TAMPA ELECTRIC

RECEIVED
MAY 31 2005
BUREAU OF AIR REGULATION

May 27, 2005

Ms. Teresa Heron
Florida Department of Environmental Protection
Division of Air Resource Management
111 South Magnolia, Suite 4
Tallahassee, FL 32301

Via FedEx
Airbill No. 7916 3709 1090

Re: Tampa Electric Company
Big Bend Station
Title V Air Operation Permit Revision Project No.: 0570039-019-AV
Air Construction Permit Modification Project No.: 0570039-018-AC
Request for Additional Information
Fuel Transloading and Unit 4 CO Emission Limit

Dear Ms. Heron:

Tampa Electric Company (TEC) has received your letter dated January 20, 2005 requesting additional information with regard to the air construction permit application addressing fuel transloading and the removal of the Big Bend Station Unit 4 CO emission limit. This correspondence is intended to provide a response to each specific issue raised by the Department of Environmental Protection (Department). For your convenience, TEC has restated each point and provided a response below each specific issue.

Department Comment 1:
Transloading of Solid Fuel: Please review Subsection H of FINAL Title V permit 0570039-017-AV and refer to Description and Specific Condition H.2 (d) and (e) and (f). Please clarify the exact changes requested in this condition to conform to the future transloading practices requested.

TEC Comment 1:
To allow for fuel transloading to other facilities, in addition to TEC facilities, TEC suggests the following language in bold font be incorporated into the Title V Air Operation permit:

Subsection H. Solid Fuel Yard
Descriptions

Solid fuel is unloaded from ship/barge into the solid fuel yard, the blending bins or directly to the tripper room via belt conveyors. ***The solid fuel can be loaded into trucks and exported to other facilities including Tampa Electric facilities. For use at Big Bend Station,*** *solid fuel from the piles is loaded onto belt conveyors using a rail mounted or mobile reclaimer. The solid fuel is then belt conveyed to the blending bins, which consists of six storage bins, where the solid fuel may be blended for use at the plant, or transloaded into trucks for shipment off site. Particulate matter (PM) emissions from the conveyors in the blending bins are controlled by 4 rotoclones, one at the conveyor drop, and one for every 2 bins. Blending bins can either feed the transloader, or solid fuel can be conveyed, via 2 parallel belts (T1, T2)*

TAMPA ELECTRIC COMPANY
P. O. BOX 111 TAMPA, FL 33601-0111
(813) 228-4111

AN EQUAL OPPORTUNITY COMPANY
HTTP://WWW.TAMPAELECTRIC.COM

CUSTOMER SERVICE:
HILLSBOROUGH COUNTY (813) 223-0800
OUTSIDE HILLSBOROUGH COUNTY 1 (888) 223-0800

to 2 crushers (each belt has a crusher), or diverted directly to the tripper room. PM emissions from the 2 crushers and transfer tower are controlled by 2 rotoclones.

From the tripper room, 2 trippers bunker the solid fuels into 4 solid fuel bunkers. Each unit has its own respective bunker. From the bunkers, the solid fuel is gravity fed into 14 mills, and then fed into the boilers. There are 3 ball mills, each for Unit Nos. 1 – 3, and 5 bowl mills for Unit No. 4. From the mills, the solid fuel is pneumatically fed into classifiers, two for each mill on Unit Nos. 1-3 and one for each mill on Unit No. 4 for a total of 23 classifiers, and then into the respective boilers.

H.2. Particulate matter emissions from the solid fuel handling facilities:

(d) From each fuel transloading source/emissions point (i.e., off-loading and loading of fuel {for export from Big Bend Station}), the maximum hourly transloading transfer of fuel shall not exceed 4,000 tons, 24-hour rolling average.

(e) From each fuel transloading source/emissions point, (i.e., off-loading and loading of fuel {for export from Big Bend Station}), the maximum annual transloading transfer of fuel shall not exceed 1,428,030 tons.

(f) The number of railcars and trucks and the quantity of fuel loaded by each fuel transloading source/emissions point (i.e., off-loading and loading of fuel {for export from Big Bend Station}) shall be recorded, maintained, and kept on fuel for a minimum of five years. The annual quantity of fuel loaded by each fuel transloading source/emissions point shall be submitted in the Annual Operation Report. [Power Plant Siting Certification PA 79-12]*

*[*Permitting Note:* **The solid fuel can be loaded into trucks and exported to other facilities including Tampa Electric facilities.**]*

Department Comment 2:
Some of the changes requested in the Title V permit were already made in the above referenced permit. Some of the changes requested were based on a draft version of the same permit. Please reconcile your most recent requested changes with the DRAFT and FINAL version of the Operation Permit 0570039-017-AV. Resubmit your request marked to the Final Permit. Include the rationale for each change.

TEC Comment 2:
Attachment A contains TEC's requested changes to the Title V Air Operation permit reconciled with the DRAFT and FINAL versions of the Title V Air Operation permit 0570039-017-AV. In addition, TEC has included the rationale for each change.

Department Comment 3:
Unit 4 - Removal of CO emission Limit: Annual testing of CO testing for Unit 4 appears to be required based on the Common Conditions included as Subsection N of the Title V Permit. Condition N.8.(a)4. states, "During each federal fiscal year (October 1 -- September 30), unless otherwise specified by rule, order, or permit, the owner or operator of each emissions unit shall have a formal compliance test conducted for:

b. Each of the following pollutants, if there is an applicable standard, and if the emissions unit emits or has the potential to emit: 5 tons per year or more of lead or lead compounds measured as elemental lead; 30 tons per year or more of acrylonitrile; or 100 tons per year or more of any other regulated air pollutant.

The potential to emit CO from Unit 4 is over 400 tons per year based on the PSD and Certification Limits of 124 pounds per hr and 0.029 lb/mmBtu incorporated into the Title V Permit as Specific Condition

B.10. Therefore the rationale to remove the CO limit simply because of the perception that no testing is required does not appear to be valid. It is clear that the original project triggered PSD for CO and that a BACT limit is applicable.

TEC Comment 3:
It may have appeared that TEC's rationale to remove the CO limit was simply because of the perception that no testing is required for CO. However, TEC's intent was to clarify the fact that the CO limit is no longer appropriate, there is no reason to perform stack testing for CO, and no such testing was ever intended; as such, the CO emission limit should be removed from the permit to avoid any further confusion.

Based on the original PSD permit application for Big Bend Unit 4, TEC strongly believes that the CO emission limit should be removed and that annual testing is not required. After a lengthy public notice and comment period in the early 1980's, the CO monitoring and testing requirements were removed from the draft permit. Although the PSD permit (PSD-FL-040) was modified to correct the CO emission limit, it did not specifically require a method of compliance and still does not specifically require a method of compliance. The permit condition the Department refers to in Comment 3, Subsection N of the current Title V Permit, Common Condition N.8.(a)4. states, "During each federal fiscal year (October 1 -- September 30), unless otherwise specified by rule, order, or permit,...". The PSD-FL-040 permit, by its history, terms, and implementation, "otherwise specifies" that no compliance testing is required for CO. Therefore, Common Condition N.8.(a)4 does not operate to impose a testing requirement for CO. Since Big Bend Unit 4 is a subpart Da unit, TEC reviewed 40 CFR 60.46a – Compliance Provisions, 40 CFR 48a – Compliance determination procedures and methods, and 40 CFR 49a – Reporting Requirements for PM, SO_2 and NO_x, which were cited in the PSD permit and found that there were no specified test methods for CO in these sections of 40 CFR 60.

It is clearly apparent there is a common understanding between TEC and the Environmental Protection Commission of Hillsborough County (EPCHC) that CO testing is not required. This observation is based on the EPCHC's response to TEC's initial certification testing, in which CO testing was not performed. In addition, TEC has received several subsequent responses from EPCHC regarding the stack test submittals for Big Bend Unit 4 stating that all of the stack test requirements were met. A copy of this information is enclosed in Attachment B.

Therefore, CO testing has never been required for Big Bend Unit 4, and the CO limit should be removed to avoid confusion. Further, CO emission testing serves no purpose because CO emission levels are highly variable. In theory, boilers can mix air with fuel at a stoichiometric amount of oxygen for the combustion process. In practice, for safety and other considerations combustion conditions dictate the amount of additional or "excess air" that must be supplied to assure that all fuel is burned. Combustion efficiency (i.e., heat rate) is improved by operating the boiler with a minimum amount of excess air. However, insufficient combustion air will result in incomplete combustion. Balancing the combustion conditions is not a simple engineering task, because increased oxygen may reduce CO emissions but in turn lead to possible increases in NO_x emissions. In addition, the CO emission limit for Big Bend Unit 4 is not appropriate and should be removed for the reasons set forth below in response to Department Comment 4.

Department Comment 4:
Please provide an explanation for the claim in the application that the existing BACT CO value is inconsistent with the installation of the Low NO_X burners (LNBs), Supplementary Overfire Air (SOFA), and Selective Catalytic Reduction (SCR). It would appear that the SOFA system can promote the

necessary burnout following the LNB. Please provide some of the historical CO measurements including any taken recently for the design of the mentioned projects.

TEC Comment 4:

The existing CO emissions limit cited in the Title V permit is 0.029 lb/MMBtu and 124 lbs/hr. As shown in the table in Attachment C, this value is not consistent with current national and state CO BACT determinations. Although the value may have been appropriate at the time Big Bend Unit 4 was permitted, subsequent agreements between the Environmental Protection Agency (EPA) and the Department which mandated early NO_x control strategies have rendered this value unsuitable for current operations. As a result of these agreements (EPA Consent Decree and the Department's Consent Final Judgment), TEC installed low NO_x burners (LNB), modified the existing close coupled over-fired air (CCOFA) system and installed a separate over-fired air (SOFA) system on Big Bend Unit 4. The results of these actions have significantly reduced the level of NO_x emitted from the Big Bend Unit 4 by approximately 50% as compared to 1998 levels and even greater as compared to the annual regulatory limit of 0.45lbs/MMBtu.

Several technical papers are provided in Attachment D, which document typical industry experiences with LNB systems and their impacts on CO emissions. These papers demonstrate that a CO emission limit of 0.029 lb/MMBtu and 124 lbs/hr are simply not achievable while a LNB system is in operation. It should also be noted that these technical papers were presented at major conferences where manufacturers and suppliers highlight their systems. Some excerpts from those technical papers include:

- Operating Results from Foster Wheeler's New Vortex Series Low NO_x Burners; *"In general, it can be expected that CO emissions are below 200 ppm after fine-tuning of the firing system at high OFA flows."*

- Anatomy of a Successful Combustion Optimization Project (Energy Research Center); For reference plant A, *"State regulations limit CO emissions to 0.166 lbs/MMBtu on a 24-hour daily average. This corresponds to a CO concentration limit of approximately 160 ppm.....CO emissions were maintained below the regulatory limit".*

Thus, the current CO limit of 0.029 lb/MMBtu and 124 lbs/hr, or approximately 29 ppm, is not appropriate, given the installation of the LNB, CCOFA, and SOFA systems. TEC does not anticipate any direct relationship between the CO emissions and the SCR. However, in-furnace reduction of NO_x emissions can result in a more efficient and smaller SCR, which has the co-benefit of consuming less ammonia and accordingly reducing levels of ammonia slip from the process.

TEC understands that with the submission of this additional information, the Department will continue processing our air construction permit application for the fuel transloading and the removal of the Unit 4 CO emission limit projects at the Big Bend Station. If you have any further questions regarding this matter, please contact me or Shelly Castro at (813) 228-4408.

Sincerely,

Byron T. Burrows
Manager- Air Programs
Environmental, Health & Safety

EHS/rlk/SSC220

Enclosures

c/enc: Mr. Jim Little - EPA
Mr. Scott Sheplak - FDEP
Mr. Jason Waters - FDEP SWD
Mr. Al Linero - FDEP
Ms. Alice Harman - EPCHC