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BUREAU OF AIR REGULATION



November 7, 2002

Mr. Scott Sheplak  
Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, FL. 32399-2400

Dear Mr. Sheplak:

RE: Proof of Publication  
Brandy Branch Generating Station  
Permit 0310485-005-AV

ELECTRIC

WATER

SEWER

I am enclosing for your review the proof of publication for the public notice of intent to issue the Title V Air Operation Permit for the above mentioned facility.

Should you have any questions, please contact me at (904) 665-5501.

Sincerely,

A handwritten signature in cursive script that reads 'David Norse'.

David Norse  
Environmental Assessments  
& Permitting

Enclosure

THE FLORIDA TIMES-UNION  
Jacksonville, Fl  
Affidavit of Publication

Florida Times-Union

J.E.A./ENVIRONMENTAL  
ATTN: DAVE ENGLISH  
21 W CHURCH ST T-8  
JACKSONVILLE FL 32202

REFERENCE: 0334584 Dave English  
R86731 Public Notice

State of Florida  
County of Duval

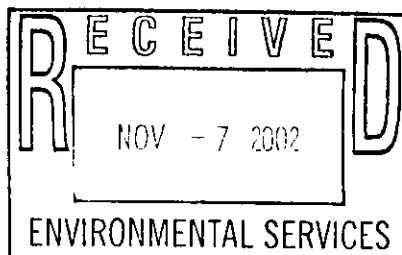
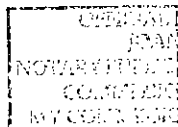
Before the undersigned authority personally appeared Valerie Vest who on oath says she is a Legal Advertising Representative of The Florida Times-Union, a daily newspaper published in Jacksonville in Duval County, Florida; that the attached copy of advertisement is a legal ad published in The Florida Times-Union. Affiant further says that The Florida Times-Union is a newspaper published in Jacksonville, in Duval County, Florida, and that the newspaper has heretofore been continuously published in Duval County, Florida each day, has been entered as second class mail matter at the post office in Jacksonville, in Duval County, Florida for a period of one year preceeding the first publication of the attached copy of advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission, or refund for the purpose of securing this advertisement for publication in said newspaper.

PUBLISHED ON: 10/28

FILED ON: 11/04/02

Name: Valerie Vest Title: Legal Advertising  
In testimony whereof, I have hereunto set my hand and seal, the day and year aforesaid.

NOTARY:



**PUBLIC NOTICE OF INTENT TO ISSUE TITLE V AIR OPERATION PERMIT**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Title V DRAFT Permit No.: 0310485-005-AV

Brandy Branch Generating Station

Duval County

The Department of Environmental Protection (permitting authority) gives notice of its intent to issue an initial DRAFT Title V air operation permit for the Brandy Branch Generating Station, located approximately 1 mile N.E. of Baldwin City, Duval County. The applicant's name and address are: Mr. Walter P. Bussells, Managing Director and CEO, JEA, 21 West Church Street, Jacksonville, Florida 32202-3139.

The permitting authority will issue the Title V PROPOSED Permit, and subsequent Title V FINAL Permit, in accordance with the conditions of the Title V DRAFT Permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The permitting authority will accept written comments concerning the proposed Title V DRAFT Permit issuance action for a period of 30 (thirty) days from the date of publication of this Notice. Written comments should be provided to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit, the permitting authority shall issue another DRAFT Permit and require, if applicable, another Public Notice.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 of the Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000 (Telephone: 850/488-9730; Fax: 850/487-4938). Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of the notice of intent, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the permitting authority for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the applicable time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the permitting authority's action is based must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address and telephone number of the petitioner; name and address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how petitioner's substantial rights will be affected by the agency determination;

(c) A statement of how and when the petitioner received notice of the agency action or proposed action;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so state;

(e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle petitioner to relief; and

(f) A demand for relief.

A petition that does not dispute the material facts upon which the permitting authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-105.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the permitting authority's final action may be different from the position taken by it in this notice of intent. Persons whose substantial interests will be affected by any such final decision of the permitting authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements as set forth above.

Mediation is not available for this proceeding.

In addition to the above, pursuant to 42 United States Code (U.S.C.) Section 7661d(b)(2), any person may petition the Administrator of the EPA within 60 (sixty) days of the expiration of the Administrator's 45 (forty-five) day review period as established at 42 U.S.C. Section 7661d(b)(1), to object to issuance of any permit. Any petition shall be based only on objections to the permit that were raised with reasonable specificity during the 30 (thirty) day public comment period provided in this notice, unless the petitioner demonstrates to the Administrator of the EPA that it was impracticable to raise such objections within the comment period or unless the grounds for such objection arose after the comment period. Filing of a petition with the Administrator of the EPA does not stay the effective date of any permit properly issued pursuant to the provisions of Chapter 62-213, F.A.C. Petitions filed with the Administrator of EPA must meet the requirements of 42 U.S.C. Section 7661d(b)(2) and must be filed with the Administrator of the EPA at: U.S. EPA, 401 M Street, S.W., Washington, D.C., 20460.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

**Permitting Authority:**  
Department of  
Environmental Protection  
Bureau of Air Regulation  
111 South Magnolia Drive, Suite 4  
Tallahassee, Florida 32301  
Telephone: 850/488-0114  
Fax: 850/922-6979

**Affected District Program:**  
Department of  
Environmental Protection  
Northeast District Office  
7825 Baymeadows Way, Suite 200B  
Jacksonville, Florida 32256  
Telephone: 904/448-4300  
Fax: 904/448-4363

The complete project file includes the DRAFT Permit, the application, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact Scott M. Sheplak, P.E., at the address above, or call 850/921-9532, for additional information.

Memorandum

Florida Department of Environmental Protection

TO: Scott Sheplak
FROM: Michael P. Halpin
DATE: October 11, 2002
SUBJECT: JEA Brandy Branch Facility
170 MW Simple Cycle Combustion Turbines
DEP File No. 0310485 (PSD-FL-267)

I was asked by Al Linero to review and respond to the attached "engineering report" from JEA. As indicated by JEA, this is in reference to the following permit condition:

- 22. Carbon Monoxide (CO) emissions: The concentration of CO in the exhaust gas when firing natural gas shall not exceed 15 ppmvd when firing natural gas and 20 ppmvd when firing fuel oil as measured by EPA Method 10. CO emissions (at ISO conditions) shall not exceed 48.0 lb/hr (when firing natural gas) and 65.0 lb/hr (when firing fuel oil) as indicated by EPA Method 10. [Rule 62-212.400, F.A.C.]
• Within 18 months after the initial compliance test on any individual CT, the permittee shall prepare and submit for the Department's review and acceptance an engineering report regarding the lowest CO emission rate that can consistently be achieved firing natural gas. This lowest recommended rate shall include a reasonable operating margin, taking into account long-term performance expectations and good operating and maintenance practices. The Department may revise the CO emission rate based upon this report. [BACT determination]

Al had noted within his request, the following "G.E. now guarantees very low numbers. I would think [that a] limit of 10 would be supportable". I cannot dispute that setting a CO limit at 10 ppmvd may be supportable, but I do not recommend such an action. Although the report submitted by JEA lacks much engineering detail, I recommend that the limit be left as is. The following summarizes the points which I believe are key.

- 1) This condition was written as a result of our limited knowledge of the actual CO emissions on an F-frame machine. When drafting the condition, I had anticipated an equal likelihood that the limit might ultimately be set above or below the preliminary settings.
- 2) The establishment of a CO limit for a peaking (simple cycle) unit should be set above that for a base-loaded (combined cycle) unit. By definition, during a day when required, a peaking unit would typically start up, ramp up in output (MW) quickly, remain on load control for a few hours (in a regulating mode), ramp back down in output and ultimately shut down. It is fair to assume that simple-cycle units (unlike base-loaded units) are normally incurring rapid changes in output, resulting in rapid changes in air and fuel demand. Since air/fuel ratio mismatches are more likely to occur for simple cycle units, the generation of CO (an indication of incomplete combustion) is also more likely to occur. The BACT Determinations for CO, which have been made for combined cycle units in Florida typically range from 8 to 15 ppmvd. Two of these three JEA CT's are currently being modified for combined cycle operation, with BACT limits of 14 ppmvd. As indicated, setting the limit for the third (unmodified) simple cycle unit at a level lower than 14 ppmvd would appear illogical.

- 3) Compliance with the CO emissions limit for these units is based upon an annual stack test, consisting of three 1-hour runs, meaning that (in essence) we have established a 3-hour standard. The NAAQS for CO are 9 ppm and 35 ppm, for 1 hour and 8 hours respectively. A linear interpolation of a 3 hour NAAQS results in approximately 16 ppm, meaning that the achievement of 15 ppm over a 3 hour period likely results in air quality that is safe to breathe (with respect to CO only).
- 4) No actual benefit to the environment will be received by lowering the CO limit from 15 to 10. Some might argue that by lowering the limit, O&M practices would improve, but my sense is otherwise. Since the units are not outfitted with CEMS, no real-time feedback exists for the operating staff as to actual CO emissions. Accordingly, it is unlikely that the lowering of the limit from 15 ppm to 10 ppm will have any measurable impact on the operation. Concerning maintenance practices, these are not routinely based upon annual stack tests, but rather manufacturers guidelines and industry "best practices". However, in the event that the operating staff observes worsening trends in equipment performance, new and additional maintenance inspections are implemented. It is my belief that if such a worsening trend in annual CO stack test results was to exist, such maintenance inspections would have already been implemented, whether the limit were established at 10 ppm or 15 ppm, suggesting that lowering the limit would not impact maintenance practices either.
- 5) Due to the relative "newness" of the F-frame units, no long-term history exists.

In summary, I recommend that we accept JEA's submittal. In the event that I can be of further assistance, please advise.

21. West Church Street  
Jacksonville, Florida 32202-3139

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October 2, 2002

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BUREAU OF AIR REGULATION



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: Brandy Branch Generating Station  
Simple Cycle Combustion Turbines 1, 2, and 3  
CO Emissions During Gas-Firing  
Permit No. 0310485-001-AC

Dear Mr. Sheplak:

Specific Condition 22 of the above referenced permit reads, in part, as follows:

“Within 18 months after the initial compliance test on any individual CT, the permittee shall prepare and submit for the Department’s review and acceptance an engineering report regarding the lowest CO emission rate that can consistently be achieved firing natural gas. This lowest recommended rate shall include a reasonable operating margin, taking into account long-term performance expectations and good operating and maintenance practices. The Department may revise the CO emission rate based upon the report. [BACT determination]”

This letter constitutes the aforementioned engineering report regarding the subject matter.

Attached are recently obtained CO stack test results, as well as the initial stack test results for the Brandy Branch combustion turbines while operating on natural gas at base load. Also attached are CO stack test results from an identical simple cycle turbine at JEA’s Kennedy Generating Station. While the CO emissions from these new and clean units are significantly lower than the permit limit of 15 ppm, it is unclear how these units will perform over their 20 years or more of expected life. Extrapolating 20 years or more based on very limited data would be highly speculative.

Mr. Sheplak, P.E.  
October 2, 2002  
Page Two

As can be seen, the results (on a per run basis) range from a low of 0.27 ppm to a high of 4.80 ppm, a variability of 1778%. This degree of variability is seen among four identical, new and clean units. Allowing for "a reasonable operating margin, taking into account long-term performance expectations and good operating and maintenance practices", the permitted value of 15 ppm is reasonable and justifiable. Units 2 and 3 will be converted to combined cycle operation within two or three years, and a BACT limit of 14 ppm CO was permitted for combined cycle operation of these two units.

Please note that the entire JEA system accounts for only about 2% of the CO inventory in Duval County, with the Brandy Branch units comprising a tiny fraction of 1% of the Duval CO inventory. Removing these units completely would have no noticeable effect on ambient CO concentrations in Duval or the surrounding counties. It is also noted that these units are the cleanest (lowest emitting) in the JEA system and among the cleanest in the world as currently permitted.

Due to the limited information available, the lack of any benefit to be gained by reducing the CO permit limit of these units, realizing that any 20-year extrapolation of CO emissions would be speculative and arbitrary, taking into account the need for a reasonable operating margin and long-term performance expectations, and understanding that the CO emission rate has to be achieved consistently, there is no compelling reason to reduce the permitted CO emission rate of these units.

If you have any questions regarding this submittal, please call me at (904) 665-6247.

Sincerely,



N. Bert Gianazza, P.E.  
Environmental Services

Attachments: As Noted

cc: Steve Pace, P.E., RESD  
Chris Kirts, P.E., DEP-NED

# Jacksonville Electric Authority

Brandy Branch Combustion Turbine Number BCT-1

Fired on Natural Gas at Base Load

Summary of CARBON MONOXIDE (CO) Emissions

June 15, 2001

RUN NUMBER	START TIME	END TIME	CO, ppm	O2, %	CO, ppm @ 15% O2	FLOW, scfm-dry	CO, lbs/hr	PERMITTED EMISSION LIMIT
1	11:46	12:49	0.49	13.65	0.40	733749	1.58	15 ppm
2	13:05	14:08	0.70	13.92	0.59	785093	2.40	
3	14:40	15:43	0.56	13.87	0.47	766471	1.87	
-- AVERAGE			0.58	13.82	0.49	761771	1.95	PASS

# Jacksonville Electric Authority

Brandy Branch Combustion Turbine Number BCT-2

Fired on Natural Gas at Base Load

Summary of CARBON MONOXIDE (CO) Emissions

June 18, 2001

RUN NUMBER	START TIME	END TIME	CO, ppm	O2, %	CO, ppm @ 15% O2	FLOW, scfm-dry	CO, lbs/hr	PERMITTED EMISSION LIMIT
1	13:46	14:49	0.44	13.76	0.36	808010	1.54	15 ppm
2	15:03	16:06	0.33	13.70	0.27	835827	1.19	
3	16:26	17:29	0.36	13.68	0.30	821919	1.30	
<b>AVERAGE</b>			0.37	13.71	0.31	821920	1.34	<b>PASS</b>



# Jacksonville Electric Authority

Brandy Branch Combustion Turbine Number BCT-3

Fired on Natural Gas at Base Load

Summary of **CARBON MONOXIDE (CO)** Emissions

October 17, 2001

RUN NUMBER	START TIME	END TIME	CO, ppm	FLOW, scfm-dry	CO, lbs/hr	PERMITTED EMISSION LIMIT
1	12:50	13:49	0.78	927540	3.18	15 ppm and 48.0 lbs/hr
2	14:07	15:06	0.77	888466	2.98	
3	15:22	16:21	0.74	880886	2.83	
AVERAGE			0.76	898964	2.99	PASS

# Jacksonville Electric Authority

Brandy Branch Combustion Turbine Number BCT-1

Fired on Natural Gas at Base Load

Summary of CARBON MONOXIDE (CO) Emissions

August 13, 2002

RUN NUMBER	START TIME	END TIME	CO, ppm	O2, %	CO, ppm @ 15% O2	FLOW, scfm-dry	CO, lbs/hr	PERMITTED EMISSION LIMIT
1	12:25	14:10	1.07	13.76	0.89	638736	3.19	15 ppm
2	14:37	16:11	1.04	13.72	0.86	622934	3.03	
3	16:26	17:46	1.04	13.68	0.85	665675	3.24	
AVERAGE			1.05	13.72	0.87	642448	3.15	PASS

# Jacksonville Electric Authority

Brandy Branch Combustion Turbine Number BCT-2

Fired on Natural Gas at Base Load

Summary of CARBON MONOXIDE (CO) Emissions

August 14, 2002

RUN NUMBER	START TIME	END TIME	CO, ppm	O2, %	CO, ppm @ 15% O2	FLOW, scfm-dry	CO, lbs/hr	PERMITTED EMISSION LIMIT
1	14:35	16:03	1.57	13.71	1.29	788740	5.79	15 ppm
2	16:21	17:41	1.26	13.68	1.03	774493	4.56	
3	18:00	19:20	1.20	13.81	0.99	724035	4.06	
<b>AVERAGE</b>			1.34	13.73	1.10	762423	4.80	<b>PASS</b>

# Jacksonville Electric Authority

Brandy Branch Generating Station Combustion Turbine Number BBCT-3

Fired on Natural Gas at Base Load

Summary of CARBON MONOXIDE (CO) Emissions

August 8, 2002

RUN NUMBER	CO, ppm	O2, %	CO, ppm @ 15% O2	FLOW, scfm-dry	CO, lbs/hr	PERMITTED EMISSION LIMIT
1	1.36	13.90	0.58	699670	0.44	15 ppm
2	1.29	13.99	0.57	731392	0.44	
3	1.28	14.00	0.57	660946	0.40	
<b>AVERAGE</b>	1.31	13.96	0.57	697336	0.43	<b>PASS</b>

There is an error somewhere.

**TABLE 1. JEA KENNEDY STATION (ARMS Emission Unit 015)  
Summary of Test Program Results**

Parameter	Run 1	Run 2	Run 3	Average	comments
Date	June 6, 2000		June 7, 2000		
Run time	1242-1346	1428-1532	1557-1701		
Nitrogen Oxides ppm, dry	8.49	8.55	8.83	--	All data is drift and bias corrected
ppm at 15% O <sub>2</sub> (iso)	7.61	7.67	7.88	7.7	Allowable is 11
ppm at 15% O <sub>2</sub>	41.02	42.07	44.42	42.5	Allowable is 11
lb/hr					
Carbon Monoxide ppm, dry	3.42	3.68	4.80	3.97	All data is drift and bias corrected
ppm at 15% O <sub>2</sub>	3.07	3.31	4.28	3.6	Allowable is 11
lb/hr	11.25	12.25	16.46	13.3	Allowable is 4
Total Hydrocarbons, <u>As Methane</u> ppm, wet	2.01	1.47	2.36	1.95	All data is drift and bias corrected
ppm, dry	1.83	1.34	2.17	1.78	
ppm methane, wet	2.04	1.49	2.32	1.95	
ppm methane, dry	1.85	1.36	2.13	1.78	
ppm, dry, non-CH <sub>4</sub>	-0.03	-0.02	0.04	0.00	
ppm at 15% O <sub>2</sub> (iso)					
<u>As Propane</u> ppm, dry	0.61	0.45	0.72	0.59	No CH <sub>4</sub> correction
ppm, at 15% O <sub>2</sub>	0.55	0.40	0.65	0.53	Allowable is 1.4
lb/hr, as propane	2.82	2.11	3.47	2.80	Allowable is 2.9
Oxygen, %	14.32	14.33	14.28	14.31	
Carbon Dioxide, %	5.58	5.55	5.57	5.57	
Stack Temp, °F	1,131	1,132	1,125	1,129	Method 1,2 data
Moisture, %	9.0	8.4	8.0	8.5	Method 4 data
Volumetric Flow ACFM	2,505,400	2,525,300	2,566,600	2,532,400	Method 1,2 data
DSCFM	753,400	762,500	785,400	767,100	All values rounded

*Kennedy plant might be an error. They actually did better on later tests.*

**JACKSONVILLE ELECTRIC AUTHORITY - KENNEDY PLANT CT # 7  
NOX AND O2 RATA, CO COMPLIANCE TEST JUNE 7-8, 2001**

	NOX PPM	CO PPM	O2 %	CORRECTED TO 15 % O2	
				NOX PPM	CO PPM
RUN 1 Average	8.34	0.66	13.71	6.85	0.28
RUN 2 Average	8.38	0.59	13.77	6.93	0.25
RUN 3 Average	8.21	0.53	13.73	6.76	0.22
RUN 4 Average	8.13	0.64	13.74	6.70	0.27
RUN 5 Average	8.06	0.72	13.71	6.61	0.30
RUN 6 Average	8.02	0.70	13.69	6.57	0.29
RUN 7 Average	8.68	0.47	13.75	7.16	0.20
RUN 8 Average	8.65	0.53	13.74	7.12	0.23
RUN 9 Average	8.62	0.43	13.74	7.10	0.18
RUN 10 Average	8.52	0.50	13.73	7.02	0.21
RUN 11 Average	8.18	0.46	13.68	6.68	0.19
RUN 12 Average	8.22	0.46	13.75	6.78	0.19
Test Average	8.34	0.56	13.73	6.86	0.23

# Jacksonville Electric Authority

Kennedy Generating Station Combustion Turbine Number KCT-7

Fired on Natural Gas at Base Load

Summary of CARBON MONOXIDE (CO) Emissions

August 6, 2002

RUN NUMBER	CO, ppm	O2, %	CO, ppm @ 15% O2	FLOW, scfm-dry	CO, lbs/hr	PERMITTED EMISSION LIMIT
1	0.63	13.81	0.52	697891	0.21	15 ppm
2	0.45	13.70	0.37	680678	0.14	
3	0.44	13.78	0.37	671076	0.14	
<b>AVERAGE</b>	0.51	13.76	0.42	683215	0.16	<b>PASS</b>

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TABLE 4-3