

Jeb Bush
Governor

Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

June 5, 2003

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Walter P. Bussells, Managing Director and CEO
JEA
21 West Church Street
Jacksonville, Florida 32234

Re: DEP File No. PSD-FL-310, PA 00-43
Brandy Branch Facility Duct Burner Size Increase

Dear Mr. Bussells:

The Department reviewed your request dated March 12, 2003 to modify the PSD Permit relative to the revised duct burner sizes for Emission Units 002 and 003. The Department notes that the units are under construction, the subject duct burners may only fire natural gas, and no increase in the hours of operation has been sought. According to the supplied information, the Department has concluded this request is acceptable as indicated herein.

Permit PSD-FL-310 is hereby modified as follows:

Section III, Condition 4:

ARMS Emissions Units 002 and 003. Direct Power Generation, each consisting of a nominal 170-megawatt combustion turbine-electrical generator, shall comply with all applicable provisions of 40CFR60, Subpart GG, Standards of Performance for Stationary Gas Turbines, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The Subpart GG requirement to correct test data to ISO conditions applies. However, such correction is not used for compliance determinations with the BACT standard(s). Additionally, each Emissions Unit consists of a supplementally-fired heat recovery steam generator equipped with a natural gas fired 85-170 MMBTU/hr duct burner (HHV) and combined with one 200 MW steam electrical generator. ~~The duct burners shall comply with all applicable provisions of 40CFR60, Subpart Dc, Performance Standards for Small Industrial-Commercial-Institutional Steam Generating Units, adopted by reference in Rule 62-204.800(7), F.A.C.~~ The duct burners shall comply with all applicable provisions of 40CFR60, Subpart Db, Standards of Performance for Electric Utility Steam Generating Units Which Construction is Commenced After September 18, 1978, adopted by reference in Rule 62-204.800(7), F.A.C.

Section III, Condition 9:

Heat Recovery Steam Generators Equipped with Duct Burners: The maximum heat input rate of each natural gas fired duct burner shall not exceed ~~85~~ 170 MMBtu/hr (HHV). {Permitting note: The heat input limitations have been placed in the permit to identify the capacity of each emissions unit for purposes of confirming that emissions testing is conducted within 90-100 percent of the emission unit's rated capacity (or to limit future operation to 110 percent of the test load), to establish appropriate limits and to aid in determining future rule applicability. Regular record keeping is not required for heat input. Instead, the owner or operator is expected to determine heat input whenever emission testing is required, to

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demonstrate at what percentage of the rated capacity that the unit was tested.) [Applicant Request, Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]

Section III, Condition 22:

22. Volatile Organic Compounds (VOC) Emissions: Emissions of VOC in the stack exhaust gas (baseload at ISO conditions) with the combustion turbine operating on gas shall not exceed ~~3.49~~ 6.81 lb/hour (4.0 lb/hour with duct burners off) and with the combustion turbine operating on oil shall not exceed 7.68 lb/hr, to be demonstrated by initial stack test using EPA Method 18, 25 or 25A. Thereafter, continuous monitoring of CO shall represent a surrogate for VOC emissions and provide assurance that the emission rates of the BACT Determination is not required are being met. [~~PSD Avoidance, Rule 62-212.400, F.A.C. BACT, Rules 62-4.070, 62-212.400, and 62-204.800(7), F.A.C.~~]

Section III, Condition 24:

24. PM/PM₁₀ and Visible emissions (VE): VE emissions shall not exceed 10 percent opacity from the stack in use. PM/PM₁₀ emissions from each combustion turbine and HRSG train shall not exceed ~~20.6~~ 22.02 lb/hr at 100% output firing natural gas with the duct burner on and 62.1 lb/hr at 100% output firing fuel oil to be demonstrated by opacity. [BACT, Rules 62-4.070, 62-212.400, and 62-204.800(7), F.A.C.]

BACT DETERMINATION FOR VOC'S

A review of this modification indicates that the PSD Significant Emission Rate (SER) for Volatile Organic Compounds (40 tons per year) will be exceeded, when combining the emissions from the simple cycle unit with both combined cycle units and duct burners. Accordingly, this modification also represents the Department's Final BACT Determination for VOC emission rates for each unit.

Discussion

VOC emissions result from incomplete combustion when firing natural gas and distillate oil. Large combustion turbines offer high temperatures with efficient combustion resulting in relatively low levels of volatile organic compounds. Similar to the control of carbon monoxide, catalytic oxidation systems are available for reducing VOC emissions from gas turbines. Catalytic oxidation systems can achieve emissions reductions approaching 90% depending on the uncontrolled inlet VOC emission rate. However, upon reviewing BACT for CO emissions (within the original PSD application), the applicant concluded (and the Department agreed) that such a system was not cost effective.

Applicant's Proposal

The applicant proposes the following emissions standards based on efficient combustion of natural gas and distillate oil and good operating practices for the gas turbines.

- Oil Firing: 7.68 lb/hr
- Gas Firing: 4.0 lb/hr
- Gas Firing with Duct Firing: 6.81 lb/hr

The applicant proposes to demonstrate initial compliance with the standards by conducting performance tests in accordance with EPA Methods 18, 25, and 25A. Thereafter, CO will be used as a surrogate.

Department's VOC BACT Determination

As noted above, the Department agreed that a catalytic oxidation system was not cost effective for the control of CO emissions. Additionally, the increased VOC emissions as a result of this modification (approximately 15 TPY) do not give rise to a differing conclusion. Therefore, the efficient combustion design and good operating practices are determined to represent the Best Available Control Technology for VOC. Based on the test data previously presented by other applicants, the Department believes VOC emissions will likely be lower than estimated herein. However, the Department accepts the applicant's proposal and establishes as the BACT standards:

- Oil Firing: 7.68 lb/hr
- Gas Firing: 4.0 lb/hr

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June 5, 2003

- Gas Firing with Duct Burning: 6.81lb/hr

This determination is consistent with recent determinations for combined cycle gas turbine projects in attainment areas. Initial compliance shall be demonstrated by conducting performance tests in accordance with EPA Method 25 or 25A. EPA Method 18 may also be performed to deduct emissions of methane and ethane that are excluded from the definition of "VOC".

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permit modification is issued pursuant to Chapter 403, Florida Statutes. Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68, F.S., by the filing of a Notice of Appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within (thirty) days after this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

Sincerely,



Howard L. Rhodes, Director
Division of Air Resources
Management

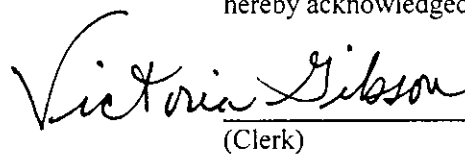
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL PERMIT (including the FINAL permit) was sent by certified mail* and copies were mailed by U.S. Mail before the close of business on 6/6/03 to the person(s) listed:

Walter P. Bussells, JEA *
N. Bert Gianazza, P.E., JEA
Gregg Worley, EPA
John Bunyak, NPS
Chris Kirts, NED
James L. Manning, P.E. RESD
Kyle Lucas, Black & Veatch
Mr. Hamilton S. Oven, DEP-Siting

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

 June 6, 2003
(Clerk) (Date)

Memorandum

Florida Department of Environmental Protection

TO: Howard L. Rhodes
THRU: Trina Vielhauer *TV*
FROM: Michael P. Halpin *MH*
DATE: June 4, 2003
SUBJECT: JEA
Brandy Branch Combined Cycle Conversion of 2 Simple Cycle CT's
DEP File No. PSD-FL-310

Attached is the final modification to Brandy Branch's PSD permit. Apparently, their environmental folks and construction engineers had crossed signals on the duct burner sizing during the conversion of the two simple cycle units. JEA permitted a total of 170 MMBtu/hr worth of duct burners (2 each 85 MMBtu/hr) whereas they intended to permit 170 MMBtu/hr duct burners on each unit. Now, the units are under construction, the (larger) duct burners are being purchased and they've realized the error.

Notice was published, and only one comment was received from the National Park Service (regarding a BACT Determination for VOC) which has been addressed. Accordingly, I recommend your approval of the attached modification.

Attachments

/mph

Howard,
Mike spoke with EPA & NPS about their
comment. It does not change any limits or technologies
from draft permit.

Trina

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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Walter P. Bussells
 CEO & Managing Director
 Jacksonville Electric Authority
 21 West Church Street
 Jacksonville, FL 32202

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) *J. Richardson* B. Date of Delivery *6/10/03*

C. Signature *J. Richardson* Agent Addressee

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PS Form 3800, January 2001

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