

# Kennedy/Jenks Consultants

## Engineers & Scientists

1515 East Woodfield Road, Suite 360  
Schaumburg, Illinois 60173  
847-278-7700  
FAX: 847-517-6870

March 14, 2014

Florida Department of Environmental Protection  
Division of Air Resource Management  
Office of Permitting and Compliance  
2600 Blair Stone Road, M.S. 5505  
Tallahassee, Florida 32399-2400

RE: U.S. EcoGen Polk, LLC - Minor Source Air Permit to Construct  
63-Megawatt (MW) U.S. EcoGen Polk Generating Facility  
To be located in Polk County, Florida (the "Plant")

Attention – Mr. David Read / Mr. Al Linero:

U.S. EcoGen Polk, LLC was issued a minor source construction air permit from the Florida Department of Environmental Protection (FDEP) for the construction of a greenfield woody biomass power plant to be located in Polk County, Florida. Specifics related to that permit are noted below:

- Permit Type – Minor Air Construction Permit
- Permit Issuance Date – July 9, 2012
- Permit Number – 1050444-001-AC

Over the past several months, U.S. EcoGen Polk, LLC has been securing contracts with an engineering procurement construction (EPC) contractor and boiler manufacturer. Recently, a contract was agreed upon with the EPC contractor and the boiler manufacturer to build the plant and to supply the bubbling fluidized bed (BFB) boiler that will support the plant.

The boiler manufacturer has reviewed the minor source construction air permit issued by the FDEP and will provide a written guarantee to U.S. EcoGen Polk, LLC that states the boiler to be supplied for this power plant project will meet the emission limits/rates as established by the FDEP in the minor source construction permit.

Based on the boiler manufacturer's review of the permit, the boiler manufacturer determined that the boiler to be supplied has slightly different characteristics compared to the boiler initially selected during the construction permitting process. The changes are minor in nature, however U.S. EcoGen Polk, LLC would like the construction permit to be updated to reflect these minor changes.

Refer to Attachment #1 which identifies the current permit condition, the change being requested to that condition and the rationale for the requested change.

U.S. EcoGen Polk, LLC is hereby requesting that the FDEP update the current construction permit (#1050444-001-AC) to reflect these changes. It is U.S. EcoGen Polk, LLC's understanding that FDEP will confirm in writing the acceptance of these permit changes after their technical review.

The changes being proposed will:

- Not affect applicability of and compliance with any defined state/federal regulatory requirements contained in the minor source construction permit;
- Not trigger applicability of any new state/federal regulatory requirements; and
- Will not cause any adverse impacts to human health or welfare.

As stated above, U.S. EcoGen Polk, LLC is in the process of continuing construction of the plant project and would like confirmation from the FDEP that the changes are acceptable in a timely manner. Acceptance of these changes will allow U.S. EcoGen Polk, LLC the ability to move forward with fabrication of the proposed boiler.

Attached to this letter, is the completed FDEP construction permit application form to support the proposed changes to the permit. It is also our understanding that since the boiler type is not changing and emission limits defined by FDEP will be achieved by the new boiler, the original engineering certification statement included in the initial application is still accurate/valid.

This letter is being submitted on the behalf of U.S. EcoGen Polk, LLC. Any technical questions or comments pertaining to this permit change request should be directed to Mr. Steven Frey at Kennedy/Jenks Consultants at the email address or phone number below:

- Email – [stevefrey@kennedyjenks.com](mailto:stevefrey@kennedyjenks.com)
- Direct Phone Number – 847-278-7705

Sincerely,



Steven A. Frey  
Air Permit Manager

Enclosures

CC: Bill Quinn – U.S. EcoGen, Bill Needle – U.S. EcoGen

**Attachment #1 - Summary of Proposed Permit Changes**  
**U.S. EcoGen Polk, LLC**  
**74.9-Megawatt (MW) U.S. EcoGen Polk Biomass Generating Facility**

Current Permit Condition #	Current Permit Condition	Requested Change	Rational for Requested Change
<b>Section 1. General Information</b>			
Proposed Project	Ammonia (NH <sub>3</sub> ) injection into selective catalytic reduction (SCR) reactor to destroy NO <sub>x</sub>	Ammonia (NH <sub>3</sub> ) injection into furnace (SNCR) and/or selective catalytic reduction (SCR) reactor to destroy NO <sub>x</sub>	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.
<b>Section 3. Emissions Unit Specific Conditions</b>			
<b>B. Power Island (EU-002)</b>			
Emission Unit Description	Description: The boiler will be a woody biomass-fueled BFB boiler wherein wood is combusted within a bed of hot sand. The heat from the exhaust will be recovered to generate superheated steam to generate a nominal 63 MW of electricity in a STEG	Description: The boiler will be a woody biomass-fueled BFB boiler wherein wood is combusted within a bed of hot sand. The heat from the exhaust will be recovered to generate superheated steam to generate a nominal 63 MW of electricity in a STEG	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.
Emission Unit Description	Maximum Continuous Rating (Heat Input): The maximum continuous rating to the BFB boiler is 740 million British thermal units per hour (MMBtu/hr). The maximum design rate using natural gas alone is 160 MMBtu/hr.	Maximum Continuous Rating (Heat Input): The maximum continuous rating to the BFB boiler is 860 million British thermal units per hour (MMBtu/hr) based on the design fuel. The maximum design rate using natural gas alone is 160 MMBtu/hr.	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations. Permitted emission rates / limits will be meet.
Emission Unit Description	Maximum Continuous Rating (Steam Production): The maximum continuous rating (MCR) of steam production of the BFB boiler is 565,000 pounds per hour (peak is 110% of MCR).	Maximum Continuous Rating (Steam Production): The maximum continuous rating (MCR) of steam production of the BFB boiler is 650,000 pounds per hour (peak is 110% of MCR).	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.
Emission Unit Description	Controls: GCP in the BFB boiler to minimize formation of PM, NO <sub>x</sub> , CO and VOC; limitation of biomass to woody untreated biomass to minimize SO <sub>2</sub> and HAP formation, including HCl; use of natural gas for startup, shutdown and flame (bed) stabilization; ammonia injection into SCR reactor to destroy NO <sub>x</sub> ; acid gas control system to control SO <sub>2</sub> and HCl emissions; and a fabric filter baghouse to control PM emissions.	Controls: GCP in the BFB boiler to minimize formation of PM, NO <sub>x</sub> , CO and VOC; limitation of biomass to woody untreated biomass to minimize SO <sub>2</sub> and HAP formation, including HCl; use of natural gas for startup, shutdown and flame (bed) stabilization; ammonia injection into furnace (SNCR) and/or SCR reactor to destroy NO <sub>x</sub> ; acid gas control system to control SO <sub>2</sub> and HCl emissions; and a fabric filter baghouse to control PM emissions.	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.
Emission Unit Description	Sorbent Storage Silo: A sorbent storage silo will be installed to store the sorbent use in the spray dryer absorber (SDA) system or multilevel/multiple injection location dry sorbent injection (DSI) system. PM will be controlled by a breather vent or vent filter.	Sorbent Storage Silo: A sorbent storage silo will be installed to store the sorbent use in the spray dryer absorber (SDA) system or multilevel/multiple injection location dry sorbent injection (DSI) system. PM will be controlled by a breather vent or vent filter.	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.
Emission Unit Description		<b>Aqueous Ammonium Sulfate Tank: Aqueous ammonium sulfate at a typical concentration of 40% will be used as a corrosion reduction chemical and support a reactant to further intensify NO<sub>x</sub> reduction in the furnace. Ammonium sulfate will be stored onsite in a nominal 10,000 gallon horizontal tank. No air emissions are associated with the ammonium sulfate storage tank.</b>	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.
Equipment	2.b. SCR System: The permittee shall design, install, operate, and maintain an ammonia based SCR system including ammonia storage tank, pumps, metering system, injection grid, reactor and catalyst to reduce NO <sub>x</sub> emissions in the flue gas exhaust and achieve the NO <sub>x</sub> emissions standards specified in this subsection. The SCR shall be brought on line and functioning properly whenever the boiler is in operation in accordance with the manufacturer's procedures and guidelines. The storage tank of ammonia shall comply with all applicable requirements of 40 CFR 68.	2.b. SCR System: The permittee shall design, install, operate, and maintain an ammonia based SCR/SNCR system including ammonia storage tank, pumps, metering system, injection grid, reactor and catalyst to reduce NO <sub>x</sub> emissions in the flue gas exhaust and achieve the NO <sub>x</sub> emissions standards specified in this subsection. The SCR shall be brought on line and functioning properly whenever the boiler is in operation in accordance with the manufacturer's procedures and guidelines. The storage tank of ammonia shall comply with all applicable requirements of 40 CFR 68. The SNCR system includes aqueous ammonia and ammonium sulfate injection to the furnace through nozzles.	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.

Attachment #1 - Summary of Proposed Permit Changes  
 U.S. EcoGen Polk, LLC  
 74.9-Megawatt (MW) U.S. EcoGen Polk Biomass Generating Facility

Current Permit Condition #	Current Permit Condition	Requested Change	Rational for Requested Change
Equipment	2.c.(ii) A multilevel/multiple injection location DSI system utilizing sodium bicarbonate as its sorbent shall be installed, operated and maintained to control acid gas emissions such as SO <sub>2</sub> and HCl to achieve the respective emission standards specified in this subsection. The DSI and multicyclone system involves finely milled sodium bicarbonate multi-level injection after the economizer and just prior to the baghouse inlet. The permittee shall notify the Department of the specific technology selected as the control device within 90 days of selecting the final design.	2.c.(ii) A multilevel/multiple injection location DSI system utilizing sodium bicarbonate as its sorbent shall be installed, operated and maintained to control acid gas emissions such as SO <sub>2</sub> and HCl to achieve the respective emission standards specified in this subsection. The DSI and multicyclone system involves finely milled sodium bicarbonate multi-level injection after the economizer and just prior to the baghouse inlet. The permittee shall notify the Department of the specific technology selected as the control device within 90 days of selecting the final design.	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.
Equipment	4. Sorbent Storage Silo: A sorbent storage silo will be installed to store the sorbent use in the spray dryer absorber (SDA) system or multilevel/multiple injection location dry sorbent injection (DSI) system. PM will be controlled by a breather vent or vent filter.	4. Sorbent Storage Silo: A sorbent storage silo will be installed to store the sorbent use in the spray dryer absorber (SDA) system or multilevel/multiple injection location dry sorbent injection (DSI) system. PM will be controlled by a breather vent or vent filter.	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.
<b>Section 3. Emissions Unit Specific Conditions</b>			
<b>C. Ash Handling, Storage and Shipment (EU-003)</b>			
Emission Unit Description	The fly ash handling system shall have a maximum design transfer rate of 0.75 TPH with a maximum annual design transfer rate of 6,570 TPY.	The fly ash handling system shall have a maximum design transfer rate of 0.75-1.0 TPH with a maximum annual design transfer rate of 6,570-10,500 TPY based on design eucalyptus fuel.	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.
Emission Unit Description	The bottom ash handling system shall have a maximum design transfer rate of 1.0 TPH with a maximum annual design transfer rate of 8,760 TPY.	The bottom ash handling system shall have a maximum design transfer rate of 1.0-5.0 TPH with a maximum annual design transfer rate of 8,760 TPY based on design eucalyptus fuel.	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.
Emission Unit Description	The fly ash storage system shall have a maximum design transfer rate of 0.75 TPH with a maximum annual design transfer rate of 6,570 TPY.	The fly ash storage system shall have a maximum design transfer rate of 0.75-1.2 TPH with a maximum annual design transfer rate of 6,570-10,500 TPY based on design eucalyptus fuel.	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.
Equipment	d. Bottom Ash System: Vibrating conveyors to move bottom ash from the bottom of the boiler to the metal storage container prior to shipment offsite.	d. Bottom Ash System: Vibrating-Screw coolers and drag chain conveyors to move bottom ash from the bottom of the boiler to the metal storage container prior to shipment offsite.	Descriptive change to clearly define the equipment to be installed. Will not change or alter applicability of any stated or federal air regulations.



# 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 plant wide 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>U.S. EcoGen Polk, LLC</b>	
2. Site Name: <b>74.9-MW U.S. EcoGen Polk Generating Facility, Polk County, Florida</b>	
3. Facility Identification Number: <b>1050444</b>	
4. Facility Location... Street Address or Other Locator: <b>CR 630</b> City: <b>Fort Meade</b> County: <b>Polk</b> Zip Code: <b>33841</b>	
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>Mr. William F. Quinn, P.E., President &amp; CEO</b>		
2. Application Contact Mailing Address... Organization/Firm: <b>U.S. EcoGen Polk, LLC</b> Street Address: <b>601 Heritage Drive, Suite 127</b> City: <b>Jupiter</b> State: <b>Florida</b> Zip Code: <b>33458</b>		
3. Application Contact Telephone Numbers... Telephone: <b>(561) 578-4677</b> Fax: <b>(561) 623-5454</b>		
4. Application Contact E-mail Address: <a href="mailto:bill.quinn@usecogen.com"><b>bill.quinn@usecogen.com</b></a>		

#### Application Processing Information (DEP Use)

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

**Purpose of Application**

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

**Air Construction Permit**

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

**Air Operation Permit**

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

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

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

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

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

### Application Comment

U.S. EcoGen Polk, LLC was issued a minor source construction air permit from the Florida Department of Environmental Protection (FDEP) for the construction of a greenfield woody biomass power plant to be located in Polk County, Florida. Specifics related to that permit are noted below:

- Permit Type – Minor Air Construction Permit
- Permit Issuance Date – July 9, 2012
- Permit Number – 1050444-001-AC

Over the past several months, U.S. EcoGen Polk, LLC has been securing contracts with an engineering procurement contractor (EPC) and boiler manufacturer. Recently, a contract was agreed upon with the EPC contractor and boiler manufacturer to build the plant and to supply the bubbling fluidized bed (BFB) boiler that will support the plant.

The boiler manufacturer has reviewed the construction permit issued by the FDEP and will provide a written guarantee to U.S. EcoGen Polk, LLC that states the boiler to be supplied for this power plant project will meet the emission limits/rates as established by the FDEP in the minor source construction permit.

Based on the boiler manufacturer's review of the permit, the boiler manufacturer determined that the boiler to be supplied has slightly different characteristics compared to the boiler initially selected during the construction permitting process. The changes are minor in nature, however U.S. EcoGen Polk, LLC would like the construction permit to be updated to reflect these minor changes.

**Scope of Application**

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
EU-001	Fuel Receiving, Handling, Storage and Processing	AC1D	N/A
EU-002	Power Island (Bubbling Fluidized Bed Boiler and Steam Turbine / Generator)	AC1B	N/A
EU-003	Fly Ash Handling, Storage and Shipment	AC1F	N/A
EU-004	Emergency Electrical Generator	AC1E	N/A
EU-005	Emergency Fire Pump	AC1E	N/A

**Application Processing Fee**

Check one:  Attached - Amount: \_\_\_\_\_  Not Applicable



**Owner/Authorized Representative Statement**

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

1. Owner/Authorized Representative Name : <b>William F. Quinn, P.E., President &amp; CEO</b>
2. Owner/Authorized Representative Mailing Address... Organization/Firm: <b>U.S. EcoGen Polk, LLC</b> Street Address: <b>601 Heritage Drive, Suite #127</b> City: <b>Jupiter</b> State: <b>Florida</b> Zip Code: <b>33458</b>
3. Owner/Authorized Representative Telephone Numbers... Telephone: <b>(561) 578-4677</b> Fax: <b>(561) 623-5454</b>
4. Owner/Authorized Representative E-mail Address: <a href="mailto:bill.quinn@usecogen.com"><b>bill.quinn@usecogen.com</b></a>
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>   <u>Signature</u> <span style="margin-left: 300px;"><u>3-14-14</u></span> <u>Date</u>

## EMISSIONS UNIT INFORMATION

### Section [ 2 ]

### 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 ]**

**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:  
**Power Island (Bubbling Fluidized Bed Boiler and Steam Turbine / Generator)**

3. Emissions Unit Identification Number: **EU-002**

4. Emissions Unit Status Code: <b>C</b>	5. Commence Construction Date: <b>2014</b>	6. Initial Startup Date: <b>2016</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
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8. Federal Program Applicability: (Check all that apply)

Acid Rain Unit

CAIR Unit

9. Package Unit: **To be established during final engineering.**  
 Manufacturer: **To be established during final engineering.**  
 Model Number: **To be established during final engineering.**

10. Generator Nameplate Rating: MW **Nominal 74.9-MW**

**The initial permit listed the rating at 63 MW, U.S. EcoGen is requesting that the nameplate rating be updated to reflect a nominal 74.9 MW of electricity**

11. Emissions Unit Comment:

**The bubbling fluidized bed (BFB) boiler capacity will be equipped with a burner rated at 160 MMBtu/hr for natural gas for startup, shutdown, and bed stabilization and approximately 860 MMBtu/hr (24-hour average) for maximum operation on woody biomass fuel. The anticipated maximum design heat input of the boiler while combusting woody biomass at 50% moisture will be 860 MMBtu/hr.**

**The initial permit listed the maximum heat input rate as 740 MMBtu/hr, U.S. EcoGen is requesting that the maximum heat input be updated to reflect 860 MMBtu/hr (annual average) for the BFB boiler.**

**EMISSIONS UNIT INFORMATION**

**Section [ 2 ]**

**Emissions Unit Control Equipment/Method: Control 1 of 4**

1. Control Equipment/Method Description: <b>Spray Dryer Absorber (SDA) or Dry Sorbent Injection (DSI)</b>
2. Control Device or Method Code: <b>202 or 206</b>

**Emissions Unit Control Equipment/Method: Control 2 of 4**

1. Control Equipment/Method Description: <b>Fabric Filter (Baghouse)</b>
2. Control Device or Method Code: <b>127</b>

**Emissions Unit Control Equipment/Method: Control 3 of 4**

1. Control Equipment/Method Description: <b>Furnace (SNCR) and/or Selective Catalytic Reduction (SCR) for Bubbling Fluidized Bed Boiler</b>
2. Control Device or Method Code: <b>139 (SCR)</b>

**Emissions Unit Control Equipment/Method: Control 4 of 4**

1. Control Equipment/Method Description: <b>Good Combustion Practice</b>
2. Control Device or Method Code: <b>148</b>

**EMISSIONS UNIT INFORMATION**

Section [ 2 ]

**B. EMISSIONS UNIT CAPACITY INFORMATION**

(Optional for unregulated emissions units.)

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate: <b>Not Applicable</b>
2. Maximum Production Rate: <b>Not Applicable</b>
3. Maximum Heat Input Rate: <b>860 million Btu/hr (approximate) (annual average)</b>
4. Maximum Incineration Rate: pounds/hr <b>Not Applicable</b> tons/day <b>Not Applicable</b>
5. Requested Maximum Operating Schedule: 24 hours/day 7 days/week 52 weeks/year 8,760 hours/year
6. Operating Capacity/Schedule Comment:  a) Natural gas combustion to be used for startup, shutdown and bed stabilization only at a rated heat input of 160 MMBtu/hr.  b) Woody biomass combustion to be used for normal operation at maximum heat input rate of approximately 860 MMBtu/hr. U.S. EcoGen is requesting that the maximum heat input be established at 860 MMBtu/hr (annual average) for the BFB boiler.  The initial permit listed the maximum heat input rate as 740 MMBtu/hr, U.S. EcoGen is requesting that the maximum heat input be updated to reflect 860 MMBtu/hr (annual average) for the BFB boiler.

**EMISSIONS UNIT INFORMATION**

**Section [ 2 ]**

**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:		2. Emission Point Type Code: <b>1</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:  <b>Exhausts through the Boiler Exhaust Stack.</b>			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: <b>Not shared with any other emission unit.</b>			
5. Discharge Type Code: <b>V</b>	6. Stack Height: <b>180 feet</b>	7. Exit Diameter: <b>11.0 feet</b>	
8. Exit Temperature: <b>310 °F</b>	9. Actual Volumetric Flow Rate: <b>335,000 ACFM (wet volume)</b>	10. Water Vapor: <b>TBD %</b>	
11. Maximum Dry Standard Flow Rate: dscfm <b>To Be Determined</b>		12. Nonstack Emission Point Height: feet <b>Not Applicable</b>	
13. Emission Point UTM Coordinates... Zone: <b>See Application Document</b> East (km):      North (km):		14. Emission Point Latitude/Longitude... <b>See Application Document</b> Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:  <b>The boiler will be a bubbling fluidized bed (BFB) boiler. The selection of the specific boiler design will define the specific stack information. The information provided is deemed representative of the type of boiler to be selected.</b>			

**EMISSIONS UNIT INFORMATION**

Section [ 2 ]

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

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

1. Segment Description (Process/Fuel Type): <b>Natural Gas for Startup, Shutdown and Boiler Bed Stabilization</b>		
2. Source Classification Code (SCC): <b>10100601</b>		3. SCC Units: <b>million cubic feet burned</b>
4. Maximum Hourly Rate: <b>0.160</b>	5. Maximum Annual Rate: <b>1,401.6</b>	6. Estimated Annual Activity Factor: <b>N/A</b>
7. Maximum % Sulfur: <b>N/A</b>	8. Maximum % Ash: <b>N/A</b>	9. Million Btu per SCC Unit: <b>1,000</b>
10. Segment Comment: <b>Natural gas burner will be rated at 160 MMBtu/hr using natural gas as a boiler startup, shutdown and bed stabilization fuel.</b>		

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

1. Segment Description (Process/Fuel Type): <b>Woody Biomass Normal Operation</b>		
2. Source Classification Code (SCC): <b>10100912</b>		3. SCC Units: <b>tons burned</b>
4. Maximum Hourly Rate: <b>101.5</b>	5. Maximum Annual Rate: <b>888,815</b>	6. Estimated Annual Activity Factor: <b>N/A</b>
7. Maximum % Sulfur: <b>0.08% by weight</b>	8. Maximum % Ash: <b>2% by weight</b>	9. Million Btu per SCC Unit: <b>8.5</b>
10. Segment Comment: <b>Woody biomass boiler capacity will be approximately 860 MMBtu/hr (annual average) for normal operating conditions. Design woody biomass higher heating value is approximately 4,238 Btu/lb wet at 50% moisture. This heating value can fluctuate depending on fuel storage.</b>  <b>The initial permit listed the maximum heat input rate as 740 MMBtu/hr, U.S. EcoGen is requesting that the maximum heat input be updated to reflect 860 MMBtu/hr (annual average) for the BFB boiler.</b>		



## EMISSIONS UNIT INFORMATION

### Section [ 3 ]

#### 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 ]

### 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.)
<input type="checkbox"/> The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
<input type="checkbox"/> 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)			
<input type="checkbox"/> 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).			
<input checked="" type="checkbox"/> 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.			
<input type="checkbox"/> 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: <b>Fly Ash Storage, Handling and Shipment</b>			
3. Emissions Unit Identification Number: <b>EU-003</b>			
4. Emissions Unit Status Code: <b>C</b>	5. Commence Construction Date: <b>2014</b>	6. Initial Startup Date: <b>2016</b>	7. Emissions Unit Major Group SIC Code: <b>49</b>
8. Federal Program Applicability: (Check all that apply) <b>Not Applicable</b>			
<input type="checkbox"/> Acid Rain Unit			
<input type="checkbox"/> CAIR Unit			
9. Package Unit: <b>To be established during final engineering.</b>			
Manufacturer: <b>To be established during final engineering.</b>			
Model Number: <b>To be established during final engineering.</b>			
10. Generator Nameplate Rating: MW <b>Not Applicable</b>			
11. Emissions Unit Comment: <b>This emission unit includes ash (fly ash and bottom ash) storage, and shipment operations. Refer to Section 2 of the initial Application Document which describes this emission unit, including individual pieces of equipment and those pieces of equipment with the potential to emit regulated air pollutants.</b>			

**EMISSIONS UNIT INFORMATION**

**Section [3]**

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

1. Control Equipment/Method Description: <b>Best Management Practices</b>
2. Control Device or Method Code: <b>099</b>

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

1. Control Equipment/Method Description: <b>Enclosed Conveyor System</b>
2. Control Device or Method Code: <b>054</b>

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

1. Control Equipment/Method Description: <b>Baghouse on Fly Ash Storage Silo</b>
2. Control Device or Method Code: <b>018</b>

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

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

**EMISSIONS UNIT INFORMATION**

**Section [ 3 ]**

**B. EMISSIONS UNIT CAPACITY INFORMATION**

**(Optional for unregulated emissions units.)**

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate: <b>17,780 tons/year</b>
2. Maximum Production Rate: <b>Not Applicable</b>
3. Maximum Heat Input Rate: million Btu/hr <b>Not Applicable</b>
4. Maximum Incineration Rate: pounds/hr <b>Not Applicable</b> tons/day <b>Not Applicable</b>
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>Equipment is designed to operate continuously. However, physical limitations of the BFB Boiler and demand for electrical power will define the required operating parameters for this Emission Unit.</b>

**EMISSIONS UNIT INFORMATION**

Section [ 3 ]

**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>Ash Handling Area</b>		2. Emission Point Type Code: <b>4</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:  <b>A majority of this unit is composed of fugitive sources and is not associated with any specific emission point. A vent filter will be installed on the fly ash silo, which is a point source.</b>			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: <b>Not Applicable (N/A)</b>			
5. Discharge Type Code: <b>F</b>	6. Stack Height: Feet <b>N/A</b>	7. Exit Diameter: feet <b>N/A</b>	
8. Exit Temperature: °F <b>N/A</b>	9. Actual Volumetric Flow Rate: acfm <b>N/A</b>	10. Water Vapor: % <b>N/A</b>	
11. Maximum Dry Standard Flow Rate: dscfm <b>N/A</b>		12. Nonstack Emission Point Height: feet <b>N/A</b>	
13. Emission Point UTM Coordinates... Zone: <b>See Application Document</b> East (km):      North (km):		14. Emission Point Latitude/Longitude... <b>See Application Document</b> Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:  <b>Emission unit is composed of fugitive sources from the storage and shipment of fly ash. The fly ash silo will be equipped with a vent filter, which is considered a point source. The estimated truck traffic for ash shipment is much less than that for wood receiving and has been included in the truck traffic emissions for Emission Unit EU-001 – Fuel Receiving, Handling, Storage, and Processing.</b>			

**EMISSIONS UNIT INFORMATION**

Section [3]

**D. SEGMENT (PROCESS/FUEL) INFORMATION****Segment Description and Rate:** Segment 1 of 4

1. Segment Description (Process/Fuel Type):  <b>Bottom Ash Handling &amp; Shipment (Bed Hoppers; Bed Hopper Ash Collection Conveyor; and Bed Hopper Ash Transfer Conveyor Drop to Bucket Elevator)</b>		
2. Source Classification Code (SCC): <b>39999999</b>		3. SCC Units: <b>tons transferred or handled</b>
4. Maximum Hourly Rate: <b>5.0 tons/hour</b>	5. Maximum Annual Rate: <b>8,760 tons/year</b>	6. Estimated Annual Activity Factor: <b>N/A</b>
7. Maximum % Sulfur: <b>N/A</b>	8. Maximum % Ash: <b>N/A</b>	9. Million Btu per SCC Unit: <b>N/A</b>
10. Segment Comment:  <b>Fugitive PM/PM<sub>10</sub> emissions from drop points: (1) from bed hoppers, (2) from bed hopper ash collection conveyor, and (3) from bed hopper ash transfer conveyor drop to bucket elevator.</b>  <b>The initial permit listed the maximum hourly rate as 1.0 tons/hour, U.S. EcoGen is requesting that the maximum hourly rate be updated to reflect 5.0 tons/hour. U.S. EcoGen is not requesting a change to the maximum annual rate.</b>		

**Segment Description and Rate:** Segment **2** of **4**

1. Segment Description (Process/Fuel Type):  <b>Fly Ash Handling (Baghouse Hoppers; Convection Pass Hoppers (Gen Bank and Economizer); Collecting Conveyors; and Fly Ash Transfer Conveyors)</b>		
2. Source Classification Code (SCC): <b>39999999</b>		3. SCC Units: <b>tons transferred or handled</b>
4. Maximum Hourly Rate: <b>10.0 tons/hour (Max.)</b>	5. Maximum Annual Rate: <b>10,500 tons/year</b>	6. Estimated Annual Activity Factor: <b>N/A</b>
7. Maximum % Sulfur: <b>N/A</b>	8. Maximum % Ash: <b>N/A</b>	9. Million Btu per SCC Unit: <b>N/A</b>
10. Segment Comment:  <b>Covered system. Fugitive PM/PM<sub>10</sub> emissions would be negligible.</b>  <b>The initial permit listed the maximum hourly rate as 0.75 tons/hour, U.S. EcoGen is requesting that the maximum hourly rate be updated to reflect 10.0 tons/hour. U.S. EcoGen is also requesting that the maximum annual rate be updated to reflect 10,500 tons/year, the initial permit listed the maximum annual rate at 6,570 tons/year.</b>		

**EMISSIONS UNIT INFORMATION**

Section [ 3 ]

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

**Segment Description and Rate: Segment 3 of 4**

1. Segment Description (Process/Fuel Type):  <b>Fly Ash Storage (Fly Ash Transfer Conveyor)</b>		
2. Source Classification Code (SCC): <b>39999999</b>		3. SCC Units: <b>tons transferred or handled</b>
4. Maximum Hourly Rate: <b>1.2 tons/hour (Max.)</b>	5. Maximum Annual Rate: <b>10,500 tons/year</b>	6. Estimated Annual Activity Factor: <b>N/A</b>
7. Maximum % Sulfur: <b>N/A</b>	8. Maximum % Ash: <b>N/A</b>	9. Million Btu per SCC Unit: <b>N/A</b>
10. Segment Comment:  <b>Fugitive PM/PM<sub>10</sub> emissions from drop point from ash transfer conveyor to ash silo.</b>  <b>The initial permit listed the maximum hourly rate as 0.75 tons/hour, U.S. EcoGen is requesting that the maximum hourly rate be updated to reflect 1.2 tons/hour. U.S. EcoGen is also requesting that the maximum annual rate be updated to reflect 10,500 tons/year, the initial permit listed the maximum annual rate at 6,570 tons/year.</b>		

**Segment Description and Rate: Segment 4 of 4**

1. Segment Description (Process/Fuel Type):  <b>Ash Shipment (Fly Ash Silo to Ash Conditioner Drop Point)</b>		
2. Source Classification Code (SCC): <b>39999999</b>		3. SCC Units: <b>tons transferred or handled</b>
4. Maximum Hourly Rate: <b>5.5 tons/hour</b>	5. Maximum Annual Rate: <b>48,180 tons/year</b>	6. Estimated Annual Activity Factor: <b>N/A</b>
7. Maximum % Sulfur: <b>N/A</b>	8. Maximum % Ash: <b>N/A</b>	9. Million Btu per SCC Unit: <b>N/A</b>
10. Segment Comment:  <b>Fugitive PM/PM<sub>10</sub> emissions from drop point from the ash conditioner chutes to covered trucks.</b>		