UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

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Ms. Patricia G. Adams
Planner
Bureau of Air Quality Management
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: TECO Power Services Corp./Seminole Electric Cooperative Hardee Power Station/Power Plant Siting Application PSD-FL-140

Dear Ms. Adams:

This is to acknowledge receipt of the above referenced faility's application for a prevention of significant deterioration (PSD) construction permit, transmitted by your letter dated July 5, 1989. As discussed between Mr. Barry Andrews of FDER and Gregg Worley of my staff on July 27, 1989, we have the following comments regarding this application.

Modeling/Monitoring

Based on the PSD significant air monitoring impact levels, the source is required to monitor for ozone and sulfur dioxide (SO_2). Florida has granted an exemption for both pollutants based on the rural nature of the site. We do not agree that the source should be exempt from monitoring for ozone and sulfur dioxide.

This is a large source with over 9,000 tons per year of expected SO_2 emissions from the first phase of construction. Potential VOC emissions from this phase are over 250 tons per year. The site is only 9 kilometers from Hillsborough County, an ozone nonattainment area. For both SO_2 and ozone monitoring, unless regional monitoring data can be justified as representative, preconstruction monitoring should be required.

SO_2 BACT Analysis

The applicant proposes the use of low sulfur fuel as the best available control technology (BACT) for SO_2. It is stated that the primary fuel for the project will be natural gas but that the turbines will also be capable of firing #2 fuel oil and synthetic gas (syn-gas) derived from coal gasification. The maximum emissions from the combustion of fuel oil are projected at over 16,000 tons per year of SO_2. These emissions are roughly equivalent to those expected from the combustion of syn-gas.

The permit should be conditioned so that fuel oil could be used in place of natural gas only as an emergency fuel as defined in the NSPS. Should the applicant desire to fire fuel oil on a more frequent basis, the gas streams from the turbines should be analyzed for the feasibility of flue-gas desulfurization (FGD) applications.

NO_x BACT Analysis

In evaluating alternatives for nitrogen oxides (NO_x) controls, the applicant dismissed the use of selective catalytic reduction (SCR) based on "technical considerations as well as significant economic and environmental impacts." The technical considerations addressed by the applicant appear to center on the arguments that SCR is not technically feasible for applications on simple-cycle turbines or on operations firing fuel oil.

Admittedly, SCR currently must be used in conjunction with a heat recovery steam generator (HRSG) in order to achieve the proper reaction temperature window. Thus, the operation of an SCR system, in its current stage of development, would not be technically feasible during a simple-cycle mode of turbine operation. The use of the simple-cycle mode, however, raises many questions. For example: Why is it necessary to use the simple-cycle when the use of the combined cycle mode is more efficient in terms of power production? What is the feasibility of supplemental firing of the HRSG such that the combined cycle is prepared for quick start-ups?

The applicant also claims that SCR would be technically infeasible due to the firing of fuel oil. As noted in the comments on the SO_2 BACT analysis, though, the firing of fuel oil should be limited to use as an emergency fuel. In addition, while the use of SCR when firing fuel oil may shorten the life of the catalyst and result in higher costs, the fact that the system will operate properly when fuel oil is fired is evidence that SCR is technically feasible for oil-fired applications. Recent permits issued in Rhode Island contain requirements that the SCR systems be operated both when the turbines are fired with natural gas and when they are fired with #2 fuel oil.

In the economic analysis, the applicant estimated a total annualized cost of $22,014,000 for the installation of SCR for the entire 660 MW plant. This results in a total cost effectiveness of roughly $2,000 per ton of NO_x removed, a figure that is within the range that other recently permitted turbine sources are paying for NO_x control.

The applicant then argued that "environmental benefits from installing SCR are small since the predicted impacts are much less than the PSD increment and AAQS." Controlling NO_x with SCR would,

however, reduce emissions by over 3,700 tons per year when firing natural gas. The small change in ambient impact is not justification for dismissing a control option. This is reinforced by the recent Administrative Order on PSD Appeal No. 88-11 (enclosed), which stated that the argument "that the modelled negligible impact of the proposed facility on overall air quality is an environmental impact that can be factored into the BACT analysis to justify using less than the most effective technology to control NO_x emissions. . is without merit." Likewise, environmental effects from ammonia slippage or the handling of spent catalyst do not specifically constrain this source from using the most effective control. In summary, the applicant has not demonstrated that SCR should not be considered BACT for the control of NO_x emissions from the combustion turbines.

Thank you for the opportunity to review this application. If you have any questions regarding the comments on modeling or monitoring, please contact Mr. Lew Nagler, staff meteorologist, at (404) 347-2864. Any other quetions may be directed to Gregg Worley of my staff at (404) 347-2864.

Sincerely yours,

Bruce P. Miller

Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides, and Toxics
Management DIvision

cc: TECO

cc: P. Kaval
C. Andrews
T. Penny
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CHP/BT