



United States Department of the Interior

FISH AND WILDLIFE SERVICE

1875 Century Boulevard
Atlanta, Georgia 30345

IN REPLY REFER TO:

August 12, 1999

RECEIVED

AUG 17 1999

BUREAU OF AIR REGULATION

Re: PSD-FL-267

Mr. C. H. Fancy
Chief, Bureau of Air Regulation
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee, Florida 32399-2400


Dear Mr. Fancy:

Our Air Quality Branch has reviewed the additional information submitted by Jacksonville Electric Authority (JEA) pertaining to its Brandy Branch project in Baldwin, Florida. The project is located 34 km southeast of Okefenokee Wilderness and 127 km southwest of Wolf Island Wilderness, both Class I air quality areas, administered by the U.S. Fish and Wildlife Service (FWS). The technical review comments from our Air Quality Branch are enclosed. In summary, JEA's regional haze analysis predicts that the project will significantly contribute to visibility impairment in Okefenokee. Based on this information, FWS would object to the issuance of a permit for the project. The technical review document summarizes the options available to JEA, including choosing not to proceed with the project, reducing the project's emissions, offsetting the project's emissions with the shutdown of JEA's Southside Station, and conducting a more refined modeling analysis. In any case, JEA must demonstrate that the Brandy Branch project will not further reduce visibility in the Okefenokee Class I area.

Thank you for the opportunity to comment on this permit application. We appreciate your cooperation in notifying us of proposed projects with the potential to impact the air quality and related resources of our Class I air quality areas. If you have any questions, please contact Ms. Ellen Porter of our Air Quality Branch in Denver at (303)969-2617.

cc: M. Halpin, BAR
Dural Co.
NEP
EPA
C. Holaday, BAR

Sincerely yours,


for Sam D. Hamilton
Regional Director

Enclosure

B. Gianazza, JEA
a. Campan, B&V

**Technical Review of Additional Information
for Jacksonville Electric Authority's Brandy Branch Generating Station
Baldwin, Florida**

by
Air Quality Branch, Fish and Wildlife Service – Denver
August 3, 1999

PSD-FL-267

Jacksonville Electric Authority (JEA) is proposing to install three 170 MW simple cycle combustion turbines at their Brandy Branch Facility. The turbines will fire natural gas as the primary fuel, with low sulfur (less than 0.05 %) fuel oil as a back-up fuel. The Brandy Branch Facility is located 34 km southeast of Okefenokee Wilderness and 127 km southwest of Wolf Island Wilderness, both Class I air quality areas administered by the U.S. Fish and Wildlife Service (FWS). The project will result in PSD-significant increases in emissions of nitrogen oxides (NO_x), sulfur dioxide (SO₂), particulate matter (PM), fine particulate matter less than 10 microns in diameter (PM-10), carbon monoxide (CO), and sulfuric acid mist (SAM). Proposed emissions (in tons per year – TPY) are summarized below.

POLLUTANT	EMISSIONS INCREASE (TPY)
NO _x	858
SO ₂	124
PM-10	75
CO	366
SAM	15.2

Air Quality Related Values (AQRV) Analysis

JEA performed a regional haze analysis for Wolf Island, concluding that the project would not contribute significantly to visibility impairment in the area. In December 1998, we advised JEA that they should also evaluate regional haze impacts in Okefenokee. Regional haze analyses are required of sources greater than 50 km from a receptor in a Class I area. Although the project was only 34 km from the nearest boundary of the Class I area, the project was more than 50 km from some receptors in the Class I area. (Okefenokee is approximately 55 km from south to north.)

An Industrial Source Complex (ISC) modeling analysis by JEA indicated that the project had the potential to significantly contribute to regional haze at Okefenokee. On June 9, 1999, we advised the applicant, via phone, that they had several options, including reducing production, accepting lower emissions limits, or performing a refined modeling analysis (CALPUFF-Lite or CALPUFF). In any case, they needed to demonstrate that the project's emissions would not significantly contribute to visibility impairment in the Class I area.

The applicant chose to do an analysis with CALPUFF-Lite (a screening version of CALPUFF) and submitted the results June 24, 1999. Although this model predicted impacts lower than impacts predicted with ISC, they were still significant. The change in visibility (light extinction) while burning gas was predicted to be 5.6%. The change in visibility (light extinction) while burning fuel oil was predicted to be 27.2%. FWS considers a change of greater than 5% to be significant and a potential adverse impact to the Class I area. At this time we reiterated JEA's options (see above). JEA stated its intention of doing a CALPUFF analysis, a refined version of CALPUFF-Lite.

On July 19, 1999, in a phone conversation with JEA, we learned that they had not yet started the CALPUFF analysis. However, JEA requested that the Florida Department of Environmental Protection issue an intent to permit the project on August 15. We advised JEA that, if they do not demonstrate by that time that the project's emissions would not significantly contribute to regional haze, we would object to the project. JEA agreed to start the CALPUFF analysis immediately. In addition, JEA agreed to accept as a permit condition the shut-down of their Southside Generating Station, 15 km south of Brandy Branch. JEA believes that the Southside shut-down would result in an emissions decrease that would more than offset new emission impacts from Brandy Branch. We stated our support of the shut-down, as it would result in a high-emitting facility being replaced by a more efficient and lower-emitting facility. We noted that such offsets should result in a net benefit to air quality at the Class I area, and that this should be demonstrated by modeling.

In summary, JEA must demonstrate to us that the proposed Brandy Branch project will not cause additional visibility impairment at Okefenokee Wilderness. JEA has a variety of options for doing this, including choosing not to proceed with the project, reducing the project's emissions, offsetting the project's emissions with the shut-down of Southside Station, and conducting a more refined modeling analysis. If refined modeling still predicts a significant contribution to visibility impairment from the project, FWS will consider the magnitude, duration, and frequency of impacts, and other factors in making an adverse impact determination.

Contact: Ms. Ellen Porter, Air Quality Branch (303)969-2617.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

1875 Century Boulevard
Atlanta, Georgia 30345

August 30, 1999

IN REPLY REFER TO:

Re: PSD-FL-267

Mr. C. H. Fancy
Chief, Bureau of Air Regulation
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee, Florida 32399-2400

RECEIVED

SEP 07 1999

BUREAU OF AIR REGULATION

Dear Mr. Fancy:

Our Air Quality Branch has reviewed the visibility analysis and additional information submitted by Jacksonville Electric Authority (JEA) pertaining to its Brandy Branch project in Baldwin, Florida. As you know, in our August 3, 1999, technical review document, we expressed concern that the Brandy Branch project would significantly affect visibility in Okefenokee Wilderness, a Class I air quality area, administered by the Fish and Wildlife Service. We encouraged JEA to shut down their Southside Generating Facility, thereby offsetting potential impacts from the proposed Brandy Branch project.

We are pleased that JEA has selected this option and agree that it will result in a net benefit to air quality and visibility in Okefenokee. The technical review comments from our Air Quality Branch are enclosed.

The technical review document also summarizes our concerns regarding predicted exceedances of the Class I sulfur dioxide increments in Okefenokee. We recommend that your Department determine the causes of those exceedances and take actions to remedy them.

Thank you for giving us the opportunity to comment on this permit application. We appreciate your cooperation in notifying us of proposed projects with the potential to impact the air quality and related resources of our Class I air quality areas. If you have questions, please contact Ms. Ellen Porter of our Air Quality Branch in Denver at (303) 969-2617.

Sincerely yours,

for Sam D. Hamilton
Regional Director

Enclosure

cc: NED
Dural Co
EPA
M. Halpin, BAR

**Technical Review of Visibility Analysis and Additional Information
for Jacksonville Electric Authority's Brandy Branch Generating Station
Baldwin, Florida**

by

Air Quality Branch, Fish and Wildlife Service – Denver
August 11, 1999

PSD-FL-267

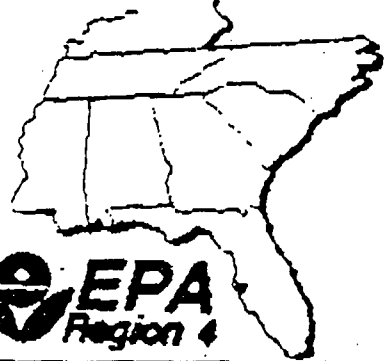
We have reviewed the visibility analysis and additional information supplied to us regarding Jacksonville Electric Authority (JEA)'s proposed Brandy Branch Project, 34 km southeast of Okefenokee Wilderness. Our August 3, 1999, technical review document summarized our concerns for potential impacts from this project to air quality related values, specifically visibility, in Okefenokee. At that time, we noted that JEA should consider several options to mitigate potential visibility impacts, including shutting down their Southside Generating Station and using the subsequent emissions decrease to offset the new emissions expected at the Brandy Branch Station. We supported this option, as it would result in a high-emitting, poorly controlled, and inefficient facility (fueled by oil) being replaced by a lower-emitting, rigorously controlled, and more efficient facility (fueled primarily by natural gas, with oil as back-up).

We understand that JEA has selected this option and will accept as a permit condition for Brandy Branch the shutdown of Southside. We also understand that the Florida Department of Environmental Protection (FDEP) supports this alternative. In addition, JEA has demonstrated that this option will result in a net benefit to air quality and visibility at Okefenokee. JEA performed a CALPUFF-Lite modeling analysis that predicted that the Southside Station causes an 84% change in light extinction (a measure of visibility impairment) at Okefenokee; the proposed Brandy Branch facility would cause a 5% change in light extinction while burning natural gas, and a 20% change in light extinction while burning oil. Shutting down Southside will therefore result in a net benefit to visibility, while allowing electrical generation to continue.

We have also reviewed the Class I increment analysis for the proposed project. The ISCST3 analysis predicted that Brandy Branch emissions would contribute significantly to consumption of the 3-hour and 24-hour sulfur dioxide (SO₂) Class I increments. As required by FDEP, JEA then performed a cumulative analysis, modeling all increment-consuming sources in the area. The cumulative analysis predicted exceedances of both the 3-hour and 24-hour SO₂ Class I increments. Brandy Branch, however, did not contribute significantly to increment consumption on the days of the exceedances. We recommend that FDEP determine which sources are contributing significantly to the exceedances and take actions to remedy the exceedances.

Contact: Ellen Porter, Air Quality Branch (303) 969-2617.

Copy: File in ~~JEAR~~ JEA Brandy Branch
Mike
Teresa
Jeff



facsimile TRANSMITTAL

FAX: Bert Gianazza of JEA
Jamie Hunter of TECO



Mississippi, Tennessee, Alabama, Georgia, Florida, Kentucky, South Carolina, North Carolina

To: AL Liness

Fax #: 850-922-6979

Subject: Brandy Branch

From: Kathy Foreney / Jim Little Phone#: 404-562-9130

Date: 9-10-99

Pages: 4, including this cover sheet.

COMMENTS:

Note to all recipients -

This gives you a pretty good idea of how EPA views some of our most recent conditions on simple cycle projects. Be ready for similar comments on all of the rest.

AL



Air & Radiation Technology Branch
U.S. Environmental Protection Agency
61 Forsyth Street, SW, 12th Floor
Atlanta, Georgia 30303

404-562-9105
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

SEP 10 1999

4 APT-ARB

Mr. A. A. Linero, P.E.
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

SUBJ: Preliminary Determination and Draft Permit for Jacksonville Electric Authority - Brandy Branch Project (PSD-FL-267) located in Duval County, Florida

Dear Mr. Linero:

Thank you for sending the preliminary determination and draft permit dated August 11, 1999, for the above referenced facility. The preliminary determination is for the proposed construction and operation of a new electric power generating station consisting of three simple cycle combustion turbines (CTs) with a nominal generating capacity of 170 MW each. The combustion turbines proposed for the facility are General Electric (GE), frame 7FA units. Additional equipment will include the following: three 1 million gallon fuel oil storage tanks and one small diesel fire-water pump. The CTs will primarily combust pipeline quality natural gas with No. 2 fuel oil combusted as backup fuel. The fire-water pump will combust only diesel fuel. Each CT will be allowed to fire natural gas a maximum of 4,000 hours per year and will be allowed to fire No. 2 fuel oil a maximum of 750 hours per year. Total emissions from the proposed project are above the thresholds requiring Prevention of Significant Deterioration (PSD) review for nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (PM/PM₁₀) and sulfuric acid mist (SAM).

Based on our review of the preliminary determination and draft permit, we have the following comments:

1. The NO_x BACT emission limit, when burning natural gas in the combustion turbines, is 10.5 ppmvd (15% oxygen). Region 4 has recently reviewed several GE 7FA dual-fuel simple cycle combustion turbine projects with a proposed BACT emissions limit of 9 ppmvd for NO_x, three of which are located in Florida (Oleander, Hardee Power, FPC-Intercession City). If the Brandy Branch facility is significantly different from these other facilities, documentation of this difference should be included in the department's final determination.
2. In condition 21 of the draft permit, the emission rate for NO_x is set as 69.3 lb/hr on a 24-hr block average as measured by CEMS. Since the proposed CTs will run in simple cycle mode and will seldom operate for 24 consecutive hours, the averaging period for this emission limit

should be much shorter, consistent with the 3-hour averaging period proposed for fuel oil combustion. Additionally, compliance with the 10.5 ppmvd limit should be demonstrated using the CEMS on the basis of a short-term average instead of with an annual stack test as stated in the draft permit. Including a short-term limit on a lb/hr basis and on a ppmvd basis will provide an emissions cap and a compliance value for any operating load.

3. Conditions 14 and 15 express the fuel usage limits in Btu/yr during any consecutive 12 months. It is unclear if this limit refers to the total Btu/yr for all turbines or for each individual turbine. The fuel usage limits should be expressed on a per combustion turbine basis. Additionally, it is unclear if the "4,000 hours during any calendar year" in Condition 13 refers to each unit or all three total. This condition should be reworded to indicate that it applies to individual turbines, and the phrase "calendar year" should be replaced with "consecutive 12 months" to be consistent with Conditions 14 and 15.
4. The cost analysis for SCR uses NO_x emissions of 12 ppm as the baseline and calculates the cost effectiveness of using SCR with controlled NO_x emissions at an assumed level of 5 ppm. In other words, the applicant does not base tons per year reduced on a specific control efficiency value. We note that the applicant's approach yields a control efficiency of about 59 percent, which is at the low end of the control efficiencies we have previously seen for SCR control.
5. In table 4-3 of the SCR cost analysis (page 4-9 of the application), the Direct Annual Costs list both a "Power Consumption" and a "Lost Power Generation" figure in the cost calculation. Although it is appropriate to calculate the cost of using additional natural gas to compensate for the power consumption resulting from pressure drops across the catalyst bed, lost revenue should not be included in the cost analysis. It is unclear in this calculation whether lost revenue was taken into account. If this is the case, the lost revenue figure should be omitted from the cost analysis.
6. In the economic analysis section of the application, an interest rate of 8% was used to calculate the cost recovery factor. This interest rate may be appropriate for the Brandy Branch Facility; however, it should be noted that the current version of the U.S. Environmental Protection Agency's (EPA's) *OAQPS Control Cost Manual* uses an interest rate of 7 percent.
7. The proposed BACT limit, found on page 8 of the draft permit, for particulate matter (PM₁₀) is 10% opacity for visible emissions. This visible emissions opacity limit is proposed as a surrogate for a BACT particulate matter emissions rate limit. It is acceptable to use the 10% opacity limit as a surrogate for monitoring and recordkeeping; however, the permit conditions also should list the corresponding emission rate for particulate matter.
8. As indicated in condition 24 and 26 of the draft permit, FDEP is proposing to allow excess emissions due to startup, shutdown or malfunction for up to 2 hours in any 24-hour period and for a 20% opacity limit of visible emissions. This proposal is inconsistent with FDEP's

3

preliminary determination for Kissimmee Utility's Cane Island Power Park (January 1999) which only allowed excess emissions from a simple cycle combustion turbine for 1 hour in any 24-hour period. Additionally, it is EPA's policy that BACT applies during all normal operations and that automatic exemptions should not be granted for excess emissions. Startup and shutdown of process equipment are part of the normal operation of a source and should be accounted for in the planning, design, and implementation of operating procedures for the process and control equipment. Accordingly, it is reasonable to expect that careful and prudent planning and design will eliminate violations of emission limitations during such periods.

9. In section 5.4 (Visibility/Region Haze Analysis) of the permit application, CALPUFF modeling with ISCST3 meteorological data (CALPUFF Lite) was used to address regional haze impacts from this facility. This additional modeling was provided to the U.S. Fish and Wildlife Service (FWS) - administrator for both the Okefenokee and Wolf Island Class I areas. The modeling showed regional haze at Okefenokee significantly impacted by the project. Based on these results, JEA has agreed to shut down their Southside facility to provide air quality offsets. As requested by the FWS, CALPUFF modeling of the Southside and Brandy Branch emissions are needed to demonstrate that the proposed Brandy Branch project will not cause any additional visibility impairment at Okefenokee.

Thank you for the opportunity to comment on the Brandy Branch facility preliminary determination and draft permit. If you have any questions regarding these comments, please direct them to either Katy Forney at 404-562-9130 or Jim Little at 404-562-9118.

Sincerely,



R. Douglas Neeley
Chief

Air and Radiation Technology Branch
Air, Pesticides and Toxics
Management Division