

# Memorandum

# Florida Department of Environmental Protection

TO: Howard Rhodes  
THROUGH: Clair Fancy  
FROM: Al Linero  
DATE: May 1, 1995  
SUBJECT: Update of Lakeland McIntosh Unit 3 issue  
PA-78; PSD-FL-8

On April 7, 1995, we received a letter (Appendix 1) from the City of Lakeland revising a previously submitted permit modification application. According to their letter, they believe we have thirty days (until May 6, 1995) to request any additional information necessary to process the application.

I met with representatives from the City along with their consultant (KBN) and their counsel (HGSS) on April 10 and discussed their revised application. I told them that the staff's recommendation was to modify the permit to add a condition requiring 70 percent (%) sulfur reduction (when burning coal) over the entire plant when emissions are 0.6 pounds per million Btu ( $\#/10^6$  Btu) heat input.

Since our subsequent meetings with them and amongst ourselves, I have reviewed a number of documents relevant to the issue. Following is a summary.

**Application to Construct McIntosh Unit 3.** The original application was submitted on February 8, 1978 (Appendix 2). Per the application, "that actual unit construction could not commence until the actual scrubber, and precipitator were approved by your (EPA) office." Comments on the scrubber mentioned an assumption of 80% scrubber efficiency and that "this figure is extremely conservative since most scrubbers claim 90% or better removal." It is apparent that EPA let the City know early that it could well have to meet more stringent SO<sub>2</sub> control requirements.

**Public Notice and Preliminary Determination for McIntosh Unit 3.** This document was transmitted to the City on November 22, 1978 (Appendix 3). It includes sulfur dioxide conditions of maximum 1.2  $\#/10^6$  Btu and a flue gas desulfurization (FGD) system with 85 percent minimum scrubbing efficiency. Reference is made to a proposed (September 19, 1978) New Source Performance Standard (NSPS) Subpart D(a) for electric utilities. EPA specifically set an NO<sub>x</sub> limit less stringent than the proposed NSPS as Best Available Control Technology (BACT) because of significant

delays which would be caused by a need to redesign the boiler. In the case of SO<sub>2</sub>, EPA performed calculations using a correlation which they developed and concluded that the type of scrubber employed by the City could achieve an efficiency of 88.8% when burning high sulfur coal.

A specific comment was made in the document that "it is not known at this time whether the new standards will apply to Unit 3, or whether the promulgated standards will be different than the proposed standards." It further states that "any future promulgation which applies to Unit 3 and is more stringent than any condition of approval will supersede the conditions of approval."

**Final Determination for McIntosh Unit 3.** The final Prevention of Significant Deterioration (PSD) and BACT Determination was issued on December 27, 1978. The conditions with respect to SO<sub>2</sub> control are the same as the the Preliminary Determination. This document (Appendix 4) represents the PSD permit which is still in force and which the City wished to modify.

**EPA letter to the City on NSPS applicability.** This letter (Appendix 5) was sent to the City on March 2, 1979 and includes a memo to the effect that McIntosh Unit 3 is not subject to the NSPS proposed on September 19, 1978. The conclusion is based on existence of contracts to commence construction which were in effect prior to the EPA's NSPS proposal. Obviously the promulgated version does not apply either. There is nothing in the letter or memo rescinding the BACT Determination which in some cases (e.g. NO<sub>x</sub>) was less stringent than the proposed NSPS.

**Guidelines for Determining Best Available Control Technology (BACT).** On June 14, 1978, EPA issued a draft document for review and comment which provides guidance to the Regions, State and Local Programs for conducting case-by-case BACT reviews. The new approach was required by the 1977 Clean Air Amendments (CAAA's). It established the NSPS's as "floors" and required reviews of more stringent control technologies when conducting BACT reviews. The final version (Appendix 6) is dated December 1978. It is obvious that EPA reviewers were influenced by the new approach and applied it to McIntosh Unit 3.

**Florida's PSD/BACT Procedures.** At about the same time, Florida was developing its own approach to BACT determinations, but was not authorized to do them for PSD permits pursuant to the 1977 CAAAs. According to an attachment to an in-house memo dated September 8, 1978, a distinction was made between Florida's and EPA's BACT procedures (Appendix 7). It states "DER's and EPA's (BACT procedures) are essentially the same except EPA's can be more stringent than NSPS." This clarifies (for example) that even

at that time non-applicability of the new NSPS Subpart D(a) does not automatically mean that an EPA permit defaults to the previous NSPS Subpart D.

**FPC Crystal River Units 4 and 5 PSD and BACT.** This PSD/BACT Determination and construction approval was made on February 27, 1978, but not sent until March 30, 1978 due to a court challenge. According to this document (Appendix 8), FPC was allowed to employ a low sulfur coal strategy to meet an emissions limit of 1.2  $\#/10^6$  Btu. It is noteworthy that it was issued before the new NSPS was even proposed. However, as part of the approval, FPC had to ratchet down its SO<sub>2</sub> emissions limits for Units 1 and 2 from 4.5 - 5.0  $\#/10^6$  Btu to 2.1  $\#/10^6$  Btu. FPC sent its application to EPA on November 30, 1977 and apparently had an extensive dialogue with EPA at about the time the 1977 CAAAs were being promulgated. It appears their issue involved trying to get a BACT determination under the previous CAA rules and was not the same NSPS issue as McIntosh Unit 3. The combination of applying NSPS Subpart D on Units 4 and 5 together with the reductions for Units 1 and 2 reduced the project impacts on SO<sub>2</sub>.

**JEA St. John River Power Park Units 1 and 2 Site Certification.** According to the Site Certification (Appendix 9) dated November 4, 1981, this project has SO<sub>2</sub> control limits of 1.2  $\#/10^6$  Btu (2-hour), 0.76  $\#/10^6$  Btu (30-day). The project complies with NSPS Subpart D and the NO<sub>x</sub> determination is actually more stringent. SO<sub>2</sub> removal of 90% must be accomplished by FGD scrubbing.

**Orlando Utilities Commission (OUC) Stanton Energy Center Unit 2.** This PSD permit was issued by EPA on December 23, 1991 (Appendix 10). The BACT for SO<sub>2</sub> was 0.25 (30-day), 0.67 (24-hour), and 0.85 (3-hour)  $\#/10^6$  Btu. FGD scrubbing is required at an efficiency of 92%. According to a recent article in the Engineering News Record the unit is easily meeting the permitted limits. It is noteworthy that OUC Stanton employs Selective Catalytic Reduction (SCR).

**McIlvaine Scrubber Manual, Volume IV, March, 1979.** The City contends that the required FGD scrubber efficiency of 85% should apply only at coal sulfur content greater than 3.3%. There is nothing to that effect in the PSD permit nor any caveats in the City's application. The Florida Site Certification indicates that coal ranging from 1-4 percent sulfur would be used. To test the ability (if not the intent) to achieve high efficiency at lower sulfur coal content, we reviewed the subject document (Appendix 11). The identical correlation used by EPA when making the McIntosh Unit 3 determination is found therein. The relationship between inlet SO<sub>2</sub> concentration and percent SO<sub>2</sub> removal is graphed and indicates that efficiency actually increases with lower SO<sub>2</sub> inlet concentration. A specific statement to that

effect is made in the accompanying text.

**BACT Determination for Power Plants. Revised NSPS.**

Based on the foregoing, it is clear that McIntosh Unit 3 is expected, required, and can achieve an 85% SO<sub>2</sub> removal efficiency at any coal sulfur content which it is likely to encounter. There is no indication that the PSD permit should be revised to bring McIntosh Unit 3 into compliance with its PSD permit. However we found the subject document dated January 10, 1979 which applies to NSPS Subpart D(a) units (Appendix 12). It opens the possibility that BACT determinations made while an applicable NSPS was only in a proposed phase, can be "reviewed against the final standard to determine if alternative (less stringent) controls would be more appropriate." A relatively conservative approach in the case of McIntosh Unit 3 would be to add a sulfur reduction requirement to 70% at 0.6 #/10<sup>6</sup> Btu. They would still be required to achieve 85% SO<sub>2</sub> scrubbing efficiency and 1.2 #/10<sup>6</sup> Btu much as Subpart D(a) requires overall 90 sulfur reduction and 1.2 #/10<sup>6</sup> Btu.

**Conclusion.** We have the authority to relax the McIntosh Unit 3 PSD permit as suggested above. If the City cannot accept this revision, the matter should be forwarded to EPA and we should argue our position to EPA.