

Department of  
Environmental Protection  
Division of Air Resource Management

**SUBMITTED APPLICATION REPORT**  
**APPLICATION FOR AIR PERMIT - NON-TITLE V SOURCE**

Application Number: 5144- 1

Application Name: SHANDS JACKSONVILLE MED CENTER

Date Submitted: 12 December 2017

**I. APPLICATION INFORMATION**

**Identification of Facility**

1. Facility Owner/Company Name: SHANDS JACKSONVILLE MEDICAL CENTER	
2. Site Name: SHANDS JACKSONVILLE MEDICAL CENTER	
3. Facility Identification Number: 0310142 <input type="checkbox"/> Unknown	
4. Facility Location: Street Address or Other Locator: 655 W 8TH ST 2 BLOCKS EAST OF I-95 655 W 8TH ST City: JACKSONVILLE County: DUVAL Zip Code: 32209-6511	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Permitted Facility? <input type="checkbox"/> Yes <input type="checkbox"/> No

**Application Contact**

1.	Application Contact Name: PRADEEP RAVAL	Application Contact Job Title: Project Engineer
2.	Application Contact Mailing Address: Organization/Firm: KOOGLER AND ASSOCIATES, INC. Street Address: P. O BOX 5127 City: GAINESVILLE      State: FL      Zip Code: 32627-5127	
3.	Application Contact Telephone Numbers: Telephone: (352) 377-5822      ext. 20      Fax:	
Application Contact Email Address: praval@kooglerassociates.com		

**Purpose of Application****Air Operation Permit Application**

This Application for Air Permit is submitted to obtain: (Check one)

- ☐ Initial non-Title V air operation permit for one or more existing, but previously unpermitted, emissions units.
- ☐ Initial non-Title V air operation permit for one or more newly constructed or modified emissions units.

Current construction permit number:

- ☐ Non-Title V air operation permit revision to address one or more newly constructed or modified emissions units.

Current construction permit number:

Operation permit number to be revised:

- ☐ Initial non-Title V air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s):

- ☐ Non-Title V air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g., to address one or more newly constructed or modified emissions units.

Operation permit number to be revised:

Reason for revision:

**Air Construction Permit Application**

This Application for Air Permit is submitted to obtain: (Check one)

- ☒ Air construction permit to construct or modify one or more emissions units.
- ☐ Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.
- ☐ Air construction permit for one or more existing, but unpermitted, emissions units.

**Owner/Authorized Representative Statement**

1.	Owner/Authorized Representative Name: DANIEL GLENN	Owner/Authorized Representative Job Title: Facilities and Plant Ops Manager
2.	Owner/Authorized Representative Mailing Address: Organization/Firm: SHANDS JACKSONVILLE Street Address: 655 WEST 8TH STREET City: JACKSONVILLE      State: FL      Zip Code: 32209	
3.	Owner/Authorized Representative Telephone Numbers: Telephone: (904) 244-3236      ext.      Fax:	
	Owner/Authorized Representative Email Address: daniel.glenn@jax.ufl.edu	
4.	Owner/Authorized Representative Statement: By entering my PIN below, I certify that I am the owner or authorized representative of the facility addressed in this 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. 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.	

**Professional Engineer Certification**

1.	Professional Engineer Name: VERONICA SGRO Registration Number: 69227	Professional Engineer Job Title: Senior Engineer
2.	Professional Engineer Mailing Address: Organization/Firm: KOOGLER AND ASSOCIATES, INC. Street Address: P.O. BOX 5127 City: GAINESVILLE      State: FL      Zip Code: 32627-5127	
3.	Professional Engineer Telephone Numbers: Telephone: (352) 377-5822      ext.      Fax:	
Professional Engineer Email Address: VSGRO@KOOGLERASSOCIATES.COM		
4.	<p>Professional Engineer Statement:</p> <p>I hereby certify, except as particularly noted herein*, that:</p> <p>(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</p> <p>(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.</p> <p>If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here <input checked="" 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.</p> <p>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.</p> <p>* Explain any exception to the certification statement.</p>	
Professional Engineer Exception Statement:		



**Scope of Application**

<b>Emissions Unit ID Number</b>	<b>Description of Emissions Unit</b>	<b>Permit Type</b>
	13.4 MMBtu / hr Boiler	AC1E

*Note: The fee calculation information associated with this application may be accessed from the Main Menu of ESPAP.*

**Construction/Modification Information**

1.	Description of Proposed Project or Alterations: Replace one existing boiler with a new boiler
2.	Projected or Actual Date of Commencement of Construction: 01-JAN-18
3.	Projected Date of Completion of Construction: 31-DEC-18

**Application Comment**

The purpose of this application is to install a new boiler to replace one of the existing boilers (EU-006).





Facility Contact Email Address: Daniel.Glenn@jax.ufl.edu

**Check all that apply:**

1.	<input type="checkbox"/> Small Business Stationary Source?	<input type="checkbox"/> Unknown
2.	<input type="checkbox"/> Synthetic Non-Title V Source?	
3.	<input type="checkbox"/> Synthetic Minor Source of Pollutants Other than HAPs?	
4.	<input type="checkbox"/> Synthetic Minor Source of HAPs?	
5.	<input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS?	
6.	<input type="checkbox"/> One or More Emissions Units Subject to NESHAP Recordkeeping or Reporting?	
12.	Facility Regulatory Classifications Comment:	

**See Attachment 1.**

**B. FACILITY POLLUTANTS****List of Pollutants Emitted**

1. Pollutant Emitted	2. Pollutant Class.	3. Requested Emissions Cap lb/hour                      tons/year		4. Basis for Emissions Cap	5. Pollutant Comment
CO	B				
NOX	B				
PB	B				
PM	B				
PM10	B				
SO2	B				
VOC	B				

**C. FACILITY SUPPLEMENTAL INFORMATION****Supplemental Requirements**

1. Area Map Showing Facility Location	<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> Waiver Requested	<input type="checkbox"/> Attachment
2. Facility Plot Plan	<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> Waiver Requested	<input type="checkbox"/> Attachment
3. Process Flow Diagram(s)	<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> Waiver Requested	<input type="checkbox"/> Attachment
4. Precautions to Prevent Emissions of Unconfined Particulate Matter	<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> Waiver Requested	<input type="checkbox"/> Attachment
5. Supplemental Information for Construction Permit Application	<input type="checkbox"/> Applicable		<input type="checkbox"/> Attachment
6. Supplemental Information Comment: A new boiler is replacing one of the existing boilers (EU-006)			



### III. EMISSIONS UNIT INFORMATION

#### A. GENERAL EMISSIONS UNIT INFORMATION

##### Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one) <input checked="" 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 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: 13.4 MMBtu / hr Boiler		
3. Emissions Unit Identification Number: <span style="float: right;"><input checked="" type="checkbox"/> No ID</span> ID:		
4. Emissions Unit Status Code: <div style="text-align: center;">C - Construction</div>	5. Initial Startup Date: <div style="text-align: center;">01-JAN-18</div>	6. Emissions Unit Major Group SIC Code: <div style="text-align: center;">80</div>
7. Emissions Unit Comment: This boiler replaces EU-006. Proposed boiler is a 13.4 mmbtu/hr Cleaver Brooks Boiler Model No. 4WG-200-400-150ST (or equivalent).		

**Emissions Unit Control Equipment**

<u>Code</u>	<u>Equipment</u>	<u>Description</u>
0	NO CONTROL EQUIPMENT	

**Emissions Unit Details**

1. Package Unit:			
Manufacturer:	CLEAVER BROOKS (OR EQUIVALENT)	Model Number:	4WG-200-400-150ST
2. Generator Nameplate Rating: MW			
3. Incinerator Information:			
	Dwell Temperature:		° F
	Dwell Time:		seconds
	Incinerator Afterburner Temperature:		° F

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Heat Input Rate: 13.4 million Btu/hr			
2. Maximum Incineration Rate:		pounds/hr	
		tons/day	
3. Maximum Process or Throughput Rate:			
4. Maximum Production Rate:			
5. Requested Maximum Operating Schedule:			
	hours/day		days/week
	weeks/year		8760 hours/year
6. Operating Capacity/Schedule Comment:			



**B. EMISSION POINT (STACK/VENT) INFORMATION****Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram:		2. Emission Point Type Code: 1 - A single emission point serving a single emissions unit	
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: (V) A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL/NEARLY VERTICAL DIRECTION	6. Stack Height: 25 feet	7. Exit Diameter: 2 feet	
8. Exit Temperature: 396° F	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone: 17                      East (km): 436.2                      North (km): 3357.73			
14. Emission Point Comment:			

**C. SEGMENT (PROCESS/FUEL) INFORMATION****Segment Description and Rate:** Segment 1 of 2

1. Segment Description (Process/Fuel Type): Distillate Oil		
2. Source Classification Code (SCC): 10300502	3. SCC Units: 1000 Gallons Distillate Oil Burned	
4. Maximum Hourly Rate: .096	5. Maximum Annual Rate: 38.3	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: .05	8. Maximum % Ash:	9. Million Btu per SCC Unit: 140
10. Segment Comment: #2 fuel oil limited to 400 hours/year		
Is this a valid segment? Yes		

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

1. Segment Description (Process/Fuel Type): Natural Gas		
2. Source Classification Code (SCC): 10300602	3. SCC Units: Million Cubic Feet Natural Gas Burned	
4. Maximum Hourly Rate: .013	5. Maximum Annual Rate: 111.8	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 1050
10. Segment Comment:		
Is this a valid segment? Yes		

**D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION****Potential Emissions**

1. Pollutant Emitted: CO - Carbon Monoxide		2. Pollutant Regulatory Code: NS	
3. Primary Control Device Code: 0 - NO CONTROL EQUIPMENT	4. Secondary Control Device Code:		5. Total Percent Efficiency of Control:
6. Potential Emissions: 1.55 lb/hour                      4.7 tons/year		7. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8. Emission Factor: 85 LB/MMCF BURNED Reference: AP-42, TABLE 1.4-1		9. Emissions Method Code: (3B) CALCULATED USING EMISSION FACTOR FROM AP-42/FIRE SYSTEM OR OTHER PUBLISHED EMISSIONS CALCULATION SOURCE.	
10. Calculation of Emissions: See Attachment 1, Table 1 for calculation.			
11. Pollutant Potential Emissions Comment: Potential emissions based on firing fuel oil (400 hrs/yr) and natural gas (8360 hrs/yr)			

**Allowable Emissions***No Pollutant Allowable Emissions information submitted.*

**Potential Emissions**

1. Pollutant Emitted: NOX - Nitrogen Oxides		2. Pollutant Regulatory Code: NS	
3. Primary Control Device Code:	4. Secondary Control Device Code:		5. Total Percent Efficiency of Control:
6. Potential Emissions: 3.19 lb/hour                      5.72 tons/year		7. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8. Emission Factor: 20 LB/1000 GAL Reference: AP-42, TABLE 1.3-1		9. Emissions Method Code: (3B) CALCULATED USING EMISSION FACTOR FROM AP-42/FIRE SYSTEM OR OTHER PUBLISHED EMISSIONS CALCULATION SOURCE.	
10. Calculation of Emissions: See Attachment 1, Table 1 for calculation.			
11. Pollutant Potential Emissions Comment: Potential emissions based on firing fuel oil (400 hrs/yr) and natural gas (8360 hrs/yr)			

**Allowable Emissions**

*No Pollutant Allowable Emissions information submitted.*

1. Pollutant Emitted: PB - Lead atoms in compounds or elemental		2. Pollutant Regulatory Code: NS	
3. Primary Control Device Code:	4. Secondary Control Device Code:		5. Total Percent Efficiency of Control:
6. Potential Emissions:  lb/hour                                  tons/year		7. Synthetically Limited?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8. Emission Factor:  Reference:		9. Emissions Method Code:	
10. Calculation of Emissions:			
11. Pollutant Potential Emissions Comment:			

***No Pollutant Allowable Emissions information submitted.***

**Potential Emissions**

1. Pollutant Emitted: PM - Particulate Matter - PM (Filterable)		2. Pollutant Regulatory Code: EL	
3. Primary Control Device Code: 0 - NO CONTROL EQUIPMENT	4. Secondary Control Device Code:		5. Total Percent Efficiency of Control:
6. Potential Emissions: .29 lb/hour .44 tons/year		7. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8. Emission Factor: 2 LB/1000 GAL Reference: AP-42, TABLE 1.3-1		9. Emissions Method Code: (3B) CALCULATED USING EMISSION FACTOR FROM AP-42/FIRE SYSTEM OR OTHER PUBLISHED EMISSIONS CALCULATION SOURCE.	
10. Calculation of Emissions: See Attachment 1, Table 1 for calculation.			
11. Pollutant Potential Emissions Comment: Potential emissions based on firing fuel oil (400 hrs/yr) and natural gas (8360 hrs/yr)			

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: (RULE) Emissions limitation required by rule (Specify rule in comment field)	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: .29 lb/hour .44 tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

1. Pollutant Emitted: PM10 - Particulate Matter - PM10 (Filterable)		2. Pollutant Regulatory Code:	
3. Primary Control Device Code:	4. Secondary Control Device Code:		5. Total Percent Efficiency of Control:
6. Potential Emissions:  lb/hour                                  tons/year		7. Synthetically Limited?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8. Emission Factor:  Reference:		9. Emissions Method Code:	
10. Calculation of Emissions:			
11. Pollutant Potential Emissions Comment:			

***No Pollutant Allowable Emissions information submitted.***

**Potential Emissions**

1. Pollutant Emitted: SO <sub>2</sub> - Sulfur Dioxide		2. Pollutant Regulatory Code: EL	
3. Primary Control Device Code: 0 - NO CONTROL EQUIPMENT	4. Secondary Control Device Code:		5. Total Percent Efficiency of Control:
6. Potential Emissions: .69 lb/hour                      .17 tons/year		7. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8. Emission Factor: 7.1 LB/1000 GAL Reference: AP-42 CH 1.3-1		9. Emissions Method Code: (3B) CALCULATED USING EMISSION FACTOR FROM AP-42/FIRE SYSTEM OR OTHER PUBLISHED EMISSIONS CALCULATION SOURCE.	
10. Calculation of Emissions: See Attachment 1, Table 1 for calculation.			
11. Pollutant Potential Emissions Comment: Potential emissions based on firing fuel oil (400 hrs/yr) and natural gas (8360 hrs/yr)			

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: (RULE) Emissions limitation required by rule (Specify rule in comment field)	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: .05 PERCENT SULFUR IN FUEL	4. Equivalent Allowable Emissions: .69 lb/hour                      .17 tons/year
5. Method of Compliance: Recordkeeping	
6. Allowable Emissions Comment (Description of Operating Method): 0.05% sulfur in fuel oil. Equivalent allowable emissions based on burning natural gas and fuel oil. See Attachment 1, Table 1 for details.	



**Potential Emissions**

1. Pollutant Emitted: VOC - Volatile Organic Compounds		2. Pollutant Regulatory Code: NS	
3. Primary Control Device Code:	4. Secondary Control Device Code:	5. Total Percent Efficiency of Control:	
6. Potential Emissions: .09 lb/hour                      .31 tons/year		7. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8. Emission Factor: 5.5 LB/MMCF BURNED Reference: AP-42, TABLE 1.4-2		9. Emissions Method Code: (3B) CALCULATED USING EMISSION FACTOR FROM AP-42/FIRE SYSTEM OR OTHER PUBLISHED EMISSIONS CALCULATION SOURCE.	
10. Calculation of Emissions: See Attachment 1, Table 1 for calculation.			
11. Pollutant Potential Emissions Comment: Potential emissions based on firing fuel oil (400 hrs/yr) and natural gas (8360 hrs/yr)			

**Allowable Emissions**

*No Pollutant Allowable Emissions information submitted.*

**E. VISIBLE EMISSIONS INFORMATION****(Only Emissions Units Subject to a VE Limitation)****Visible Emissions Limitation:** Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: VE20 - VISIBLE EMISSIONS - 20% NORMAL OPACITY	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: 20%                      Exceptional Conditions: 27% Maximum Period of Excess Opacity Allowed: 6 min/hour	
4. Method of Compliance: EPA METHOD 9	
5. Visible Emissions Comment: Visible emissions limit based on Rule 62-296.406(1), F.A.C.	

**F. CONTINUOUS MONITOR INFORMATION**  
**(Only Emissions Units Subject to Continuous Monitoring)**

*No Continuous Monitoring information submitted.*

**G. EMISSIONS UNIT SUPPLEMENTAL INFORMATION****Supplemental Requirements**

1. Process Flow Diagram	<input checked="" type="checkbox"/> Applicable <input type="checkbox"/> Waiver Requested	<input checked="" type="checkbox"/> Attachment
2. Fuel Analysis or Specification	<input checked="" type="checkbox"/> Applicable <input checked="" type="checkbox"/> Waiver Requested	<input type="checkbox"/> Attachment
3. Detailed Description of Control Equipment	<input type="checkbox"/> Applicable <input type="checkbox"/> Waiver Requested	<input type="checkbox"/> Attachment
4. Description of Stack Sampling Facilities	<input type="checkbox"/> Applicable <input type="checkbox"/> Waiver Requested	<input type="checkbox"/> Attachment
5. Compliance Test Report	<input type="checkbox"/> Applicable <input type="checkbox"/> Previously Submitted, Date:	<input type="checkbox"/> Attachment
6. Procedures for Startup and Shutdown	<input type="checkbox"/> Applicable <input type="checkbox"/> Waiver Requested	<input type="checkbox"/> Attachment
7. Operation and Maintenance Plan	<input type="checkbox"/> Applicable <input type="checkbox"/> Waiver Requested	<input type="checkbox"/> Attachment
8. Supplemental Information for Construction Permit Application	<input type="checkbox"/> Applicable	<input type="checkbox"/> Attachment
9. Other Information Required by Rule or Statute	<input checked="" type="checkbox"/> Applicable	<input checked="" type="checkbox"/> Attachment
10. Supplemental Requirements Comment:		

**Emission Unit Attachments**

Supplemental Item	Electronic File Name	Attachment Description	Electronic Document	Date Uploaded
Process Flow Diagram	594_17_03_0310142_Att2F	Attachment 2: Process Flow Diagram	Yes	12/07/2017
Other Information Required by Rule or Statute	594_17_03_0310142_Att1F	Attachment 1: Project Description	Yes	12/07/2017



## ATTACHMENT 1

### PROJECT DESCRIPTION

#### Proposed Project

Shands Jacksonville Medical Center (Shands), a Hospital & Medical Center proposes to replace an existing boiler with a new boiler.

The facility is located in Duval County at 655 West 8th Street in Jacksonville, Florida 32209-6511.

The primary air emission sources at Shands are boilers and emergency generators. In addition, there are several exempt hot water heaters and emergency generators. The existing facility consists of a Bryan Boiler No. 2 (EU 006), Hurst Boiler B-C-1 (EU 007) and Hurst Boiler B-C-3 (EU 008).

Shands proposes to replace the existing 18 MMBtu/hour Bryan Boiler (EU 006) with a new 13.4 MMBtu/hour Cleaver Brooks Boiler or equivalent. As a result, it is expected that the proposed project will result in a decrease in the facility's Potential to Emit (PTE).

#### Rule Applicability

The proposed project is subject to Rule 62-4, 204, 210, 296 and 297, F.A.C.

The proposed new boiler will be subject to:

- 40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial Steam Generating Units
- Rule 62-4, F.A.C, Permits
- Rule 62-204.800, F.A.C., Federal Regulations Adopted by Reference.
- Rule 62-210, F.A.C., Permit Requirement
- Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with Less Than 250 Million Btu Per Hour Heat Input, New and Existing Emissions Units
- Rule 62-297.310, F.A.C., General Emissions Test Requirements
- Rule 2.201, JEPB, Adopts 62-204, F.A.C. by reference
- Rule 2.301, JEPB, Adopts 62-210, F.A.C. by reference
- Rule 2.1101, JEPB Adopts 62-296, F.A.C. by reference
- Rule 2.1201, JEPB, Adopts 62-297, F.A.C. by reference

The proposed new boiler will not be subject to 40 CFR 63, Subpart 63 JJJJJ, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources because it meets the definition of a gas-fired boiler, which is exempt from the regulation.

The proposed new boiler will have the same operating constraints as the existing boilers. The allowable annual hours of operation will be 8,760 while firing natural gas and limited to 400 hours per year while firing Distillate No. 2 fuel oil.

The primary fuel for this emissions unit will be natural gas. Distillate No. 2 fuel oil may be used during period of natural gas curtailment, gas supply emergencies, and / or for testing purposes. Burning of No. 2 fuel oil will be limited to 400 hours per calendar year at 100 gallons per hour (40,000 gallons per year).

The proposed new boiler is subject to Best Available Control Technology (BACT) in accordance with Rule 62-296.406(2) and (3), F.A.C. The proposed BACT for PM and SO<sub>2</sub> emissions is the use of natural gas or low sulfur content No. 2 fuel oil, limited to 0.05% sulfur content by weight, consistent with recent BACT determinations by FDEP for similar sources.

The burning of No. 2 fuel oil for periodic testing purposes will be limited to 48 hours per calendar year at 100 gallons per hour (4800 gallons per year) per the exemption criteria in 40 CFR 63, Subpart 63, Subpart JJJJJ.

The visible emissions from the proposed new boiler shall not exceed 20% opacity, except for one six-minute period per one-hour period, during which the opacity shall not exceed 27% in accordance with Rule 62-296.406(1), F.A.C.

Compliance with the BACT provisions will be demonstrated by maintaining receipts of fuel oil purchases that show the oil has a sulfur content of 0.05% or less. Compliance with the visible emissions standard will be demonstrated by conducting initial and annual testing (during the calendar year) using EPA Method 9.

#### Air Emissions

The estimated air emissions from the new boiler are presented in Table 1. Emissions estimates are based on the two possible operating scenarios – firing continuously with natural gas and firing fuel oil at 400 hours per year and natural gas at 8360 hours per year. For a conservative estimate, the worst-case operating scenario's potential emission estimate was used in the application. For application type and fee purposes, the pollutant with the highest annual potential emissions rate is NO<sub>x</sub> (5.72 tons per year), which corresponds to an "AC1E" permit type and a \$1000 application processing fee.

It is expected that the proposed project will be in compliance with all applicable air regulations.



**Proposed Operating Schedule**

Heat Input Rate	13.4 MMBtu/hr
Operating Scenarios	
Operating Scenario No. 1: Continuous Firing of Natural Gas	
	0.01 mmcf/hr <sup>(1)</sup>
Natural Gas	111.8 mmcf/yr <sup>(2)</sup>
Operating Scenario No. 2: Natural Gas and Fuel Oil	
	0.1 TGB/hr <sup>(3)</sup>
Distillate No. 2 Fuel Oil	38.3 TGB/yr <sup>(4)</sup>
	0.01 mmcf/hr <sup>(1)</sup>
Natural Gas	106.7 mmcf/yr <sup>(5)</sup>

<sup>(1)</sup> Natural Gas Usage (mmcf/hr) = [Heat Input Rate (13.4 mmbtu/hr)] x [1 mmcf/1050 mmbtu]

<sup>(2)</sup> Natural Gas Usage (mmcf/yr) = [Hourly Natural Gas Usage (0.01 mmcf/hr)] x [8760 hrs/yr]

<sup>(3)</sup> Distillate No. 2 Fuel Oil Usage (TGB/hr) = [Heat Input Rate (13.4 mmbtu/hr)] x [1 TGB / 140 mmbtu]

<sup>(4)</sup> Distillate No. 2 Fuel Oil Usage (TGB/yr) = [Hourly Distillate No. 2 Fuel Oil Usage (0.1 TGB/hr)] x [400 hrs/yr]

<sup>(5)</sup> Natural Gas Usage (mmcf/yr) = [Hourly Natural Gas Usage (0.01 mmcf/hr)] x [8360 hrs/yr]

**Table 1: Potential Emissions Estimates.**

Pollutant	Operating Scenario	Fuel Type	Emission Factor	Potential Emissions		Operating Scenario Potential Emissions		Maximum Potential Emissions <sup>(3)</sup>	
				lb/hr <sup>(1)</sup>	tons/yr <sup>(2)</sup>	lb/hr	tons/yr	lb/hr	tons/yr
CO	Scenario No. 1	Natural Gas	84.00 lb/mmcf <sup>(4)</sup>	1.07	4.7	1.07	4.70	1.55	4.70
	Scenario No. 2	Distillate Oil <sup>7</sup>	5.00 lb/TGB <sup>(5)</sup>	0.48	0.1	1.55	4.58		
		Natural Gas	84.00 lb/mmcf <sup>(4)</sup>	1.07	4.5				
NO <sub>x</sub>	Scenario No. 1	Natural Gas	100.00 lb/mmcf <sup>(4)</sup>	1.28	5.6	1.28	5.59	3.19	5.72
	Scenario No. 2	Distillate Oil <sup>7</sup>	20.00 lb/TGB <sup>(2)</sup>	1.91	0.4	3.19	5.72		
		Natural Gas	100.00 lb/mmcf <sup>(4)</sup>	1.28	5.3				
PM	Scenario No. 1	Natural Gas	7.60 lb/mmcf <sup>(6)</sup>	0.10	0.4	0.10	0.42	0.29	0.44
	Scenario No. 2	Distillate Oil <sup>7</sup>	2.00 lb/TGB <sup>(5)</sup>	0.19	0.0	0.29	0.44		
		Natural Gas	7.60 lb/mmcf <sup>(6)</sup>	0.10	0.4				
SO <sub>2</sub>	Scenario No. 1	Natural Gas	0.60 lb/mmcf <sup>(6)</sup>	0.01	0.0	0.01	0.03	0.69	0.17
	Scenario No. 1	Distillate Oil <sup>7</sup>	7.10 lb/TGB <sup>(5)(7)</sup>	0.68	0.1	0.69	0.17		
		Natural Gas	0.60 lb/mmcf <sup>(6)</sup>	0.01	0.0				
VOC	Scenario No. 1	Natural Gas	5.50 lb/mmcf <sup>(6)</sup>	0.07	0.3	0.07	0.31	0.09	0.31
	Scenario No. 1	Distillate Oil <sup>7</sup>	0.20 lb/TGB <sup>(8)</sup>	0.02	0.0	0.09	0.30		
		Natural Gas	5.50 lb/mmcf <sup>(6)</sup>	0.07	0.3				

<sup>(1)</sup> Potential Hourly Emissions (lb/hr) = [Hourly Fuel Usage] x [Emission Factor]

<sup>(2)</sup> Potential Annual Emissions (TPY) = [Annual Fuel Usage] x [Emission Factor] x [1 ton/2000 lbs]

<sup>(3)</sup> Maximum potential emissions is the maximum potential emissions between the two operating scenarios.

<sup>(4)</sup> Emission Factor based on AP-42, Table 1.4-1.

<sup>(5)</sup> Emission Factor based on AP-42, Table 1.3-1.

<sup>(6)</sup> Emission Factor based on AP-42, Table 1.4-2.

<sup>(7)</sup> Assumes fuel contains 0.05% sulfur.

<sup>(8)</sup> Emission Factor based on AP-42 Table 1.3-3. Assume TOC = VOC.

ATTACHMENT 2  
PROCESS FLOW DIAGRAM  
NEW NATURAL GAS FIRED BOILER  
UF SHANDS - JACKSONVILLE

