



REPORT

# AIR CONSTRUCTION PERMIT APPLICATION

## University of Florida Cogeneration Plant – No. 4 Boiler Replacement

**Submitted To:** University of Florida  
PO Box 117715  
3280 Radio Rd.  
Gainesville, FL 32611

Duke Energy Florida, Inc  
P.O. Box 14042, PEF 903  
Saint Petersburg, FL 33733

**Submitted By:** Golder Associates Inc.  
5100 W. Lemon Street, Suite 208  
Tampa, FL 33609 USA

**Distribution:** Florida Department of Environmental Protection  
University of Florida  
Duke Energy Florida  
Golder Associates Inc.

January 2014

Project No. 13389556

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- Attachment A - FDEP Form No. 62 210.900(1), Application for Air Permit — Long Form
- Attachment UF-FI-C2 – Description of Proposed Construction
- Attachment UF-FI-C6 – Requested Language for AC Permit

### Appendices

- Appendix A Project Manual Including Design Specifications for the Replacement Boiler



## 1.0 PROJECT DESCRIPTION

Duke Energy Florida, Inc. (DEF) operates the existing University of Florida Cogeneration Plant located in Alachua County 1928 Mowry Road, Building 82, University of Florida, Gainesville, Florida under Title V Operating Permit No. 0010001-013-AV. The facility consists of one nominal 48 megawatt (MW) combustion turbine (CT), one duct burner (DB) with a heat recovery steam generator and two steam boilers. Emissions from the CT and DB are vented through a common stack and nitrogen oxide (NO<sub>x</sub>) emissions are controlled with steam injection. The steam boilers, each having a separate exhaust stack, are used as needed, typically as backup sources.

The facility is a major source of air pollution under the Title V program [Chapter 62-213, Florida Administrative Code (F.A.C.)] and the Prevention of Significant Deterioration (Rule 62-212.400, F.A.C.) program and is subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C. The facility is subject to 40 CFR 60, New Source Performance Standards (NSPS), Subparts A (General Provisions), Db (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units), and GG (Standards of Performance for Stationary Gas Turbines), and operates units subject to the Acid Rain provisions of the Clean Air Act. This facility is not a major source of hazardous air pollutants (HAPs).

This application is for an air construction permit for the construction of a steam boiler to replace the existing Boiler No. 4 (EU 002) to support the steam load requirements of the University of Florida (UF). UF is planning to replace Boiler No. 4 [permitted at 69.6 million British thermal units per hour (MMBtu/hr) and 40,000 pounds per hour (lb/hr) of steam] with a new boiler with a heat input of 99.9 MMBtu/hr and capacity to produce approximately 78,500 lb/hr of steam. UF will purchase and install the boiler, which is proposed to be a Cleaver Brooks Company model NB-300D-70, and Duke Energy Florida (DEF) will permit and operate the boiler.

As documented in the Project Manual (Appendix A), the project consists of the following steps:

- Demolition of existing Boiler No. 4 in its entirety. Systems not included in the demolition will be protected and kept operable throughout. The boiler will be removed through the west wall. The west wall will be removed and reinstalled.
- Installation of a new 78,500 pound per hour (lb/hr) packaged water-tube boiler and economizer to replace Boiler No. 4.
- Installation of all associated piping, appurtenances, and controls to make the new boiler fully functional. The controls system of the new boiler will be coordinated to be operated either locally or from the University of Florida Cogeneration Plant.

The current proposed construction schedule calls for the replacement boiler to be delivered to the facility on about April 2014, and installation and testing are expected to be completed by about September 2014.



## 2.0 REGULATORY APPLICABILITY

The replacement steam boiler will have the capacity to fire natural gas and No. 2 fuel oil. Similar to the existing No. 4 boiler, the proposed boiler will have no restrictions on operating hours. Due to the fact that the replacement boiler will be a new unit, with a heat input of less than 100 MMBtu/hr, New Source Performance Standards (NSPS), Subparts A (General Provisions) and Dc (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units), will apply. Prevention of Significant deterioration (PSD) review is not applicable as there is not a significant emission rate (SER) increase proposed for any of the regulated pollutants. While some of the hourly emission rates are estimated to increase, this is due to the increase in the replacement boiler heat input, as the emissions on a lb/MMBtu basis are consistently lower than the existing boiler. In other words, the replacement boiler is designed to operate more efficiently than the current boiler. PSD will not be triggered, as long as the total facility NOx cap is not exceeded.

The boiler is potentially subject to the Area Source Boiler MACT Rule (40 CFR 63 Subpart JJJJJJ), however, a "gas-fired boiler" is specifically exempted from the Area Source Boiler MACT Rule (40 CFR 63.11195(e)). A "gas-fired boiler" is defined as any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year." DEF understands that, in the event oil is fired in these boilers (i.e., the current Boiler Nos. 4 and 5, as well as the proposed replacement boiler) for more than 48 hours in a calendar year for reasons other than periods of gas curtailment, gas supply interruption, or startups, then the units would no longer be classified as a "gas-fired boiler" for purposes of this rule.

A series of emission summary tables are provided with this application for additional background as follows:

- Table 1 provides a comparison of emissions from the current Boiler No. 4 (both by pollutant and by fuel) to the new proposed replacement boiler.
- The actual annual operating hours for the existing No. 4 Boiler were reviewed and are summarized in Table 2. Calendar year 2011 provided a conservative estimate of the actual operating hours as the combustion turbine engine underwent significant maintenance and testing during 2011, requiring greater than typical operating time for the backup boilers. In addition, the number of oil-fired hours was significantly greater in 2012 than in other years. This was because the lateral from the FGT pipeline must undergo a required pressure test using nitrogen every five years. This typically interrupts the gas supply to the plant for 1 to 2 weeks and is scheduled around the Fall outage for the combustion turbine and is historically a period of low steam demand. The last test was conducted in the Fall of 2012.
- Table 3 provides a detailed summary of how the emission estimates for the new proposed boiler were derived.
- Tables 4 and 5 provide summaries of estimated organic HAP emissions and metal HAP emissions from the proposed boiler, respectively.



## TABLES

**Table 1: Boiler Emissions Summary (Proposed and Current)**

Pollutant	New No. 4 Boiler							Existing No. 4 Boiler <sup>a,b</sup>								
	Natural Gas Potential Emissions	Emissions Basis		Reference/Source	Fuel Oil Potential Emissions	Emissions Basis		Reference/Source	Natural Gas Potential Emissions	Emissions Basis		Reference/Source	Fuel Oil Potential Emissions	Emissions Factor	Reference/Source	
	lb/hr	quantity	units		lb/hr	quantity	units		lb/hr	quantity	units		lb/hr	quantity	units	
SO <sub>2</sub>	0.56	5.71	lb/mmscf	Vendor - 2 grains S/scf	51.33	71.0	lb/1000 gal	Permit - 0.5% Sulfur	0.36	5.30	lb/mmscf	Permit	31.30	70.50	lb/1000 gal	Permit/AOR
NO <sub>x</sub>	3.64	0.04	lb/mmBtu	Vendor - 30ppmv	12.60	0.1	lb/mmBtu	Vendor - 100ppm	5.17	0.075	lb/mmBtu	AOR	4.92	0.082	lb/mmBtu	AOR
CO	7.38	75.35	lb/mmscf	Vendor - 100ppmv	7.66	10.6	lb/1000 gal	Vendor - 100ppm	5.71	84	lb/mmscf	AOR/AP-42	2.22	5.0	lb/1000 gal	AOR/AP-42
VOC	0.54	5.50	lb/mmscf	AP-42	0.14	0.2	lb/1000 gal	AP-42 (NMTOC)	0.37	5.5	lb/mmscf	AOR/AP-42	0.11	0.25	lb/1000 gal	AOR/AP-42 (TOC)
PM	4.99	51.00	lb/mmBtu	Vendor - 0.005 lb/mmBtu	4.92	6.8	lb/1000 gal	Vendor - 0.05 lb/mmBtu	0.52	7.6	lb/mmscf	AOR/AP-42	0.89	2.0	lb/1000 gal	AOR/AP-42
SAM <sup>c</sup>	0.09	8.8E-01	lb/mmscf	10% of SO <sub>2</sub>	7.86	10.9	lb/1000 gal	10% of SO <sub>2</sub>	0.06	8.1E-01	lb/mmscf	10% of SO <sub>2</sub>	4.79	10.8	lb/1000 gal	10% of SO <sub>2</sub>
HAPs (Total)	0.18	1.89	lb/mmscf	AP-42	0.04				--	--	--	--	--	--	--	--

**Notes:**

<sup>a</sup> Existing No. 4 Boiler emissions based on emission factors in 2012 annual operating report for UF Cogeneration Plant, boiler heat input and fuel heating values.

<sup>b</sup> Calculation of existing No. 4 Boiler emissions assumes full load operation.

<sup>c</sup> SAM emissions estimated assuming 10% conversion of SO<sub>2</sub> to H<sub>2</sub>SO<sub>4</sub>.

<sup>d</sup> New No. 4 Boiler maximum natural gas usage = 97,941 scf/hr; maximum oil usage = 723 gal/hr

<sup>e</sup> Existing No. 4 Boiler maximum natural gas usage = 68,202 scf/hr; maximum oil usage = 512 gal/hr

**Table 2: Summary of Existing Boiler No. 4 Operating Hours**

<b>Year</b>	<b>Gas-Fired Hours</b>	<b>Oil-Fired Hours <sup>a</sup></b>	<b>CDI Firing Hours <sup>b</sup></b>	<b>Total Operating Hours</b>
2008	1,402	17	7,074	8,493
2009	1,484	2	6,750	8,236
2010	1,466	1	6,621	8,088
2011	2,581	-	5,501	8,082
2012	787	181	7,481	8,449

Source: UF Cogen Annual Operating Reports, 2008 - 2012.

<sup>a</sup>. Oil-firing is typically conducted for periods of routine testing and gas supply interruption

<sup>b</sup>. CDI firing indicates the time of operation of the pilot flame

**Table 3: Boiler Criteria Pollutant Emissions Estimates**

Parameter	Natural Gas	#2 Oil
<b>Performance</b>		
Steam Flow (lb/hr)	78,500	78,500
Heat Content (Btu/scf)	1,020	----
Heat Content (Btu/gal)	----	136,000
Heat Content (Btu/lb)	----	19,291
Gas Consumption (scf/hr)	97,941	----
Oil Consumption (gal/hr)	----	723
Heat Input (MMBtu/hr)	99.9	98.3
Maximum Fuel Usage (MMBtu/yr) <sup>a</sup>	875,122	861,353
Control System	Low NOx Burner/ FGR	
Minimum Feedwater Temp. (°F)	250	250
Steam Outlet Temperature (°F)	500	500
Steam Flowrate (acfm)	50,952	50,952
<b>Emissions</b>		
SO <sub>2</sub> - (lb/MMBtu) <sup>c</sup>	5.6E-03	0.522
(lb/hr)	0.56	51.33
NO <sub>x</sub> - (ppmv) <sup>d</sup>	30	100
(lb/MMBtu) <sup>e</sup>	0.036	0.13
(lb/hr)	3.64	12.60
CO - (ppmv) <sup>d</sup>	100	100
CO - (lb/MMBtu) <sup>e</sup>	7.39E-02	7.79E-02
(lb/hr)	7.38	7.66
VOC - (lb/mmBtu) <sup>b</sup>	5.4E-03	1.5E-03
(lb/hr)	0.54	0.14
PM (Total) - (lb/mmBtu) <sup>d</sup>	0.050	0.050
(lb/hr)	4.99	4.92
<b>SAM - Sulfuric Acid Mist</b>		
SO <sub>2</sub> emission rate (lb/hr)	0.560	51.3
Conversion to H <sub>2</sub> SO <sub>4</sub> (% by weight)	10	10
(lb/hr)	0.09	7.86

**Notes:**

<sup>a</sup> Based on unlimited operation (i.e., 8,760 hours per year)

<sup>b</sup> Natural Gas emissions based on AP-42, Table 1.4-2; and No. 2 fuel oil emissions based on AP-42, Table 1.3-1, 1.3-2, and 1.3-3.

<sup>c</sup> Sulfur content of fuel oil assumed to be 0.5% based on Air Operating Permit No. 0010001-013-AV

<sup>e</sup> Conversion of ppmv to lb/MMBtu based on equations and data provided in USEPA's Output-Based Regulations:

A Handbook for Air Regulators ([http://www.epa.gov/chp/documents/obr\\_final\\_9105.pdf](http://www.epa.gov/chp/documents/obr_final_9105.pdf))

Source: Golder, 2014.



Table 4: Organic HAP Emission Estimates for the Boiler

Organic Compound	Emission Factors				Emissions (lb/hr)	
	Natural Gas <sup>a</sup> (lb/10 <sup>6</sup> scf)	Rating	Fuel Oil <sup>b</sup> (lb/10 <sup>3</sup> Gal)	Rating <sup>d</sup>	Natural Gas	Fuel Oil
2-Methylnaphthalene	2.40E-05	D	--	--	2.4E-06	--
3-Methylchloranthrene	1.80E-06	E	--	--	1.8E-07	--
7,12-Dimethylbenz(a)anthracene	1.60E-05	E	--	--	1.6E-06	--
Acenaphthene	1.80E-06	E	2.11E-05	C	1.8E-07	1.5E-05
Acenaphthylene	1.80E-06	E	2.53E-07	D	1.8E-07	1.8E-07
Anthracene	2.40E-06	E	1.22E-06	C	2.4E-07	8.8E-07
Benz(a)anthracene	1.80E-06	E	4.01E-06	C	--	2.9E-06
Benzene	2.10E-03	B	2.14E-04	C	2.1E-04	1.5E-04
Benzo(a)pyrene	1.20E-06	E	--	--	1.2E-07	--
Benzo(g,h,i)perylene	1.20E-06	E	2.26E-06	C	1.2E-07	1.6E-06
Benzo(k)fluoranthene	1.80E-06	E	1.48E-06	C	1.8E-07	1.1E-06
Chrysene	1.80E-06	E	2.38E-06	C	1.8E-07	1.7E-06
Dibenzo(a,h)anthracene	1.20E-06	E	1.67E-06	D	1.2E-07	1.2E-06
Dichlorobenzene	1.20E-03	E	--	--	1.2E-04	--
Ethylbenzene	--	--	6.36E-05	E	--	4.6E-05
Fluoranthene	3.00E-06	E	4.84E-06	C	2.9E-07	3.5E-06
Fluorene	2.80E-06	E	4.47E-06	C	2.7E-07	3.2E-06
Formaldehyde	7.50E-02	B	3.30E-02	C	7.3E-03	2.4E-02
Hexane	1.80E+00	E	--	--	1.8E-01	--
Indeno(1,2,3-cd)pyrene	1.80E-06	E	2.1E-06	C	1.8E-07	1.5E-06
Naphthalene	6.10E-04	E	1.1E-03	C	6.0E-05	8.2E-04
Phenanthrene	1.70E-05	D	1.1E-05	C	1.7E-06	7.6E-06
Pyrene	5.00E-06	E	4.3E-06	C	4.9E-07	3.1E-06
Toluene	3.40E-03	C	6.2E-03	D	3.3E-04	4.5E-03
o-Xylene	--	--	1.1E-04	E	--	7.9E-05
Polycyclic Organic Matter (POM) <sup>c</sup>	--	--	3.3E-03	E	--	2.4E-03
	<b>1.882</b>		<b>Total HAP Emissions</b>		<b>0.18</b>	<b>3.2E-02</b>
			<b>Individual HAP Emissions</b>		<b>0.18</b>	<b>2.4E-02</b>
<b>Emissions based on:</b>		<b>Natural Gas Consumption (scf/hr)</b>		<b>97,941</b>		
		<b>Fuel Oil Consumption (gal/hr)</b>		<b>723</b>		
		<b>Maximum Hours per Year</b>		<b>8,760</b>		

**Notes:**<sup>a</sup> Emission Factors for natural gas based on EPA AP-42 (7/98) Table 1.4-3.<sup>b</sup> Emission Factors for distillate fuel oil based on EPA AP-42 (5/10) Table 1.3-9.<sup>c</sup> POM is a HAP as defined by Section 112(b) of the Clean Air Act.<sup>d</sup> EPA Emission Factor Ratings: A-Excellent; B-Above Average; C-Average; D-Below Average; E-Poor.

**Table 5: Metal Trace HAP Emission Estimates for the Boiler**

Metals	Emission Factors				Emissions (lb/hr)	
	Natural Gas <sup>a</sup> (lb/10 <sup>6</sup> scf)	Rating	Fuel Oil <sup>b</sup> (lb/10 <sup>6</sup> MMBtu)	Rating <sup>c</sup>	Natural Gas	Fuel Oil
Arsenic	2.0E-04	E	4	E	2.0E-05	3.9E-04
Beryllium	1.2E-05	E	3	E	1.2E-06	2.9E-04
Cadmium	1.1E-03	D	3	E	1.1E-04	2.9E-04
Chromium	1.4E-03	D	3	E	1.4E-04	2.9E-04
Cobalt	8.4E-05	D	--	--	8.2E-06	--
Lead	--	--	9	E	--	8.8E-04
Manganese	3.8E-04	D	6	E	3.7E-05	5.9E-04
Mercury	2.6E-04	D	3	E	2.5E-05	2.9E-04
Nickel	2.1E-03	C	3	E	2.1E-04	2.9E-04
	<b>5.5E-03</b>			<b>Total HAP Emissions</b>	<b>5.4E-04</b>	<b>3.3E-03</b>
				<b>Maximum Individual HAP Emissions</b>	<b>2.1E-04</b>	<b>8.8E-04</b>
<b>Emissions based on:</b>		<b>Natural Gas Consumption (scf/hr)</b>			<b>97,941</b>	
		<b>Fuel Oil Heat Input (MMBtu/hr)</b>			<b>98.3</b>	

**Notes:**

<sup>a</sup> Emission Factors for natural gas based on EPA AP-42 (7/98) Table 1.4-4.

<sup>b</sup> Emission Factors for distillate fuel oil based on EPA AP-42 (5/10) Table 1.3-10.

<sup>c</sup> EPA Emission Factor Ratings: A-Excellent; B-Above Average; C-Average; D-Below Average; E-Poor.

Source: Golder, 2014.



January 2014

Project No.13389556

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**ATTACHMENT A**  
**APPLICATION FOR AIR PERMIT - LONG FORM**  
**DEP Form No. 62-210.900(1)**



# 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>Duke Energy Florida, Inc.</b>	
2. Site Name: <b>University of Florida Cogeneration Plant</b>	
3. Facility Identification Number: <b>0010001</b>	
4. Facility Location... Street Address or Other Locator: <b>1928 Mowry Road, Building 82</b> City: <b>Gainesville</b> County: <b>Alachua</b> Zip Code: <b>32611</b>	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

#### Application Contact

1. Application Contact Name: <b>Chris Bradley, Senior Environmental Specialist</b>	
2. Application Contact Mailing Address... Organization/Firm: <b>Duke Energy Florida, Inc.</b> Street Address: <b>299 First Avenue North, FL 903</b> City: <b>St. Petersburg</b> State: <b>Florida</b> Zip Code: <b>33701-3308</b>	
3. Application Contact Telephone Numbers... Telephone: <b>(727) 820-5962</b> ext. Fax: <b>(727) 820-5292</b>	
4. Application Contact E-mail Address: <a href="mailto:Chris.Bradley@duke-energy.com">Chris.Bradley@duke-energy.com</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):

## APPLICATION INFORMATION

### Purpose of Application

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

#### **Air Construction Permit**

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

#### **Air Operation Permit**

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

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

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

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

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

### Application Comment

This application is for an air construction permit application for the construction of a steam boiler to replace the existing Boiler No. 4 (EU 002) to support the steam load requirements of the University of Florida. UF is planning to replace Boiler No. 4 (permitted at 69.6 million British thermal units per hour [mmBtu/hr] and 40,000 pounds per hour [lb/hr] of steam) with a new boiler with a heat input of 99.9 mmBtu/hr and capacity to produce approximately 78,500 lb/hr of steam. UF will purchase and install the boiler, and Duke Energy Florida (DEF) will permit and operate the boiler.

**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 Processing Fee</b>
002	Steam Boiler		NA

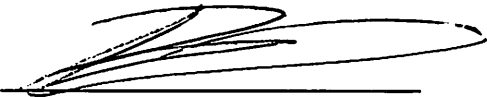
**Application Processing Fee**

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

**APPLICATION INFORMATION**

**Owner/Authorized Representative Statement**

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

1. Owner/Authorized Representative Name : <b>Brian V. Powers, Station Manager</b>
2. Owner/Authorized Representative Mailing Address... Organization/Firm: <b>Duke Energy Florida, Inc.</b> Street Address: <b>1928 Mowry Rd., Building 82</b> City: <b>Gainesville</b> State: <b>FL</b> Zip Code: <b>32611</b>
3. Owner/Authorized Representative Telephone Numbers... Telephone: <b>(352) 337-6904</b> ext. Fax: <b>(352) 337-6920</b>
4. Owner/Authorized Representative E-mail Address: <b>Brian.Powers@duke-energy.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>2/05/2014</u> Date

## APPLICATION INFORMATION

### Application Responsible Official Certification - NA

**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.”**

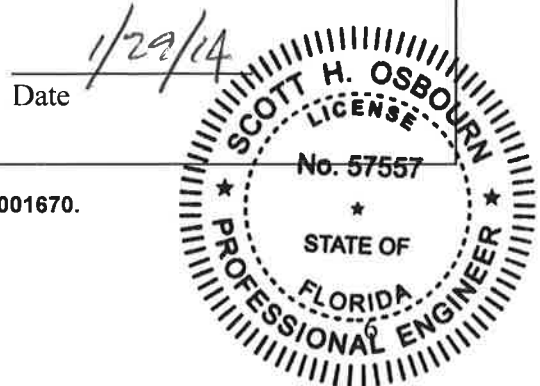
1. Application Responsible Official Name:		
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):		
<input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business 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 or CAIR source.		
3. Application Responsible Official Mailing Address...		
Organization/Firm:		
Street Address:		
City:	State:	Zip Code:
4. Application Responsible Official Telephone Numbers...		
Telephone:	ext.	Fax:
5. Application Responsible Official E-mail Address:		
6. Application Responsible Official Certification:		
<p>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.</p>		
_____	_____	
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 208</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. Fax: <b>(813) 287 - 1716</b>
4. Professional Engineer E-mail Address: <b>sosbourn@golder.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i>  <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i>  <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i>  <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i>  <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input 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>  <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  _____ Signature  (seal)



\* Attach any exception to certification statement.

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

## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility Location and Type

1. Facility UTM Coordinates... Zone 17      East (km) <b>369.39</b> North (km) <b>3,279.29</b>		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) <b>29° 38' 25" N</b> Longitude (DD/MM/SS) <b>82° 20' 55" 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 :			

#### Facility Contact

1. Facility Contact Name: <b>Brian V. Powers, Station Manager</b>
2. Facility Contact Mailing Address... Organization/Firm: <b>Duke Energy Florida, Inc.</b> Street Address: <b>1928 Mowry Road, Building 82</b> City: <b>Gainesville</b> State: <b>Florida</b> Zip Code: <b>32611</b>
3. Facility Contact Telephone Numbers: Telephone: <b>(352) 337-6904</b> ext.                      Fax: <b>(352) 337-6920</b>
4. Facility Contact E-mail Address: <a href="mailto:Brian.Powers@duke-energy.com">Brian.Powers@duke-energy.com</a>

#### Facility Primary Responsible Official – N/A

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

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City:    State:    Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: ( ) -                      ext.                      Fax: ( ) -
4. Facility Primary Responsible Official E-mail Address:

## FACILITY INFORMATION

### Facility Regulatory Classifications

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

1. <input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input checked="" type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:  The boiler is potentially subject to the Area Source Boiler MACT Rule (40 CFR 63 Subpart JJJJJJ), however, a “gas-fired boiler” is specifically exempted from the Area Source Boiler MACT Rule (40 CFR 63.11195(e)).	

**FACILITY INFORMATION**

**List of Pollutants Emitted by Facility**

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

**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's Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap
<b>NO<sub>x</sub></b>	<b>Y</b>			<b>185.3</b>	<b>ESCPD</b>

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

**As provided for in Conditions FW10 and B.10 of Permit 0010001-013-AV, the backup steam boilers may operate individually or in combination, provided NOx emissions from all emissions units regulated by this permit comply with the facility-wide NOx emissions cap.**

## FACILITY INFORMATION

### C. FACILITY ADDITIONAL INFORMATION

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

1.	Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>6/1/2012</u>
2.	Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>6/1/2012</u>
3.	Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>6/1/2012</u>

#### Additional Requirements for Air Construction Permit Applications

1.	Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (existing permitted facility)
2.	Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): <input checked="" type="checkbox"/> Attached, Document ID: <u>UF-FI-C2</u>
3.	Rule Applicability Analysis: <input type="checkbox"/> Attached, Document ID: <u>N/A</u>
4.	List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)
5.	Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6.	Air Quality Analysis (Rule 62-212.400(7), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7.	Source Impact Analysis (Rule 62-212.400(5), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8.	Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9.	Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10.	Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

## FACILITY INFORMATION

### C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

#### Additional Requirements for FESOP Applications – N/A

- |   |
|---|
| 1. List of Exempt Emissions Units:<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 checked="" 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 checked="" 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: <u>N/A</u><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 Onsite but Not Required to be Individually Listed<br><input checked="" 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 checked="" type="checkbox"/> Not Applicable  |
| 6. Requested Changes to Current Title V Air Operation Permit:<br><input checked="" type="checkbox"/> Attached, Document ID: <u>UF-FI-C6</u> <input type="checkbox"/> Not Applicable   |

**FACILITY INFORMATION**

**C. FACILITY ADDITIONAL INFORMATION (CONTINUED)**

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

**Program**

1. Acid Rain Program Forms:

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

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: **6/1/2012**

Not Applicable (not an Acid Rain source)

Phase II NO<sub>x</sub> Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: \_\_\_\_\_

Not Applicable

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

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: \_\_\_\_\_

Not Applicable

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

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: **6/1/2012**

Not Applicable (not a CAIR source)

**Additional Requirements Comment**



## EMISSIONS UNIT INFORMATION

Section [1] of [1]  
Steam 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 [1] of [1]  
Steam 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: **Steam Boiler**

3. Emissions Unit Identification Number: **TBD (replaces current EU 002)**

4. Emissions Unit Status Code:

**C**

5. Commence Construction Date:

**April 2014**

6. Initial Startup Date:

**September 2014**

7. Emissions Unit Major Group SIC Code:

**49**

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

Acid Rain Unit

CAIR Unit

9. Package Unit:

Manufacturer: **Cleaver Brooks Company**

Model Number: **NB-300D-70**

10. Generator Nameplate Rating:

11. Emissions Unit Comment: **See Appendix A for a description of the boiler's components and specifications.**

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]  
Steam Boiler

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

- |   |
|---|
| 1. Control Equipment/Method Description:<br><b>Low NOx Burner</b> |
| 2. Control Device or Method Code: <b>205</b>                      |

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

- |   |
|---|
| 1. Control Equipment/Method Description:<br><b>Flue Gas Recirculation (FGR)</b> |
| 2. Control Device or Method Code: <b>026</b>                                    |

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

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

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

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

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]  
Steam 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>99.9</b> million Btu/hr
4. Maximum Incineration Rate: pounds/hr tons/day
5. Requested Maximum Operating Schedule: hours/day days/week weeks/year <b>8,760</b> hours/year
6. Operating Capacity/Schedule Comment:  <p><b>The steam boiler will have the capacity to fire natural gas and No. 2 fuel oil. The maximum heat input rate is 99.9 MMBtu/hr for natural gas and 98.3 MMBtu/hr for diesel oil. The maximum fuel input for natural gas is 97,941 scf/hr based on a heat content of 1,020 Btu/cf. The maximum fuel input for diesel oil is 723 gal/hr based on a heat content of 136,000 Btu/gal.</b></p> <p><b>Similar to the existing No. 4 boiler, the proposed boiler may operate at any time and will have no restrictions on operating hours.</b></p>

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]  
 Steam 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>EU 002 (No. 4 Boiler)</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>82 feet</b>		7. Exit Diameter: <b>5 feet</b>
8. Exit Temperature: <b>302°F</b>	9. Actual Volumetric Flow Rate: <b>28,170 cfm</b>		10. Water Vapor: <b>TBD %</b>
11. Maximum Dry Standard Flow Rate: <b>TBD dscfm</b>		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: <b>17</b> East (km): <b>369.4</b> North (km): <b>3,279.03</b>		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) <b>29° 38' 25.6" N</b> Longitude (DD/MM/SS) <b>82° 20' 51.7" W</b>	
15. Emission Point Comment:  <b>See Appendix A for a description of the boiler's components and specifications.</b>			

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]  
 Steam Boiler

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

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

1. Segment Description (Process/Fuel Type): <b>Natural Gas</b>		
2. Source Classification Code (SCC): <b>10300602</b>	3. SCC Units: <b>Million cubic feet of natural gas</b>	
4. Maximum Hourly Rate: <b>0.0979</b>	5. Maximum Annual Rate: <b>858</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: <b>1,020</b>
10. Segment Comment: <b>Based on higher heating value of natural gas of 1,020 mmBtu/mmscf</b> <b>Max hourly rate = 99.9 mmBtu/hr / 1,020 mmBtu/mmscf = 0.0979 mmscf/hr;</b> <b>Max annual rate = 99.9 mmBtu/hr / 1,020 mmBtu/mmscf x 8,760 hr/yr = 858 mmscf/yr;</b>		

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

1. Segment Description (Process/Fuel Type): <b>No. 2 Diesel Fuel Oil</b>		
2. Source Classification Code (SCC): <b>10300502</b>	3. SCC Units: <b>1,000 gallons distillate Oil (No. 2)</b>	
4. Maximum Hourly Rate: <b>0.723</b>	5. Maximum Annual Rate: <b>6,332</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>0.5</b>	8. Maximum % Ash:	9. Million Btu per SCC Unit: <b>136</b>
10. Segment Comment: <b>Based on heating value of No. 2 diesel fuel oil of 136 mmBtu/1000 gal</b> <b>Max hourly rate = 98.3 mmBtu/hr / 136 mmBtu/1000 gal = 0.723 x 10<sup>3</sup> gal/hr;</b> <b>Max annual rate = 98.3 mmBtu/hr / 136 mmBtu/1000 gal x 8,760 hr/yr = 6,332 x 10<sup>3</sup> gal/yr;</b>		

**EMISSIONS UNIT INFORMATION**

**Section [1] of [1]  
Steam 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
<b>SO2</b>			<b>NS</b>
<b>NOx</b>	<b>205</b>	<b>026</b>	<b>EL</b>
<b>CO</b>			<b>NS</b>
<b>VOC</b>			<b>NS</b>
<b>PM</b>			<b>NS</b>
<b>SAM</b>			<b>NS</b>
<b>HAPs</b>			<b>NS</b>

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]  
 Steam Boiler

**POLLUTANT DETAIL INFORMATION**

Page [1] of [7]  
 Sulfur Dioxide – SO<sub>2</sub>

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

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>SO<sub>2</sub></b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>51.3 lb/hour</b> tons/year ( <b>No. 2 fuel oil</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>142S lb/10<sup>3</sup> gal (No. 2 fuel oil)</b> <b>S = 0.5%</b> Reference: <b>Permit No. 0010001-013-AV</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>(142 x 0.5%S lb/1000 gal) x 98.3 mmBtu/hr / 136.0 mmBtu/1000 gal = 51.3 lb/hr</b>  <b>See Tables 1 and 3 for boiler emission estimates.</b>  <b>Percent sulfur in No. 2 fuel oil based on maximum %S in Air Operating Permit No. 0010001-013-AV.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:  <b>The boiler will be equipped for natural gas and fuel oil firing. Natural gas and fuel oil emissions are summarized in Table 3.</b>			



**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Steam Boiler**POLLUTANT DETAIL INFORMATION**Page [1] of [7]  
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>(142 x S) lb/10<sup>3</sup> gal (S = 0.5% maximum)</b>	4. Equivalent Allowable Emissions: <b>51.3 lb/hour                      tons/year</b>
5. Method of Compliance: <b>Vendor-provided fuel analysis upon delivery of fuel oil</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Emissions based on firing of No. 2 diesel oil.</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 [1]  
 Steam Boiler

**POLLUTANT DETAIL INFORMATION**

Page [2] of [7]  
 Nitrogen Oxides – NO<sub>x</sub>

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

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>NO<sub>x</sub></b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>12.6 lb/hour</b> 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>100 ppmv @ 3% O<sub>2</sub> (No. 2 diesel oil)</b> <b>30 ppmv @ 3% O<sub>2</sub> (natural gas)</b> Reference: <b>Boiler specification/design (Appendix A)</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>F<sub>d</sub> (No. 2 diesel oil) = 9190 dcf/mmBtu</b> <b>K (NO<sub>x</sub>) = 1.19E-07 (lb/scf)/ppmv</b>  <b>100 ppmv x 20.9/ (20.9 – 3% O<sub>2</sub>) x 9190 dscf/mmBtu x 1.19 E-07 (lb/scf)/ppmv x 98.3mmBtu/hr = 12.6 lb/hr</b>  <b>See Tables 1 and 3 for boiler emission estimates.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:  <b>The boiler will be equipped for natural gas and fuel oil firing. Natural gas and fuel oil emissions are summarized in Table 3.</b>			

**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Steam Boiler**POLLUTANT DETAIL INFORMATION**Page [2] of [7]  
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>100 ppmv @ 3% O<sub>2</sub> (No. 2 diesel oil)</b> <b>30 ppmv @ 3% O<sub>2</sub> (natural gas)</b>	4. Equivalent Allowable Emissions: <b>12.6 lb/hour</b> tons/year
5. Method of Compliance: <b>Tracking of actual hours operated for each fuel type or total heat input to assess NO<sub>x</sub> contribution towards facility cap</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Annual emissions based on facility-wide annual NO<sub>x</sub> emission cap of 185.3 TPY, which includes units EU 002, 003, 005 and 007.</b>  <b>Includes excess emissions allowed as specified in Air Operating Permit No. 0010001-013-AV condition A.10 and A.11.</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 [1]  
 Steam Boiler

**POLLUTANT DETAIL INFORMATION**

Page [3] of [7]  
 Carbon Monoxide – CO

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

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>CO</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>7.7 lb/hour</b> 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>100 ppmv @ 3% O<sub>2</sub> (No. 2 diesel oil and natural gas)</b>  Reference: <b>Boiler specification/design (Appendix A)</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>F<sub>d</sub> (No. 2 diesel oil) = 9190 dcf/mmBtu</b> <b>K (CO) = 7.26E-08 (lb/scf)/ppmv</b>  <b>100 ppmv x 20.9/ (20.9 – 3% O<sub>2</sub>) x 9190 dscf/mmBtu x 7.26 E-08 (lb/scf)/ppmv x 98.3mmBtu/hr = 7.7 lb/hr</b>  <b>See Tables 1 and 3 for boiler emission estimates.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:  <b>The boiler will be equipped for natural gas and fuel oil firing. Natural gas and fuel oil emissions are summarized in Table 3.</b>			

**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Steam Boiler**POLLUTANT DETAIL INFORMATION**Page [3] of [7]  
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: <b>100 ppmv @ 3% O<sub>2</sub> (No. 2 diesel oil and natural gas)</b>	4. Equivalent Allowable Emissions: <b>7.7 lb/hour                      tons/year</b>
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method): <b>Emissions based on firing of No. 2 diesel oil.</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 [1]  
 Steam Boiler

**POLLUTANT DETAIL INFORMATION**

Page [4] of [7]  
 Volatile Organic Constituents – VOC

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

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>VOC</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.54 lb/hour</b> 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>5.5 lb/ mmscf (natural gas)</b>  Reference: <b>AP-42, Table 1.4-2 (natural gas)</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>5.5 lb/mmscf / 1,020 Btu/scf x 99.9 mmBtu/hr = 0.54 lb/hr</b>  <b>See Tables 1 and 3 for boiler emission estimates.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:  <b>The boiler will be equipped for natural gas and fuel oil firing. Natural gas and Fuel oil emissions are summarized in Table 3.</b>			

**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Steam Boiler**POLLUTANT DETAIL INFORMATION**Page [4] of [7]  
Volatile Organic Constituents- 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: <b>5.5 lb/ mmscf (natural gas)</b>	4. Equivalent Allowable Emissions: <b>0.54</b> lb/hour          tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method): <b>Emissions based on firing of natural gas.</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 [1]  
 Steam Boiler

**POLLUTANT DETAIL INFORMATION**

Page [5] of [7]  
 Particulate Matter – PM

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

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>PM</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>5.0 lb/hour</b> 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>0.050 lb/mmBtu (Natural gas)</b>  Reference: <b>Boiler specification/design (Appendix A)</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>0.050 lb/mmBtu x 99.9 mmBtu/hr = 5.0 lb/hr</b>  <b>See Tables 1 and 3 for boiler emission estimates.</b>			
11. Potential, Fugitive, and Actual Emissions Comment: <b>The boiler will be equipped for natural gas and fuel oil firing. Natural gas and fuel oil emissions are summarized in Table 3. In the event that fuel oil is burned for more than 48 hours in any calendar year, not including periods of startup or natural gas curtailment/supply loss, the ICI Boiler MACT for Area Sources (40 CFR Part 63, Subpart JJJJJJ)PM limit of 0.03 lb/MMBtu would need to be met on all fuels.</b>			



**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Steam Boiler**POLLUTANT DETAIL INFORMATION**Page [5] of [7]  
Particulate Matter – 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>0.050 lb/mmBtu (Natural gas)</b>	4. Equivalent Allowable Emissions: <b>5.0 lb/hour</b> tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method): <b>Emissions based on firing of natural gas.</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 [1]  
 Steam Boiler

**POLLUTANT DETAIL INFORMATION**

Page [6] of [7]  
 Sulfuric Acid Mist – SAM

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

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>SAM</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>7.9 lb/hour</b> tons/year ( <b>fuel oil</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>10% conversion of SO<sub>2</sub> emissions to H<sub>2</sub>SO<sub>4</sub></b> Reference: <b>Engineering judgment</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:  $(51.3 \text{ lb/hr SO}_2 \times 10\% \times (98 \text{ lb-mol H}_2\text{SO}_4 / 64 \text{ lb-mol SO}_2)) = 7.9 \text{ lb/hr}$ <p><b>See Tables 1 and 3 for boiler emission estimates.</b></p>			
11. Potential, Fugitive, and Actual Emissions Comment:  <p><b>The boiler will be equipped for natural gas and fuel oil firing. Natural gas and fuel oil emissions are summarized in Table 3.</b></p>			

**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Steam Boiler**POLLUTANT DETAIL INFORMATION**Page [6] of [7]  
Sulfuric Acid Mist – SAM**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>10% conversion of SO<sub>2</sub> emissions to H<sub>2</sub>SO<sub>4</sub></b>	4. Equivalent Allowable Emissions: <b>7.9 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: 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 [1]  
 Steam Boiler

**POLLUTANT DETAIL INFORMATION**

Page [7] of [7]  
 Hazardous Air Pollutants – HAPs

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

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

**Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions**

1. Pollutant Emitted: <b>HAPs</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>0.18 lb/hour tons/year (natural gas)</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>Total HAPs: 1.88 lb/10<sup>6</sup> scf; See Tables 4 and 5 for individual HAPs emission factors.</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>1.88 lb/mmscf x 97,941 scf/hr x mmscf/10<sup>6</sup> scf = 0.18 lb/hr</b>  <b>See Table 4 and 5 for boiler's HAPs emission estimates.</b>			
11. Potential, Fugitive, and Actual Emissions Comment:  <b>The boiler will be equipped for natural gas and fuel oil firing. Natural gas and fuel oil emissions are summarized in Tables 4 and 5.</b>			

**EMISSIONS UNIT INFORMATION**Section [1] of [1]  
Steam Boiler**POLLUTANT DETAIL INFORMATION**Page [7] of [7]  
Hazardous Air Pollutants – HAPs**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>0.18</b> lb/hour                      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method): <b>Emissions based on firing of natural gas.</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 [1]  
Steam 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 2

1. Visible Emissions Subtype: <b>VE10</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>10 %</b> Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: <b>EPA Method 9</b>	
5. Visible Emissions Comment: <b>When firing natural gas.</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation 2 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: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: <b>EPA Method 9.</b>	
5. Visible Emissions Comment: <b>When firing No. 2 fuel oil.</b>	

**EMISSIONS UNIT INFORMATION**

Section [1] of [1]  
Steam Boiler

**H. CONTINUOUS MONITOR INFORMATION – N/A**

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:	Serial Number:
Model 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:	Serial Number:
Model Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

**EMISSIONS UNIT INFORMATION**

**Section [1] of [1]  
Steam 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 type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <b>6/1/2012</b>
2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <b>6/1/2012</b>
3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <b>6/1/2012</b>
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 type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable







**ATTACHMENT UF-FI-C2**  
**DESCRIPTION OF PROPOSED CONSTRUCTION**

## **ATTACHMENT UF-FI-C2 DESCRIPTION OF PROPOSED CONSTRUCTION**

The University of Florida is planning to replace Boiler No. 4 (permitted at 69.6 million British thermal units per hour [mmBtu/hr] and 40,000 pounds per hour [lb/hr] of steam) with a new boiler capable of 99.9 mmBtu/hr heat input and approximately 78,500 lb/hr of steam output. The University will purchase and install the boiler, which is proposed to be a Cleaver Brooks Company model NB-300D-70, and DEF will permit and operate the boiler. The boiler will be located at the Cogeneration Plant at the University of Florida in the same location as existing Boiler No. 4. Based on design specifications, it is expected that hourly emission rates may increase as a result of the boiler replacement (see Table 1) due to the higher heat input rating of the new boiler, however, annual emissions will depend on the actual operating hours of the boiler. DEF will record and monitor the actual hours operated or total heat input with each fuel type to assess the NO<sub>x</sub> contribution towards the facility-wide cap. The facility-wide NO<sub>x</sub> cap will not be exceeded.

The current project schedule calls for the replacement boiler to be delivered to the facility on about April 2014, and installation and testing are expected to be completed by about September 2014.



**ATTACHMENT UF-FI-C6**  
**REQUESTED LANGUAGE FOR AC PERMIT**

**ATTACHMENT UF-FI-C6  
REQUESTED LANGUAGE FOR AC PERMIT**

The University of Florida (UF) Cogeneration Plant is requesting the below language:

1. The conditions and requirements included in this application for an air construction permit for a new boiler to replace the existing No. 4 Boiler (EU 002). A strikethrough and redline version of the permit sections to be modified is included below:

**Subsection A. Emissions Units 002 and 003**

**The specific conditions in this section apply to the following emissions units:**

EU No.	Brief Description
002	No. 4 Steam Boiler
003	No. 5 Steam Boiler

The steam boilers are used ~~only~~ as back-up sources. Each boiler has its own exhaust stack. The maximum heat input rate for the ~~replacement~~ No.4 steam boiler is ~~69.6~~ **99.9** MMBtu/hr. The maximum heat input is based on permitted firing limits of ~~68,000~~ **97,941** cubic feet of natural gas ~~or propane~~ per hour and ~~444~~ **723** gallons per hour of No. 2 fuel oil. The maximum heat input rate for the No.5 steam boiler is 168 MMBtu/hr. The maximum heat input is based on permit firing limits of 164,000 cf of natural gas per hour and 1,067 gallons per hour of No. 2 fuel oil. The emission units began commercial service in January 1976. The ~~replacement~~ No.4 steam boiler has a stack height of 82 feet, exit diameter of 5 feet, exit temperature of ~~350~~ **302**<sup>o</sup>F and actual volumetric flow rate of ~~43,500~~ **28,170** acfm. No.5 steam boiler has a stack height of 82 feet, exit diameter of 6 feet, exit temperature of 400 <sup>o</sup>F and actual volumetric flow rate of 56,250 acfm. The emissions units are regulated under permit Nos. AC 1-204652/PSD-FL-181/PSD-FL-181(A), 0010001-003-AC & 0010001-004-AC; and, Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with Less than 250 MMBtu per Hour Heat Input.

**Essential Potential to Emit (PTE) Parameters**

**A.1. Permitted Capacity.** The maximum allowable heat input rate is as follows:

EU No.	MMBtu/hr Heat Input	Fuel Type
002	<del>69.6</del> <b>99.9</b>	No. 2 Fuel Oil Natural Gas
003	168	No. 2 Fuel Oil Natural Gas

[Rules 62-4.160(2), 62-204.800, 62-210.200(PTE), 62-214.330 & 62-296.405, F.A.C.; and, Permit Nos. ACO 1-204652/PSD-FL-181/PSD-FL-181(A).]



**APPENDIX A**  
**DESIGN SPECIFICATION FOR REPLACEMENT BOILER**

2. Extended surface (metal and metallic surfaces extending from the tubes or headers): Ninety percent of the flat projected area, except that the following are not included:
  - a. Metal blocks not integral with the tubes or headers. Extended surfaces less than 1/4 inch thick or more than 1-1/4 inches in length.
  - b. That portion of the extended surface which is more than one tube or header radius from the tube or header from which it extends.
3. Furnace Exit Tubes: The projected areas of those portions of the first 2 rows of exit tubes receiving radiant heat from the fire.
4. Heat Transfer: Rate of maximum heat input shall not exceed BTU/hr/sq ft of "Effective Radiant Heating Surface".
- C. Furnace Surface Area: Sum of the projected areas of the furnace enclosure, which includes the four furnace walls, furnace roof, and furnace floor.
- D. Furnace Volume: Cubical volume between the floor and the first plane of entry into or between the convection tubes. When screen tubes are used at entrance to convection tubes, they shall constitute the plane of entry.
- E. Maximum Heat Input: BTU content of the fuel burned per hour in the furnace at maximum continuous load.

## PART 2 - PRODUCTS

### 2.1 BOILER

- A. Basis of Design: Babcock and Wilcox *or equivalent*
- B. Acceptable Manufacturers: Subject to satisfying the specifications, the only acceptable manufacturers are the following:
  1. Babcock and Wilcox
  2. Indeck
  3. Nebraska Boiler
  4. Rentech
  5. Victory
- C. Design Criteria for Boiler: This also includes guaranteed performance criteria for boiler, economizer, and burner as provided as a package.
  1. Maximum Continuous Rating (MCR): The boiler shall have a maximum continuous rating of 78,500 pounds per hour (PPH) of 500 degrees F steam at a pressure of 250 PSIG when firing natural gas or No. 2 fuel oil receiving boiler feedwater at 250 degrees F at the inlet of the economizer, with the maximum fuel heat input as listed in the Burner paragraph. The steam conditions shall be at the

pattern throughout the load range. Once the optimum flame pattern has been achieved the swirl shall be set. The burner shall have no moving parts that require modulation during operation.

- b. Venturi Style without Swirling: The burner shall employ a venturi-type technique with the use of two separate sets of spuds to provide two fuel zones. The primary lean fuel zone spuds shall be located within the burner to achieve controlled ignition and reduce the formation of prompt and thermal NOx. The second set of spuds shall be located at the proximity of the refractory throat exit to limit NOx, control flame shape, and produce the desired excess air. The burner shall have no moving parts during operation.
3. Combustion Controls: The burner shall be controlled by fully metered, cross limited controls with oxygen trim. This shall be programmed by the installing contractor into the Owner's DCS with SAMA logic provided by the burner manufacturer.

C. Performance:

1. Heat Input: The burner shall have a maximum heat input not to exceed 99.9 million BTU per hour when firing natural gas or distillate (No. 2) oil.
2. Emissions
  - a. Emission guarantees shall apply to the firing of each fuel from 25% to 100% MCR, except as noted. Emission guarantees are concurrent for all pollutants listed. Emissions guarantees do not apply when flow is below 25% MCR and only the CFGG is firing.
  - b. Carbon Monoxide (CO): The boiler manufacturer shall guarantee emissions shall not exceed 100 PPM by volume dry when firing natural gas or No. 2 fuel oil at full load.
  - c. Nitrogen Oxides (NOx): The boiler manufacturer shall guarantee NOx emissions when firing natural gas shall not exceed 30 PPM when burning natural gas and 100 PPM when firing No. 2 oil, for both fuels corrected to 3% oxygen. Fuel oil emissions shall consider fuel bound nitrogen content no more than 0.05% by weight.
  - d. Particulate Matter: The boiler manufacturer shall guarantee PM10 emissions on natural gas firing will not exceed 0.005 LB/MMBTU, and for No. 2 oil firing will not exceed 0.05 LB/MMBTU. For all particulate matter emissions associated with fuel oil, assume the ash content in the fuel oil is 0.001%.
  - e. Sulfur Oxides (SOx): There are no specified emission limits for SOx since these are a function of fuel quality and are not burner dependent. The permitting agency will assume AP-42 values for both fuels.
  - f. Volatile Organic Compounds: There are no specified emission limits. The permitting agency will assume AP-42 values for both fuels.
  - g. Opacity: No visible plume shall exist when burning either fuel. Shall be limited by permit to 20% while firing fuel oil and 10% while firing natural gas.



- h. No approval of the boiler will be given until the test data has been completed, recorded, computed and conclusions written.
    - i. In addition to the acceptance test above, run a 2 hour test at maximum continuous load for both fuels to prove boiler MCR.
- C. Training of End User Personnel: The Company Field Advisor shall instruct End User's personnel in the operation and maintenance of the boiler and all appurtenant accessories. Provide a period of 5 days (8 hours per day), not to include travel time, for on-site instruction of End User's personnel. (The 5 days include allowance to train all shifts of Operators). The time shall be exclusive of all prestart-up, start-up and service call time. The Company Field Advisor shall be capable of instruction in all phases of boiler construction, operation, and accessories. If more than one Advisor is required to adequately cover the overall subject (boiler, burner, and accessories), the instruction time shall be consecutive, not concurrent.
- D. Emissions Test: Emissions testing may be performed on criteria pollutants including NOx by an independent testing company hired by the Owner. The Company Field Advisor shall witness the testing. The tests may be conducted during the boiler performance testing if scheduling allows as deemed by the Owner. If for any reason the burner fails to meet emission guarantees, the boiler manufacturer shall assist the Installing Contractor in the resolution of the problem. Burner adjustments by the burner manufacturer shall be made if combustion tuning deems is necessary, including changing plug and tip style and size and other trim components. Prior to third party testing, the Install Contractor shall perform tuning, testing, and informal NOx testing to ensure that the system is tuned so that it can pass third party testing.

\*\*\* TABULATION SHEET AND SPECIFICATION SHEETS FOR CONTROL VALVES, PRESSURE REGULATING VALVES, TRANSMITTERS, SAFETY VALVES, SWITCHES AND GAGES APPEAR ON THE FOLLOWING PAGES.

END OF SECTION 15554

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

[solutions@golder.com](mailto:solutions@golder.com)  
[www.golder.com](http://www.golder.com)

**Golder Associates Inc.**  
**5100 W. Lemon Street, Suite 208**  
**Tampa, FL 33609 USA**  
**Tel: (813) 287-1717**  
**Fax: (813) 287-1716**

