

21 West Church Street  
Jacksonville, Florida 32202-3139

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JUN 12 2002

BUREAU OF AIR REGULATION

June 11, 2002



Mr. Scott Sheplak, P.E.  
Administrator  
Bureau of Air Regulation  
Division of Air Resources Management  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

ELECTRIC

WATER

SEWER

RE: Northside Generating Station/SJRPP Title V Permit No. 0310045-008-AV  
Kennedy Generating Station Title V Permit No. 0310047-011-AV  
Brandy Branch Generating Station (Draft) Title V Permit No. 0310485-005-AV  
Change in Responsible Official

Dear Mr. Sheplak:

Enclosed please find a completed "Responsible Official Notification Form" for each of the above-referenced facilities. With these forms, JEA is officially notifying the Department of a change in Responsible Official from Walter P. Bussells to James M. Chansler effective July 1, 2002.

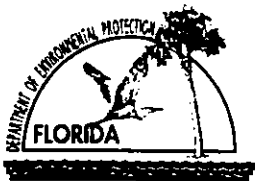
If you have any questions regarding this submittal, please contact Bert Gianazza at (904) 665-6247 or me at (904) 665-4433.

Sincerely,

A handwritten signature in cursive script that reads "James M. Chansler".

James M. Chansler, P.E., D.P.A.  
Vice-President  
Operations & Maintenance

cc: Steve Pace, P.E., RESD  
Ernest Frey, P.E., FDEP, NE District



# Department of Environmental Protection RECEIVED

## Division of Air Resource Management

JUN 12 2002

### RESPONSIBLE OFFICIAL NOTIFICATION FORM BUREAU OF AIR REGULATION

Note: A responsible official is not necessarily a designated representative under the Acid Rain Program. To become a designated representative, submit a certificate of representation to the U.S. Environmental Protection Agency (EPA) in accordance with 40 CFR Part 72.24.

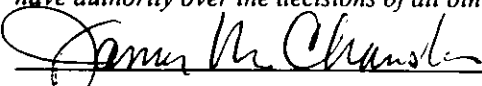
#### Identification of Facility

1. Facility Owner/Company Name: JEA	
2. Site Name: Kennedy Generating Station	3. County: Duval
4. Title V Air Operation Permit/Project No. (leave blank for initial Title V applications): 0310047-011-AV	

#### Notification Type (Check one or more)

<input type="checkbox"/> INITIAL:	Notification of responsible officials for an initial Title V application.
<input type="checkbox"/> RENEWAL:	Notification of responsible officials for a renewal Title V application.
<input checked="" type="checkbox"/> CHANGE:	Notification of change in responsible official(s).
Effective date of change in responsible official(s) <u>July 1, 2002</u>	

#### Primary Responsible Official

1. Name and Position Title of Responsible Official: James M. Chansler, P.E., D.P.A., V.P. Operations & Maintenance
2. Responsible Official Mailing Address: Organization/Firm: JEA Street Address: 21 West Church Street City: Jacksonville State: FL Zip Code: 32202-3139
3. Responsible Official Telephone Numbers: Telephone: (904) 665-4433 Fax: (904) 665-7990
4. 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 checked="" type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input checked="" type="checkbox"/> The designated representative at an Acid Rain source.
5. Responsible Official Statement:  <i>I, the undersigned, am a responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this notification. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this notification are true, accurate and complete. Further, I certify that I have authority over the decisions of all other responsible officials, if any, for purposes of Title V permitting.</i>   Signature <span style="float: right;"><u>6-10-02</u> Date</span>

## **Mitchell, Bruce**

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**From:** Friday, Barbara  
**Sent:** Friday, March 01, 2002 1:09 PM  
**To:** Gracy Danois; Gregg Worley (E-mail); Jenny Jachim; Joel Huey; Kathleen Forney; Walker, Elizabeth (AIR)  
**Cc:** Mitchell, Bruce  
**Subject:** New Posting #0310045

There is a new posting on Florida's website.

0310045008AV  
Jacksonville Electric Authority/  
Northside Generating Station - St. John's River Power Park

Proposed Permit Revision

If you have any questions, feel free to contact me.

Thanks,  
Barbara

21 West Church Street  
Jacksonville, Florida 32202-3139

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MAR 04 2002

BUREAU OF AIR REGULATION



February 26, 2002

ELECTRIC Clair H. Fancy, P.E  
Chief, Bureau of Air Regulation  
Florida Department of Environmental Protection  
WATER Twin Towers Office Building  
2600 Blair Stone Road  
SEWER Tallahassee, FL 32399-2400

RE: Northside Generating Station/SJRPP (Title V Permit No. 0310045-002-AV)

Dear Mr. Fancy:

Per conversations between Bruce Mitchell of your staff and Bert Gianazza of my staff, please add fuel trucking of solid fuel as an insignificant activity to the above referenced permit.

If you have any questions with regard to this matter or need additional information, please contact Bert Gianazza at (904) 665-6247.

Sincerely,

A handwritten signature in black ink, appearing to read 'Walter P. Bussells', with a long horizontal flourish extending to the right.

Walter P. Bussells  
Managing Director/CEO

cc: S. Sheplak, P.E., FDEP  
B. Mitchell, P.E., FDEP  
S. Pace, P.E., RESD

**Owner/Authorized Representative or Responsible Official**

FILED  
MAR 01 2002  
BUREAU OF AIR REGULATION

1. Name and Title of Owner/Authorized Representative or Responsible Official:		
2. Owner/Authorized Representative or Responsible Official Mailing Address: Organization/Firm: Street Address: City: State: Zip Code:		
3. Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: ( ) - Fax: ( ) -		
4. Owner/Authorized Representative or Responsible Official Statement:  <i>I, the undersigned, am the owner or authorized representative*(check here [ ], if so) or the responsible official (check here [ ], if so) of the Title V source addressed in this application, whichever is applicable. 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 any permitted emissions unit.</i>  _____ Signature Date		

\* Attach letter of authorization if not currently on file.

**Professional Engineer Certification**

1. Professional Engineer Name: <i>N. Bert Gianazza</i> Registration Number: <i>38640</i>		
2. Professional Engineer Mailing Address: Organization/Firm: <i>JEA</i> Street Address: <i>21 West Church St.</i> City: <i>Jacksonville</i> State: <i>FL</i> Zip Code: <i>32202</i>		
3. Professional Engineer Telephone Numbers: Telephone: <i>(904) 665-6247</i> Fax: <i>(904) 665-7376</i>		

4. Professional Engineer Statement:

*I, the undersigned, hereby certify, except as particularly noted herein\*, that:*

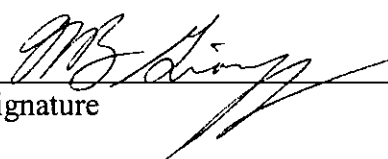
*(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and*

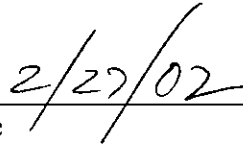
*(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.*

*If the purpose of this application is to obtain a Title V source air operation permit (check here [  ], 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 schedule is submitted with this application.*

*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 [  ], 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.*

*If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [  ], 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.*

  
Signature

  
Date

(seal)

\* Attach any exception to certification statement.

21 West Church Street  
Jacksonville, Florida 32202-3139



October 3, 2001

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OCT 05 2001

BUREAU OF AIR REGULATION

Mr. Scott M. Sheplak, P.E.  
Administrator  
Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

ELECTRIC

WATER

SEWER

RE: Northside Generating Station (0310045-004-AC) — Project No. 0310045-008-AV  
Kennedy Generating Station (0310047-004-AC) — Project No. 0310047-011-AV  
Combustion Turbine (CT) Inlet Foggers Installation

Dear Mr. Sheplak:

Enclosed please find an original and three copies of the Title V Operating Permit Applications for the Northside and Kennedy CT inlet fogger projects.

If you have any questions with regard to this matter, please contact me at (904) 665-6247.

Sincerely,

N. Bert Gianazza, P.E.  
Environmental Permitting  
& Compliance Group

**State of Florida**  
**Department of Environmental Protection**

**Memo**

TO:	
THRU:	
THRU:	Bruce Mitchell
FROM:	William Leffler, P.E.
DATE:	October 12, 2001
SUBJECT:	Preliminary review of Title V Operating Permit Revision Applications 0310045-008-AV Northside Generating Station and 0310047-011-AV Kennedy Generating Station Jacksonville Electric Authority

Application for revision of the title V permits was received at BAR on October 5, 2001. The applications were apparently complete.

The scope of the both applications was to amend Title V permits to authorize the operation of fogging devices ahead of the compressors on four identical General Electric Model MS 7000 combustion turbine generators, located at Northside, and three identical Westinghouse Model W 501G combustion turbines at Kennedy.

The purpose of inlet fogging is to provide adiabatic cooling to of inlet air to increase the mechanical output of a direct combustion turbine while decreasing the heat rate. Heat is removed by the vaporization of the added water (1075 btu/lb). The additional water vapor increases efficiency by adding mass to the power end of the turbine. There is a practical limits to the water rate at a fuel/water mass ratio between 0.8 and 1.0 where droplet impingment causes erosion of turbine blades and where cooling causes the combustion flame to be extinguished.

The Combustion turbines are authorized to operate continuously, but as a practical matter they are used for peaking, load leveling, emergencies and control testing.

The most recent Title V permits for these facilities were issued:

0310045-002-AV	Northside Generating Station	issued
0310047-008-AV	Kennedy Generating Station	issued

Construction permits for the foggers were issued April 20, 2000 The conditions were identical for all four Combustion turbines at Northside, and all three of the combustion



turbines at Kennedy, limiting the heat input, providing a NO<sub>x</sub> emission limit and requiring the combustion of new No. 2 fuel oil.

On July 10, JEA requested modification of both construction permits to accommodate EPA Method 7E for nitrogen oxides. Both construction permits were modified by letter on July 13, 2000, allowing the use of either EPA method 7 or 7E as the approved test method for nitrogen oxides.

On March 1, 2001, JEA requested an additional modification for both facilities eliminating the maximum heat input and NO<sub>x</sub> emission limits with the foggers and eliminating the requirement to provide "manufacturers curves corrected for site conditions or equations for correction to other ambient conditions" within 45 days after testing. The revised conditions reduced the authorized operation to 399 hours per year with no increase in NO<sub>x</sub> emissions because of the fogger operation. This modification was issued March 30, 2001.

By limiting the operation of these units with foggers to less than 400 hours per year the operator escapes the general compliance testing requirements for annual testing with foggers under specific condition C.15. (a)3.b., of the title V Permits, except for visible emissions. Annual compliance testing is still required if the turbine operates more than 399 hours per year, but could probably be performed under more favorable cold weather conditions.

Reports of testing for one turbine at each facility are contained in the applications. The testing was conducted by Technical Services, Inc of Jacksonville Florida and their report contains a certification of process variables by of Joseph W Werner P.E., an employee of JEA .

The compliance test measured only NO<sub>x</sub> production against fuel flow and laboratory results for fuel heating value. Increases for other criteria pollutants, due to the increased fuel needed to vaporize the added water, were calculated on the basis of AP42 emission factors. No turbine performance curves were provided to evaluate the optimum water to fuel ratio to optimize peak performance.

Specific condition C.13. Operation Rate During Testing of the Title V Permits for both facilities require testing at 90 percent % of maximum operating rate (or limitation of maximum operating rate to 110 % of tested load. Both of the tests provided were at loads less than 90 percent of measured mechanical (electrical) output rate but greater than 90 percent of the previously permitted heat input rate (limitation removed by March 30, 2001 revision). It is reasonably anticipated that the same heat input with cold intake air would produce substantially more electrical power.

While a NO<sub>x</sub> reduction was demonstrated the reduction should not be credited against the facility's overall NO<sub>x</sub> production because the proposed operation was not undertaken to achieve a NO<sub>x</sub> offset nor is the test data sufficient to demonstrate that the NO<sub>x</sub> reduction would be constant across varying ambient air conditions. Tabulated test results follow.

achieve a NOx offset nor is the test data sufficient to demonstrate that the NOx reduction would be constant across varying ambient air conditions. Tabulated test results follow.

**Conclusion:**

The inlet foggers demonstrated a negligible power increase on the Northside test involving the General Electric Turbines. There was a slight increase in power production at Kennedy with the Westinghouse Turbines. A probable explanation of the low increase in power of the Northside tests is that the ambient temperature was about 15° higher than the ambient temperature on the Kennedy tests. Both tests successfully demonstrated compliance with the permit condition that no increased NOx will be produced. Because the prospective operation of the foggers will be limited to 399 hours per unit, no annual testing with the foggers is anticipated.

**Summary of Test Data**

Compliance/performance testing was conducted on unit NCT5 of the Northside Generating Station, with foggers on May 22, 2001, and without foggers on May 11, 2001. The summarized test results are as follows:

PARAMETER	W/ FOGGER	W/O FOGGER	COMMENTS
MWe (socc) GENERATOR OUTPUT 56.2 MW (NOMINAL)	49.38 MW 88 % of nominal	49.29 MW 88 % of nominal	$\Delta < .02\%$
Comp °F	80.30	87.23	
Applied Water (fog) gpm	17.25		
Fuel Feed Rate gal/hr	80.26	79.19	Water/fuel =20%
Higher Heating Value BTU/gal	138646	138555	
Heat Input MMBTU/hr	6.676 E+08	6.583 E+06	$\Delta 0.093 E+6 = 1.4\%$
NOx Emissions	0.5153 lb/MMBTU 344.05 lb/hr	0.6188 lb/MMBTU 407.33 lb/hr	$\Delta 0.1035 \text{ lb/MMBTU}$ $\Delta -63.28 \text{ lb/hr}$ (-50.5 TPY for 4 CT's)

Note 1. Minimal increased power for substantial heat increase fails to demonstrate effectiveness of misting for power augmentation.

Compliance/performance testing was conducted on KCT5 of the the Kennedy Generating Station, with on June 4, 2001, and without foggers on June 5, 2001

The summarized test results are as follows;

PARAMETER	W/ FOGGER	W/O FOGGER	COMMENTS
MWe GENERATOR OUTPUT 56.2 MW (NOMINAL)	48.56 MW 87% of nominal	46.59 MW 83% of nominal	$\Delta$ 1.97 MW = 4.2%
Comp °F	95.76	102.91	
Applied Water (fog) gpm	17.27		Water /fuel =21.3%
Fuel Feed Rate gal/hr	86.15	84.91	
Higher Heating Value BTU/gal	13726	137175	
Heat Input MMBTU/hr	7.095 E+08 97% of permitted	6.988 E+06 94% of permitted	$\Delta$ 0.107 E+6 = 1.5%
NOx Emissions	0.6550 lb/MMBTU 464.72 lb/hr	0.7436 lb/MMBTU 619.64 lb/hr	$\Delta$ 0.1035 lb/MMBTU $\Delta$ -54.92 lb/hr (-32.87 TPY for 3 CT's)

Note 1. Increased power for heat increase demonstrates effectiveness of misting for power augmentation.