



April 6, 1995

VIA HAND DELIVERY

Hamilton S. Oven, Jr., Administrator
Power Plant Siting Section
Florida Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, FL 32399

RE: City of Lakeland; C.D. McIntosh Unit No. 3; Supplemental Response
to Request for Additional Information Regarding Requests to Modify
Site Certification (PA-78-06) and to Revise PSD Permit (PSD-FL-8)

Dear Buck:

On January 27, 1995, you requested additional information regarding the above-referenced site certification modification request submitted by the City of Lakeland on December 7, 1994, and Prevention of Significant Deterioration (PSD) permit revision request submitted on January 4, 1995. Your January 27 information request was based on comments received from the Department's Division of Air Resources Management. The City of Lakeland subsequently responded to the request for additional information by letter dated March 9, 1995 (received by the Department on March 10, 1995). Based on a recent meeting with Clair Fancy of the Division of Air Resources Management on March 29, however, the City of Lakeland has decided to supplement that response and to modify its request to revise the PSD permit. Because the response to the Department's request for additional information is being supplemented and because the request to revise the PSD permit is being modified, the Department should have an additional thirty days within which to review the submittal and to request any additional information that is necessary to process the application.

This modified request to revise the City of Lakeland's PSD permit for C.D. McIntosh Unit No. 3 replaces the request previously submitted to the Department on January 4, 1995. A copy of the PSD permit, as proposed to be revised, is enclosed as Exhibit A.

Specifically, the City of Lakeland respectfully requests that specific condition 2.B. be revised to clarify that the 85 percent sulfur dioxide removal efficiency for the flue gas desulfurization system applies only when 3.3 percent sulfur coal is burned. The permit, which was issued by the U.S. Environmental Protection Agency (EPA), states that the flue gas desulfurization system "will operate at a minimum SO₂ removal efficiency of 85 percent." This condition contemplated that high sulfur coal would be used. Both the Site Certification and PSD permit applications stated the sulfur dioxide emissions were based on a 3.3 percent sulfur content of the coal and an 80 percent efficiency rating for the sulfur dioxide scrubber.

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The applications also state that 80 percent is the minimum efficiency required when burning 3.3 percent sulfur coal and still complying with EPA's "new" New Source Performance Standards (NSPS). The applications were referring to the *proposed* NSPS sulfur dioxide limit under Subpart Da of Title 40, Code of Federal Regulations (CFR) Part 60, which was subsequently revised to be less stringent. The *proposed* standard for sulfur dioxide emissions under Subpart Da was 1.2 pounds per million British thermal units (lb/mmBtu) and 85 percent reduction when solid fuel is fired. 43 Fed. Reg. 42175 (Sept. 19, 1978). The sulfur dioxide standard was changed in the final version of the rules, which were issued after the McIntosh Unit No. 3 PSD permit was issued, to 1.2 lb/mmBtu and 90 percent reduction *or* 70 percent reduction when emissions are less than 0.60 lb/mmBtu. 40 C.F.R. §60.43a.

As the City has stated in previous correspondence to the Department, EPA has definitively found that NSPS Subpart Da does *not* apply to C.D. McIntosh Unit No. 3 because construction had commenced prior to the date the new NSPS standards were proposed (see letters from the City to the Department dated November 10 and December 1, 1994). Nevertheless, if Unit No. 3's PSD permit is read to imply that the 85 percent removal efficiency applies at all times, even when, for example, emissions are less than 0.60 lb/mmBtu, the sulfur dioxide standard would be significantly more stringent than the NSPS Subpart Da standard. Moreover, Unit No. 3's sulfur dioxide emission limit would be significantly more stringent than sulfur dioxide limits in PSD permits for similar emission units issued during the same time frame.

For example, the PSD permit for Florida Power Corporation's coal-fired Crystal River Units ~~1 and 2~~, which was issued on March 30, 1978, has a sulfur dioxide limit of 1.2 lb/mmBtu, with *no* required scrubber or removal efficiency. Like McIntosh Unit No. 3, the Crystal River units were not subject to NSPS Subpart Da. In addition, the PSD permit for Jacksonville Electric Authority's coal-fired St. Johns River Power Park, which was issued on January 14, 1981, has a sulfur dioxide limit of 0.76 lb/mmBtu, which is the equivalent of 4 percent sulfur coal with a 90 percent removal efficiency. The JEA units, which *were* subject to Subpart Da, have a less stringent sulfur dioxide limit than McIntosh Unit No. 3 if 85 percent removal is required when low sulfur fuel is fired. What is more, a relative recent PSD permit issued for the Orlando Utilities Commission's Stanton Unit No. 2 (September, 1991) has a sulfur dioxide limit of 0.85 lb/mmBtu, 3-hour average. Again, this unit is subject to NSPS Subpart Da and has a less stringent limit than if McIntosh Unit No. 3 is required to have 85 percent removal when firing low sulfur coal. For example, with 1 percent sulfur coal, the 85 percent removal requirement in the McIntosh Unit No. 3 permit condition requires an emissions level of 0.24 lb/mmBtu. In contrast, the NSPS limit would be almost twice that--0.47 lb/mmBtu.

Because the original PSD application contemplated that high sulfur (3.3 percent) coal would be fired to achieve an 85 (80) percent removal efficiency, because NSPS Subpart Da does not apply to Unit No. 3, and because the sulfur dioxide standard would be severely stringent if

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an 85 percent removal efficiency is required when coal with a sulfur content of less than 3.3 percent is used, the City respectfully requests that the Department revise specific condition 2.B. as follows:

A flue gas desulfurization system will be designed to treat all exhaust gases, and The FGD system will operate at: (1) a minimum SO₂ removal efficiency of 85 percent whenever high sulfur (i.e., 3.3 percent or greater) coal is burned, or (2) a minimum of 55 percent SO₂ removal efficiency when the SO₂ emissions are 0.9 lb/mmBtu or less. The sulfur dioxide emissions from the unit shall not exceed 0.9 lb/mmBtu based on a 30-day rolling average.

The proposed minimum removal efficiency of 55 percent and sulfur dioxide emissions of 0.9 lb/mmBtu will ensure that the scrubber is operated effectively and that the corresponding sulfur dioxide emissions are equivalent to the situation where 3.3 percent sulfur coal is fired with 85 percent removal efficiency. For example, the maximum potential uncontrolled sulfur dioxide emissions for high sulfur coal would be 5.74 lb/mmBtu (3.3% sulfur coal/100 x 2lbSO₂ x 1/11,500 Btu/lb x 10⁶ Btu/mmBtu). At a flue gas desulfurization control efficiency of 85 percent, the controlled emission rate would be 0.9 lb/mmBtu [(1-85%/100) x 5.74 lb/mmBtu]. By requiring that sulfur dioxide emissions not exceed 0.9 lb/mmBtu when coal with a sulfur content below 3.3 percent is fired, the City will be ensuring that the sulfur dioxide emissions are no greater than when high sulfur coal is fired with a control efficiency of 85 percent. This emission rate is consistent with what was originally contemplated during the permit review process (85% SO₂ removal with 3.3% sulfur coal at 11,500 Btu/lb). Since the permit currently allows sulfur dioxide emissions up to 1.2 lb/mmBtu with 85 percent sulfur dioxide removal, an emission rate of 0.9 lb/mmBtu is appropriate as the limit for sulfur dioxide removal efficiencies less than 85 percent.

The proposed 55 percent minimum removal efficiency, which will ensure proper operation of the flue gas desulfurization system, is based on a ratio of the maximum potential sulfur dioxide emissions allowed by NSPS Subpart Da and the 85 percent control efficiency established in the original permit. As you know, NSPS Subpart Da requires 90 percent removal, while the PSD permit for McIntosh Unit No. 3 requires 85 percent removal (both with sulfur dioxide limits of 1.2 lb/mmBtu). With 90 percent removal, the resultant emissions are a unit of 0.10, and with 85 percent removal, the resultant emissions are a unit of 0.15--a difference of 50 percent. NSPS Subpart Da also provides that when emissions are 0.6 lb/mmBtu or less, 70 percent removal is required. With 70 percent removal, the resultant emissions are a unit of 0.30.

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An equivalent removal efficiency based on the difference between NSPS and the McIntosh Unit No. 3 PSD permit is 50 percent higher than the 0.30 unit, or 0.45, which corresponds to a 55 percent removal efficiency. This is demonstrated through the following calculation:

NSPS Maximum Emissions (not to exceed 1.2 lb/mmBtu) - $0.10 \times S$ (90% removal)
Permit Maximum Emissions (not to exceed 1.2 lb/mmBtu) - $0.15 \times S$ (85% removal)
NSPS Minimum Emissions (not to exceed 0.6 lb/mmBtu) - $0.30 \times S$ (70% removal)
Where: S = uncontrolled SO₂ emissions

Proposed Min. Removal = $0.15/0.10 \times 0.30 = 0.45$; this is equivalent to 55% removal $[(1 - 0.45) \times 100\%]$

With an emission limit of 0.9 lb/mmBtu and a minimum removal efficiency of 55 percent when lower sulfur coal is burned, the City of Lakeland will be ensuring that emissions are no greater than as originally contemplated during the PSD permit review process and that the scrubber is operated effectively. Further, by agreeing to a sulfur dioxide limit of 0.90 lb/mmBtu, based on a 30-day rolling average, which will apply at all times, the overall emissions from the Unit will be less than previously authorized. The City therefore respectfully requests that specific condition 2.B. be revised as set forth above.

The City of Lakeland anticipates that once this issue regarding sulfur dioxide removal efficiency is resolved, at least tentatively, the City may further modify its request for PSD permit revision to address the use of petroleum coke as a fuel. The City expects that any supplemental information regarding petroleum coke would be submitted within the next two weeks or so.

Thank you for your continued cooperation and assistance in this matter. We have scheduled a meeting with Clair Fancy and his staff for Monday, April 10 to discuss this matter in more detail. In the meantime, if you or you staff have any questions about this request please call me at (813)499-6603.

Sincerely,

Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities

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cc: **Clair Fancy, FDEP**
Al Linero, FDEP
Bruce Mitchell, FDEP
Angela Morrison, HGSS
Ken Kosky, KBN

FINAL DETERMINATION

**Review of a Proposed Air Pollution Source Pursuant to
Environmental Protection Agency Rules for the Prevention of
Significant Deterioration (PSD)**

40 CFR 52.21

McIntosh Unit 3

City of Lakeland, Florida

Roger O. Pfaff

**U.S. Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30308**

December 27, 1978

Proposed to be Revised 4/6/95

Exhibit A

On November 26, 1978, EPA issued a Preliminary Determination that McIntosh Unit 3 could be approved with conditions under EPA Regulations for Prevention of Significant Deterioration, 40 CFR 52.21. During the 30 day public comment period, ending December 26, 1978, only the City of Lakeland commented on the determination. The City asked that a condition be added to the determination allowing the use of oil as a fuel during periods when the coal feed is lost due to equipment malfunctions.

EPA agreed to allow this request, but only if the flue gases are scrubbed by the SO₂ scrubber. The final conditions are the same as those in the Preliminary Determination except for this extra condition. The full list of conditions of approval follows:

Conditions of Approval

1. For Particulate Emissions from the Boiler:

The source must meet an emission limit, as measured under part (5) as follows:

A. Particulate matter emitted to the atmosphere from the boiler shall not exceed:

<u>Mode of Firing</u>	<u>lb/10⁶ Btu Heat Input</u>
Coal	0.044
Coal/Refuse:	0.050
Oil	0.070
Oil/Refuse:	0.075

2. For Sulfur Dioxide from the Boiler:

The source must meet an emission limit, as measured under part (5) as follows:

A. Sulfur dioxide emitted to the atmosphere from the boiler shall not exceed 1.2 pound per million Btu heat input derived from solid fossil fuel.

B. A flue gas desulfurization system will be designed to treat all exhaust gases, and The FGD system will operate at: (1) a minimum SO₂ removal efficiency of 85 percent whenever high sulfur (i.e., 3.3 percent or greater) coal is burned, or (2) a minimum of 55 percent SO₂ removal efficiency when the SO₂ emissions are 0.9 lb/mmBtu or less. The sulfur dioxide emissions from the unit shall not exceed 0.9 lb/mmBtu based on a 30-day rolling average.

C. The burning of oil or a combination of oil and municipal refuse as an emergency fuel without the use of the SO₂ scrubber will be allowed only when the flue gas desulfurization system malfunctions to the extent that the burning of coal would cause emission limitations to be exceeded. Sulfur dioxide emitted to the atmosphere from the boiler shall not exceed 0.8 pound per million Btu under this condition.

D. During malfunctions of equipment which cause an interruption of the coal feed to the boiler, the burning of oil or a combination of oil and municipal refuse will be allowed only if all flue gases are fully scrubbed by the SO₂ scrubber. Sulfur dioxide emitted to the atmosphere from the boiler shall not exceed 0.8 pound per million Btu under this condition.

3. For Particulate Emissions from Materials Handling Operations:

The applicant shall not cause to be discharged into the atmosphere from any coal processing and conveying equipment, coal storage system, coal transfer and loading system, limestone handling or storage operation, or fly ash handling or storage operation, gases which exhibit 20 percent opacity or greater.

4. For NO_x Emissions from the Boiler:

The source must meet an emission limit, as measured under part (5) as follows:

A. NO_x emitted to the atmosphere from the boiler shall not exceed 0.7 pound per million Btu heat input when firing coal or coal/refuse.

- B. NO_x emitted to the atmosphere from the boiler shall not exceed 0.3 pound per million Btu heat input when firing oil or oil/refuse.

5. Stack Testing

- A. Within 60 days after achieving the maximum production rate at which the facility will be operated, but no later than 180 days after initial startup, the owner or operator shall conduct performance tests and furnish EPA a written report of the results of such performance tests. Performance tests shall be conducted for the 4 modes of boiler operation (i.e., coal, coal/refuse, oil, oil/refuse).
- B. Performance tests shall be conducted and data reduced in accordance with methods and procedures specified by EPA. Reference methods 1 through 5 as published in Appendix A of 40 CFR 60 will be used for particulate tests. Reference method 6 will be used for SO₂ tests. Reference method 7 will be used for NO_x tests.
- C. Performance tests shall be conducted under such conditions as EPA shall specify based on representative performance of the facility. The owner or operator shall make available to EPA such records as may be necessary to determine the conditions of the performance tests.
- D. The owner or operator shall provide or cause to be provided, performance testing facilities as follows:

- i. Sampling ports adequate for test methods applicable to the facility.
- ii. Safe sampling platform(s).
- iii. Safe access to sampling platform(s).
- iv. Utilities for sampling and testing equipment.

E. Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified by EPA. For the purpose of determining compliance with an emission limitation, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the approval of EPA, be determined by using the arithmetic mean of the other two runs.

6. Continuous Monitoring Requirements

Continuous monitors shall be installed and operated in accordance with 40 CFR 60.45 and 60.13. In addition, a continuous SO₂ monitor shall be installed prior to the flue gas desulfurization system for purposes of calculating SO₂ removal efficiencies.

7. Excess Emission Reporting Requirements

In addition to the requirements of 40 CFR 60.7, each excess emission report shall include the periods of oil consumption due to flue gas desulfurization system malfunction.

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