



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
REGION 4  
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4APT-APB

MEMORANDUM

To: Interested Parties

From: Jim Little - Air Permits Section, Region 4 (404-562-9118)

Subj: Tampa Electric Company, Big Bend Carbon Burnout Project

Date: January 20, 2006

This memo addresses the question of new source review (NSR) applicability for the proposed carbon burnout project at the Tampa Electric Company (Tampa Electric) Big Bend station. This memo represents the views of the U.S. Environmental Protection Agency (EPA), Region 4, Air Permits Section.

A. Conclusions

1. The opinion of the Region 4 Air Permits Section is that the fluidized bed combustor within the carbon burnout project can be viewed as a physical change of the existing Big Bend Units 3 and 4 subject to the additional considerations below. Units 3 and 4 meet the regulatory definition of an electric utility steam generating unit (EUSGU).
2. New source review (NSR) applicability for that part of the carbon burnout project representing a physical change of Units 3 and 4 can be assessed using current Florida rules that incorporate federal WEPCO rule provisions. To assess NSR applicability for physical changes of EUSGUs, Florida rules allow comparison of actual annual emissions prior to the change with representative actual annual emissions after the change. (The definition of representative actual annual emissions is incorporated by reference to federal rules in 40 CFR 52.21 that were in effect at the time Florida's current rules were adopted. The term no longer exists in current federal rules that have not yet been implemented by Florida.)
3. Actual emissions from Units 3 and 4 prior to development of the carbon burnout project can be based on total actual emissions from Units 3 and 4 within a recent two-year period without any adjustments that take into account the Consent Decree between the federal government and Tampa Electric Company.

B. Basis for Concluding that Fluidized Bed Combustor is a Physical Change of Units 3 and 4

1. Boiler feedwater from Units 3 and 4 will be heated by heat from the fluidized bed combustor component of the carbon burnout system. Furthermore, exhaust gases from the fluidized bed combustor will be vented through the flue gas desulfurization (FGD) system that serves to control sulfur dioxide emissions from Units 3 and 4. These gases and will then enter the atmosphere through the Units 3 and 4 stacks.
2. Consideration of the fluidized bed combustor as a modification of Units 3 and 4 would be voided if the combustor were operated when both units were not in operation. (Operation of just one unit would be acceptable.) Another way of saying this is that operation of the fluidized bed combustor in stand-alone mode would void consideration of the combustor as a physical change of Units 3 and 4. In addition, consideration of the combustor as a physical change of Units 3 and 4 would be voided if the exhaust gases from the combustor were to bypass the FGD system that serves Units 3 and 4.
3. Components of the carbon burnout system other than the fluidized bed combustor (for example, the high carbon fly ash silo and product ash storage area) should be considered as new emissions units and not as part of Units 3 and 4.

C. Calculation of Emissions Changes for NSR Applicability Purposes

1. By virtue of viewing the fluidized bed combustor as a physical change of Units 3 and 4, all regulated NSR pollutants emitted by Units 3 and 4 must be assessed for NSR applicability. In other words, the applicability assessment should not be restricted just to those regulated NSR pollutants such as nitrogen oxides (NO<sub>x</sub>) emitted from the fluidized bed combustor in greatest quantities.
2. Consistent with current Florida regulations for electric utility steam generating units, the emissions increases (or decreases) for Units 3 and 4 can be calculated by comparing actual emissions prior to the change with representative actual annual emissions after the change. (Florida has not yet adopted federal NSR rule revisions that incorporate the term “projected actual emissions” in place of “representative actual annual emissions.” The terms are equivalent for purposes of this project, however.)
3. The key to NSR applicability for this project is the method for calculating past actual emissions for Units 3 and 4. Unless other considerations warrant a different approach, past actual emissions under current Florida rules for EUSGU’s are the actual annualized emissions that occurred during any consecutive 24 months during the five years preceding a change.
  - (a) A consideration that would warrant an adjustment to actual emissions calculated on the basis just described is a finding that past actual emissions were in violation of an air regulatory requirement. Related to this consideration, the Region 4 Air Permits

Section reviewed the Consent Decree between the federal government and Tampa Electric and also reviewed the complaint and the notice of violation associated with the Consent Decree. We did not find a specific allegation that Units 3 and 4 were in violation of an air regulatory requirement.

- (b) We also took into account Condition No. 7 in Amendment 1 of the Consent Decree related to “Netting.” This condition holds that netting credits are not produced by emissions reductions at the Big Bend Station unless reductions are achieved that are better than certain threshold levels specified in the condition. In our opinion, calculation of emissions increases or decreases for a changed EUSGU using the actual-to-actual approach is not a netting calculation. Therefore, Condition No. 7 is not applicable to an assessment of NSR applicability for the carbon burnout project unless the emissions change calculation procedure outlined above indicates that netting is needed as an additional step to avoid NSR.
  - (c) As a further check, we reviewed the discussion on estimating EUSGU past actual emissions (also referred to as baseline emissions) that appears in the preamble to the federal WEPCO rule (57 FR 32323, July 21, 1992). In footnote 18 included with this discussion, EPA states the following: “The level of baseline emissions selected must be consistent with current assumptions regarding the source’s emissions that are used under the SIP [state implementation plan] for planning or permitting purposes. Thus, the source may not select a level of baseline emissions higher than that used by the permitting authority in issuing a PSD [prevention of significant deterioration] or other construction permit to a source in the area, if such higher level would result in a NAAQS [national ambient air quality standards] or increment violation, or violate a visibility limitation.” So far as we know, use of unadjusted past actual emissions from Units 3 and 4 would be consistent with this consideration. Verification by the Florida Department of Environmental Protection on this point is advisable.
4. Separate actual-to-actual emissions calculations should be made for Unit 3 and for Unit 4 unless the current title V permit for the units establishes combined emissions limits. The separate calculations would then be summed to arrive at total emissions increases or decreases from the two units. Making separate calculations may cause some difficulty in allocating the contribution from the fluidized bed combustor to each unit. Allocation on the basis of the quantity of feedwater going to each unit is a possible approach.
  5. The NSR applicability assessment must include potential emissions from all components of the carbon burnout project other than the fluidized bed combustor. Therefore, the overall increase or decrease in emissions from the carbon burnout project consists of the actual-to-actual emissions change for Units 3 and 4 plus the potential emissions from the non-combustor components of the carbon burnout project.

#### D. Project Sequence Consideration

To take credit for any reductions in emissions from Unit 3 or Unit 4 when assessing NSR

applicability for the carbon burnout project, these reductions must occur before emissions from the carbon burnout project begin. We understand that reductions from Unit 4 will occur before the carbon burnout project begins operation.

E. Use of Unit 3 and Unit 4 Selective Catalytic Reduction Systems

Tampa Electric has expressed concern about the feasibility of routing exhaust gases from the carbon burnout fluidized bed combustor through the Unit 3 and Unit 4 selective catalytic reduction (SCR) systems. Such routing would allow NO<sub>x</sub> emissions from the combustor to be at least partially controlled. We recommend that further consideration be given to the feasibility of controlling combustor NO<sub>x</sub> emissions continuously by SCR. As an alternative, further consideration should be given to the feasibility of selectively routing combustor exhaust gases through the SCR systems when doing so will not interfere with Units 3 and 4 boiler or SCR operation.