATION**

Page [2] of [2]  
Particulate Matter - PM10

**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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: <b>Method 9 VE Test</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [3] of [7]

Dryer

**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 \_\_\_\_ of \_\_\_\_

1. Visible Emissions Subtype: <b>VE05</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: _____ % Exceptional Conditions: _____ % Maximum Period of Excess Opacity Allowed: _____ min/hour	
4. Method of Compliance: <b>Initial Method 9 VE Test.</b>	
5. Visible Emissions Comment:	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_ of \_\_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: _____ % Exceptional Conditions: _____ % Maximum Period of Excess Opacity Allowed: _____ min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [3] of [7]

Dryer

**H. CONTINUOUS MONITOR INFORMATION**

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

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_ of \_\_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_ of \_\_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	



**EMISSIONS UNIT INFORMATION**

Section [3] of [7]

Dryer

**I. EMISSIONS UNIT ADDITIONAL INFORMATION**

**Additional Requirements for All Applications, Except as Otherwise Stated**

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: <u>N/A</u> <input type="checkbox"/> 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) <input type="checkbox"/> Attached, Document ID: <u>N/A</u> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <u>See Report</u> <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input checked="" type="checkbox"/> Attached, Document ID: <u>See Report</u> <input type="checkbox"/> Not Applicable

**EMISSIONS UNIT INFORMATION**

Section [3] of [7]

Dryer

**I. EMISSIONS UNIT ADDITIONAL INFORMATION**

**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)): <input type="checkbox"/> Attached, Document ID: <b>See Report</b> <input checked="" type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: <b>See Report</b> <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**Additional Requirements for Title V Air Operation Permit Applications**

1. Identification of Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
2. Compliance Assurance Monitoring: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
3. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

**Additional Requirements Comment**

## EMISSIONS UNIT INFORMATION

Section [4] of [7]  
Auxiliary Boiler

### 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.

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]  
 Auxiliary Boiler

**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:  
**One nominal 62 MMBtu/hr natural gas boiler.**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: <b>C</b>	5. Commence Construction Date: <b>9/2008</b>	6. Initial Startup Date: <b>7/2010</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
--	---	---	--

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

Acid Rain Unit

CAIR Unit

Hg Budget Unit

9. Package Unit:  
 Manufacturer: \_\_\_\_\_ Model Number: \_\_\_\_\_

10. Generator Nameplate Rating: **MW**

11. Emissions Unit Comment:  
**One natural gas-fired boiler is being permitted to assist with startup operations. The emissions unit is regulated under the NSPS, Subpart Dc standards.**

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]

Auxiliary Boiler

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

None

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]  
Auxiliary Boiler

**B. EMISSIONS UNIT CAPACITY INFORMATION**

(Optional for unregulated emissions units.)

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate:
2. Maximum Production Rate:
3. Maximum Heat Input Rate: <b>62</b> million Btu/hr
4. Maximum Incineration Rate:       pounds/hr tons/day
5. Requested Maximum Operating Schedule: <b>24</b> hours/day <b>7</b> days/week <b>52</b> weeks/year <b>500</b> hours/year
6. Operating Capacity/Schedule Comment:  <b>The boiler is to be used for startup operations only, estimated to be approximately 500 hr/yr.</b>

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]

**Auxiliary Boiler**

**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: <b>See Report</b>		2. Emission Point Type Code: <b>1</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: <b>V</b>	6. Stack Height: <b>50 feet</b>	7. Exit Diameter: <b>2.75 feet</b>	
8. Exit Temperature: <b>296°F</b>	9. Actual Volumetric Flow Rate: <b>29,000 acfm</b>	10. Water Vapor: <b>%</b>	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:  <b>Table 3-7 presents emission point information.</b>			

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]

Auxiliary Boiler

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate:** Segment 1 of 1

1. Segment Description (Process/Fuel Type): <b>Natural gas</b>		
2. Source Classification Code (SCC):		3. SCC Units: <b>Million cubic feet</b>
4. Maximum Hourly Rate: <b>0.06</b>	5. Maximum Annual Rate: <b>31.6</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>2 gr/100 scf</b>	8. Maximum % Ash:	9. Million Btu per SCC Unit: <b>980</b>
10. Segment Comment: <b>Maximum annual rate based on 500 hr/yr operation.</b>		

**Segment Description and Rate:** Segment \_\_\_\_ of \_\_\_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		



**EMISSIONS UNIT INFORMATION**

**Section [4] of [7]**

**Auxiliary Boiler**

**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			NS
PM/PM10	Fuel Quality		NS
NOx			EL
SO2	Fuel Quality		WP
VOC			NS

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]  
 Auxiliary Boiler

**POLLUTANT DETAIL INFORMATION**

Page [1] of [5]  
 Carbon Monoxide - CO

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL/ESTIMATED FUGITIVE 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: <b>CO</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>4.96 lb/hour                      1.24 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.08 lb/MMBtu</b>  Reference: <b>AP-42</b>		7. Emissions Method Code: <b>3</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>0.08 lb/MMBtu x 62 MMBtu/hr = 4.96 lb/hr</b> <b>4.96 lb/hr x 500 hr/yr / (2,000 lb/ton) = 1.24 tons per year</b>			
11. Potential, Fugitive, and Actual Emissions Comment: <b>Report, Section 3.0, Table 3-7.</b>			

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]

Auxiliary Boiler

**POLLUTANT DETAIL INFORMATION**

Page [1] of [5]

Carbon Monoxide - CO

**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:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]  
Auxiliary Boiler

**POLLUTANT DETAIL INFORMATION**

Page [2] of [5]  
Nitrogen Oxides - NOx

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>NOx</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>5.89 lb/hour</b> <b>1.47 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to            tons/year			
6. Emission Factor: <b>0.095 lb/MMBtu</b>  Reference: <b>AP-42</b>		7. Emissions Method Code: <b>3</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>0.095 lb/MMBtu x 62 MMBtu/hr = 5.89 lb/hr</b> <b>5.89 lb/hr x 500 hr/yr / (2,000 lb/ton) = 1.47 tons per year</b>			
11. Potential, Fugitive, and Actual Emissions Comment: <b>Report, Section 3.0, Table 3-7.</b>			

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]

Auxiliary Boiler

**POLLUTANT DETAIL INFORMATION**

Page [2] of [5]

Nitrogen Oxides - NOx

**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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.095 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>5.89 lb/hour      1.47 tons/year</b>
5. Method of Compliance: <b>Manufacturer Certification</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]  
 Auxiliary Boiler

**POLLUTANT DETAIL INFORMATION**

Page [3] of [5]  
 Sulfur Dioxide - SO2

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL/ESTIMATED FUGITIVE 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: <b>SO2</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.34 lb/hour                      0.09 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>2 gr/100 scf</b>  Reference: <b>AP-42</b>		7. Emissions Method Code: <b>2</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>See Report, Section 3.0, Table 3-7.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

Section [4] of [7]

Page [3] of [5]

Auxiliary Boiler

Sulfur Dioxide - SO2

**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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>2 gr/100 scf</b>	4. Equivalent Allowable Emissions: <b>0.34 lb/hour      0.09 tons/year</b>
5. Method of Compliance: <b>Fuel Vendor Information</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]  
 Auxiliary Boiler

**POLLUTANT DETAIL INFORMATION**

Page [4] of [5]  
 Particulate Matter - PM/PM10

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL/ESTIMATED FUGITIVE 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: <b>PM/PM10</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.11 lb/hour                      0.03 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>1.90 lb/10<sup>6</sup> scf - filterable PM</b>  Reference: <b>AP-42</b>		7. Emissions Method Code: <b>3</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>See Report, Section 3.0, Table 3-7.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			



**EMISSIONS UNIT INFORMATION**

Section [4] of [7]  
 Auxiliary Boiler

**POLLUTANT DETAIL INFORMATION**

Page [4] of [5]  
 Particulate Matter - PM/PM10

**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: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>20% opacity</b>	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance: <b>EPA Method 9</b>	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]  
 Auxiliary Boiler

**POLLUTANT DETAIL INFORMATION**

Page [5] of [5]  
 Volatile Organic Compounds - VOC

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL/ESTIMATED FUGITIVE 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: <b>VOC</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.31 lb/hour                      0.08 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.005 lb/MMBtu</b>  Reference: <b>AP-42</b>		7. Emissions Method Code: <b>3</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>0.005 lb/MMBtu x 62 MMBtu/hr = 0.31 lb/hr</b> <b>0.31 lb/hr x 500 hr/yr / (2,000 lb/ton) = 0.08 tons per year</b>			
11. Potential, Fugitive, and Actual Emissions Comment: <b>See Report, Section 2.0, Table 2-7.</b>			

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]  
 Auxiliary Boiler

**POLLUTANT DETAIL INFORMATION**

Page [5] of [5]  
 Volatile Organic Compounds - VOC

**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:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]

Auxiliary Boiler

**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: <b>VE20</b>	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>20 %</b> Exceptional Conditions: <b>100 %</b> Maximum Period of Excess Opacity Allowed: <b>60 min/hour</b>	
4. Method of Compliance: <b>EPA Method 9</b>	
5. Visible Emissions Comment:  <b>Excess emissions provided by Rule 62-210.700.</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_ of \_\_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]

Auxiliary Boiler

**H. CONTINUOUS MONITOR INFORMATION**

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

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_ of \_\_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_ of \_\_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

# EMISSIONS UNIT INFORMATION

Section [4] of [7]

Auxiliary Boiler

## I. EMISSIONS UNIT ADDITIONAL INFORMATION

### Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable

**EMISSIONS UNIT INFORMATION**

Section [4] of [7]

Auxiliary Boiler

**I. EMISSIONS UNIT ADDITIONAL INFORMATION**

**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)): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**Additional Requirements for Title V Air Operation Permit Applications**

1. Identification of Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
2. Compliance Assurance Monitoring: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
3. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

**Additional Requirements Comment**

## EMISSIONS UNIT INFORMATION

Section [5] of [7]  
Flare

### 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.



**EMISSIONS UNIT INFORMATION**

Section [5] of [7]

Flare

**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:  
**Flare System.**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: <b>C</b>	5. Commence Construction Date: <b>9/2008</b>	6. Initial Startup Date: <b>7/2010</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
--	---	---	--

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

- Acid Rain Unit
- CAIR Unit
- Hg Budget Unit

9. Package Unit:  
Manufacturer:

Model Number:

10. Generator Nameplate Rating: **MW**

11. Emissions Unit Comment:

**Two flares are provided as a means of emergency venting. There are 3 modes of operation under which the flare system may potentially be needed: 1) startup, 2) planned shutdown and 3) emergency shutdown.**

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]

Flare

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

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

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

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

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

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

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

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

## EMISSIONS UNIT INFORMATION

Section [5] of [7]

Flare

### B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

#### Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:		
2. Maximum Production Rate:		
3. Maximum Heat Input Rate: <b>144</b> million Btu/hr		
4. Maximum Incineration Rate:	pounds/hr	
	tons/day	
5. Requested Maximum Operating Schedule:	hours/day	days/week
	weeks/year	<b>144</b> hours/year
6. Operating Capacity/Schedule Comment:		
<p>The number of operating hours is based on as many as 6 startup/shutdowns per year and a conservative estimate of 24 hours per cycle.</p>		

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]

Flare

**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: <b>See Report</b>		2. Emission Point Type Code: <b>1</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: <b>V</b>	6. Stack Height: <b>TBD</b> feet		7. Exit Diameter: <b>1</b> feet
8. Exit Temperature: <b>TBD</b> °F	9. Actual Volumetric Flow Rate: <b>TBD</b> acfm		10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: <b>17</b> East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:  <b>Table 3-8 presents emission point information.</b>			

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]

Flare

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate:** Segment 1 of 1

1. Segment Description (Process/Fuel Type): <b>Product Gas</b>		
2. Source Classification Code (SCC):		3. SCC Units: <b>1,000,000 SCF</b>
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: <b>Maximum annual rate based on 144 hr/yr operation. See Table 3-8 of Report.</b>		

**Segment Description and Rate:** Segment \_\_\_\_ of \_\_\_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]

Flare

**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			WP
PM/PM10			WP
NOx			WP
SO2			WP
VOC			WP

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]  
Flare

**POLLUTANT DETAIL INFORMATION**

Page [1] of [5]  
Carbon Monoxide - CO

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>CO</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>53.3 lb/hour                      3.8 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.37 lb/MMBtu</b>  Reference: <b>AP-42, Table 13.5-1.</b>		7. Emissions Method Code: <b>3</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Table 3-8 of the Report.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]  
Flare

**POLLUTANT DETAIL INFORMATION**

Page [1] of [5]  
Carbon Monoxide - CO

**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:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	



**EMISSIONS UNIT INFORMATION**

Section [5] of [7]  
Flare

**POLLUTANT DETAIL INFORMATION**

Page [2] of [5]  
Nitrogen Oxides - NOx

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>NOx</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>9.8 lb/hour                      0.7 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.068 lb/MMBtu</b>  Reference: <b>AP-42, Table 13.5-1</b>		7. Emissions Method Code: <b>3</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Report, Table 3-8.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]  
Flare

**POLLUTANT DETAIL INFORMATION**

Page [2] of [5]  
Nitrogen Oxides - NOx

**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:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]  
Flare

**POLLUTANT DETAIL INFORMATION**

Page [3] of [5]  
Sulfur Dioxide - SO2

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>SO2</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>11.2 lb/hour                      0.8 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>See Table 3-8</b>  Reference:		7. Emissions Method Code: <b>2</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Report, Table 3-8.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

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

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]  
Flare

**POLLUTANT DETAIL INFORMATION**

Page [4] of [5]  
Particulate Matter - PM/PM10

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>PM/PM10</b>	2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour	tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year		
6. Emission Factor: Reference: <b>See Report, Table 3-8</b>		7. Emissions Method Code: <b>3</b>
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Report, Table 3-8.</b>		
11. Potential, Fugitive, and Actual Emissions Comment:		

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]  
Flare

**POLLUTANT DETAIL INFORMATION**

Page [4] of [5]  
Particulate Matter - PM/PM10

**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:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]  
Flare

**POLLUTANT DETAIL INFORMATION**

Page [5] of [5]  
Volatile Organic Compounds - VOC

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>VOC</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>20.2 lb/hour                      1.5 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.14 lb/MMBtu</b>  Reference: <b>AP-42, Table 13.5-1</b>		7. Emissions Method Code: <b>3</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See report, Table 3-8.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

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

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	



**EMISSIONS UNIT INFORMATION**

Section [5] of [7]

Flare

**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: <b>VE20</b>	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>20 %</b> Exceptional Conditions: <b>100 %</b> Maximum Period of Excess Opacity Allowed: <b>60 min/hour</b>	
4. Method of Compliance: <b>EPA Method 9</b>	
5. Visible Emissions Comment:  <b>Excess emissions provided by Rule 62-210.700.</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_ of \_\_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]

Flare

**H. CONTINUOUS MONITOR INFORMATION**

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

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_ of \_\_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_ of \_\_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]

Flare

**I. EMISSIONS UNIT ADDITIONAL INFORMATION**

**Additional Requirements for All Applications, Except as Otherwise Stated**

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable

**EMISSIONS UNIT INFORMATION**

Section [5] of [7]

Flare

**I. EMISSIONS UNIT ADDITIONAL INFORMATION**

**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)): <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities : (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: <input checked="" type="checkbox"/> Not Applicable

**Additional Requirements for Title V Air Operation Permit Applications**

1. Identification of Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
2. Compliance Assurance Monitoring: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
3. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

**Additional Requirements Comment**

## EMISSIONS UNIT INFORMATION

Section [6] of [7]  
Cooling Towers

### 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.

# EMISSIONS UNIT INFORMATION

Section [6] of [7]  
Cooling Towers

## 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:  
**Mechanical Draft Cooling Towers associated with the Steam Turbine and Compressor Gas Systems.**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: <b>C</b>	5. Commence Construction Date: <b>9/2008</b>	6. Initial Startup Date: <b>7/2010</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
--	---	---	--

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

- Acid Rain Unit
- CAIR Unit
- Hg Budget Unit

9. Package Unit:

Manufacturer: **TBD**

Model Number: **TBD**

10. Generator Nameplate Rating: **MW**

11. Emissions Unit Comment:

**See Report, Table 3-9. A 2-cell wet mechanical draft cooling tower for steam turbine cooling and a 3-cell cooling tower for compressor gas cooling.**

**EMISSIONS UNIT INFORMATION**

Section [6] of [7]  
Cooling Towers

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

1. Control Equipment/Method Description:  
**Mist Eliminators.**

2. Control Device or Method Code: **014**

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**Emissions Unit Control Equipment/Method:** Control \_\_\_ of \_\_\_

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**EMISSIONS UNIT INFORMATION**

Section [6] of [7]  
Cooling Towers

**B. EMISSIONS UNIT CAPACITY INFORMATION**

(Optional for unregulated emissions units.)

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate:	7,056 gpm and 3,800 gpm	
2. Maximum Production Rate:		
3. Maximum Heat Input Rate:	million Btu/hr	
4. Maximum Incineration Rate:	pounds/hr tons/day	
5. Requested Maximum Operating Schedule:	24 hours/day 52 weeks/year	7 days/week 8,760 hours/year
6. Operating Capacity/Schedule Comment:	See Report, Table 3-9 for cooling tower performance and emissions data.	



**EMISSIONS UNIT INFORMATION**

Section [6] of [7]  
Cooling Towers

**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: <b>See Report, ID No. 6</b>		2. Emission Point Type Code:	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: <b>Cooling Tower Cells</b>			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code:	6. Stack Height: feet	7. Exit Diameter: feet	
8. Exit Temperature: °F	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:  <b>See Report, Table 3-9.</b>			

**EMISSIONS UNIT INFORMATION**

**Section [6] of [7]  
Cooling Towers**

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate:** Segment \_\_\_\_ of \_\_\_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**Segment Description and Rate:** Segment \_\_\_\_ of \_\_\_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**EMISSIONS UNIT INFORMATION**

Section [6] of [7]  
Cooling Towers

**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
<b>PM</b>	<b>014</b>		<b>WP</b>
<b>PM10</b>	<b>014</b>		<b>WP</b>

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>PM</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.23 lb/hour                      1.0 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>See Report, Table 3-9.</b>  Reference: <b>Solar, 2008; Golder, 2008</b>		7. Emissions Method Code: <b>2</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Potential emissions are for both cooling towers, see Table 3-9 in Report.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [6] of [7]  
Cooling Towers

**POLLUTANT DETAIL INFORMATION**

Page [1] of [2]  
Particulate Matter Total - PM

**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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>percent of CW</b>	4. Equivalent Allowable Emissions: <b>0.23 lb/hour      1.0 tons/year</b>
5. Method of Compliance: <b>Design drift rate certification from manufacturer.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>CW = circulating water.</b>	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [6] of [7]  
Cooling Towers

**POLLUTANT DETAIL INFORMATION**

Page [2] of [2]  
Particulate Matter - PM10

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>PM10</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.17 lb/hour                      0.7 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>See Report, Table 3-9.</b>  Reference: <b>Solar, 2008; Golder, 2008</b>		7. Emissions Method Code: <b>2</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>Potential emissions are for both cooling towers. See Table 3-9 in Report.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [6] of [7]  
Cooling Towers

**POLLUTANT DETAIL INFORMATION**

Page [2] of [2]  
Particulate Matter - PM10

**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: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>percent of CW</b>	4. Equivalent Allowable Emissions: <b>0.17 lb/hour      0.7 tons/year</b>
5. Method of Compliance: <b>Design drift rate certification from manufacturer.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>CW = circulating water.</b>	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION.**

Section [6] of [7]  
Cooling Towers

**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 \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions:                          %          Exceptional Conditions:                          % Maximum Period of Excess Opacity Allowed:                          min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

**Visible Emissions Limitation:** Visible Emissions Limitation \_\_\_\_\_ of \_\_\_\_\_

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions:                          %          Exceptional Conditions:                          % Maximum Period of Excess Opacity Allowed:                          min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	



**EMISSIONS UNIT INFORMATION**Section [6] of [7]  
Cooling Towers**H. CONTINUOUS MONITOR INFORMATION****Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.****Continuous Monitoring System:** Continuous Monitor \_\_\_\_ of \_\_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_ of \_\_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**EMISSIONS UNIT INFORMATION**

Section [6] of [7]  
Cooling Towers

**I. EMISSIONS UNIT ADDITIONAL INFORMATION**

**Additional Requirements for All Applications, Except as Otherwise Stated**

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: <b>N/A</b> <input type="checkbox"/> 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) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable

**EMISSIONS UNIT INFORMATION**

Section [6] of [7]

Cooling Towers

**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)): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**Additional Requirements for Title V Air Operation Permit Applications**

1. Identification of Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
2. Compliance Assurance Monitoring: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
3. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

**Additional Requirements Comment**

--

## EMISSIONS UNIT INFORMATION

Section [7] of [7]  
Material Handling

### 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.

**EMISSIONS UNIT INFORMATION**

Section [7] of [7]  
**Material Handling**

**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:  
**Material handling associated with the biomass gasification project. Includes transfer and storage of feedstock, ash and olivine.**

3. Emissions Unit Identification Number:

4. Emissions Unit Status Code: <b>C</b>	5. Commence Construction Date: <b>9/2008</b>	6. Initial Startup Date: <b>7/2010</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
--	---	---	--

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

Acid Rain Unit

CAIR Unit

Hg Budget Unit

9. Package Unit:  
 Manufacturer: \_\_\_\_\_ Model Number: \_\_\_\_\_

10. Generator Nameplate Rating: **MW**

11. Emissions Unit Comment: **The material handling for feedstock is depicted in Figure 2-4 of the Report. The ash and olivine transfer and storage systems are depicted in Figure 2-5. Emissions estimates are presented in Table 3-5.**

**EMISSIONS UNIT INFORMATION**

Section [7] of [7]

Material Handling

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

1. Control Equipment/Method Description:  
**Baghouse control systems.**

2. Control Device or Method Code: **018**

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

1. Control Equipment/Method Description:

2. Control Device or Method Code:

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

1. Control Equipment/Method Description:

2. Control Device or Method Code:

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

1. Control Equipment/Method Description:

2. Control Device or Method Code:

**EMISSIONS UNIT INFORMATION**

Section [7] of [7]

Material Handling

**B. EMISSIONS UNIT CAPACITY INFORMATION**

(Optional for unregulated emissions units.)

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate: <b>See Report, Section 3.0</b>		
2. Maximum Production Rate:		
3. Maximum Heat Input Rate:	million Btu/hr	
4. Maximum Incineration Rate:	pounds/hr	
	tons/day	
5. Requested Maximum Operating Schedule:		
	<b>24</b> hours/day	<b>7</b> days/week
	<b>52</b> weeks/year	<b>8,760</b> hours/year
6. Operating Capacity/Schedule Comment:		

**EMISSIONS UNIT INFORMATION**

Section [7] of [7]

Material Handling

**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: <b>See Report</b>		2. Emission Point Type Code:	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code:	6. Stack Height: feet	7. Exit Diameter: feet	
8. Exit Temperature: °F	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:			



**EMISSIONS UNIT INFORMATION**

Section [7] of [7]

Material Handling

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate:** Segment \_\_\_\_ of \_\_\_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**Segment Description and Rate:** Segment \_\_\_\_ of \_\_\_\_

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

**EMISSIONS UNIT INFORMATION**

**Section [7] of [7]**

**Material Handling**

**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
PM	018		WP
PM10	018		WP

**EMISSIONS UNIT INFORMATION**Section [7] of [7]  
Material Handling**POLLUTANT DETAIL INFORMATION**Page [1] of [2]  
Particulate Matter Total - PM**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE 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: <b>PM</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour                            24.0 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                    tons/year			
6. Emission Factor:  Reference:		7. Emissions Method Code: <b>2</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Table 3-5 in Report.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

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

**ALLOWABLE EMISSIONS**

**Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_\_ of \_\_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [7] of [7]  
 Material Handling

**POLLUTANT DETAIL INFORMATION**

Page [2] of [2]  
 Particulate Matter - PM10

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
 POTENTIAL/ESTIMATED FUGITIVE 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: <b>PM10</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour <b>24.0 tons/year</b>		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor:  Reference:		7. Emissions Method Code: <b>2</b>	
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: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: <b>See Table 3-5 in Report.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:			

**EMISSIONS UNIT INFORMATION**Section [7] of [7]  
Material Handling**POLLUTANT DETAIL INFORMATION**Page [2] of [2]  
Particulate Matter - PM10**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:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [7] of [7]

Material Handling

**I. EMISSIONS UNIT ADDITIONAL INFORMATION**

**Additional Requirements for All Applications, Except as Otherwise Stated**

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: <u>N/A</u> <input type="checkbox"/> 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) <input type="checkbox"/> Attached, Document ID: <u>N/A</u> <input type="checkbox"/> 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) <input checked="" type="checkbox"/> Attached, Document ID: <u>See Report</u> <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input checked="" type="checkbox"/> Attached, Document ID: <u>See Report</u> <input type="checkbox"/> Not Applicable

**EMISSIONS UNIT INFORMATION**

Section [7] of [7]

**Material Handling**

**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)): <input checked="" type="checkbox"/> Attached, Document ID: <b>See Report</b> <input type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(4)(d), F.A.C., and Rule 62-212.500(4)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

**Additional Requirements for Title V Air Operation Permit Applications**

1. Identification of Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
2. Compliance Assurance Monitoring: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
3. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

**Additional Requirements Comment**

--