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DIVISION OF AIR  
RESOURCE MANAGEMENT

# APPLICATION FOR TITLE V AIR CONSTRUCTION PERMIT AND AIR OPERATION PERMIT REVISION

JEA – Brandy Branch Generating Station

Permit Application

**Prepared For:** JEA  
21 West Church Street  
Jacksonville, FL 32202

**Submitted By:** Golder Associates Inc.  
6026 NW 1st Place  
Gainesville, FL 32607 USA

**Distribution:** 4 copies – FDEP  
2 copies – JEA  
1 copy – Golder Associates Inc.

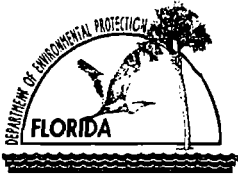
August 2013

123-87691

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**APPLICATION FOR AIR PERMIT – LONG FORM  
(PAGES 1 – 13)**



# Department of Environmental Protection

## Division of Air Resource Management

### APPLICATION FOR AIR PERMIT - LONG FORM

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DIVISION OF AIR RESOURCE MANAGEMENT

#### 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>JEA</b>	
2. Site Name: <b>Brandy Branch Generating Station</b>	
3. Facility Identification Number: <b>0310485</b>	
4. Facility Location... Street Address or Other Locator: <b>15701 Beaver Street West</b> City: <b>Baldwin City</b> County: <b>Duval</b> Zip Code: <b>32234</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>Jay A Worley</b>	
2. Application Contact Mailing Address... Organization/Firm: <b>JEA</b> Street Address: <b>21 West Church Street</b> City: <b>Jacksonville</b> State: <b>FL</b> Zip Code: <b>32202-3139</b>	
3. Application Contact Telephone Numbers... Telephone: <b>(904) 665-8729</b> ext. Fax: <b>(904) 665-7376</b>	
4. Application Contact E-mail Address: <b>worlja@jea.com</b>	

#### Application Processing Information (DEP Use)

1. Date of Receipt of Application: <b>8-9-2013</b>	3. PSD Number (if applicable):
2. Project Number(s): <b>0310485-021-AC</b>	4. Siting Number (if applicable):

**0310485-022-AV**

## 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

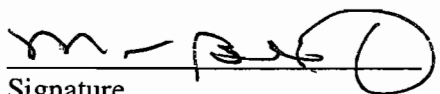
**This application is to request to clarify certain existing conditions in the existing Title V permit (Permit No. 0310485-019-AV) and underlying air construction/PSD permits. The requested clarifications are not a result of any physical change or change in the method of operation. Rather, these clarifications are being made to reduce the complexity in certain conditions and better define parameters for assessing compliance.**



**APPLICATION INFORMATION**

**Owner/Authorized Representative Statement**

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

1. Owner/Authorized Representative Name : <b>Mr. Michael J. Brost, P.E., President, Electric Systems</b>
2. Owner/Authorized Representative Mailing Address... Organization/Firm: <b>JEA</b> Street Address: <b>21 West Church Street</b> City: <b>Jacksonville</b> State: <b>FL</b> Zip Code: <b>32202</b>
3. Owner/Authorized Representative Telephone Numbers... Telephone: <b>(904) 665-7547</b> ext. Fax: <b>(904) 665-4238</b>
4. Owner/Authorized Representative E-mail Address: <b>brosmj@jea.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>8-7-13</u> Date

## APPLICATION INFORMATION

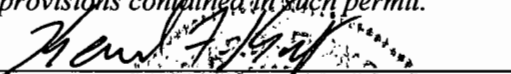

### Application Responsible Official Certification

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

1. Application Responsible Official Name:
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source or CAIR source.
3. Application Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
4. Application Responsible Official Telephone Numbers... Telephone: ( ) ext. Fax: ( )
5. Application Responsible Official E-mail Address:
6. Application Responsible Official Certification: I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.  _____ Signature  _____ Date

# APPLICATION INFORMATION

## Professional Engineer Certification

1. Professional Engineer Name: <b>Kennard F. Kosky</b> Registration Number: <b>14996</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Golder Associates Inc.**</b> Street Address: <b>6026 NW 1st Place</b> City: <b>Gainesville</b> State: <b>FL</b> Zip Code: <b>32607</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(352) 336-5600</b> ext. <b>21156</b> Fax: <b>(352) 336-6603</b>
4. Professional Engineer E-mail Address: <b>kkosky@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 _____ Date <u>8/8/13</u> (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 <b>17</b> East (km) <b>408.81</b> North (km) <b>3354.38</b>		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) <b>30 / 19 / 14</b> Longitude (DD/MM/SS) <b>81 / 56 / 55</b>	
3. Governmental Facility Code: <b>4</b>	4. Facility Status Code: <b>A</b>	5. Facility Major Group SIC Code: <b>49</b>	6. Facility SIC(s): <b>4911</b>
7. Facility Comment :  <b>Facility consists of three combustion turbines, two heat recovery steam generators, two fuel oil storage tanks, and a mechanical draft cooling tower.</b>			

#### Facility Contact

1. Facility Contact Name: <b>Jay A Worley, Director of Environmental Programs</b>
2. Facility Contact Mailing Address... Organization/Firm: <b>JEA</b> Street Address: <b>21 West Church Street</b> City: <b>Jacksonville</b> State: <b>FL</b> Zip Code: <b>32202</b>
3. Facility Contact Telephone Numbers: Telephone: <b>(904) 665-8729</b> ext. Fax: <b>(904) 665-7376</b>
4. Facility Contact E-mail Address: <b>worlja@jea.com</b>

#### Facility Primary Responsible Official

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

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

**Facility 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 type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:  <b>Simple-cycle CT No. 1 (EU 001) and combined-cycle CT Nos. 2 and 3 (EUs 002 and 003) are subject to NSPS Subpart GG, Standards of Performance for Stationary Gas Turbines.</b>  <b>The facility has one reciprocating internal combustion engine (RICE) that is subject to 40 CFR 63 Subpart ZZZZ.</b>	

**List of Pollutants Emitted by Facility**

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
NOX	A	N
CO	A	N
VOC	B	N
SO2	A	Y
PM	A	N
PM10	A	N



### 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: <b>May 20, 2013</b>
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: <b>May 20, 2013</b>
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 type="checkbox"/> Previously Submitted, Date: <b>May 20, 2013</b>

#### 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 type="checkbox"/> Attached, Document ID: _____
3. Rule Applicability Analysis: <input checked="" type="checkbox"/> Attached, Document ID: <b>Part II</b> _____
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

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

**Additional Requirements for FESOP Applications**

1. List of Exempt Emissions Units:  
 Attached, Document ID: \_\_\_\_\_  Not Applicable (no exempt units at facility)

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

1. List of Insignificant Activities: (Required for initial/renewal applications only)  
 Attached, Document ID: \_\_\_\_\_  Not Applicable (revision application)
2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought)  
 Attached, Document ID: \_\_\_\_\_  
 Not Applicable (revision application with no change in applicable requirements)
3. Compliance Report and Plan: (Required for all initial/revision/renewal applications)  
 Attached, Document ID: \_\_\_\_\_  
Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.
4. List of Equipment/Activities Regulated under Title VI: (If applicable, required for initial/renewal applications only)  
 Attached, Document ID: \_\_\_\_\_  
 Equipment/Activities Onsite but Not Required to be Individually Listed  
 Not Applicable
5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only)  
 Attached, Document ID: \_\_\_\_\_  Not Applicable
6. Requested Changes to Current Title V Air Operation Permit:  
 Attached, Document ID: \_\_\_\_\_  Not Applicable

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

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

1. Acid Rain Program Forms:

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

Attached, Document ID: \_\_\_\_\_  Previously Submitted, Date: **May 20, 2013**

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: **May 20, 2013**

Not Applicable (not a CAIR source)

**Additional Requirements Comment**

**PART II**



## PART II

### INTRODUCTION

JEA owns and operates the Brandy Branch Generating Station located at 15701 Beaver Street West, approximately 1 mile northeast of Baldwin City in Duval County, Florida. Brandy Branch Generating Station, which is currently operating under Title V Operating Permit No. 0310485-019-AV, consists of one simple-cycle combustion turbine (EU 001) and two combined-cycle combustion turbines (EUs 002 and 003) with heat recovery steam generators (HRSGs) and associated duct burners as part of one 2-on-1 combined-cycle unit. All combustion turbines are General Electric Frame 7FA units that primarily fires natural gas with operation on distillate oil limited for various annual operating hours depending on the unit and sulfur content of the distillate oil.

JEA has identified certain existing conditions in the existing Title V permit (Permit No. 0310485-019-AV) and underlying air construction/Prevention of Significant Deterioration (PSD) permits that need adjustment, which would clarify and simplify the conditions for operation and compliance. The requested changes are not a result of any physical change or change in the method of operation. Rather, these clarifications are being made to reduce the complexity in certain existing permit conditions and better define parameters for assessing compliance. This air construction permit application requests changes to the following conditions as contained in the current Title V permit:

#### Simple-Cycle Combustion Turbine (EU 001)

- Specific Conditions A.2, A.7, and A.20 – Change the maximum sulfur content of distillate fuel oil from the currently permitted 0.05-percent sulfur to 0.0015-percent with a permitting note that the new sulfur limit will be effective once the current inventory of distillate oil is spent.
- Specific Conditions A.3 – Remove 16 hours per day fuel oil firing limitation.
- Specific Condition A.5.b – Change the natural gas-firing 24-hour block average NO<sub>x</sub> emission limit of 69.3 lb/hr (at ISO condition) to a concentration-based limit of 10.5 parts per million volume dry (ppmvd) corrected to 15% O<sub>2</sub>.
- Specific Condition A.5.c – Change the oil-firing 3-hour average NO<sub>x</sub> emission limit of 42 ppmvd corrected to 15% O<sub>2</sub>, which is currently based on continuous emission monitoring system (CEMS) to a 3-hour average block average basis.
- Specific Condition A.11.b – Change the determination of excess emissions from a load level of 50% to a fixed capacity amount.
- Specific Condition A.19 – Omit the reference to selective catalytic reduction (SCR) in determining continuous compliance with the NO<sub>x</sub> limits.
- Specific Conditions A.7 and A.20 – Replace the various conditions related to the authorized use of various sulfur content fuels with the exclusive use of Ultra Low-Sulfur Distillate (ULSD) oil.

### Combined-Cycle Combustion Turbines (EUs 002 and 003)

- Specific Conditions A.2, B.2, B.3, B.32, and B.33 – Replace the various conditions related to the authorized use of various sulfur content fuels and hours of operation with the exclusive use of Ultra Low-Sulfur Distillate (ULSD) oil. This also applies to EU 001 as there are joint requirements for all three emission units. Specific Condition No. B.33. will no longer be necessary.
- Specific Condition B.3.d – Re-define the limitation on the amount of duct firing from 4,500 hours per consecutive 12-months to a heat input limit.
- Specific Condition B.16 – Change the diluent used in the CEMs from CO<sub>2</sub> to O<sub>2</sub>.

### REQUESTED CHANGES – EU001

As described in the Introduction, JEA proposes to replace the use of up to 0.05% sulfur distillate oil with ULSD oil with a maximum sulfur content of 0.0015%. JEA also proposes the new sulfur content limitation to be effective once the current distillate oil inventory onsite is spent and, therefore, requests that a permitting note be added in this regard. Please note that the sulfur content of the existing very low-sulfur distillate oil in two storage tanks ranges between 0.0016-percent to 0.0023-percent based on analyses during the first two quarters of 2013. The requested change in the condition for Unit 1 is noted below. The description for this change is described in Requested Changes – EU 002 and 003.

**A.2. Methods of Operation – Fuels.** *Only natural gas or maximum ~~0.05~~ 0.0015 percent sulfur content, by weight, No. 2 or superior grade of distillate fuel oil shall be fired. [Rules 62-210.200 (Definitions-PTE), F.A.C.; Permit No. 0310485-001-AC, Specific Condition 7, and, Applicant's request in Title V permit renewal application received July, 2008] {Permitting note: Use of ULSD oil with maximum sulfur content of 0.0015-percent will be effective after the existing distillate oil inventory is spent or the average sulfur content in storage is 0.0015-percent or less.}*

Specific Condition A.3 of the current Title V Permit No. 0310485-019-AV has a maximum daily fuel oil firing limitation of 16 hours/day. The 16 hours/day limit for EU 001 was originally requested by JEA to comply with the ambient air quality standards. With the exclusive use of either 0.0015% or 0.0023% sulfur distillate oil, a restriction on EU 001 of 16 hours/day appears unnecessary. JEA is proposing that the simple-cycle combustion turbine EU 001 be authorized to operate 24 hours/day rather than be restricted to 16 hours/day. The proposed changes to Condition A.3 are presented below.

**A.3. Hours of Operation – The stationary gas turbine shall only operate up to 4,750 hours during any consecutive 12-month period, of which 750 hours of operation per combustion turbine may be while firing fuel oil. Additionally, the turbine shall be limited to 16 hours per day of fuel oil firing. See also Specific Condition B.3. [Rule 62-210.200 (Definitions – PTE), F.A.C.; and, Permit No. 0310485-001-AC, Specific Condition 13]**

JEA requests that in Specific Condition A.5.b, the 24-hour block average mass-based emission limit for NO<sub>x</sub> of 69.3 lb/hr at ISO Condition be replaced with the concentration-based emission limit of 10.5 ppmvd corrected to 15% O<sub>2</sub>. Since the lb/hr limit is based on ISO conditions, an adjustment must be made to

determine compliance. Normal turbine inlet conditions are highly variable and are typically different than the conditions at ISO (59 °F, 60% relative humidity, 1 atmospheric pressure). Any comparison made in lb/hr must be adjusted based on the manufacture curves. Using 10.5 ppmvd corrected to 15% O<sub>2</sub> provides a direct comparison to the emission limit determined to be BACT in the initial permitting of the unit. In addition, the Department determined that BACT was 10.5 ppmvd corrected to 15% O<sub>2</sub> (Technical Evaluation and Preliminary Determination and Appendix BD, PSD-FL-267).

For Condition A.5.c., JEA requests that the basis for the 3-hour average NO<sub>x</sub> emission limit of 42 ppmvd corrected to 15% O<sub>2</sub> be expressed as a block average. This is also consistent with the Department's BACT determination and consistent with stack sampling methods that demonstrate compliance as specified in that condition. The proposed change to Condition A.5 is presented below.

**A.5. Nitrogen Oxides (NO<sub>x</sub>).**

- a. *Data Substitution. For the sole purpose of Acid Rain reporting, when NO<sub>x</sub> monitoring data are not available, substitution for missing data shall be handled as required by Title IV (40 CFR 75).*
- b. *While firing Natural Gas. The emission rate of NO<sub>x</sub> in the exhaust gas shall not exceed ~~69.3 lbs/hr (at ISO conditions)~~ 10.5 ppmvd corrected to 15% O<sub>2</sub> on a 24 hr block average as measured by the continuous emission monitoring system (CEMS). In addition, NO<sub>x</sub> emissions calculated as NO<sub>2</sub> (at ISO conditions) shall not exceed 10.5 ppmvd @ 15% O<sub>2</sub> to be demonstrated by annual stack test. Note: Basis for lbs/hr limit is 10.5 ppmvd@ 15% O<sub>2</sub>, full load.*
- c. *While firing Fuel Oil. The concentration of NO<sub>x</sub> in the exhaust gas shall not exceed 42 ppmvd at 15% O<sub>2</sub> on the basis of a 3-hr block average basis as measured by the continuous emission monitoring system (CEMS). In addition, NO<sub>x</sub> emissions calculated as NO<sub>2</sub> (at ISO conditions) shall not exceed 42 ppmvd@ 15% O<sub>2</sub> to be demonstrated by stack test.*
- d. *After Firing Fuel Oil For 400 Hours. After combusting fuel oil for at least 400 hours on any individual combustion turbine (CT), the permittee shall prepare and submit for the DEP's review and acceptance an engineering report regarding the lowest NO<sub>x</sub> emission rate that can consistently be achieved when firing distillate oil. This lowest recommended rate shall include a reasonable operating margin, taking into account long-term performance expectations and good operating and maintenance practices. The DEP may revise the NO<sub>x</sub> emission rate based upon this report.  
[Rule 62-212.400, F.A.C.; and, Permit No. 0310485-001-AC, Specific Condition 21]*

For Condition A.11.b, JEA requests that excess emissions threshold of 50% load condition be changed to a fixed capacity level of 62 MW. The reason is that the 50% load level varies based on turbine inlet temperatures and determining the 50% load level requires a determination of inlet temperature and relative humidity and a comparison with manufacturer curves. Performing this during a startup is extremely difficult if not impossible to accurately obtain the 50% load level. Providing a fixed load level assures that the condition can be met for assessing excess emissions. The suggested change is below.

- A.11. Excess Emissions Allowed.** *Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted provided:*
- Best operational practices are adhered to and the duration of excess emissions shall be minimized, but in no case exceed two hours in any 24-hour period for other reasons, unless specifically authorized by the DEP for longer duration;*
  - Operation below ~~50% output while firing fuel oil~~ (and below 62 gross megawatts while firing fuel oil and natural gas) shall be limited to 2 hours per unit cycle (breaker closed to breaker open);*
  - Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction, shall be prohibited pursuant to Rule 62-210.700, F.A.C.*  
*[Permit No. 0310485-00 I-AC, Specific Condition 26; Permit No. 0310485-010-AC (revision dated 1/18/2005) Rules 62-210.700(1)- (5), F.A.C.]*

For Condition A.19, JEA requests that the average period for burning oil be changed from "3-hr average" to "3-hr block average" as requested for Condition A.5.c. and the reference to SCR be deleted. EU-001 is a simple-cycle combustion turbine and does not have SCR. The requested changes are shown below.

- A.19. Continuous Compliance With the NO<sub>x</sub> Emission Limits.** *Continuous compliance with the NO<sub>x</sub> emission limits shall be demonstrated with the CEM system based on the applicable averaging time of 24-hr block average (DLN technology while burning gas) or a 3-hr block average (~~SCR technology or while burning oil~~). For the 24-hr block average (lb/hr) emissions may be determined via EPA Method 19 or equivalent EPA approved methods. Based on CEMS data, a separate compliance determination is conducted at the end of each operating day (or 3-hr period when applicable) and a new average emission rate is calculated from the arithmetic average of all valid hourly emission rates from the previous operating day (or 3-hr period when applicable). Valid hourly emission rates shall not include periods of startup, shutdown, or malfunction as defined in Rule 62-210.200, F.A.C., where emissions exceed the applicable NO<sub>x</sub> standard. These excess emissions periods shall be reported as required in Specific Conditions **A.11.** and **A.24.** A valid hourly emission rate shall be calculated for each hour in which at least two NO<sub>x</sub> concentrations are obtained at least 15 minutes apart. [Rules 62-4.070, F.A.C. and 62-210.700, F.A.C.; 40 CFR 75; and, Permit No. 031485-001- AC, Specific Condition 30]*

## REQUESTED CHANGES – EU002 AND 003

As described in the introduction, JEA proposes to use only ULSD oil with a sulfur content of 0.0015% in EUs 002 and 003 while keeping the currently permitted maximum annual hours of operation for lowest sulfur fuel (0.0065% sulfur). Using only ULSD distillate oil will eliminate the use of higher sulfur fuels and reduce the overall potential SO<sub>2</sub> emissions for the facility. A comparison of the authorized fuels and hours for operation for 0.05% sulfur and 0.0065% sulfur distillate oils is shown in Table 1. Also shown in this table are the SO<sub>2</sub> emissions on a tons/year and lb/day basis. The exclusive use of either 0.0015% or 0.0023% sulfur distillate oil will result in a reduction in potential emission on both a tons/year and lb/day basis. As described in the section for requested changes for Unit 1, JEA proposes to limit the distillate oil usage to ULSD oil only after the current distillate oil inventory onsite is spent and, therefore, a permitting note should be added.

Specific Condition B.3 of the current Title V Permit No. 0310485-019-AV has a complex oil-firing combined limitation for the simple-cycle combustion turbine EU001 and the combined-cycle combustion turbines EU002 and EU003. JEA is proposing that the simple-cycle combustion turbine EU001 be authorized to operate 24 hours/day rather than be restricted to 8 hours/day. The 8 hours/day limit for EU001 was originally proposed as part of the change of going from 0.05% sulfur fuel oil to 0.0065% sulfur fuel oil (Technical Evaluation and Preliminary Determination DEP File No. 0310485-007-AC). With the exclusive use of 0.0015% sulfur ULSD distillate oil, a restriction on EU001 of 8 hours/day appears unnecessary.

The HRSG duct burners in EU002 and 003 are currently limited to 4,500 hours of operation on a consecutive 12-month period. The basis for this limit was an increase in heat input from the original unlimited operation at a heat input of 170 MMBtu/hr to a heat input of 200 MMBtu/hr [Technical Evaluation and Preliminary Determination DEP File No. 0310485-017-AC/PSD-FL-310(F)]. JEA is proposing a heat input limit of 1,800,000 MMBtu for 12-consecutive months (200 MMBtu/hr x 4,500 hours x 2 duct burner systems) for the duct burners rather than the hours per year limit. The reason for the requested change is to provide more flexibility in duct burner operation. Heat input is measured and reported, and the 200 MMBtu/hr was the basis for the 4,500 hours/year operation. The requested change will not increase emissions above the PSD significant emission rates (SERs) when comparing the potential emission from duct firing in the two emission units and the 2011-2012 baseline actual emissions for duct firing. This comparison is shown in Table 2 that demonstrates that the PSD SERs cannot be exceeded even if the full potential heat input is used. Please note that if the Department accepts the request for this condition, Condition B.33 will not be necessary. Condition B.32 would conform to the accepted requirements.

The requested changes are presented below:

**B.2 Methods of Operation-Fuels.** *The facility is authorized to burn any combination of natural gas (2.0 grains sulfur/100 scf), ~~low sulfur fuel oil (0.05% sulfur content, by weight) and ultralow sulfur fuel oil (0.00165% sulfur content, by weight).~~ ~~The combinations of This these fuels are subject to the hour limitations and recordkeeping requirements set forth in this permit. Unless otherwise authorized by this permit, CT operation below 65 gross megawatts shall be limited to 2 hours during each calendar day.~~ [Rules 62-210.200(Definitions- PTE), F.A.C.; PSD-FL-310, Specific Condition 7; Permit Nos. 0310485-007-AC and 0310485-015-AC] {Permitting note: Use of ULSD oil with maximum sulfur content of 0.0015-percent will be effective after the existing distillate oil inventory is spent or the sulfur content in storage is 0.0015-percent or less.}*

**B.3. Hours of Operation.** *Except for the HRSG duct burners, the emission units are authorized to operate 8,760 hours per year while firing natural gas (2.0 grains sulfur/ 100 scf). The combined cycle units are authorized to operate up to a combined maximum of ~~576 actual plus "equivalent hours" per consecutive 12-month period while firing 0.05% sulfur content, by weight, fuel oil~~ ~~OR a combined maximum of 1,478 actual hours plus "equivalent hours" while firing 0.0065% sulfur content, by weight, fuel oil per consecutive 12-month period, whichever occurs first.~~ The simple cycle unit is authorized to operate up to a maximum of 750 actual hours plus "equivalent hours" per consecutive 12-month period,*

~~while firing either 0.05% or 0.0065% sulfur content, by weight, fuel oil, whichever occurs first. Tracking of "equivalent hours" shall conform with and be recorded as defined within this permit. Additionally, the following requirements shall apply:~~

- ~~a. 0.05% Sulfur Fuel Oil. In the event that any of the 3 emission units (simple or combined cycle) fires No. 2 distillate fuel oil (0.05% sulfur content, by weight) during a calendar day, that unit shall be limited to 16 hours of daily operation on any fuel. Additionally, the other 2 units shall not be fired on any of the allowable fuels for that calendar day.~~
- ~~b. 0.0065% Sulfur Fuel Oil. In the event that the simple cycle unit fires lower sulfur oil (0.0065% sulfur content, by weight) during any calendar day, but for 8 hours or less, the combined cycle units may fire any combination of lower sulfur oil (0.0065% sulfur content, by weight) or natural gas (2 grains/100 scf) during that calendar day.~~
- ~~c. 0.0065% Sulfur Fuel Oil More Than 8 Hours. In the event that the simple cycle unit fires lower sulfur fuel oil (0.0065% sulfur content, by weight) for more than 8 hours during a calendar day, it shall be allowed 24 hours of daily operation while the combined cycle units shall not be fired on any fuel for the calendar day.~~
- ~~a.d. HRSG Duct Burners. Each HRSG duct burner operation shall not exceed 1,800,000 MMBtu 4,500 hours per consecutive 12-months for both duct burner systems. (See Specific Condition **B.32.a.(3)**.)~~

[Rules 62-210.200(Definitions -PTE) and 62-212.400(12), F.A.C.; Permit Nos.0310485-003-AC/PSD-FL-310, Specific Condition 14, 0310485-007-AC/PSD-FL-310(B) and 0310485-017-AC/PSD-FL-310(F)]

{Permitting note: The limitation of this specific condition is more stringent than the NSPS sulfur dioxide limitation and thus assures compliance with 40 CFR 60.333 and 60.334.}

**B.32. Special Recordkeeping Requirements.** The owner or operator shall obtain, make, and keep the following records:

- a. Hours of operation and heat input shall be:
- (1) submitted with the Annual Operation Report (AOR) for the prior year for each combustion turbine by fuel type;
  - (2) kept for each consecutive 12-month period for each combustion turbine by fuel type; and
  - (3) kept for each consecutive 12-month period while firing natural gas for each HRSG duct burner. (See Specific Condition **B.3.d.**)
- b. ~~Daily hours shall be kept for:~~
- ~~(1) fuel oil and natural gas operation for each combustion turbine during any day in which fuel oil is fired;~~
  - ~~(2) when the CT is being fired and the SCR is not in service, along with support documentation demonstrating that the unit was in a DLN Major Tuning, startup or shutdown condition; and~~
  - ~~(3) (as fired) sulfur content of fuel oil for each combustion turbine during any day in which fuel oil is fired.~~

[Permit No. 0310485-003-AC/PSD-FL-310, Specific Condition 40; and, Permit Nos. 0310485-017-AC/PSD-FL-310(F), 0310485-014-AC and 0310485-012-AC]

~~**B.33. Recordkeeping Requirements and Fuel Switching:**~~ Upon prior written notification, JEA may switch between firing 0.05% or 0.0065% sulfur content, by weight, fuel oil on a calendar day basis (i.e. switching is not authorized within any calendar day). A record shall be made every day for each emission unit documenting: the fuel type actually used, the number of actual hours of firing each fuel type, and (for the hours when any oil is fired) the "equivalent

~~hours" for the fuel oil which was not fired. The following shall be used to determine the "equivalent hours": each actual hour of combustion of 0.05% sulfur content, by weight, distillate oil shall equate to 2.6 "equivalent hours" of lower sulfur oil (0.0065% sulfur content, by weight) combustion and each actual hour of firing lower sulfur oil (0.0065% sulfur content, by weight) shall equate to 0.39 "equivalent hours" of 0.05% sulfur content, by weight, fuel oil combustion. At the end of each calendar month, the total number of "equivalent hours" plus actual hours shall be determined. A running total shall be maintained in order to ensure compliance with Specific Condition B.3.~~

~~[Permit No. 0310485-007 AC/PSD FL 310(B); Rule 62-210.700(6), F.A.C.]~~

For Condition B.16, JEA requests that the diluent be change to O<sub>2</sub> since CO<sub>2</sub> monitoring was replace with O<sub>2</sub> monitors.

**B.16. Continuous Monitoring Systems (CEMS).**

- a. CEM Requirement. *The permittee shall install, calibrate, maintain, and operate a continuous emission monitors in the stack to measure and record the emissions of NO<sub>x</sub> and CO from these emissions units, and the oxygen (O<sub>2</sub>) ~~carbon dioxide (CO<sub>2</sub>)~~ content of the flue gas at the location where NO<sub>x</sub> and CO are monitored, in a manner sufficient to demonstrate compliance with the emission limits of this permit.*

## REGULATORY APPLICABILITY

Under Federal and State of Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. The U.S. Environmental Protection Agency (EPA) has approved Florida's State Implementation Plan (SIP), which contains PSD regulations. The applicable PSD rules in Florida are found in Rule 62-212.400, Florida Administrative Code, (F.A.C.).

A "major facility" is defined as any 1 of 28 named source categories that have the potential to emit 100 tons/year or more, or any other stationary facility that has the potential to emit 250 tons/year or more, of any pollutant regulated under the CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. Once a new source is determined to be a "major facility" for a particular pollutant, any pollutant emitted in amounts greater than the PSD significant emission rates is subject to PSD review. For an existing major source for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions due to the modification is greater than the PSD SERs.

Brandy Branch Generating Station is a major facility under FDEP rules. Based on Rule 62-210.200(205), F.A.C., "modification" is defined as any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any pollutant subject to new source review regulation under the CAA.

The majority of the requested changes in this application does not affect the emissions from the facility and would not be considered a modification under FDEP rules. These changes primarily clarify and simplify the conditions for compliance purposes. The change to 0.0015% sulfur fuel oil, while a change in the method of operation, actually will decrease emissions from the facility when fuel oil is used. It should be noted that there is no increase in the hours per year when using distillate fuel oil.

Because the change from hours to heat input for duct firing could be construed as a change in the method of operation, the project is a potential modification as defined in the FDEP rules in Rule 62-210.200 and under the PSD rules in Rule 62-212.400, F.A.C. However, PSD review would be required for the project only if there were a significant net increase in emissions. As demonstrated by a comparison of potential emissions and baseline actual emissions in Table 2, the PSD SERs will not be exceeded by this request.



**TABLES**

**Table 1: Comparison of SO<sub>2</sub> Emissions for Using ULSD Distillate Oil and Current Permitted Distillate Oil  
JEA Brandy Branch Generating Station**

Parameters	Currently Permitted Scenario <sup>a</sup>				Transition Scenario				Proposed Scenario					
	EU002 and EU003		EU001		Worst-Case Total Emissions <sup>b</sup>	EU002 and EU003		EU001	Total Emissions	Difference	EU002 and EU003		EU001	Total Emissions
Fuel Sulfur Content	0.05%	0.0065%	0.05%	0.0065%			0.0023%				0.0023%			
Hours per year	576	1478	750	750		1478	750				1478	750		
Hours per day	16	24	0	8		24	24				24	24		
SO <sub>2</sub> Emissions (lb/hr/CT)	10.35	1.35	9.15	1.19		0.48	0.42				0.31	0.27		
SO <sub>2</sub> Emissions (TPY)	2.98	1.00	3.43	0.45	6.4	0.35	0.16	0.51	-5.9		0.23	0.10	0.33	-6.1
SO <sub>2</sub> Emissions (lb/day)	165.6	32.4	0	9.52	175.1	11.43	10.10	21.528	-153.6		7.45	6.59	14.04	-161.1

<sup>a</sup> Based on Permit No. 0310485-019-AV.

<sup>b</sup> Worst-case emissions of EU002 & EU003 + worst-case emissions of EU001.

**Table 2: Comparison of Potential Emissions and Baseline Actual Emissions for Duct Firing in EUs 002 and 003  
Brandy Branch Generating Station**

Pollutant	Current Potential Emissions <sup>a</sup> (TPY)	Emission Factor <sup>b</sup> (lb/MMBtu)	Baseline Emissions <sup>c</sup> TPY	Future Potential Emissions <sup>d</sup> TPY	Difference (Potential - Baseline) TPY	PSD SERs TPY
NOx	11.75	0.013	2.93	11.75	8.82	40
SO2	5.51	0.006	1.37	5.51	4.14	40
CO	90.21	0.100	22.51	90.21	67.70	100
VOC	21.6	0.024	5.39	21.60	16.21	40
PM/PM10	14.4	0.016	3.59	14.40	10.81	15
SAM	0.84	0.001	0.21	0.84	0.63	7

<sup>a</sup> Based on the Technical Evaluation and Preliminary Determination (TEPD) for Permit No. 0310485-017-AC for increasing duct firing from 170 to 200 MMBtu/hr, August 31, 2006.

<sup>b</sup> lb/MMBtu = TPY x 2,000 lb/ton / 4,500 hr/yr / (200 MMBtu/hr x 2 duct burners).

<sup>c</sup> Based on 2-year average heat input of 449,137.2 MMBtu (2011 = 91,750.8MMBtu and 2012 = 806,523.6 MMBtu) for the period 2011-2012 times emission factor (lb/MMBtu).

<sup>d</sup> Based on proposed duct burner annual heat input limit of 1,800,000 MMBtu/yr (two duct burners combined) and emission factor (lb/MMBtu). Same as current potential emissions.

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