



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

December 11, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Farzie Shelton, Ch.E.
Environmental Coordinator
City of Lakeland
Department of Water and Electric Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Dear Ms. Shelton:

Re: City of Lakeland, C.D. McIntosh Unit No. 3
Amendment of Final Determination - PSD-FL-008(B)

The Department hereby amends the Conditions of Approval related to sulfur dioxide (SO₂) emissions and fuel use in the subject Final Determination (dated December 27, 1978) pursuant to 40 CFR 52.21 - Prevention of Significant Deterioration (PSD Permit). The PSD Permit, previously amended on September 5, 1995, is amended as follows:

Condition 1.A.

FROM:

Particulate matter emitted into 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 |

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TO:

Particulate matter emitted into the atmosphere from the boiler shall not exceed:

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

Condition 2.A.

FROM:

Sulfur dioxide emitted to the atmosphere from the boiler shall not exceed 1.2 pound per million Btu heat input.

TO:

Sulfur dioxide emitted to the atmosphere from the boiler shall not exceed 1.2 pound per million Btu heat input in accordance with 40 CFR 60 Subpart D-Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971.

Condition 2.B.

FROM:

A flue gas desulfurization system will be installed to treat exhaust gases and will operate such that whenever coal is burned, sulfur dioxide in gases discharged to the atmosphere from the boiler shall not exceed 1.2 pounds per million Btu heat input and 10 percent of the potential combustion concentration (90 percent reduction), or 35 percent of the potential combustion concentration (65 percent reduction), when emissions are less than 0.75 pounds per million Btu heat input. Compliance with the sulfur dioxide emission limitation and percent reduction requirement shall be determined on a 30-day rolling average.

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TO:

A flue gas desulfurization system will be installed to treat exhaust gases and will operate such that whenever coal or blends of coal and petroleum coke or refuse are burned, sulfur dioxide in gases discharged to the atmosphere from the boiler shall not exceed 10 percent of the potential combustion concentration (90 percent reduction), or 35 percent of the potential combustion concentration (65 percent reduction), when emissions are less than 0.75 pounds per million Btu heat input. Compliance with the percent reduction requirement shall be determined on a 30-day rolling average. This compliance information shall be retained for a period of three years and made available by the City upon request by the Department. Whenever blends of petroleum coke with other fuels are co-fired, sulfur dioxide emissions shall not exceed 0.718 pounds per million Btu heat input based on a 30-day rolling average and shall comply with the reduction requirements given above.

Condition 2.C.

FROM:

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.

TO:

The burning of high sulfur oil (greater than 0.5 percent sulfur by weight) or a combination of high sulfur 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.

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Condition 2.D.

FROM:

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.

TO:

During malfunctions of equipment which cause an interruption of the coal feed to the boiler, the burning of high sulfur oil (greater than 0.5 percent sulfur by weight) or a combination of high sulfur 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.

Condition 2.E. (new)

Continuous burning of natural gas, low sulfur fuel oil (less than or equal to 0.5 percent sulfur by weight), or combinations of these two fuels with or without the use of the SO₂ scrubber will be allowed.

Condition 6. Continuous Monitoring Requirements

FROM:

Continuous monitors shall be installed and operated in accordance with 40 CFR 60.45 and 60.13. In addition, an ASTM-certified automatic coal sampler shall be installed which produces a representative daily sample for analysis of sulfur, moisture, heating value and ash. The coal analysis data shall be used in conjunction with emission factors and the continuous monitoring data to calculate SO₂ reduction.

TO:

Continuous monitors shall be installed and operated in accordance with 40 CFR 60.45 and 60.13. In addition, an ASTM-certified automatic solid fossil fuel sampler shall be installed which produces a representative daily sample for analysis of sulfur, moisture, heating value and ash. The solid fossil fuel analysis data shall be used in conjunction with emission factors and the continuous monitoring data to calculate SO₂ reduction.

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Condition 8 (new)

The following fuels may be burned:

Coal only

Low sulfur fuel oil only (\leq 0.5 percent sulfur by weight)

Coal and up to 10 percent refuse (based on heat input)

Low sulfur fuel oil and up to 10 percent refuse (based on heat input)

Coal and up to 20 percent petroleum coke (based on weight)

Coal and up to 20 percent petroleum coke (based on weight) and 10 percent refuse (based on heat input)

High sulfur fuel oil ($>$ 0.5 percent sulfur by weight) consistent with Conditions 2.C. or 2.D.

Natural gas only, or in combination with any of the other fuels or fuel combinations listed above

Condition 9 (new)

The City shall maintain and submit to the Department on an annual basis for a period of five years from the date the unit is initially co-fired with petroleum coke, information demonstrating in accordance with 40 CFR 52.21 (b)(33) and 40 CFR 52.21 (b)(21)(v) that the operational changes did not result in emissions increases of carbon monoxide, nitrogen oxides, or sulfuric acid mist.

A copy of this amendment letter shall be attached to and shall become a part of Permit PSD-FL-008.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Howard L. Rhodes, Director
Division Air Resources Management

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CERTIFICATE OF SERVICE

This is to certify that this **PERMIT AMENDMENT** and all copies were mailed to the listed persons before the close of business on 12-11-95.

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to Chapter 120.52(9), Florida Statutes, with the designated Deputy Clerk, receipt of which is hereby acknowledged.

Kimi Jober 12-11-95
Clerk Date

cc: J. Harper, EPA
J. Bunyak, NPS
B. Oven, DEP
B. Thomas, SWD
R. Harwood, PCESD
K. Kosky, KBN
A. Morrison, HGSS

SENDER:
 Complete items 1 and/or 2 for additional services.
 Complete items 3 and 4a & b.
 Print your name and address on the reverse of this form so that we can return this card to you.
 Attach this form to the front of the mailpiece, or on the back if space does not permit.
 Write "Return Receipt Requested" on the mailpiece below the article number. The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
 1. Addressee's Address
 2. Restricted Delivery
 Consult postmaster for fee.

3. Article Addressed to:
 Farze Shelton Ch 5
 City of Lakeland
 501 E. Lemon St
 Lakeland, FL 33801-508

4a. Article Number:
 Z 127 633 218

4b. Service Type:
 Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

7. Date of Delivery:
 11/12/95

5. Signature (Addressee):
 [Signature]

6. Signature (Agent):

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1991 U.S. GPO: 1993-352-714 DOMESTIC RETURN RECEIPT

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Thank you for using Return Receipt Service

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Receipt for Certified Mail
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 Do not use for International Mail
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Farze Shelton
 City of Lakeland
 Lakeland, FL

| | |
|---|----------|
| Postage | \$ |
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| TOTAL Postage & Fees | \$ |
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Unit # 3
 PSD-FI-008(B)

PS Form 3800, March 1993

Final Determination

City of Lakeland
Department of Water and Electric Utilities
C. D. McIntosh Power Plant Unit No. 3
Lakeland, Florida
Polk County

Electric Utility Steam Generating Unit
Coal/Municipal Refuse/Oil - Fired Boiler
364 MW

Permit No. PSD-FL-008(B)

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation

December 11, 1995

Final Determination

On November 3, 1995, a draft permit amendment, Intent to Issue, Notice of Intent to Issue, and Preliminary Determination were sent to The City of Lakeland, EPA Region IV, the Southwest Florida DEP District, Polk County, and the National Park Service. The draft permit amendment was to change certain Conditions of Approval related to fuel use, emission limits, and compliance procedures contained in the Final Determination dated December 27, 1978 applicable to the C.D. McIntosh Power Plant, Unit No. 3 as amended on September 5, 1995.

The Public Notice was published by the City of Lakeland on November 10, 1995 in the The Ledger, a newspaper of general circulation in Polk County, Florida.

No comments were received during the 30-day review and comment period except from the City of Lakeland by letter dated November 9, 1995.

The City and the Department request or require a number of clarifications and changes to the draft permit amendment as follows:

CONDITION 2.A.

DEPARTMENT COMMENT:

The sulfur dioxide (SO₂) limitation of 1.2 pounds per million Btu heat input (lb/10⁶ Btu) in Condition 2.B. may appear to be a relaxation of the 40 CFR 60 Subpart D requirement applicable to Unit 3 which requires compliance with the same limit on the basis of three hours-worth of stack tests. To clarify, the Department will amend existing Condition 2.A. as follows:

FROM:

Sulfur dioxide emitted to the atmosphere from the boiler shall not exceed 1.2 pound per million Btu heat input.

TO:

Sulfur dioxide emitted to the atmosphere from the boiler shall not exceed 1.2 pound per million Btu heat input in accordance with 40 CFR 60 Subpart D-Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971.

SPECIFIC CONDITION 2.B.

CITY'S COMMENTS:

The City requests that records on sulfur dioxide (SO₂) emissions and reduction percentages be maintained on site rather than submitted quarterly to the Department. Exceedances would be included in the excess emissions reports already required for submission to the Department. Additionally the City wishes to clarify that the lower SO₂ emission rate of 0.718 pounds per million Btu heat input (lb/10⁶ Btu) applies only when petcoke blends are fired.

DEPARTMENT'S RESPONSE:

The Department agrees that the excess emissions reports (as well as the reports and compliance requirements pursuant to Title IV and Title V of the Clean Air Act) will provide the Department sufficient information to determine when the unit does not operate in compliance with applicable SO₂ limits. The Department agrees that the condition as drafted can be misconstrued to require compliance with the petcoke SO₂ emission limit when petcoke is not co-fired. In accordance with the previous comment, the Department also wishes to remove the 1.2 lb SO₂/10⁶ Btu emission rate from this condition as confusing and in apparent conflict with the limit in Condition 2.A. Therefore draft Specific Condition 2.B. is changed as follows:

FROM:

A flue gas desulfurization system will be installed to treat exhaust gases and will operate such that whenever coal or blends of coal and petroleum coke or refuse are burned, sulfur dioxide in gases discharged to the atmosphere from the boiler shall not exceed 1.2 pounds per million Btu heat input and 10 percent of the potential combustion concentration (90 percent reduction), or 35 percent of the potential combustion concentration (65 percent reduction), when emissions are less than 0.75 pounds per million Btu heat input. Compliance with the sulfur dioxide emission limitation of 0.75 pound per million Btu heat input and percent reduction requirement shall be determined on a 30-day rolling average and submitted to the Department on a quarterly basis. Whenever blends of coal and petroleum coke or refuse are burned, sulfur dioxide emissions shall not exceed 0.718 pounds per million Btu heat input based on a 30-day rolling average.

TO:

A flue gas desulfurization system will be installed to treat exhaust gases and will operate such that whenever coal or blends of coal and petroleum coke or refuse are burned, sulfur dioxide in gases discharged to the atmosphere from the boiler shall not exceed 10 percent of the potential combustion concentration (90 percent reduction), or 35 percent of the potential combustion concentration (65 percent reduction), when emissions are less than 0.75 pounds per million Btu heat input. Compliance with the percent reduction requirement shall be determined on a 30-day rolling average. This compliance information shall be retained for a period of three years and made available by the City upon request by the Department. Whenever blends of petroleum coke with other fuels are co-fired, sulfur dioxide emissions shall not exceed 0.718 pounds per million Btu heat input based on a 30-day rolling average and shall comply with the reduction requirements given above.

CONDITIONS 2.C. and 2.D.

CITY'S COMMENTS:

The City believes that there can be some confusion regarding the oil described in existing Conditions 2.C. and 2.D. which is "high sulfur oil" and the new Condition 2.E. related to firing "low sulfur oil." The City recommends some clarification language to define the oil in Conditions 2.C. and 2.D.

DEPARTMENT'S RESPONSE:

The Department agrees with the City and revises existing Condition 2.C. as follows:

FROM:

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.

TO:

The burning of **high sulfur oil (greater than 0.5 percent sulfur by weight)** or a combination of **high sulfur 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.

Similarly, the Department revises **existing** Condition 2.D. as follows:

FROM:

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.

TO:

During malfunctions of equipment which cause an interruption of the coal feed to the boiler, the burning of **high sulfur oil (greater than 0.5 percent sulfur by weight)** or a combination of **high sulfur 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.

CONDITION 5.B.

CITY'S COMMENTS:

The City points out that the tests are for initial performance demonstration rather than annual compliance tests and that the additional reference methods are not necessary. The City also contends that 3-hour tests are no longer appropriate to determine compliance for a unit regulated on a rolling average basis by CEMS and that the test requirements can be removed.

DEPARTMENT'S RESPONSE:

The Department agrees that the performance tests referred to in Condition 5.B. are initial tests. The revision proposed by the Department will not be made and the condition will remain in its original form.

CONDITION 6.

CITY'S COMMENTS:

The City points out that prior to the proposed revision they had to analyze coal but not refuse. The revision appears to require analysis of any solid fuel, presumably including refuse. The City suggests use of the term "solid fossil fuels" in lieu of solid fuels.

DEPARTMENT'S RESPONSE:

The Department agrees. The City will still need to estimate sulfur in the refuse (on the order of 0.1 percent sulfur by weight) to calculate SO₂ input to the scrubber and reduction. Sources for those estimates include the "daily log of fuels used and copies of fuel analyses" maintained by the City per its Site Certification requirements (Condition I.B.3). Therefore draft Condition 5.B. is amended as follows:

FROM:

Continuous monitors shall be installed and operated in accordance with 40 CFR 60.45 and 60.13. In addition, an ASTM-certified automatic solid fuel sampler shall be installed which produces a representative daily sample for analysis of sulfur, moisture, heating value and ash. The solid fuel analysis data shall be used in conjunction with emission factors and continuous monitoring data to calculate SO₂ reduction.

TO:

Continuous monitors shall be installed and operated in accordance with 40 CFR 60.45 and 60.13. In addition, an ASTM-certified automatic solid fossil fuel sampler shall be installed which produces a representative daily sample for analysis of sulfur, moisture, heating value and ash. The solid fossil fuel analysis data shall be used in conjunction with emission factors and continuous monitoring data to calculate SO₂ reduction.

CONDITION 8.

CITY'S COMMENTS:

The City wishes to clarify that high sulfur fuel can be fired in accordance with conditions in their original PSD permit conditions and did not intend to limit itself to low sulfur fuel oil which can be fired under the revised conditions.

DEPARTMENT'S RESPONSE:

Based on technical articles and references about petcoke as well as tests conducted elsewhere, the Department had reason to expect increased emissions of carbon monoxide and sulfuric acid mist when firing a low sulfur coal and petcoke blend compared with firing low sulfur coal alone.

The City did not include any data on sulfuric acid mist and carbon monoxide emissions when firing low sulfur coal representative of present actual operation. The Department considers the inferences drawn from the other trial test scenarios to be presumptive but not conclusive indicators which gave the City reason to believe that there will be no increases in these emissions when firing petcoke.

In the Department's letter of September 11, 1995, the City was advised to search past records to see if any carbon monoxide or sulfuric acid data exist which are representative of the low sulfur coal condition. The Department pointed out that tests to obtain these data are inexpensive and easy to conduct. Submission of such data might have obviated the need to report representative annual emissions in the future for these two parameters.

CONCLUSION:

The Final Determination of the Department is to amend PSD Permit No. PSD-FL-008 as described in the public information package with minor changes as indicated above.

DEPARTMENT'S RESPONSE:

The Department agrees and did not intend to limit the City with respect to the type of oil that may be fired during scrubber or coal feed equipment malfunctions. Therefore Condition 8 is changed as follows:

FROM:

The following fuels may be burned:

Coal only
Low sulfur fuel oil only (≤ 0.5 percent sulfur by weight)
Coal and up to 10 percent refuse (based on heat input)
Low sulfur fuel oil and up to 10 percent refuse (based on heat input)
Coal and up to 20 percent petroleum coke (based on weight)
Coal and up to 20 percent petroleum coke (based on weight) and 10 percent refuse (based on heat input)
Natural gas

TO:

The following fuels may be burned:

Coal only
Low sulfur fuel oil only (≤ 0.5 percent sulfur by weight)
Coal and up to 10 percent refuse (based on heat input)
Low sulfur fuel oil and up to 10 percent refuse (based on heat input)
Coal and up to 20 percent petroleum coke (based on weight)
Coal and up to 20 percent petroleum coke (based on weight) and 10 percent refuse (based on heat input)
High sulfur fuel oil (> 0.5 percent sulfur by weight) consistent with Conditions 2.C. or 2.D.
Natural gas only, or in combination with any of the other fuels or fuel combinations listed above

CONDITION 9.

CITY'S COMMENTS:

The City questions whether it is necessary to demonstrate that the use of petcoke will not result in emission increases of carbon monoxide or sulfuric acid mist given that emissions increases due to petcoke are not expected.

Memorandum

Florida Department of
Environmental Protection

TO: Howard Rhodes
THROUGH: Clair Fancy
FROM: A. A. Linero *AA Linero*
DATE: December 9, 1995
SUBJECT: City of Lakeland - C. D. McIntosh Unit No. 3

Attached for your signature is an amendment to the City of Lakeland's PSD Permit applicable to Unit No. 3 at the C. D. McIntosh Power Plant.

The amendment revises the original 1978 EPA-issued PSD permit (as previously amended by the Department) to allow burning of petroleum coke (petcoke).

To avoid an increase in SO₂ the City has agreed to an absolute limit of 0.718 pounds per million Btu heat input (lb/10⁶ Btu) while maintaining the previously agreed-to scrubber efficiency requirements. You might recall that we had set 0.75 lb/10⁶ as the point at which they could operate their scrubber at less than 90 percent efficiency. The new limit is an improvement.

They also requested the ability to use natural gas and low sulfur fuel (<0.5 % S) without restriction. This will result in even lower SO₂ emissions during those times.

We are requiring that the City provide information documenting that there is no (PSD-significant) increase in sulfuric acid mist emissions and carbon monoxide emissions on an annual basis as required by the WEPCO revisions to our rules.

There were no comments from the public, EPA, or the Park Service. Comments from the City were considered. They have seen the final determination and will have no objections to the final permit.

CHF/aal/l

Attachments