

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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|-----------------------------|---|-----------------|
| IN RE: CITY OF LAKELAND; |) | |
| C.D. McINTOSH POWER PLANT |) | |
| UNIT NO. 3; MODIFICATION OF |) | OGC NO. 93-3123 |
| CONDITIONS OF CERTIFICATION |) | |
| PA-74-06SR-E |) | |
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FINAL ORDER MODIFYING
CONDITIONS OF CERTIFICATION

On December 7, 1978, the Governor and Cabinet, acting as the Siting Board, issued a final order, pursuant to Chapter 403, Part II, Florida Statutes (F.S.), approving Certification of the City of Lakeland McIntosh Power Plant Unit Number 3 ("McIntosh Unit No. 3"). The Site Certification authorized construction and operation of a coal-refuse, and oil-fired steam electric generating unit, along with various associated facilities. That Site Certification was subsequently modified in 1980, 1988, and 1993.

On December 7, 1994, the City of Lakeland filed a request to modify the conditions of certification for McIntosh Unit No. 3 pursuant to Section 403.516(1)(b), F.S., and Rule 62-17.211, Florida Administrative Code (F.A.C.). On October 26, 1995, the City of Lakeland supplemented the request for modification. The City of Lakeland requested that the conditions be modified to approve use of an alternative fuel, petroleum coke. In addition, the City of Lakeland's requests included minor revisions to:

1) update regulatory references; 2) clarify that the Certification regulates only McIntosh Unit No. 3; 3) reflect the elimination of use of the artificial marsh, and 4) adjust submittal requirements for fuel usage and analysis data.

Copies of the City of Lakeland's modification request were distributed to all parties to the certification proceeding and made available for public review. On January 27, 1995, a Notice of Receipt of Proposed Modification of Power Plant Certification regarding the proposed modifications was published in the Florida Administrative Weekly. The notice specified the Department of Environmental Protection's (Department) intent to modify the conditions of certification. On March 9, 1995, the City of Lakeland responded to the Department's requests for additional information. On December 22, 1995, a Notice of Intent to Issue Proposed Modification of Power Plant Certification was published in the Florida Administrative Weekly. The notice specified that a hearing would be held if requested by the parties on or before 45 days from receipt of the notice of proposed modification or if requested within 30 days of publication of the notice by persons whose substantial interests are affected by the proposed modification. No written objection to the proposed modification was received by the Department.

Accordingly, in the absence of any timely objection, **IT IS ORDERED:**

The proposed changes to the Conditions of Certification for McIntosh Unit No. 3 as described in the December 7, 1994, request for modification and October 26, 1995 supplemental request, as clarified by the City of Lakeland's March 9, 1995 responses to DEP's requests for additional information are **APPROVED**. Pursuant to Section 403.516(1)(b), F.S., the Department hereby **MODIFIES** the conditions of certification for the City of Lakeland McIntosh Unit No. 3 as follows:

GENERAL

1. Change in Discharge

All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any regulated pollutant not identified in the application, or any discharge more frequent than, or at a level in excess of that authorized herein, shall constitute a violation of the certification. Any proposed anticipated facility expansions, production increases, or process modifications which will result in new, different or increased discharges or expansion in steam generating capacity of Unit No. 3 will require a submission of a new or supplemental application pursuant to Chapter 403, Florida Statutes.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any limitation

specified in this certification, the permittee shall notify the Southwest District Manager of the Department by telephone during the working day during which said noncompliance occurs and shall confirm this situation in writing within seventy-two (72) working-day hours of first becoming aware of such conditions, supplying the following information:

- a. A description and cause of noncompliance; and
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying event.

3. Unit No. 3 Operation Facilities

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this certification. Such systems are not to be bypassed without prior department approval.

4. Adverse Impact - no change

5. Right of Entry

The permittee shall allow the Secretary of the Florida Department of Environmental Protection Regulation and/or authorized representatives, upon the presentation of credentials: ---- no change

6. - 10. - no change

11. Review of Site Certification

The certification shall be final unless revised, revoked or suspended pursuant to law. At least every five years from the date of issuance of this certification or any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control

Act Amendments of 1972; for the plant units, the Department shall review all monitoring data that has been submitted to it during the preceding five-year period, for the purposes of determining the extent of the permittee's compliance with the conditions of this certification and the environmental impact of this facility unit. The Department shall submit the results of its review and recommendations to the permittee. Such review will be repeated at least every five years thereafter.

12. Modification of Conditions

The conditions of this certification may be modified in the following manner:

- a. The Board hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to monitoring or sampling.
- b. This certification shall be automatically modified to conform to any subsequent amendments, modifications, or renewals made by DEP under a federally delegated or approved program to any separately issued Prevention of Significant Deterioration (PSD) permit, Title V Air Permit, or National Discharge Elimination System (NPDES) permit for the certified facility. Lakeland or Orlando Utilities Commission (OUC), as appropriate, shall send each party to the certification proceeding (at the party's last known address as shown on the record of such proceeding) copies of notice of requests submitted by Lakeland or OUC for modifications or renewals of the above listed permits if the request involves a relief mechanism (e.g., mixing zone, variance, etc.) From state

standards, a relaxation of conditions included in the permit due to state permitting requirements, or the inclusion of less restrictive air emission limitations in the air permits.

- c. All other modifications shall be made in accordance with Section 403.516, F.S.

CONDITIONS OF CERTIFICATION - SPECIAL

I. Air

The construction and operation of the Unit No. 3 at the McIntosh Plant shall be in accordance with all applicable provisions of the Chapters 62-210 - 62-297 ~~17-2, 17-5, and 17-7~~, Florida Administrative Code. The permittee shall comply with the following conditions of certification:

A. Emission Limitations

1. Stack emissions shall not exceed those specified in Chapter ~~17-2.04(6)(e) 1.~~ 62-296.405, and 62.296.800(2)(a)1., FAC.
2. ~~The permittee shall not burn a fuel oil containing more than an average of 0.7% sulfur unless it can be demonstrated that either, a) heat efficiency is such as to insure compliance with all applicable emission limitations, or b) that a flue gas desulfurization unit is installed that will insure compliance with applicable emission limitations.~~
 - a. Sulfur dioxide emitted to the atmosphere from the boiler shall not exceed 1.2 pounds 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 Started After August 17, 1971.
 - b. 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 are co-fired with other fuels, 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.

c. 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.

d. The burning of high sulfur oil (greater than 0.5 percent 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 pounds per million BTU under this condition.

e. 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 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.

3. - no change

4. Particulate emissions from the coal handling facilities:

a. The applicant shall not cause to be discharged into the atmosphere from any coal processing or conveying equipment, coal storage system, or coal transfer and loading system ~~processing coal~~, visible emissions which exceed 20 percent opacity.

b. - no change

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

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

E. Air Monitoring Program

~~1. The permittee shall install and operate continuously monitoring devices for the Unit No. 3 boiler exhaust for sulfur dioxide, nitrogen dioxide and opacity. The~~

~~monitoring devices shall meet the applicable requirements of 17-2.08, FAC~~ Continuous monitors shall be installed and operated in accordance with 40 CFR 60.45 and 60.13. In addition, the 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.

2. - 3. - no change

4. The permittee shall provide sampling ports into the stack and shall provide access to the sampling ports, in accordance with Standard Sampling Techniques and Methods of Analysis for The Determination of Air Pollutants from Point Sources, July 1975 Rule 62-297, F.A.C.

5. - no change

6. Emission Control Systems:

Prior to operation of the source, the owner or operator shall submit to the Department a standardized plan or procedure that will allow the company to monitor emission control equipment efficiency and enable the company to return malfunctioning equipment to proper operation as expeditiously as possible.

C. Stack Testing:

1. - no change

2. Performance tests shall be conducted and data reduced in accordance with methods and procedures in accordance with EPA or DEP-approved test methods. Standard Sampling Techniques and Methods of the Determination on Air Pollutants from Point Sources, July 1975.

3. - 4. - no change

5. Stack tests for particulates, NO_x and SO₂ shall be performed annually in accordance with conditions 2, 3 and 4 above. CEMS and CEM's relative accuracy tests may be used to determine compliance as long as the source and test conditions are consistent with the applicable requirements.

D. Reporting

1. ~~Stack monitoring, fuel usage and fuel analysis~~ data shall be reported to the Department on a quarterly basis in accordance with 40 CFR, Part 60, Section 60.7(c), (d) and in accordance with 62-297.405(1)(g) 17-2-08, FAC. Fuel usage and fuel analysis data shall be reported to the Department on an annual basis.

2. - no change

E. - F. - no change

G. Reporting:

1. Beginning one month after certification the applicant shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of major pieces of equipment (including control equipment). All reports and information required to be submitted under this condition shall be submitted to ~~Mr. Hamilton S. Owen, Jr.,~~ the Administrator, of Power Plant Siting Coordination Office, Department of Environmental Protection Regulation, 2600 Blair Stone Road, MS 48, Tallahassee, Florida 32399-2400.

2. Lakeland shall maintain and submit to the Department on an annual basis for a period of five years from the date the unit is initially in commercial operation, co-fired with petroleun 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 emission increases of carbon monoxide, nitrogen oxides, or sulfuric acid mist.

H. Fuels:

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 oil (> 0.5 percent sulfur by weight) consistent with Conditions I.A.2.b. or I.A.2.c.;

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

II. Water Discharges

Discharges during construction and operation of the Unit No. 3 shall be in accordance with all applicable provisions of Chapter 62-302 17-3, Florida Administrative Code and 40 CFR 423, Effluent Guidelines and Standards for Steam Electric Power Generating Point Source Category. In addition, the permittee shall comply with the following conditions of certification:

A. Pretreatment Standards

Wastewater discharges from Unit No. 3 to the Lakeland wetlands treatment system shall comply with the effluent limitation guidelines contained in 40 CFR § 423.16, ~~Part 423.12~~ and amendments. The specific standards applicable to the

facilities as planned are:

1. Cooling Tower Blowdown

There shall be no detectable amounts of materials added for corrosion inhibition containing zinc and chromium in cooling tower blowdown discharged to the City of Lakeland wetland treatment system. ~~On an emergency basis the on site Marsh Treatment System may be used to treat cooling tower blowdown.~~

2. - 3. - no change

4. Chemical Wastes and Boiler Blowdown

All low volume wastes (demineralizer regeneration, cooling tower basin cleaning wastes, floor drainage, sample drains and similar wastes), metal cleaning wastes (including preheater and fireside wash) and boiler blowdown shall be treated as required for pH adjustment and removal of chemical constituents. These wastewaters will be treated in a process wastewater treatment system capable of complying with 40 CFR, § 423.16 ~~Part 423.12~~ and discharged with the cooling tower blowdown via a return pipeline to the Lakeland wetlands treatment system. The remaining sludge shall be disposed of in the on site FGD stabilized sludge landfill.

5. Sluice Pond Overflow

Sluice pond overflow (coal pile runoff from less than 10-year, 24-hour rainfall and bottom and fly ash transport water) shall be treated if necessary required to meet the requirements of 40 CFR, § 423.16 ~~Part 423.12~~ and discharged with the cooling tower blowdown to the Lakeland wetlands treatment system.

6. Flue Gas Desulfurization Sludge Pond Overflow

The flue gas desulfurization sludge pond overflow shall be treated if required to meet the requirements

of 40 CFR, § 423.16 ~~Part 423.12~~ in a process waste system and discharged with the cooling tower blowdown to the Lakeland wetlands treatment system.

B. In-Plant Water Monitoring Program

A monitoring program shall be undertaken by the City of Lakeland on each effluent stream within the facility to determine compliance by Unit 3 with the applicable effluent guidelines of 40 CFR, § 423.16 ~~Part 423.12~~ for those wastewaters discharged to the Lakeland wetlands treatment system. This monitoring program may be reviewed annually to determine the necessity for its continuance.

III. Groundwater

A. General

The use of groundwater shall be minimized to the greatest extent practicable.

B. Well Criteria

The well locations shall be approved by the Southwest Florida Water Management District. Design and construction of new wells shall be in accordance with the applicable rules of the Department of Environmental Protection Regulation and Southwest Florida Water Management District.

C. Groundwater Use Limitations - No change

IV. Leachate

A. Compliance

Leachate from coal storage piles, settling and treatment ponds, ~~artificial marsh, rapid infiltration beds,~~ secure land fills and flue gas desulfurization sludge ponds (FGD) shall not contaminate waters of the State (including both surface and groundwaters) in excess of the limitations of Chapters 62-302 and 62-520 ~~17-3~~, F.A.C.

B. Monitoring

A monitoring well system shall be used to determine

whether or not leachate from the treatment ponds, ~~artificial marsh~~, secure landfill, ash sluice ponds, and the flue gas desulfurization sludge ponds is reaching the groundwater.

1.-4. - no change

5. A quarterly summary of the results of the monitoring shall be provided by the permittee to the Southwest District of the Department of Environmental Protection Regulation and to the Southwest Florida Water Management District.

6. The permittee shall keep a monthly record of the monitoring results and shall notify the Department's Southwest District Manager and the Southwest Florida Water Management District when said measurements reach 90% of the levels permitted in the water quality standards of Rule 62-520.420 ~~17-3.101~~, F.A.C.

V. Control Measures During Construction

A. Stormwater Runoff

During construction and plant operation, necessary measures shall be used to settle, filter, treat or absorb silt containing or pollutant laden stormwater runoff to limit the suspended solids to 50 mg/l or less during rainfall periods not exceeding the 10-year, 24-hour rainfall, and to prevent an increase in turbidity to 29 NTU's ~~50 Jackson Turbidity Units~~ above background in waters of the State.

Control measures shall consist at the minimum, of filters, sediment traps, barriers, berms or vegetative planting. Exposed or disturbed soil shall be protected as soon as possible to minimize silt and sediment laden runoff. The pH shall be kept within the range of 6.0 to 8.5.

VI. Solid Wastes

Solid Wastes resulting from construction or operation shall be disposed of in accordance with the applicable regulations of Chapter 62-701 ~~17-7~~, FAC.

Open burning in connection with land clearing shall be in accordance with Chapter 62-256 71-5, FAC, no additional permits shall be required, but the Division of Forestry shall be notified. Open burning shall not occur if the Division of forestry has issued a ban on burning due to fire hazard conditions.

VIII. Solid Waste Utilization System - no change

The solid waste utilization facility shall be designed and operated in compliance with all applicable regulations of the Department, including but not limited to Chapter 62-701 71-7, FAC.

XIII. Transmission Lines

Directly associated transmission lines shall be constructed and maintained in a manner to minimize environmental impacts in accordance with Chapter 403, F.S., and Chapters 27F-6, 27F-7, and 62-312, 22 FAC.

A. Construction

1. Filling and construction in waters of the State shall be minimized to the extent practicable. No such activities shall take place without obtaining lease or title from the Board of Trustees of the Internal Improvement Trust Fund ~~Department of Natural Resources~~.

2.-9. - no change

10. Any archaeological sites discovered during construction of the transmission line shall be disturbed as little as possible and such discovery shall be communicated to the Department of State, Division of ~~Archive History and Records Management~~ Historical Resources.

XIV. Construction in Waters of the State

No construction in waters of the State shall commence without obtaining lease or title from the ~~Department of Natural~~

Resources Board of Trustees of the Internal Improvement Trust Fund.

XVI. Sanitary Waste Disposal

Sanitary waste from operating plant facilities shall be disposed of in a septic tank system, as approved by the Health Department of Health & Rehabilitative Services, as long as the average daily flow does not exceed 2,000 gallons per day. If the sanitary waste exceeds 2000 gpd, a properly designed treatment system shall be constructed upon receipt of approval by the Department.

NOTICE OF RIGHTS

Any party to this Order has the right to seek judicial review of this Order pursuant to Section 120.68, Florida Statutes, by filing a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department of Environmental Protection in the Office of the General Counsel, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the appropriate filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department of Environmental Protection.

DONE AND ORDERED this 13th day of February, 1996, in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52
Florida Statutes, with the designated
Department Clerk, receipt of which
is hereby acknowledged.

Rebecca B. Clerk 2/14/96 Date

for Anneth V. Plante
VIRGINIA B. WETHERELL
SECRETARY

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that copies of the foregoing has been furnished by regular U. S. Mail to the following this 14th day of February, 1996:

James S. Alves, Esquire
Hopping Green Sams & Smith
P.O. Box 6526
Tallahassee, FL 32314-6526

City of Lakeland
2379 Broad Street
Lakeland, FL 33802

Mark Carpanini, Esquire
Office of County Attorney
P.O. Box 60
Bartow, FL 33830-0060

Richard Tschantz, Esquire
Southwest Fla. Water Mgmt. Dist.
2379 Broad Street
Brooksville, FL 34609-6899

Robert V. Elias, Esquire
Division of Legal Services
Florida Public Service Comm.
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Andrew R. Reilly
East Lake Parker Residents
P.O. Box 2039
Haines City, FL 33844

Tom Tart
Greg DeMuth
Orlando Utilities Commission
500 South Orange Street
Orlando, FL 32801

Farzie Shelton
Dept of Water and Electric
Utilities
501 East Lemon Street
Lakeland, FL 33801-5050

Karen Brodeen, Esquire
Dept. of Community Affairs
2740 Centerview Drive
Tallahassee, FL 32399-2100



CHARLES T. "CHIP" COLLETTE,
Assistant General Counsel
Florida Department of
Environmental Protection
2600 Blair Stone Road
MS 35
Tallahassee, FL 32399-2400

ATTACHMENTS 1 through 8

January 4, 1995

Clair H. Fancy, Chief
Bureau of Air Regulation
Division of Air Resources Management
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

RE: City of Lakeland--C.D. McIntosh Power Plant, Unit No. 3
Request to Amend PSD Permit No. PSD-FL-8

Dear Clair:

The City of Lakeland ("Lakeland") requests minor amendments to the above-referenced prevention of significant deterioration (PSD) permit (and corresponding application) for its McIntosh Power Plant, Unit No. 3. Lakeland originally submitted a PSD permit application to the U.S. Environmental Protection Agency (EPA) in February of 1978, and EPA subsequently issued the permit on December 27, 1978, authorizing construction of the coal-, municipal refuse-, and oil-fired steam electric generation unit. Consistent with its permit, the unit was later constructed and actual start-up occurred on September 1, 1982. As a result of the final unit design, the City has identified several needed changes to the PSD permit and corresponding application:

- Adjust particulate matter limits to 0.1 lb/mmBtu heat input (regardless of the fuel being burned);
- Clarify that the minimum sulfur dioxide (SO₂) removal efficiency of 85 percent applies only when high sulfur coal is burned;
- Delete the requirement to install an SO₂ monitor at the inlet to the scrubber, since the monitor at the stack is sufficient for use in determining SO₂ removal efficiencies; and
- Recognize that natural gas and low sulfur oil may be used as startup fuels or at any other time.

In addition, based on a successful test burn of petroleum coke, the City requests that the PSD permit be amended to specifically allow such fuel to be cofired with permitted fuels. When petroleum coke is blended in the appropriate amounts with coal (or coal and refuse), the

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particulate matter, sulfur dioxide, nitrogen oxides, and opacity limits will not be exceeded. The total amount of petroleum coke will not exceed 20 percent (by weight).

As we stated in our December 1, 1994, letter to you, neither New Source Performance Standard Subpart Da applicability nor Prevention of Significant Deterioration (PSD) review should be triggered by the requested permit revisions. Based on recent telephone conversations with Bruce Mitchell of the Department's Bureau of Air Regulation, I understand that the Department has concurred with our analysis, except that it may be appropriate to require PSD review for carbon monoxide and sulfur acid mist emissions. As the information from the test burn indicates, however, no increase in sulfuric acid mist emissions should occur as a result of cofiring petroleum coke with other permitted fuels.

The test burn data indicates only a slightly higher emission rate for sulfuric acid mist when cofiring petroleum coke with coal than when coal with a sulfur content of 2.5 percent is burned alone; however, the student "t" test indicates that there is no statistical difference between these emission rates. This approach for determining emission rate changes is consistent with 40 CFR Part 60, Appendix C. Further, while the emission rate for carbon monoxide when petroleum coke was cofired during the test burn is statistically higher than when coal was burned alone during the test, the higher rate is attributable to the differences in grindability between the high and low sulfur coals used and to combustion conditions, as opposed to the characteristics of petroleum coke. (See memorandum from Timothy C. Bates, Acting Plant Manager for McIntosh Power Plant, dated December 29, 1994, included as Attachment C.)

Because no increase in regulated air pollutant emissions will occur as a result of cofiring petroleum coke with other permitted fuels, PSD review should not be triggered for any pollutants. Moreover, even if PSD review is required, control technology review for the boiler should not be required since no physical or operational changes are being made to the boiler to cofire petroleum coke.

The City of Lakeland respectfully requests that the Department accept the requested changes to the PSD application and make the requested changes to the PSD permit. In support of Lakeland's requested permit revisions and to illustrate the requested changes to its application, a permit application has been prepared on the Department's new form and is enclosed as Attachment A. (Some of the information requested on the application form will be submitted within the next few months when the Title V application for the McIntosh Plant is submitted.) In addition, the PSD permit, as proposed to be revised, is enclosed as Attachment B and is also being provided on a computer disk, WordPerfect 5.1 format.

In support of its request, Lakeland provides the following information.

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Particulate Matter Limits

The particulate matter limits included in the PSD permit should be changed to 0.1 lb/mmBtu heat input (regardless of the type of fuel burned), consistent with the corresponding Site Certification and New Source Performance Standard (NSPS) Subpart D. The lower limits were included in the permit because it was anticipated that the Unit might be subject to NSPS Subpart Da (40 CFR 60.40a-60.49a), which was proposed on September 19, 1978--just three months prior to issuance of the permit. The Subpart Da requirements would have applied to the Unit *if* it had commenced construction on or after the proposal date of September 19, 1978, even though the rules were not finalized until the following year. After the Unit's permit had been issued, the U.S. Environmental Protection Agency determined in March of 1979 that the Unit had commenced construction on March 21, 1978, *prior* to the effective date of Subpart Da. The Unit was therefore subject only to Subpart D and *not* Subpart Da. The particulate matter limits should therefore be appropriately adjusted to the Subpart D limit of 0.1 lb/mmBtu heat input. 40 CFR § 60.42(a)(1). This limit is also consistent with Rule 62-296.405(1)(b), Florida Administrative Code.

Accordingly, the City requests that Condition No. 1 of the permit be changed as follows:

- A. Particulate matter emitted to the atmosphere from the boiler shall not exceed 0.1 lb/mmBtu heat input, regardless of the fuel burned.

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

Sulfur Dioxide Removal Efficiency

The City of Lakeland proposed a removal efficiency of 85 percent of the sulfur dioxide from the stack gases through installation of a limestone scrubber based on the expectation of utilizing "high sulfur" coal (sulfur content of 3.3 percent). Because the City's application was based on a proposed revision to the New Source Performance Standards for power plants under Subpart Da and Unit No. 3 is *not* subject to Subpart Da standards, the Unit should *not* be required to comply with an 85 percent removal rate when lower sulfur fuels are burned. See letter from the U.S. Environmental Protection Agency to the City of Lakeland dated March 2,

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1979. Further, the limit of 1.2 lb/mmBtu heat input applies, regardless of the removal efficiency.

The actual sulfur dioxide emissions will be much less than 1.2 lb/mmBtu even when the 85 percent removal rate is not achieved because the desulfurization unit will continue to operate even when lower sulfur coal (or coal/refuse/petroleum coke combinations) is burned. In other words, the resultant sulfur dioxide emissions when burning a lower sulfur fuel (sulfur content of less than 3.3 percent) and operating the desulfurization unit will be less than the sulfur dioxide emissions would be if high sulfur coal (3.3 percent sulfur) were burned, even with the desulfurization unit operating at an 85 percent removal efficiency. An 85 percent removal efficiency should therefore not be required when lower sulfur fuels are burned.

Accordingly, Condition 2.B. should be changed as follows:

A flue gas desulfurization system will be installed to treat all exhaust gases. The desulfurization system and will operate at a minimum SO₂ removal efficiency of 85 percent whenever high sulfur (3.3% sulfur) coal is burned.

Monitor for Sulfur Dioxide Removal Efficiency

The PSD permit for McIntosh Unit No. 3 required the installation and operation of sulfur dioxide (SO₂) continuous emissions monitors (CEMs), both before and after the flue gas desulfurization unit, to calculate sulfur removal efficiencies. Consequently, when Unit No. 3 was constructed, SO₂ CEMs were installed both before and after the flue gas desulfurization unit. Subsequent to installation however, the CEM located before the flue gas desulfurization unit has not performed as consistently as desired (and has in fact malfunctioned) due to the high level of sulfuric acid in the flue gas prior to the desulfurization unit. Sulfur removal efficiencies can be determined by calculating the sulfur dioxide emission rate prior to the desulfurization unit based on the sulfur content of the fuel being burned and comparing that rate to the sulfur dioxide emission rate recorded by the CEM installed *after* the desulfurization unit. Because this alternative method of determining the sulfur removal efficiency exists and because it is impracticable to successfully operate a CEM prior to the desulfurization unit, the City respectfully requests that Condition No. 6 be revised as follows:

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.~~

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Startup Fuels

Because, like all other coal units, Unit No. 3 must be started on natural gas or fuel oil, Lakeland requests that the PSD permit be revised to reflect that natural gas and low sulfur fuel oil may be burned during startup. Further, because these fuels are "clean fuels," Lakeland also requests that the PSD permit be revised to clarify that these fuels may be burned at any time.

Petroleum Coke

As stated above, the City of Lakeland recently conducted a successful test burn of petroleum coke blended with coal. In an effort to use the most cost-effective fuels while not increasing emissions above allowable limits, the City of Lakeland requests that its PSD permit be revised to allow petroleum coke to be burned when blended with coal. Because continuous emissions monitors are installed for sulfur dioxide, nitrogen oxides, and opacity, as required by the PSD permit (Condition No. 6) and NSPS (40 CFR § 60.45), the City can ensure that the emission limits for these pollutants are not exceeded when petroleum coke is blended with coal (or coal and refuse) and burned in Unit No. 3. The City accordingly requests that a Condition No. 8 be added as follows:

8. The following fuels may be burned:

Coal only

Oil only

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

Oil and up to 10% refuse (based on heat input)

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

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

In addition to this request to amend the PSD permit and application, Lakeland is seeking a separate modification of the site certification for Unit No. 3, which was issued pursuant to the Florida Power Plant Siting Act (PA-74-06) on December 7, 1978. The request for modification of the site certification, dated December 7, 1994, is attached to the enclosed permit application as Attachment SI-1.

Clair H. Fancy, Chief
Bureau of Air Regulation
January 4, 1995
Page 6

Thank you for your consideration of this request. If you have any questions, please contact me at 813-499-6603.

Sincerely,



and Farzie Shelton
Environmental Affairs
Department of Electric & Water Utilities

(4 copies enclosed)

cc: Hamilton S. Oven, Jr., DEP
Bill Thomas, DEP SW District
Mike Hickey, DEP SW District
Jewell Harper, EPA Region IV
Brian Beals, EPA Region IV
Ken Kosky, KBN
Angela Morrison, HBGS

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.

Hamilton S. Oven, Jr.
Florida Department of Environmental Protection
April 6, 1995
Page 2

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

Hamilton S. Oven, Jr.
Florida Department of Environmental Protection
April 6, 1995
Page 3

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.

Hamilton S. Oven, Jr.
Florida Department of Environmental Protection
April 6, 1995
Page 4

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 your 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

Hamilton S. Oven, Jr.
Florida Department of Environmental Protection
April 6, 1995
Page 5

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

United States
Environmental Protection
Agency

345 Courtland Street NE
Atlanta GA 30308

Mississippi, North Carolina,
South Carolina, Tennessee,
Kentucky



MAR 02 1979

REF: 4RC

Mr. Stephen C. Watson
Assistant City Attorney
City of Lakeland
World Citrus Center
Lakeland, Florida 33802

Re: City of Lakeland McIntosh
Power Plant Unit 3

Dear Mr. Watson:

We have reviewed the materials previously submitted on whether Clean Air Act new source performance standards (NSPS) promulgated in the September 19, 1978, Federal Register, apply to the above. The materials disclose that Unit 3 is not subject to those NSPS. The basis for this conclusion is described in the attached memorandum.

If you have any questions on this, please call (telephone 404/881-2335).

Sincerely yours,

Sanford W. Harvey Jr.
Sanford W. Harvey Jr.
Regional Counsel

Enclosure

MAR 5 REC'D

DATE NOV 15 1978

SUBJECT BACT Baseline for Louisa Generating Station

8.5

Michael A. Trutna
Policy Development Section, SIB, CPDD

TO: Gale A. Wright, P.E.
Chief, Technology Analysis Section, Region VII

In your memo of October 13, 1978, (enclosed) you asked for assistance in determining the BACT baseline for the proposed construction at the Louisa Generating Station of the Illinois Gas and Electric Company (IGEC). Specifically, you asked how the September 19, 1978, proposal to revise the applicable NSPS for SO₂ from power plants might affect your BACT determination, notwithstanding you have determined that the revised standard itself will not apply (i.e., the boiler was ordered in the spring of 1978).

Since you have determined that a complete application was not received until May 31, 1978, I agree with your statement that the new PSD regulations activating Section 165 of the recent Act Amendments will apply. As you know, under the new PSD requirements, applicable sources must apply BACT. The resulting BACT determination must be made on a case-by-case basis taking into account several considerations including socio-economic costs and the anticipated environmental and energy impacts. In no event will BACT represent less control than provided by the applicable NSPS. Thus, as a minimum, the Louisa Station must at least meet the old NSPS as provided under the previous PSD regulations.

More importantly, case-by-case BACT may well require substantially more control than the old NSPS. The accepted practice within EPA is to make the initial presumption that all power plant applicants subject to the new PSD regulations can accomplish emission reductions at least equivalent to those required under the proposed NSPS revisions. This generally means that such sources will be expected to install a continuous sulfur removal system in the case of SO₂ control. Although the source may have filed a complete application before the date of NSPS proposal, information from well controlled sources that formed the basis for the NSPS revision was available well before IGEC's application was filed. Therefore, it is reasonable to expect that the Louisa Generating Station should plan to install a sulfur removal system which operates at 85% or higher control efficiency on a 24-hour basis unless they can present evidence of unusual circumstances which justify less control.

If I can be of any further assistance on the matter, please feel free to call on me.

Enclosure

cc: R. Rhoads
D. Tyler
D. Dunbar
R. Biondi
NSR Contacts, Regions I-X

AIR PROGRAMS
OFFICE
RECEIVED
NOV 17 1978
RECEIVED
EPA-REGION VII
ATLANTA, GA.

Table 3-2 NO_x and SO₂ Compliance Test Results:
City of Lakeland McIntosh Power Plant, Unit #3
June 9, 1992

| Run # | O ₂ (%V) | NO _x (ppmV) | SO ₂ (ppmV) | NO _x (lb/MMBtu) | SO ₂ (lb/MMBtu) |
|----------|------------------------|---------------------------|---------------------------|-------------------------------|-------------------------------|
| 1 | 5.7 | 207.2 | 287.5 | 0.333 | 0.642 |
| 2 | 5.8 | 201.4 | 295.7 | 0.326 | 0.647 |
| 3 | 5.9 | 192.8 | 281.2 | 0.314 | 0.636 |
| Averages | 5.8 | 200.5 | 288.1 | 0.324 | 0.647 |

Table 3-2 NO_x and SO₂ Compliance Test Results:
City of Lakeland McIntosh Power Plant, Unit #3
June 23, 1997 ³

| Run # | O ₂ (%V) | NO _x (ppmV) | SO ₂ (ppmV) | NO _x (lb/MMBtu) | SO ₂ (lb/MMBtu) |
|----------|------------------------|---------------------------|---------------------------|-------------------------------|-------------------------------|
| 1 | 7.0 | 264.1 | 147.7 | 0.464 | 0.361 |
| 2 | 7.0 | 272.0 | 143.7 | 0.478 | 0.351 |
| 3 | 7.0 | 271.1 | 143.9 | 0.476 | 0.351 |
| Averages | 7.0 | 269.1 | 145.1 | 0.473 | 0.354 |

Source: ESE, 1993

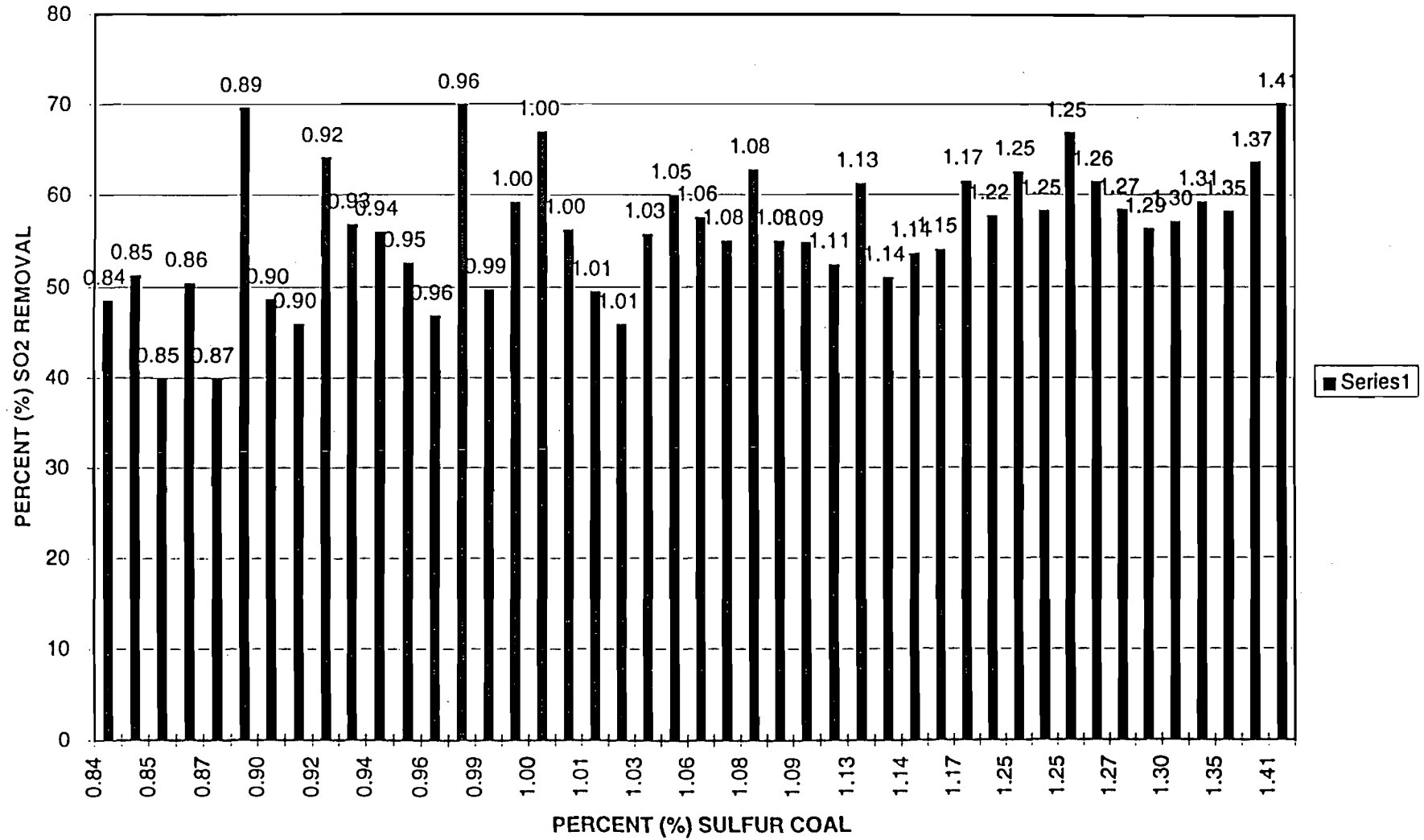
Table 3-2 NO_x and SO₂ Compliance Test Results:
City of Lakeland McIntosh Power Plant, Unit #3
June 9, 1994

| Run # | O ₂ (%V) | NO _x (ppmV) | SO ₂ (ppmV) | NO _x (lb/MMBtu) | SO ₂ (lb/MMBtu) |
|----------|------------------------|---------------------------|---------------------------|-------------------------------|-------------------------------|
| 1 | 6.9 | 250.0 | 247.9 | 0.436 | 0.601 |
| 2 | 7.0 | 247.9 | 244.2 | 0.435 | 0.596 |
| 3 | 6.9 | 247.4 | 269.4 | 0.431 | 0.652 |
| Averages | 6.9 | 248.4 | 253.8 | 0.434 | 0.616 |

Note: All concentrations are expressed on a dry basis.

✓

PERCENT (%) SULFUR COAL VS PERCENT (%) SO2 REMOVAL - 1994



Best Available Copy

copy All Staff
All States
All locals

~~Walter Smith~~ A-7
Costle
Stewart
RECEIVED
DEPT. OF ENVIRONMENTAL PROTECTION
JAN 20 1979
pg return

DATE: JAN 10 1979

SUBJECT: BACT Determinations for Power Plants Subject to Revised NSPS

FROM: Walter C. Barber, Director
Office of Air Quality Planning and Standards

Walter Barber

TO: Deputy Regional Administrator, Regions I-X

OFFICE OF SECRETARY

It has come to my attention that some confusion may exist relative to the applicability of the proposed new source performance standard (NSPS) for steam electric power plants to the PSD permitting process. The PSD program requires a determination that new power plants employ best available control technology (BACT) which is defined on a case-by-case basis and can be no less stringent than the applicable NSPS. Thus, for new power plants where the proposed NSPS identifies the applicable standard, all PSD permit decisions regarding BACT and application completeness should be made to reflect at least the level of stringency contained in this proposal.

JP

At the time of proposal, Administrator Costle indicated that no final decision had been made as to the appropriate stringency of the standard and that he would base the final rule on the record developed during the public comment period. Mr. Costle further indicated that he was proposing the stringent alternative, in part, because it would be easier to design down to a less stringent promulgation than it would be to design up to a more stringent standard. Accordingly, BACT decisions made prior to promulgation which require control equal to that contained in the proposal should be reviewed against the final standard to determine if alternative (less stringent) controls would be more appropriate. Of course, any more stringent standards required by the promulgated rule would also establish a new technology baseline for the relevant portion of the BACT determination.

Walter Costle

- cc: D. Hawkins
- Director, Air & Hazardous Materials Division, Regions I-X
- R. Rhoads
- S. Kuhrtz
- I. Artico
- B. Steigerwald
- M. Fast
- D. Borchers
- E. Tuerk

Economic, Energy and Environmental Impacts Associated with SO₂ Removals

| Impact | SO ₂ Removal In FGD System | | |
|--------------------------------------|---------------------------------------|-------------|-------------|
| | 55% | 65% | 85% |
| Economic | | | |
| Actual | Base | \$962,130 | \$1,605,067 |
| Lost Revenue | | \$933,090 | \$1,201,560 |
| Total: | | \$1,895,220 | \$2,806,627 |
| Energy (kW-hr/yr) | 12,951,000 | 29,321,000 | 34,031,000 |
| Increase: | | 16,370,000 | 21,080,000 |
| | | 126.40% | 162.77% |
| Environmental | | | |
| By-Products (tons/yr) | 149,595 | 157,057 | 171,983 |
| Increase: | | 7,462 | 22,388 |
| | | 4.99% | 14.97% |
| Water Use (1,000 gal/yr) | 190,441 | 291,234 | 291,592 |
| Increase: | | 100,793 | 101,150 |
| | | 52.93% | 53.11% |
| Secondary Emissions (tons/yr) | Base | 110 | 142 |
| Assumptions: | | | |
| Sulfur Content: | 1.11% | 1.11% | 1.11% |
| Heat Content: | 12,925 | 12,925 | 12,925 |
| Capacity Factor: | 80% | 80% | 80% |
| Heat Input: | 3,640 | 3,640 | 3,640 |

Florida Department of
Environmental Protection

Memorandum

TO: Buck Oven

THROUGH: Clair Fancy *CF*

FROM: A. A. Linero *AA Linero 1/5/96*

DATE: January 5, 1996

SUBJECT: City of Lakeland, C. D. McIntosh Plant, Unit No. 3
Case PA74-06-SR, PSD-FL-008, Letter of 12/28/95

Attached is a marked up copy of the draft modification order for the referenced unit. Please call if you wish to discuss.

CF/aal

Attachment

DRAFT

Coordination Office, Department of Environmental Regulation Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

2. Lakeland shall maintain and submit to the Department on an annual basis for a period of five years from the date the unit is initially, in commercial operation, 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 emission increases of carbon monoxide, nitrogen oxides, or sulfuric acid mist.

H. Fuels:

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 oil (> 0.5 percent sulfur by weight) consistent with Conditions I.A.2.b. or I.A.2.c.
- Natural gas only or in combination with any of the other fuels or fuel combinations listed above.

you could write out less than or equal to if problem with symbol.

recommend spacing between fuel types, or ending each fuel type with a period.

II. Water Discharges

Discharges during construction and operation of the Unit No. 3 shall be in accordance with all applicable

DRAFT

operation as expeditiously as possible.

C. Stack Testing:

1. - no change
2. Performance tests shall be conducted and data reduced in accordance with methods and procedures in accordance with EPA or DEP-approved test methods. Standard Sampling Techniques and Methods of the Determination on Air Pollutants from Point Sources, July 1975.

3. - 4. - no change

5. Stack tests for particulates, ~~PM₁₀~~ ^{and SO₂} NO_x ~~and SO₂~~ shall be performed annually in accordance with conditions 2, 3 and 4 above. ^{CEMS and} *CEMS Relative Accuracy tests may be used to determine compliance as long as the source and test conditions are consistent with the applicable requirements.*

D. Reporting

1. Stack monitoring, ~~fuel usage and fuel analysis~~ data shall be reported to the Department on a quarterly basis in accordance with 40 CFR, Part 60, Section 60.7(c), (d) and in accordance with ~~17-2.08~~ 62-297.405(1)(g), FAC. Fuel usage and fuel analysis data shall be reported to the Department on an annual basis.

2. - no change

E. - F. - no change

G. Reporting:

1. Beginning one month after certification the applicant shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of major pieces of equipment (including control equipment). All reports and information required to be submitted under this condition shall be submitted to ~~Mr. Hamilton S. Owen, Jr.,~~ the Administrator, of Power Plant Siting

DRAFT

Fuel-Fired Steam Generators for which Construction Started After August 17, 1971.

b. 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 and with other fuels are co-fired, sulfur dioxide emissions shall not exceed 0.718 pound per million Btu heat input based on a 30-day rolling average and shall comply with the reduction requirements given above.

c. 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 SO₂ scrubber will be allowed.

d. The burning of high sulfur oil (greater than 0.5 percent by weight) or a combination of high sulfur oil and municipal refuse as an emergency

DRAFT

permits if the request involves a relief mechanism (e.g., mixing zone, variance, etc.) From state standards, a relaxation of conditions included in the permit due to state permitting requirements, or the inclusion of less restrictive air emission limitations in the air permits.

c. All other modifications shall be made in accordance with Section 403.516, F.S.

CONDITIONS OF CERTIFICATION - SPECIAL

I. Air

The construction and operation of the Unit No. 3 at the McIntosh Plant shall be in accordance with all applicable provisions of the Chapters ~~17-2, 17-5, and 17-7~~ 62-210 -62-297, Florida Administrative Code. The permittee shall comply with the following conditions of certification:

A. Emission Limitations

1. Stack emissions shall not exceed those specified in Chapter ~~17-2.04(6)(e) 1. 62-296.405~~ ^{and 62-296.800(2)(a) 1.} FAC.
2. ~~The permittee shall not burn a fuel oil containing more than an average of 0.7% sulfur unless it can be demonstrated that either, a) heat efficiency is such as to insure compliance with all applicable emission limitations, or b) that a flue gas desulfurization unit is installed that will insure compliance with applicable emission limitations.~~
 - a. Sulfur dioxide emitted to the atmosphere from the boiler shall not exceed 1.2 pounds per million Btu heat input in accordance with 40 CFR 60 Subpart D, Standards of Performance for Fossil-



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

December 28, 1995

James S. Alves, Esq.
Hopping Green Sams & Smith
P.O. Box 6526
Tallahassee, FL 32314-6526

Re: Lakeland McIntosh Unit 3, PA 74-06SR

Dear Mr. Alves:

Enclosed please find a draft Modification Order for the above referenced unit. Please review and comment. By copy of this letter, I am asking DEP personnel to also comment on the draft. Please return your comments by January 16, 1996.

If I or my staff can be further assistance in this matter, we can be contacted at (904) 487-0472, or via Suncom at 277-0472.

Sincerely,

Hamilton S. Oven, P.E.
Administrator, Siting
Coordination Section

cc: Chip Collette
Clair Fancy
Phil Coram

RECEIVED

JAN 02 1996

**BUREAU OF
AIR REGULATION**

DRAFT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN RE: CITY OF LAKELAND;)
C.D. McINTOSH POWER PLANT)
UNIT NO. 3; MODIFICATION OF)
CONDITIONS OF CERTIFICATION)
PA-74-06SR-E)
_____)

FINAL ORDER MODIFYING
CONDITIONS OF CERTIFICATION

On December 7, 1978, the Governor and Cabinet, acting as the Siting Board, issued a final order, pursuant to Chapter 403, Part II, Fla. Stat., approving Certification of the City of Lakeland McIntosh Power Plant Unit Number 3 ("McIntosh Unit No. 3"). The Site Certification authorized construction and operation of a coal-, refuse-, and oil-fired steam electric generating unit, along with various associated facilities. That Site Certification was subsequently modified in 1980, 1988, and 1993.

On December 7, 1994, the City of Lakeland filed a request to modify the conditions of certification for McIntosh Unit No. 3 pursuant to Section 403.516(1)(b), Fla. Stat., and Rule 62-17.211, F.A.C. On October 26, 1995, the City of Lakeland supplemented the request for modification. The City of Lakeland requested that the conditions be modified to approve use of an alternative fuel, petroleum coke. In addition, the City of Lakeland's requests included minor revisions to: 1) update regulatory references;

DRAFT

2) clarify that the Certification regulates only McIntosh Unit No. 3; 3) reflect the elimination of use of the artificial marsh, and 4) adjust submittal requirements for fuel usage and analysis data.

Copies of the City of Lakeland's modification request were distributed to all parties to the certification proceeding and made available for public review. On January 27, 1995, a Notice of Receipt of Proposed Modification of Power Plant Certification regarding the proposed modifications was published in the Florida Administrative Weekly. The notice specified DEP's intent to modify the conditions of certification. On March 9, 1995, the City of Lakeland responded to the Department of Environmental Protection's (DEP's) requests for additional information. On December 22, 1995, a Notice of Intent to Issue Proposed Modification of Power Plant Certification was published in the Administrative Weekly. The notice specified that a hearing would be held if requested on or before 45 days from receipt of the notice of proposed modification by the parties or within 30 days of publication of the notice by persons whose substantial interests are affected by the proposed modification. The Department did not receive any written objections to the proposed modifications.

Accordingly, in the absence of any written objection, **IT IS ORDERED:**

12/22/95

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The proposed changes to the Conditions of Certification for McIntosh Unit No. 3 as described in the December 7, 1994, request for modification and October 26, 1995 supplemental request, as clarified by the City of Lakeland's March 9, 1995 responses to DEP's requests for additional information are **APPROVED**. Pursuant to Section 403.516(1)(b), Fla. Stat., DEP hereby **MODIFIES** the conditions of certification for the City of Lakeland McIntosh Unit No. 3 as follows:

GENERAL

1. Change in Discharge

All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any regulated pollutant not identified in the application, or any discharge more frequent than, or at a level in excess of that authorized herein, shall constitute a violation of the certification. Any anticipated proposed facility expansions, production increases, or process modifications which will result in new, different or increased discharges or expansion in steam generating capacity of Unit No. 3 will require a submission of a new or supplemental application pursuant to Chapter 403, Florida Statutes.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any limitation specified in this certification, the permittee shall notify the Southwest District Manager of the Department

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by telephone during the working day during which said noncompliance occurs and shall confirm this situation in writing within seventy-two (72) working-day hours of first becoming aware of such conditions, supplying the following information:

- a. A description and cause of noncompliance; and
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying event.

3. Facilities Unit No. 3 Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this certification. Such systems are not to be bypassed without prior department approval.

4. Adverse Impact - no change

5. Right of Entry

The permittee shall allow the Secretary of the Florida Department of Environmental ~~Regulation~~ Protection and/or authorized representatives, upon the presentation of credentials: ---- no change

6. - 10. - no change

7. Review of Site Certification

The certification shall be final unless revised, revoked or suspended pursuant to law. At least every five years from the date of issuance of this certification or any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control

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Act Amendments of 1972, for the plant units, the Department shall review all monitoring data that has been submitted to it during the preceding five-year period, for the purposes of determining the extent of the permittee's compliance with the conditions of this certification and the environmental impact of this facility unit. The Department shall submit the results of its review and recommendations to the permittee. Such review will be repeated at least every five years thereafter.

8. Modification of Conditions

The conditions of this certification may be modified in the following manner:

- a. The Board hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to monitoring or sampling.
- b. This certification shall be automatically modified to conform to any subsequent amendments, modifications, or renewals made by DEP under a federally delegated or approved program to any separately issued Prevention of Significant Deterioration (PSD) permit, Title V Air Permit, or National Discharge Elimination System (NPDES) permit for the certified facility. Lakeland or Orlando Utilities Commission (OUC), as appropriate, shall send each party to the certification proceeding (at the party's last known address as shown on the record of such proceeding) copies of notice of requests submitted by Lakeland or OUC for modifications or renewals of the above listed

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permits if the request involves a relief mechanism (e.g., mixing zone, variance, etc.) From state standards, a relaxation of conditions included in the permit due to state permitting requirements, or the inclusion of less restrictive air emission limitations in the air permits.

c. All other modifications shall be made in accordance with Section 403.516, F.S.

CONDITIONS OF CERTIFICATION - SPECIAL

I. Air

The construction and operation of the Unit No. 3 at the McIntosh Plant shall be in accordance with all applicable provisions of the Chapters ~~17-2, 17-5, and 17-7~~ 62-210 -62-297, Florida Administrative Code. The permittee shall comply with the following conditions of certification:

A. Emission Limitations

1. Stack emissions shall not exceed those specified in Chapter ~~17-2.04(6)(e) i.~~ ^{62-296.405(2)(d) i.} 62-296.405 FAC.
2. ~~The permittee shall not burn a fuel oil containing more than an average of 0.7% sulfur unless it can be demonstrated that either, a) heat efficiency is such as to insure compliance with all applicable emission limitations, or b) that a flue gas desulfurization unit is installed that will insure compliance with applicable emission limitations.~~
 - a. Sulfur dioxide emitted to the atmosphere from the boiler shall not exceed 1.2 pounds per million Btu heat input in accordance with 40 CFR 60 Subpart D, Standards of Performance for Fossil-

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Fuel-Fired Steam Generators for which Construction Started After August 17, 1971.

b. 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 and with other fuels are co-fired, sulfur dioxide emissions shall not exceed 0.718 pound per million Btu heat input based on a 30-day rolling average and shall comply with the reduction requirements given above.

c. 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 SO₂ scrubber will be allowed.

d. ^{Side}The burning of high sulfur oil (greater than 0.5 percent by weight) or a combination of high sulfur oil and municipal refuse as an emergency

DRAFT

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.

e. 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 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.

3. - no change
4. Particulate emissions from the coal handling facilities:
 - a. The applicant shall not cause to be discharged into the atmosphere from any coal processing or conveying equipment, coal storage system, or coal transfer and loading system processing coal, visible emissions which exceed 20 percent opacity.
 - b. - no change
5. Particulate matter emitted into the atmosphere from the boiler shall not exceed:

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

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| | |
|----------------------------|--------------|
| <u>Coal/Petcoke/Refuse</u> | <u>0.050</u> |
| <u>Oil</u> | <u>0.070</u> |
| <u>Oil/Refuse</u> | <u>0.075</u> |

B. Air Monitoring Program

1. ~~The permittee shall install and operate continuously monitoring devices for the Unit No. 3 boiler exhaust for sulfur dioxide, nitrogen dioxide and opacity. The monitoring devices shall meet the applicable requirements of 17-2.08, FAE~~ Continuous monitors shall be installed and operated in accordance with 40 CFR 60.45 and 60.13. In addition, the 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.

2. - 3. - no change

4. The permittee shall provide sampling ports into the stack and shall provide access to the sampling ports, in accordance with Standard Sampling Techniques and Methods of Analysis for The Determination of Air Pollutants from Point Sources, July 1975 Rule 62-297, F.A.C.

5. - no change

6. Emission Control Systems:

Prior to operation of the source, the owner or operator shall submit to the Department a standardized plan or procedure that will allow the company to monitor emission control equipment efficiency and enable the company to return malfunctioning equipment to proper

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operation as expeditiously as possible.

C. Stack Testing:

1. - no change

2. Performance tests shall be conducted and data reduced in accordance with methods and procedures in accordance with EPA or DEP-approved test methods. Standard Sampling Techniques and Methods of the Determination on Air Pollutants from Point Sources, July 1975.

3. - 4. - no change

5. Stack tests for particulates, ~~PM10~~ ^{and SO₂} NO_x ~~and SO₂~~ shall be performed annually in accordance with conditions 2, 3 and 4 above. ^{CEMS and} CEMS Relative Accuracy tests may be used to determine compliance as long as the source and test conditions are consistent with the applicable requirements.

D. Reporting

1. Stack monitoring, ~~fuel usage and fuel analysis~~ data shall be reported to the Department on a quarterly basis in accordance with 40 CFR, Part 60, Section 60.7(c), (d) and in accordance with ~~17-2.00~~ 62-297.405(1)(g), FAC. Fuel usage and fuel analysis data shall be reported to the Department on an annual basis.

2. - no change

E. - F. - no change

G. Reporting:

1. Beginning one month after certification the applicant shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of major pieces of equipment (including control equipment). All reports and information required to be submitted under this condition shall be submitted to ~~Mr. Hamilton S. Owen, Jr.,~~ the Administrator, of Power Plant Siting

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Coordination Office, Department of Environmental Regulation Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

2. Lakeland shall maintain and submit to the Department on an annual basis for a period of five years from the date the unit is initially, in commercial operation, 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 emission increases of carbon monoxide, nitrogen oxides, or sulfuric acid mist.

H. Fuels:

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 oil (> 0.5 percent sulfur by weight) consistent with Conditions I.A.2.b. or I.A.2.c.
- Natural gas only or in combination with any of the other fuels or fuel combinations listed above.

you could write out less than or equal to if problem with symbol

recommend spacing between fuel types, or ending each fuel type with a period.

II. Water Discharges

Discharges during construction and operation of the Unit No. 3 shall be in accordance with all applicable

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provisions of Chapter 62-302 17-3, Florida Administrative Code and 40 CFR 423, Effluent Guidelines and Standards for Steam Electric Power Generating Point Source Category. In addition, the permittee shall comply with the following conditions of certification:

A. Pretreatment Standards

Wastewater discharges from Unit No. 3 to the Lakeland wetlands treatment system shall comply with the effluent limitation guidelines contained in 40 CFR, ~~Part § 423.16~~ 423.12 and amendments. The specific standards applicable to the facilities as planned are:

1. Cooling Tower Blowdown

There shall be no detectable amounts of materials added for corrosion inhibition containing zinc and chromium in cooling tower blowdown discharged to the City of Lakeland wetland treatment system. ~~On an emergency basis the on site Marsh Treatment System may be used to treat cooling tower blowdown.~~

2. - 3. - no change

4. Chemical Wastes and Boiler Blowdown

All low volume wastes (demineralizer regeneration, cooling tower basin cleaning wastes, floor drainage, sample drains and similar wastes), metal cleaning wastes (including preheater and fireside wash) and boiler blowdown shall be treated as required for pH adjustment and removal of chemical constituents. These wastewaters will be treated in an process wastewater treatment system capable of complying with 40 CFR, ~~Part 423.12~~ § 423.16 and discharged with the cooling tower blowdown via a return pipeline to the Lakeland wetlands treatment system. The remaining sludge shall be

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During construction and plant operation, necessary measures shall be used to settle, filter, treat or absorb silt containing or pollutant laden stormwater runoff to limit the suspended solids to 50 mg/l or less during rainfall periods not exceeding the 10-year, 24-hour rainfall, and to prevent an increase in turbidity to ~~50 Jackson Turbidity Units~~ 29 NTU's above background in waters of the State.

Control measures shall consist at the minimum, of filters, sediment traps, barriers, berms or vegetative planting. Exposed or disturbed soil shall be protected as soon as possible to minimize silt and sediment laden runoff. The pH shall be kept within the range of 6.0 to 8.5.

VI. Solid Wastes

Solid Wastes resulting from construction or operation shall be disposed of in accordance with the applicable regulations of Chapter ~~17-7~~ 62-701, FAC.

Open burning in connection with land clearing shall be in accordance with Chapter ~~71-5~~ 62-256, FAC, no additional permits shall be required, but the Division of Forestry shall be notified. Open burning shall not occur if the Division of forestry has issued a ban on burning due to fire hazard conditions.

VIII. Solid Waste Utilization System - no change

The solid waste utilization facility shall be designed and operated in compliance with all applicable regulations of the Department, including but not limited to Chapter ~~71-7~~ 62-701, FAC.

XIII. Transmission Lines

Directly associated transmission lines shall be constructed and maintained in a manner to minimize environmental impacts in accordance with Chapter 403, F.S.,

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and Chapters 2227F-6, 27F-7, and 62-312, F.A.C.

A. Construction

1. Filling and construction in waters of the State shall be minimized to the extend practicable. No such activities shall take place without obtaining lease or title from the ~~Department of Natural Resources~~ Board of Trustees of the Internal Improvement Trust Fund.
- 2.-9. - no change
10. Any archaeological sites discovered during construction of the transmission line shall be disturbed as little as possible and such discovery shall be communicated to the Department of State, ~~Division of Archive History and Records Management~~ Historical Resources.

XIV. Construction in Waters of the State

No construction in waters of the State shall commence without obtaining lease or title from the ~~Department of Natural Resources~~ Board of Trustees of the Internal Improvement Trust Fund.

XVI. Sanitary Waste Disposal

Sanitary waste from operating plant facilities shall be disposed of in a septic tank system, as approved by the ~~Health Department~~ of Health & Rehabilitative Services, as long as the average daily flow does not exceed 2,000 gallons per day. If the sanitary waste exceeds 2000 gpd, a properly designed treatment system shall be constructed upon receipt of approval by the Department.

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NOTICE OF RIGHTS

Any party to this Order has the right to seek judicial review of this Order pursuant to Section 120.68, Florida Statutes, by filing a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department of Environmental Protection in the Office of the General Counsel, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the appropriate filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date of the Final Order is filed with the Clerk of the Department of Environmental Protection.

DONE AND ORDERED this ____ day of _____, 199_,
in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

VIRGINIA B. WETHERELL
SECRETARY

DRAFT

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that copies of the foregoing has been furnished by regular U. S. Mail to the following this _____ day of _____, 199__:

James S. Alves, Esquire
Hopping Green Sams & Smith
P.O. Box 6526
Tallahassee, FL 32314-6526

City of Lakeland
2379 Broad Street
Lakeland, FL 33802

Mark Carpanini, Esquire
Office of County Attorney
P.O. Box 60
Bartow, FL 33830-0060

Richard Tschantz, Esquire
Southwest Fla. Water Mgmt. Dist.
2379 Broad Street
Brooksville, FL 34609-6899

Karen Brodeen, Esquire
Dept. of Community Affairs
2740 Centerview Drive
Tallahassee, FL 32399-2100

Hamilton S. Oven, Jr., P.E.
Department of Environmental
Protection
2600 Blair Stone Road, M.S.48
Tallahassee, FL 32399-2400

Robert V. Elias, Esquire
Division of Legal Services
Florida Public Service Comm.
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Andrew R. Reilly
East Lake Parker Residents
P.O. Box 2039
Haines City, FL 33844

Tom Tart
Greg DeMuth
Orlando Utilities Commission
500 South Orange Street
Orlando, FL 32801

Farzie Shelton
Dept of Water and Electric
Utilities
501 East Lemon Street
Lakeland, FL 33801-5050

CHARLES T. "CHIP" COLLETTE,
Assistant General Counsel
Florida Department of
Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400



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 |

Ms. Farzie Shelton
December 11, 1995
Page Two

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.

Ms. Farzie Shelton
December 11, 1995
Page Three

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.

Ms. Farzie Shelton
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Page Four

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.

Ms. Farzie Shelton
December 11, 1995
Page Five

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

Ms. Farzie Shelton
December 11, 1995
Page Six

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.

Kym Ober 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 6
 City of Lakeland
 509 E Lemon St
 Lakeland, FL 33801-5050*

4a. Article Number
Z 127 633 218

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

7. Date of Delivery
12/12/95

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**

Is your RETURN ADDRESS completed on the reverse side?
 Thank you for using Return Receipt Service.

Z 127 633 218



Receipt for Certified Mail

No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

PS Form 3800, March 1993

| | |
|---|-----------------|
| Sender <i>Farze Shelton</i> | |
| Street and No. <i>City of Lakeland</i> | |
| Post Office, State and ZIP Code <i>Lakeland, FL</i> | |
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |
| Postmark or Date | <i>12-11-95</i> |
| <i>Unit # 3</i> | |
| <i>POD-FL-008(B)</i> | |

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/1

Attachments

AFFIDAVIT OF PUBLICATION

THE LEDGER

Lakeland, Polk County, Florida

Case No

STATE OF FLORIDA)
COUNTY OF POLK)

Before the undersigned authority personally appeared Nelson Kirkland, who on oath says that he is Classified Advertising Manager of The Ledger, a daily newspaper published at Lakeland in Polk County, Florida; that the attached copy of advertisement, being a

Notice of Intent

in the matter of

To Issue Permit

in the

Court, was published in said newspaper in the issues of

November 10;

1995

Affiant further says that said The Ledger is a newspaper published at Lakeland, in said Polk County, Florida, and that the said newspaper has heretofore been continuously published in said Polk County, Florida, daily, and has been entered as second class matter at the post office in Lakeland, in said Polk County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Signed _____
Nelson Kirkland
Classified Advertising Manager

by Nelson Kirkland who is personally known to me

Sworn to and subscribed before me this10th.....

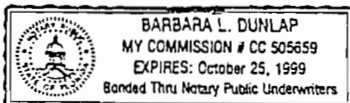
day of November A.D. 19 95

(Seal)

Barbara L. Dunlap
Notary Public

My Commission Expires 10-25-99

City of
Lakeland



STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT

The Department of Environmental Protection (Department) gives notice of its intent to amend an amendment of Permit PSD-FL-008 to the City of Lakeland Department of Electric and Utilities (City) at Lem Street, Lakeland, Polk County, Florida to change the Conditions of Approval related to fuel use contained in the Final Determination of December 27, 1978 applicable to the C.D. McIntosh Power Plant, 3030 East Lake Parker, Lakeland, Polk County Florida, Unit No. 3 as amended on September 5, 1995.

Unit No. 3 is a 364 megawatt electrical power generating unit, equipped with a sulfur dioxide scrubber and mist eliminator as well as an electrostatic precipitator for particulate control. In accordance with the current PSD permit, coal or refuse may be continuously burned as fuel in Unit No. 3 while oil may be burned during malfunction of the coal feed equipment or malfunction of the exhaust gas scrubber. The amendment will permit:

- Co-firing of 20 percent petroleum coke (a solid fossil fuel) with coal or coal and refuse.
- Firing low sulfur fuel oil or low sulfur fuel oil and refuse at any time.
- Firing natural gas at any time.

The Department has determined, or included provisions to insure that, there will be no increase in air pollutants including sulfur dioxide, nitrogen oxides, carbon monoxide, particulate matter and sulfuric acid mist as a result of the above operational changes. Since there will be no increase in pollutant emissions, the changes are not subject to review for Prevention of Significant Deterioration of Air Quality or a Best Available Control Technology Determination.

A person whose substantial interests are affected by the Department's proposed permit amendment may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall file a copy of the petition to the applicant at the address indicated above at the time of filing. To file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information: (c) The name, address, and telephone number of each petitioner; the applicant's name and address, the Department Permit Number and the county in which the project is located; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's proposed action; (d) A statement of the material facts disputed by Petitioner; if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends warrant reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate a final action. Accordingly, the Department's final action may be different from the position taken in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the discretion of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Contact: A.A. Unera (904) 488-1344

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619
Telephone: (813) 744-6100

Polk County ESD
330 W. Church Street
Barrow, Florida 33830
Telephone: (813) 534-7377

Any person may send written comments on the proposed action to Administrative Source Review Section, of the Department of Environmental Protection, Division of Air Resource Management, 2600 Blair Stone Road - Mail Station 5505, Tallahassee, Florida 32399-2400. Comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such requests must be received within 30 days of this notice.

F-506 - 11-10, 1995

Mailed 11/14
w/ Invoice
Rev Stacy

AFFIDAVIT OF PUBLICATION

THE LEDGER

Lakeland, Polk County, Florida

No

STATE OF FLORIDA)
COUNTY OF POLK)

Before the undersigned authority personally appeared Nelson Kirkland, who on oath says that he is Classified Advertising Manager of The Ledger, a daily newspaper published at Lakeland in Polk County, Florida; that the attached copy of advertisement, being a

Notice of Intent

matter of

To Issue Permit

was published in said newspaper in the issues of

November 10;

1995

Affiant further says that said The Ledger is a newspaper published at Lakeland, in said Polk County, Florida, and that the said newspaper has heretofore been continuously published in said Polk County, Florida, daily, and has been entered as second class matter at the post office in Lakeland, in said Polk County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement or publication in the said newspaper.

Signed *Nelson Kirkland*
Nelson Kirkland
Classified Advertising Manager

by Nelson Kirkland who is personally known to me

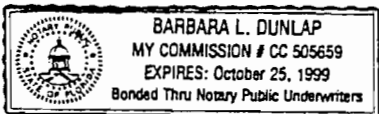
born to and subscribed before me this 10th

day of November A.D. 19..... 95

Seal *Barbara L. Dunlap*
Notary Public

Commission Expires 10-25-99

City of
Lakeland



STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT
PSD-FL-166/ACS3-190437

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit amendment to the City of Lakeland, Department of Electric and Water Utilities, 501 East Lemon Street, Lakeland, Florida 33801-5050. The amendment is of certain specific conditions related to fuel monitoring, sulfur dioxide (SO₂) and sulfuric acid mist (H₂SO₄) emissions, and nitrogen oxides (NO_x) reporting applicable to the Charles Larson Power Plant Unit No. 8.

The U.S. Environmental Protection Agency reviewed and concurred with the customized fuel monitoring schedule. The changes in SO₂ and H₂SO₄ limits are actually corrections and are not significant. The Department will remove the requirement in the PSD/air construction permit to correct compliance test data to ISO conditions for comparison with the NO_x emission limit of 25 ppm (drying natural gas) provided there will not be an increase in either lb/hr or tons/yr of NO_x emission rates. The applicant is required to submit an analysis of continuous emission monitoring data which shows that this action will not cause reductions in the water injection with corresponding increases in NO_x emissions. Therefore, this change will not cause or contribute to a violation of any air pollution ambient air standard or adversely affect the environment.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number, and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application/request have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

The application file is available for public inspection during normal business hours: 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environment Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619

Polk County Natural Resources Division
4189 Ben Durance Road
Barrow, Florida 33830

Any person may send written comments on the proposed action to Administrator, New Source Review, at the Department's Tallahassee address. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

*Mailed 11/14
w/ Invoice
rev Staff*

AFFIDAVIT OF PUBLICATION

THE LEDGER

Lakeland, Polk County, Florida

Case No

STATE OF FLORIDA)
COUNTY OF POLK)

Before the undersigned authority personally appeared Nelson Kirkland, who on oath says that he is Classified Advertising Manager of The Ledger, a daily newspaper published at Lakeland in Polk County, Florida; that the attached copy of advertisement, being a

Notice of Intent

in the matter of

To Issue Permit

in the

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November 10;

1995

Affiant further says that said The Ledger is a newspaper published at Lakeland, in said Polk County, Florida, and that the said newspaper has heretofore been continuously published in said Polk County, Florida, daily, and has been entered as second class matter at the post office in Lakeland, in said Polk County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Signed
Nelson Kirkland
Classified Advertising Manager

by Nelson Kirkland who is personally known to me

Sworn to and subscribed before me this 10th

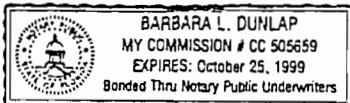
day of November A.D. 19 95

(Seal)

Barbara L. Dunlap
Notary Public

My Commission Expires 10-25-99

City of
Lakeland



F 506

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT

The Department of Environmental Protection (Department) gives notice of its intent to amend Permit PSD-FI-008 to the City of Lakeland Department of Electric and Utilities (City), 501 East Lemon Street, Lakeland, Polk County, Florida to change the Conditions of Approval related to fuel use contained in the Final Determination December 27, 1978 applicable to the C.D. McIntosh Power Plant, 3030 East Lake Parker Lakeland, Polk County Florida, Unit No. 3 as amended on September 5, 1995.

Unit No. 3 is a 364 megawatt electrical power generating unit, equipped with a sulfur dioxide scrubber and mist eliminator as well as an electrostatic precipitator for particulate control in accordance with the current PSD permit. Coal refuse may be continuously burned as Unit No. 3 while it may be burned during malfunction of the coal feed equipment or malfunction of the exhaust gas scrubber. The amendment will permit:

- Co-firing of 20 percent petroleum coke (a solid fossil fuel) with coal or coal and refuse.
- Firing low sulfur fuel oil or low sulfur fuel oil and refuse at any time.
- Firing natural gas at any time.

The Department has determined, or included provisions to insure that, there will be no increases in air pollutants including sulfur dioxide, nitrogen oxides, carbon monoxide, particulate matter and sulfuric acid mist as a result of the above operational changes. Since there are no increases in pollutant emissions, the changes are not subject to review for Prevention of Significant Deterioration of Air Quality or a Best Available Control Technology Determination.

A person whose substantial interests are affected by the Department's proposed permit amendment may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall file a copy of the petition to the applicant at the address indicated above at the time of filing. To file a petition within this time period shall constitute a waiver of any right such person has to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information: (a) The name, address, and telephone number of each petitioner; the applicant's name and address, the Department Permit Number and the county in which the project is located; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts captured by Petitioner; if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends warrant reversal or modification of the Department's action or proposed action and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate a decision. Accordingly, the Department's final action may be different from the position taken in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and participate as a party to this proceeding. Any subsequent intervention will only be at the discretion of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Contact: A.A. Linero (904) 488-1344

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619
Telephone: (813) 744-6100

Polk County ESD
130 W. Cherry Street
Branford, Florida 32830
Telephone: (813) 534-7377

Any person may send written comments on the proposed action to Administrative Source Review Section, at the Department of Environmental Protection, Division of Air Resource Management, 2600 Blair Stone Road - Mail Station 5505, Tallahassee, Florida 32399-2400. Comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such requests must be filed within 30 days of this notice.

F-506 - 11-10, 1995

*Mailed 11/14
at Invoice
Per Stacy*

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

November 14, 1995

Mr. C.H. Fancy, P.E.
Chief Bureau of Air Regulation
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RECEIVED

NOV 28 1995

**BUREAU OF
AIR REGULATION**

Dear Mr. Fancy:

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

We are in receipt of your letter dated November 3, 1995 and attached Proposed Permit Amendment, Intent to Issue, Public Notice of Intent to Issue Permit Amendment for the above referenced facility.

Pursuant to Section 403.815, Florida Statutes and DEP Rule 62-103.150, F.A.C., on November 10, 1995 we published the "Notice of Intent to Issue Permit Amendment". Therefore, enclosed please find Affidavit of Publication confirming publication of the Department's notice.

If you should have any questions, please do not hesitate to contact me at (941) 499-6603.

Sincerely



Farzie Shelton
Environmental Division

Enclosure

cc: Buck Oven, DEP



November 9, 1995

Farzie Shelton
ENVIRONMENTAL COORDINATOR, Ch. E.

VIA HAND DELIVERY

Clair H. Fancy, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
Magnolia Park Courtyard
Tallahassee, Florida 32301

RECEIVED
NOV 09 1995
BUREAU OF
AIR REGULATION

RE: City of Lakeland; C.D. McIntosh Unit No. 3;
Proposed Permit Amendment to PSD Permit PSD-FL-8

Dear Clair:

The City of Lakeland very much appreciates the Department of Environmental Protection's timely review of the City's request for permit amendment recently submitted regarding the above-referenced Prevention of Significant Deterioration (PSD) permit for the C.D. McIntosh Unit No. 3. The meeting last week between representatives from the Department and the City was very beneficial, and we appreciate the Department's efforts in quickly responding to the City's permit amendment request. Al Linero, Administrator of the Division of Air Resources Management's New Source Review Section, has diligently worked with the City to accomplish the permit amendment, and his efforts have been very much appreciated. While the proposed permit amendment is largely satisfactory to the City, in reviewing the proposed language, the City noted that a few of the proposed conditions may need to be clarified or revised.

Condition 2.B.

Under Condition 2.B., the draft permit amendment language requires that emissions information, including not only the pound-per-million-Btu emission rates but also the percentages of sulfur dioxide reductions, be provided to the Department on a quarterly basis. The City believes that it may be more appropriate to simply keep such records on site and available should the Department request to review the data. Any excess emissions or other potential non-compliance situations would, of course, need to be reported to the Department immediately. The City does not object to maintaining the information but is concerned that the paperwork burden may be unnecessary since the data would be available to the Department if requested. Because any excess emissions or other potential non-compliance situations would be reported immediately, the Department should not be as concerned with day-to-day information.

In addition, the language in Condition 2.B. should also be clarified to indicate that the emission limit of 0.718 pounds per million Btu heat input applies whenever blends of petroleum coke and other fuels are cofired. While this is the intent of the language, it could be

misinterpreted to mean that whenever coal and refuse are cofired, this limit would apply. We understand that this is not the intent of the language, and a simple clarification may be helpful.

To accomplish these changes, the City suggests the following language:

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.~~ This compliance information shall be retained for a period of three years and made available upon request by the Department. Whenever blends of coal ~~and petroleum coke~~ with other fuels ~~or refuse~~ are cofired burned, sulfur dioxide emissions shall not exceed 0.718 pounds per million Btu heat input based on a 30-day rolling average.

Conditions 2.C. and 2.D.

While the current Conditions 2.C. and 2.D. have not been proposed to be changed by the Department, it may be helpful to clarify that the "oil" referred to in these conditions relates to "high sulfur oil." Otherwise, these conditions could be interpreted to conflict with the new Condition 2.E. As stated below, it would also be helpful to indicate in new Condition 9 that high sulfur oil can also be used, consistent with Conditions 2.C. and 2.D. Additionally, "high sulfur oil" should be defined as oil with a sulfur content above 0.5 percent, based on weight. These changes are technical in nature and should help clarify future interpretations of the permit.

Condition 5.B.

In Condition 5.B., the Department is including additional reference methods for performing sulfur dioxide and nitrogen oxides tests. While these additional reference methods are appropriate, the PSD permit requirement to conduct performance tests applies only to the initial performance tests--not annual tests. In addition, because the sulfur dioxide emission limits are now based on a 30-day rolling average, it would not be appropriate to conduct a 3-hour annual stack test to determine compliance; rather, compliance must be determined based on the continuous emissions monitoring data. It may be helpful therefore to delete references to sulfur dioxide stack testing requirements.

Condition 6

In Condition 6, the proposed permit amendment clarifies that the fuel sampler will be used to analyze "solid fuel." While this language makes it clear that gaseous and liquid fuels would not be sampled and analyzed, it is not clear that "refuse" would not need to be sampled

and analyzed. It may therefore be better to include the word "fossil," so that the condition would clearly require that "solid fossil fuels" be sampled and analyzed.

Condition 8

It may be helpful to clarify that in Condition 8 that higher sulfur fuel may also be used, consistent with Conditions 2.C. and 2.D. In addition, while Condition 2.E. clarifies that low sulfur oil can be cofired with natural gas, it may be helpful to indicate in Condition 8 that natural gas may be cofired with any of the other fuels and fuel combinations. To accomplish these simple clarifications, the City suggests the following language:

Coal only

Low sulfur fuel oil (\leq 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 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

The City questions whether it is necessary to demonstrate that the use of petroleum coke will not result in emission increases of carbon monoxide or sulfuric acid mist. As the City has explained previously, based on available information, carbon monoxide and sulfuric acid mist emissions are not expected to increase due to the use of petroleum coke--any increases in carbon monoxide emissions would be due to coal quality and combustion practices and there is no indication that sulfuric acid mist emissions will increase. At the most, because no increase in the emission factor is expected, it would be appropriate, and consistent with the federal rules cited, to provide information to the Department indicating that utilization of the unit has not increased due to the use of petroleum coke. The City respectfully requests, therefore, that carbon monoxide and sulfuric acid mist be deleted from the language in Condition 9.

The City would like to thank you and the Department's air staff again for your continued cooperation and assistance in this permit amendment process. We hope to receive a final permit amendment after the public comment period, which should expire on December 10, 1995. Once the final permit has been issued, we understand that the new or revised permit conditions from

Clair Fancy
Florida Department of Environmental Protection
November 9, 1995
Page 4

this amendment along with the September 5, 1995, amendment will be incorporated into the Conditions of Certification during the current Site Certification Modification process. The City hopes that this process can also be completed within the next several weeks. To assist in this effort, Site Certification Conditions, as proposed to be revised, are attached to this letter and are included on a computer disk as well (WordPerfect 5.1 format).

If you or any of the Department's air staff have any questions regarding the clarification language being requested or other issues related to the PSD permit or Site Certification, please do not hesitate to contact me at (813) 499-6603 or (813) 254-3998.

Sincerely,

A handwritten signature in cursive script that reads "Farzie Shelton".

Farzie Shelton
Environmental Coordinator

cc: Howard Rhodes, FDEP
Al Linero, FDEP
Martin Costello, FDEP
Hamilton Owen, FDEP
Ken Kosky, KBN
Angela Morrison, HGSS

State of Florida Department of Environmental Regulation

City of Lakeland

C.D. McIntosh, Jr. Power Plant - Unit No. 3

Case No. PA 74-06-SR

CONDITIONS OF CERTIFICATION

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State of Florida Department of Environmental Regulation
City of Lakeland
C.D. McIntosh, Jr. Power Plant - Unit No. 3
Case No. PA 74-06-SR
CONDITIONS OF CERTIFICATION

GENERAL

1. Change in Discharge

All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any regulated pollutant not identified in the application, or any discharge more frequent than, or at a level in excess of that authorized herein, shall constitute a violation of the certification. Any anticipated proposed facility expansions, production increases, or process modifications which will result in new, different or increased discharges or expansion in steam generating capacity of Unit No. 3 will require a submission of a new or supplemental application pursuant to Chapter 403, Florida Statutes.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any limitation specified in this certification, the permittee shall notify the Southwest District Manager of the Department by telephone during the working day during which said noncompliance occurs and shall confirm this situation in writing within seventy-two (72) working-day hours of first becoming aware of such conditions, supplying the following information:

- a. A description and cause of noncompliance; and
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying event.

3. Facilities Unit No. 3 Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this certification. Such systems are not to be bypassed without prior department approval.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact resulting from noncompliance with any limitation specified in this certification, including but not limited to such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying event.

5. Right of Entry

The permittee shall allow the Secretary of the Florida Department of Environmental Protection ~~Regulation~~ and/or authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where an effluent source is located or in which records are required to be kept under the terms and conditions of this permit; and
- b. To have access to and copy all records required to be kept under the conditions of this certification; and
- c. To inspect and test any monitoring equipment or monitoring method required in this certification and to sample any discharge or pollutants, and
- d. To assess any damage to the environment or violation of ambient standards.

6. Revocation or Suspension

This certification may be suspended or revoked pursuant to Section 403.512, Florida Statutes, or for violations of any General or Special Condition.

7. Civil and Criminal Liability

This certification does not relieve the permittee from civil or criminal responsibility or liability for noncompliance with any conditions of this certification, applicable rules or regulations of the Department, or Chapter 403, Florida Statutes, or regulations thereunder.

Subject to Section 403.511, Florida Statutes, this certification shall not preclude the institution of any legal action or relieve the permittee from any responsibilities or penalties established pursuant to any other applicable State Statutes or regulations.

8. Property Rights

The issuance of this certification does not convey any property rights in either real or personal property tangible or intangible, nor any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. The applicant will obtain title, lease or right of use from the State of Florida, to any sovereign submerged lands occupied by plant, transmission line structures, or appurtenant facilities.

9. Severability

The provisions of this certification are severable, and if any provision of this certification, or the application of any provision of this certification to any circumstances, is held invalid, the application of such provision to other circumstances and the remainder of the certification shall not be affected thereby.

10. Definitions

The meaning of terms used herein shall be governed by the definitions contained in Chapter 403, Florida Statutes, and any regulation adopted pursuant thereto. In the event of any dispute over the meaning of a term used in these general or special conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statute or regulation or, in the alternative by the use of the commonly accepted meaning as determined by the Department.

11. Review of Site Certification

The certification shall be final unless revised, revoked or suspended pursuant to law. At least every five years from the date of issuance of this certification or any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control Act Amendments of 1972, for the plant units, the Department shall review all monitoring data that has been submitted to it during the preceding five-year period, for the purposes of determining the extent of the permittee's compliance with the conditions of this certification and the environmental impact of this facility unit. The Department shall submit the results of its review and recommendations to the permittee. Such review will be repeated at least every five years thereafter.

12. Modification of Conditions

The conditions of this certification may be modified in the following manner:

- a. The Board hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to monitoring or sampling.
- b. All other modifications shall be made in accordance with Section 403.516, F.S.

State of Florida Department of Environmental Protection Regulation
 City of Lakeland
 C.D. McIntosh, Jr. Power Plant Unit No. 3
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CONDITIONS OF CERTIFICATION

SPECIAL

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State of Florida Department of Environmental Protection Regulation
City of Lakeland
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CONDITIONS OF CERTIFICATION

SPECIAL

I. Air

The construction and operation of the Unit No. 3 at the McIntosh Plant shall be in accordance with all applicable provisions of the Chapters -17-2, -17-5, and -17-7 62-210 - 62-297, Florida Administrative Code. The permittee shall comply with the following conditions of certification:

A. Emission Limitations

1. Stack emissions shall not exceed those specified in Chapter ~~17-2.04(6)(e)-1~~ 62-296.405, FAC.
2. ~~The permittee shall not burn a fuel oil containing more than an average of 0.7% sulfur unless it can be demonstrated that either, a) heat efficiency is such as to insure compliance with all applicable emission limitations, or b) that a flue gas desulfurization unit is installed that will insure compliance with applicable emission limitations.~~
 - a. 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 SO₂ scrubber will be allowed.
 - b. The burning of high sulfur oil 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.
 - c. During malfunctions of equipment which cause an interruption of the coal feed to the boiler, the burning of high sulfur oil 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.
3. The height of the boiler exhaust stack for Unit 3 shall be not less than 250 feet above grade. The height of stacks for future units shall be determined after review of supplemental applications.
4. Particulate emissions from the coal handling facilities:

- a. The applicant shall not cause to be discharged into the atmosphere from any coal processing or conveying equipment, coal storage system, or coal transfer and loading system ~~processing coal~~, visible emissions which exceed 20 percent opacity.
- b. The applicant must submit to the Department within five (5) working days after it becomes available, copies of technical data pertaining to the selected particulate emissions control for the coal handling facility. These data should include, but not be limited to, a copy of the formal bid from the successful bidder, guaranteed efficiency and emission rates, and major design parameters such as air/cloth ratio and flow rate. The Department may, upon review of these data, disapprove the use of such device if the Department determines the selected control device to be inadequate to meet the visible emission limit specified in 5 (a) above.

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

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

6. 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. This compliance information shall be retained for a period of three years and made available upon request by the Department. Whenever blends of petroleum coke and with other fuels are cofired, sulfur dioxide emissions shall not exceed 0.718 pound per million Btu heat input based on a 30-day rolling average.

B. Air Monitoring Program

1. The permittee shall install and operate continuously monitoring devices for the Unit No. 3 boiler exhaust for sulfur dioxide, nitrogen dioxide and opacity. The monitoring devices shall meet the applicable requirements of 17-2-08, FAC 40 CFR 60.45 and 60.13. In addition, the 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.
2. The permittee shall operate the ambient monitoring device for sulfur dioxide in accordance with EPA reference methods in 40 CFR Part 53 and two ambient monitoring device for suspended particulates. New and existing monitoring devices shall be located as designated by the Department. The frequency of operation shall be every six days or as specified by the Department.
3. The permittee shall maintain a daily log of fuels used and copies of fuel analyses containing information on sulfur content, ash content and heating values to facilitate calculations of emissions.
4. The permittee shall provide sampling ports into the stack and shall provide access to the sampling ports, in accordance with Standard Sampling Techniques and Methods of Analysis for The Determination of Air Pollutants from Point Sources, July 1975.
5. The ambient monitoring program may be reviewed annually beginning two years after start-up of Unit No. 23 by the Department and the permittee.
6. Emission Control Systems:

Prior to operation of the source, the owner or operator shall submit to the Department a standardized plan or procedure that will allow the company to monitor emission control equipment efficiency and enable the company to return malfunctioning equipment to proper operation as expeditiously as possible.

C. Stack Testing:

1. Within 60 days after achieving the maximum capacity at which the facility will be operated, but no later than 180 days after initial startup, the owner or operator shall conduct performance tests for particulates and SO₂ and promptly furnish the Department a written report of the results of such performance tests.
2. Performance tests shall be conducted and data reduced in accordance with methods and procedures in accordance with EPA or DEP-approved test methods, Standard Sampling Techniques and Methods of the Determination on Air Pollutants from Point Sources, July 1975.

3. Performance tests shall be conducted under such conditions as the Department shall specify based on representative performance of the facility. The owner or operator shall make available to the Department such records as may be necessary to determine the conditions of the performance tests.
4. The owner or operator shall provide the Department with 30 days prior notice of the performance tests and afford the Department the opportunity to have an observer present.
5. Stack tests for particulates and NO_x and SO₂ shall be performed annually in accordance with conditions 2, 3 and 4 above.

D. Reporting

1. Stack monitoring, ~~fuel usage and fuel analysis~~ data shall be reported to the Department on a quarterly basis in accordance with 40 CFR, Part 60, Section 60.7(c),(d) and in accordance with 17-2-08 62-297.405(1)(g), FAC. Fuel usage and fuel analysis data shall be reported to the Department on an annual basis.
2. Ambient air monitoring data shall be reported to the Department quarterly by the last day of the month following the quarterly reporting period utilizing the SAROAD or other format approved by the Department in writing.

E. Coal Characteristics and Contracts

Before approval can be granted by the Department for use of control devices, characteristics of the coal to be fired must be known. Therefore, before these approvals are granted, the applicant must submit to the Department copies of coal contracts which should include the expected sulfur content, ash content, and heat content of the coal to be fired. These data will be used by the Department in its evaluation of the adequacy of the control devices.

F. Coal Information

As an alternative to the submittal of contracts for purchase of coal under condition E above, the applicant may submit the following information:

1. The name of the coal supplier;
2. The sulfur content, ash content, and heat content of the coal as specified in the purchase contracts;
3. The location of the coal deposits covered by the contract (including mine name and seam);
4. The date by which the first delivery of coal will be made;
5. The duration of the contract; and

6. An opinion of counsel for the applicant that the contract(s) are legally binding and enforceable.

G. Reporting:

Beginning one month after certification the applicant shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of major pieces of equipment (including control equipment). All reports and information required to be submitted under this condition shall be submitted to Mr. Hamilton S. Oven, Jr., Administrator of Power Plant Siting, Department of Environmental Protection Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32301.

H. Fuels:

The following fuels may be burned:

Coal only

Low sulfur fuel oil only (< 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 oil (> 0.5 percent sulfur by weight) consistent with Conditions I.A.2.b. or I.A.2.c.

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

II. Water Discharges

Discharges during construction and operation of the Unit No. 3 shall be in accordance with all applicable provisions of Chapter 62-302 47-3, Florida Administrative Code and 40 CFR 423, Effluent Guidelines and Standards for Steam Electric Power Generating Point Source Category. In addition, the permittee shall comply with the following conditions of certification:

A. Pretreatment Standards

Wastewater discharges from Unit No. 3 to the Lakeland wetlands treatment system shall comply with the effluent limitation guidelines contained in 40 CFR, ~~Part § 423.16~~ 423.12 and amendments. The specific standards applicable to the facilities as planned are:

1. Cooling Tower Blowdown

There shall be no detectable amounts of materials added for corrosion inhibition containing zinc and chromium in cooling tower blowdown discharged to the City of Lakeland wetland treatment system. ~~On an emergency basis the on site Marsh Treatment System may be used to treat cooling tower blowdown.~~

2. pH

The pH of all discharges shall be within the range of 6.0 to 9.0.

3. Polychlorinated Biphenyl Compounds

There shall be no release to the environment of polychlorinated biphenyl compounds.

4. Chemical Wastes and Boiler Blowdown

All low volume wastes (demineralizer regeneration, cooling tower basin cleaning wastes, floor drainage, sample drains and similar wastes), metal cleaning wastes (including preheater and fireside wash) and boiler blowdown shall be treated as required for pH adjustment and removal of chemical constituents. These wastewaters will be treated in an process wastewater treatment system capable of complying with 40 CFR, ~~Part § 423.16~~ 423.12 and discharged with the cooling tower blowdown via a return pipeline to the Lakeland wetlands treatment system. The remaining sludge shall be disposed of in the on site FGD stabilized sludge landfill.

5. Sluice Pond Overflow

Sluice pond overflow (coal pile runoff from less than 10-year, 24-hour rainfall and bottom and fly ash transport water) shall be treated if necessary required to meet the requirements of 40 CFR § Part ~~423.16~~ 423.12 and discharged with the cooling tower blowdown to the Lakeland wetlands treatment system.

6. Flue Gas Desulfurization Sludge Pond Overflow

The flue gas desulfurization sludge pond overflow shall be treated if required to meet the requirements of 40 CFR § Part ~~423.16~~ 423.12 in a process waste system and discharged with the cooling tower blowdown to the Lakeland wetlands treatment system.

~~B. In Plant Water Monitoring Program~~

~~A monitoring program shall be undertaken by the City of Lakeland on each effluent stream within the facility to determine compliance by Unit 3 with the applicable effluent guidelines of 40 CFR, Part ~~423.12~~ § 423.16 for those wastewaters discharged to the Lakeland wetlands treatment system. This monitoring program may be reviewed annually to determine the necessity for its continuance.~~

III. Groundwater

A. General

The use of groundwater shall be minimized to the greatest extent practicable.

B. Well Criteria

The well locations shall be approved by the Southwest Florida Water Management District. Design and construction of new wells shall be in accordance with the applicable rules of the Department of Environmental Protection Regulation and Southwest Florida Water Management District.

C. Groundwater Use Limitations

1. Groundwater used for makeup for the cooling tower for Unit No. 3 shall be limited to emergency use only, not to exceed 0.2166 million gallons per day on an average annual basis or 5.271 mgd on a maximum daily basis from 3 new wells.
2. Daily water use from the new wells shall be reported quarterly to the Southwest Florida Water Management District.

IV. Leachate

A. Compliance

Leachate from coal storage piles, settling and treatment ponds, ~~artificial-marsh, rapid-infiltration-beds,~~ secure land fills and flue gas desulfurization sludge ponds (FGD) shall not contaminate waters of the State (including both surface and groundwaters) in excess of the limitations of Chapters 62-302 and 62-520 4-7-3, FAC.

B. Monitoring

A monitoring well system shall be used to determine whether or not leachate from the treatment ponds, ~~artificial-marsh,~~ secure landfill, ash sluice ponds, and the flue gas desulfurization sludge ponds is reaching the groundwater.

1. Permittee shall collect background samples monthly commencing at least two months prior to construction of the wastewater treatment system sampling the following parameters: specific conductance, chlorides, sulfates, pH, zinc and iron.
2. The permittee shall annually monitor Arsenic, Barium, Cadmium, Lead, Mercury, Nitrates, Gross Alpha, Selenium and Silver beginning with commencement of construction of the wastewater treatment system.
3. The permittee shall monthly monitor specific conductance, chlorides, sulfates, pH, zinc and iron beginning with commencement of operation of the wastewater treatment system.

4. If any the monitoring parameters listed in paragraph 3 above exceed the average background levels by 35%, the permittee shall commence monthly monitoring on the parameters listed in paragraph 2 above.

5. A quarterly summary of the results of the monitoring shall be provided by the permittee to the Southwest District of the Department of Environmental Protection Regulation and to the Southwest Florida Water Management District.

6. The permittee shall keep a monthly record of the monitoring results and shall notify the Department's Southwest District Manager and the Southwest Florida Water Management District when said measurements reach 90% of the levels permitted in the water quality standards of Rule 62-520.420 17-3-101, F.A.C.

C. Corrective Action

When the leachate monitoring system indicates significant leakage to the groundwater in the shallow aquifer, the appropriate ponds (settling spray or sludge) shall be sealed, relocated or closed, or the operation of the affected pond shall be altered in such a manner as to assure the Department that no significant contamination of the groundwater will occur.

V. Control Measures During Construction

A. Stormwater Runoff

During construction and plant operation, necessary measures shall be used to settle, filter, treat or absorb silt containing or pollutant laden stormwater runoff to limit the suspended solids to 50 mg/1 or less during rainfall periods not exceeding the 10-year, 24-hour rainfall, and to prevent an increase in turbidity to more than ~~29 NTUs~~ 50 Jackson Turbidity Units above background in waters of the State.

Control measures shall consist at the minimum, of filters, sediment traps, barriers, berms or vegetative planting. Exposed or disturbed soil shall be protected as soon as possible to minimize silt and sediment laden runoff. The pH shall be kept within the range of 6.0 to 8.5.

B. Sanitary Wastes

Disposal of sanitary wastes from construction toilet facilities shall be in accordance with applicable regulations of the Department and appropriate local health agency.

C. Environmental Control Program

An environmental control program shall be established under the supervision of a qualified person to assure that all construction activities conform to good environmental practices and the applicable conditions of certification.

The permittee shall notify the Department if unexpected harmful effects or evidence of irreversible environmental damage are detected during construction, shall immediately cease work and shall provide an analysis of the problem and a plan to eliminate or significantly reduce the harmful effects or damage, and to prevent reoccurrence.

VI. Solid Wastes

Solid Wastes resulting from construction or operation shall be disposed of in accordance with the applicable regulations of Chapter ~~17-7~~ 62-701, FAC.

Open burning in connection with land clearing shall be in accordance with Chapter ~~71-5~~ 62-256, FAC, no additional permits shall be required, but the Division of Forestry shall be notified. Open burning shall not occur if the Division of forestry has issued a ban on burning due to fire hazard conditions.

VII. Operation Safeguards

The overall design and layout of the facilities shall be such as to minimize hazards to humans and the environment. Security control measures shall be utilized to prevent exposure of the public to hazardous conditions.

VIII. Solid Waste Utilization System

The solid waste utilization facility shall be designed and operated in compliance with all applicable regulations of the Department, including but not limited to Chapter ~~71-7~~ 62-701, FAC.

IX. Screening

The permittee shall provide screening of the site through the use of aesthetically acceptable structures, vegetated earthen walls and/or existing or planted vegetation.

X. Potable Water Supply System

The potable water supply system shall be designed and operated in conformance with Chapter ~~17-22~~ 62-550, 62-551, 62-555, and 62-560, FAC. ~~Information as required in 17-22.05 shall be submitted to the Department prior to construction and operation. The operator of the potable water supply system shall be certified in accordance with Chapter 17-16, FAC.~~

XI. Transformer and Electric Switching Gear

The foundations for transformers, capacitors, and switching gear necessary for McIntosh Unit 3 to the existing distribution system shall be constructed of an impervious material and shall be constructed in such a manner to allow complete collection and recovery of any spills or leakage of oily, toxic, or hazardous substances.

XII. Toxic, Deleterious, or Hazardous Materials

The spill of any toxic, deleterious, or hazardous materials shall be reported in the manner specified by General Condition 2.

XIII. Transmission Line

Directly associated transmission lines shall be constructed and maintained in a manner to minimize environmental impacts in accordance with Chapter 403, F.S., and Chapter 2227F-6, FAC.

A. Construction

1. Filling and construction in waters of the State shall be minimized to the extent practicable. No such activities shall take place without obtaining lease or title from the Board of Trustees of the Internal Improvement Trust Fund Department of Natural Resources.
2. Placement of fill in wetland areas shall be minimized by spanning such areas with the maximum transmission lines span practicable. Such areas should be bridged by maintenance or access roads.
3. Construction and access roads should avoid wetlands and be located in surrounding uplands. Any fill required in wetlands for construction but not required for maintenance purposes shall be removed and the ground restored to its original contours after transmission line placement.
4. Keyhole fills from upland areas are preferable to a single road and should be oriented as nearly parallel to surface water flow lines as possible.
5. Sufficient culverts shall be placed through fill causeways to maintain sheet flow. The number and locations of such culverts will be determined in the field by consultation with DERP field inspectors.
6. Maintenance roads shall be planted with native species to prevent erosion and subsequent water quality degradation.
7. Construction activities should proceed as much as possible during the dry season.
8. Turbidity control measures, where needed, shall be employed to prevent violation of water quality standards.

9. Good environmental practices as described in Environmental Criteria for Electric Transmission Systems or published by the U.S. Department of Interior and the U.S. Department of Agriculture should be followed.
10. Any archaeological sites discovered during construction of the transmission line shall be disturbed as little as possible and such discovery shall be communicated to the Department of State, Division of Archive History and Records Management.

B. Maintenance

1. Vegetative removal for maintenance should be carried out in the following manner:

Vegetation within the right-of-way may be cut or removed no lower than the soil surface under the conductor, and for a distance up to 20 feet to either side of the outermost conductor, while maintaining the remainder of the project right-of-way by selectively clearing vegetation which has an expected mature height above 14 feet. Brazilian pepper, Australian pine and Melaleuca shall be eradicated throughout the wetland portion of the right-of-way.

2. Herbicides registered with the U.S. Environmental Protection Agency may be used for vegetation control within the transmission line easement without prior approval of the Department.

XIV. Construction in Waters of the State

No construction in waters of the State shall commence without obtaining lease or title from the Board of Trustees of the Internal Improvement Trust Fund Department of Natural Resources.

XV. Cooling Water Treatment

A study to determine the presence of pathogenic organisms in the sewage treatment plant effluent shall be performed to determine the degree of treatment required prior to use in cooling towers. A plan or study will be developed by the Department and the Department of Health & Rehabilitative Services. Based on the number of pathogenic organisms detected, the final degree of treatment and amount of chlorination to be required will be determined by the Department.

XVI. Sanitary Waste Disposal

Sanitary waste from operating plant facilities shall be disposed of in a septic tank system, as approved by the Health Department of Health & Rehabilitative Services, as long as the average daily flow does not exceed 2,000 gallons per day. If the sanitary waste exceeds 2000 gpd, a properly designed treatment system shall be constructed upon receipt of approval by the Department.



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

November 3, 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)

Attached is one copy of the Proposed Permit Amendment, Intent to Issue, Public Notice of Intent to Issue Permit Amendment (for publication by the City), and Preliminary Determination for the existing C.D. McIntosh Power Plant Unit No. 3 located in Lakeland, Florida.

Please submit any written comments you may wish to have considered concerning the Department's proposed action to Mr. A. A. Linero, P.E. at the above address. If you have any questions please call me or Mr. Linero at (904)488-1344.

Sincerely,

C.H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/aal/l

Enclosure

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

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:
Farzie Shelton, E.C.
Dept. of Electric & Water Util.
City of Lakeland
501 E. Lemon St.
Lakeland, FL 33801-5050

4a Article Number
2 127 632 565

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

7 Date of Delivery
11-6-95

5 Signature (Addressee)

6 Signature (Agent)
Bonnie Brena

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**

As your RETURN ADDRESS completed on the reverse side.

Thank you for using Return Receipt Service.

2 127 632 565



Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

| | |
|---|---------|
| Sent to Farzie Shelton | |
| Street and No. City of Lakeland | |
| P.O., State and ZIP Code Lakeland, FL | |
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |
| Postmark or Date | 11-3-95 |

PS Form 3800, March 1993

INTENT TO ISSUE

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Application for Permit by:

The City of Lakeland
Department of Electric & Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5099

DEP File No. PSD-FL-008(B)
Polk County

INTENT TO ISSUE

The Department of Environmental Protection (Department) gives notice of its intent to issue an amendment (copy attached) for the proposed changes as detailed in the application specified above and the Department's Preliminary Determination (copy attached), for the reasons stated below.

The applicant, City of Lakeland Department of Electric and Water Utilities (City), applied on January 4, 1995 (revised April 6 and October 19) to the Department of Environmental Protection for an amendment of the Conditions of Approval related to fuel use contained in the Final Determination (PSD Permit) applicable to the C.D. McIntosh Plant, Unit No. 3. The determination was originally issued by the United States Environmental Protection Agency (EPA) on December 27, 1978, pursuant to 40 CFR 52.21, "Prevention of Significant Deterioration of Air Quality" and was amended by the Department on September 5, 1995 with respect to sulfur dioxide emissions limits.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes, DEP Rule 62-4, F.A.C., and DEP Rule 62-212, F.A.C., "Stationary Source-Preconstruction Review," which incorporates the requirements of 40 CFR 52.21 as part of the EPA-approved Florida State Implementation Plan pursuant to the Clean Air Act. The above actions are not exempt from permitting procedures. The Department has determined that an amendment to the Final Determination is required.

Pursuant to Section 403.815, Florida Statutes and DEP Rule 62-103.150, F.A.C., you (the City) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit Amendment. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department, at 2600 Blair Stone Road, Tallahassee, Florida 32399, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the amendment.

The Department will issue the amendment with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this intent in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Howard L. Rhodes, Director
Division Air Resources Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **INTENT TO ISSUE** and all copies were mailed by certified mail before the close of business on 11-3-95 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

Kern J. Ober 11-3-95

Clerk

Date

Copies furnished to:

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

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT

The Department of Environmental Protection (Department) gives notice of its intent to issue an amendment of Permit PSD-FL-008 to the City of Lakeland Department of Electric and Water Utilities (City), 501 East Lemon Street, Lakeland, Polk County, Florida to change certain Conditions of Approval related to fuel use 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.

Unit No. 3 is a 364 megawatt electrical power generating unit, equipped with a sulfur dioxide scrubber and mist eliminator as well as an electrostatic precipitator for particulate control. In accordance with the current PSD permit, coal or refuse may be continuously burned as fuel in Unit No. 3 while oil may be burned during malfunction of the coal feed equipment or malfunction of the exhaust gas scrubber. The amendment will permit:

- o Co-firing of 20 percent petroleum coke (a solid fossil fuel) with coal.
- o Firing low sulfur fuel oil or low sulfur fuel oil and refuse at any time.
- o Firing natural gas at any time.

The Department has determined, or included provisions to insure that, there will no increases in air pollutants including sulfur dioxide, nitrogen oxides, carbon monoxide, particulate matter and sulfuric acid mist as a result of the above operational changes. Since there will be no increases in pollutant emissions, the changes are not subject to review for Prevention of Significant Deterioration of Air Quality or a Best Available Control Technology Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information; (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

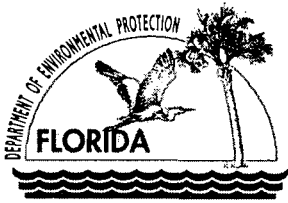
Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Contact: A.A. Linero (904)488-1344

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619
Telephone: (813)744-6100

Polk County ESD
330 W. Church Street
Bartow, Florida 33830
Telephone: (813)534-7377

Any person may send written comments on the proposed action to Administrator, New Source Review Section, at the Department of Environmental Protection, Division of Air Resources Management, 2600 Blair Stone Road - Mail Station 5505, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such requests must be submitted within 30 days of this notice.



Department of **DRAFT** Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

November XX, 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 Septemeber 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 |

DRAFT

Ms. Farzie Shelton
November XX, 1995
Page Two

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.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.

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 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.

DRAFT

Ms. Farzie Shelton
November XX, 1995
Page Three

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 5.B.

From:

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 matter tests. Reference method 6 will be used for SO₂ tests. Method 7 will be used for NO_x tests.

To:

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 matter tests. Reference method 6 or 6C will be used for SO₂ tests. Method 7 or 7E will be used for NO_x tests.

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 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 the continuous monitoring data to calculate SO₂ reduction.

DRAFT

Ms. Farzie Shelton
November XX, 1995
Page Four

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)

Natural gas

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

DRAFT

Ms. Farzie Shelton
November 10, 1995
Page Five

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 _____.

FILING AND ACKNOWLEDGEMENT

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

Clerk

Date

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

Preliminary 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
Solid and Liquid Fuel - Fired Boiler
364 MW

Permit No. PSD-FL-008(B)

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

November 3, 1995

A. Applicant

City of Lakeland
Department of Water and Electric utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

B. Source

C. D. McIntosh Power Plant
Unit No. 3 - 364 MW
Lakeland, Polk County

C. Request

On January 4, 1995, the City of Lakeland (City) submitted a request (Attachment 1) for an amendment to Permit PSD-FL-008 originally issued by the United States Environmental Protection Agency (EPA) on December 27, 1978 and applicable to the City's C.D. McIntosh Power Plant Unit No. 3 (Unit 3) in Lakeland, Florida. The requested amendments to EPA's Final Determination were:

- o Adjust particulate matter limits to 0.1 pounds per million Btu (Lb/mmBtu) heat input regardless of fuel;
- o Clarify that the minimum sulfur dioxide removal efficiency of 85 percent applies only when high sulfur coal is burned;
- o Delete the requirement to install an SO₂ monitor at the inlet to the scrubber, since the monitor at the stack is sufficient for use in determining SO₂ removal efficiencies;
- o Recognize that natural gas and low sulfur fuel oil may be used as startup fuels or at any other time; and
- o Allow co-firing of petroleum coke (petcoke) with other fuels following a successful test burn.

Permit Amendment PSD-FL-008A (Attachment 2) was issued on September 5, 1995 following publication of the Department's Notice of Intent. The amendment addressed the first three requests above with substantial changes by the Department. The issues related to burning of petcoke, natural gas and low sulfur fuel oil were deferred and are the subject of the present request submitted by the City on October 19, 1995.

The changes to PSD-FL-008 and PSD-FL-008A requested by the City are as follows:

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.

To:

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 **this** sulfur dioxide emission limitation and percent reduction requirement shall be determined on a 30-day rolling average (**based on days when no petroleum coke is burned**). **Whenever petroleum coke is burned, sulfur dioxide emissions shall not exceed 0.718 lb/mmBtu (based on a 30-day rolling average) or 7948 tons per year.**

Condition 8 (new)

The following fuels may be burned:

Coal only

Oil only

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

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

Low sulfur fuel oil (e.g. diesel)

D. Justification

The City justifies its request to burn petcoke on its analysis indicating that it is possible to do so without increasing actual emissions of key regulated pollutants including carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen oxides (NO_x), sulfuric acid mist (H₂SO₄) and particulate matter (PM). The analysis is included in the City's application and as Attachment 3 to this review.

To insure there are no increases in SO₂ from the higher sulfur petcoke, the City proposes to limit emissions to what they would have been during the past two years while operating under the most recent PSD permit. The City proposes to accomplish this by taking federally enforceable limits of 0.718 lb/mmBtu and 7948 tons per year (TPY) of SO₂. The City believes there will be no increases in CO, H₂SO₄, NO_x, and PM due to firing of petcoke.

In the case of CO, H₂SO₄, and PM, these conclusions are based on comparisons of emissions when burning high sulfur coal with emissions when burning high sulfur coal and petcoke. The inferences were then assumed to apply for comparisons of low sulfur coal emissions with low sulfur coal and petcoke emissions. The conclusions regarding NO_x and SO₂ are clearly based on comparisons between the present low sulfur coal burning case and future low sulfur and petcoke fuel use scenario.

At present burning of oil or a combination of oil and refuse is allowed by the PSD permit during malfunctions of coal feeding equipment "only if all flue gases are fully scrubbed by the SO₂ scrubber." The same fuels can be burned during emergencies when the scrubber system malfunctions. Under either condition, SO₂ "emitted to the atmosphere shall not exceed 0.8 pound per million Btu." No specific justification (e.g. substantiation that emissions will not increase during combustion of oil) was provided to allow for continuous operation while firing oil or a combination of oil and refuse.

There are no provisions in the existing permit allowing use of natural gas. The City wishes to utilize gas as a "startup fuel" and for use at any time. Its use is justified by the City as a "clean fuel." The City specifically requested use of "low sulfur fuel oil (e.g. diesel)" as a startup fuel or at any time. The City also justified its use as a clean fuel.

E. Rule Applicability

The most important rules potentially applicable to this facility under this review are:

- o 40 CFR 60 - Standards of Performance for New Stationary Sources, Subpart D - "Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After August 17, 1971," (NSPS Subpart D) adopted in Chapter 62-296, Florida Administrative Code (F.A.C.).
- o 40 CFR 52.21 - "Prevention of Significant Deterioration of Air Quality," (PSD Rules) adopted in Chapter 62-212, F.A.C.
- o Chapter 62-297, F.A.C., related to emission monitoring at stationary sources.
- o Florida Electrical Power Plant Siting, Chapter 62-17, F.A.C. and Sections 403.501-519, Florida Statutes (F.S.).

The present request is a modification of the existing PSD permit and Site Certification. Here modification means a change in the permit and not necessarily an increase in emissions such that PSD rules are triggered. Matters related to Site Certification will be handled separately after approval of any changes in the PSD permit to insure that conditions remain at least as strict as those given in the PSD permit.

In 1992, EPA amended the PSD rules to account for several court decisions known as the Puerto Rican Cement and WEPCO decisions. Florida recently adopted these changes within Chapter 62-212, F.A.C. The key provisions applicable to this review relate to a new method for determining if a net emissions increase takes place following a physical or operational change. The PSD rules now require a comparison of past actual emissions with future actual emissions rather than with future potential emissions when determining PSD applicability for electric utility units.

The Department will use the most recent definitions in this permitting action as well as the reporting requirements as necessary to insure that PSD rules are not triggered by future actual operation of Unit 3. These are:

Actual emissions - (such as "present actuals"). The average rate in tons per year, at which the emissions unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.

Actual emissions - (such as "future actuals"). The **representative actual annual emissions** of the unit following the change provided the owner or operator maintains and submits to the Department on an annual basis for a period of five years from the date the unit resumes regular operation, information demonstrating that the physical or operational change did not result in an emissions increase, etc.

Representative actual annual emissions - (adopted from 40 CFR 52.21). The average rate, in tons per year, at which the source is projected to emit a pollutant for the two-year period after a physical change or change in method of operation of a unit, considering the effect any such change will have on increasing or decreasing the hourly emissions rate and on projected capacity utilization. In projecting future emissions the Administrator (in this case the Department) shall:

(i) Consider all relevant information, including but not limited to, historical operational data, the company's own representations, filings with the State or Federal regulatory authorities, and compliance plans under title IV of the Clean Air Act; and

(ii) Exclude, in calculating any increase in emissions that results from the particular physical change or change in the method of operation at an electric utility steam generating unit, that portion of the unit's emissions following the change that could have been accommodated during the representative baseline period and is attributable to an increase in projected capacity utilization at the unit that is unrelated to the particular change, including any increased utilization due to the rate of utility demand growth for the utility system as a whole.

F. Evaluation of Application

The test program conducted by the City to determine changes due to petcoke burning involved comparison of emissions under the following scenarios:

- o High sulfur coal only
- o High sulfur coal and 10 percent petcoke
- o Low sulfur coal and 20 percent petcoke

Wherever possible, tests reflective of recent operation while in compliance with applicable limits must form the basis for comparison with emissions after the changes. No tests were conducted during the test program to reflect the usual low sulfur coal (without petcoke) baseline conditions. Therefore baseline emissions (present actuals) originally estimated by the City were

based on conditions which did not reflect recent operation. Also they were not (in the opinion of the Department) operating within the SO₂ emission limits applicable to Unit 3 before or after the recent permit amendment. Therefore the data cannot be used to establish present actual emissions (prior to the requested changes). They are still useful, however, in projecting future actual emissions for some pollutants and drawing inferences about the likely effects of using petcoke.

In the case of SO₂, the low sulfur coal burning condition is adequately simulated by the assumption that while operating at recent capacity utilization and recent low sulfur coal use, emissions were equal to the allowable emissions in the recently revised permit. Future SO₂ emissions are within the control of the City because they are able to control the operation of the scrubber to insure there is no increase in actual emissions of SO₂. Therefore it is reasonable to accept the City's conclusion that there will be no increase in actual SO₂ emissions when burning low sulfur coal and petcoke compared with burning low sulfur coal alone.

In the case of NO_x and PM, there are sufficient historical compliance tests under low sulfur coal burning conditions to compare with future low sulfur coal and petcoke conditions. Based on tests conducted in 1992-1994, the average NO_x emissions based on compliance tests were 0.410 lb/mmBtu compared to 0.0413 lb/mmBtu for the low sulfur coal with 10 percent petcoke test burn. Similarly, PM emissions averaged 0.024 lb/mmBtu during the same period while burning low sulfur coal compared with 0.0141 during the low sulfur coal and petcoke tests. Thus it is reasonable to accept the City's assertion that there will be no increase in actual emissions of PM or NO_x.

In the case of CO and H₂SO₄, the City is relying on inferences made between tests conducted while burning high sulfur coal and tests while burning high sulfur coal and petcoke to show there is no statistical increase when burning petcoke. The Department previously suggested that the City conduct the relatively inexpensive CO and H₂SO₄ tests while burning only low sulfur coal (to compare with firing low sulfur coal and petcoke) to definitively prove the inferences. The data have not yet been provided. The Department will accept the inferences made by the City on the condition that tests will be conducted to establish these "present actual emissions" while firing low sulfur coal before the operational change to petcoke use.

The request to allow oil and oil with refuse firing at any time, is incomplete because it appears that under a scenario where only oil is fired, there could be SO₂ emissions increases. This is because the limit of 0.80 lb/mmBtu while firing oil or oil and refuse is greater than the proposed emission limit while firing low sulfur coal and petcoke. The provision requiring that exhaust gases be "fully scrubbed" may suffice to insure that there can be no increase due to possible (though unlikely) exclusive use of oil

or oil with refuse. However a lower limit, a specific SO₂ removal requirement, or a maximum sulfur content should be included and would likely have been included by EPA if the City had planned continuous oil or oil and refuse firing when Unit 3 was originally permitted.

The request to fire natural gas or low sulfur fuel oil (e.g.) diesel as startup fuels or anytime is reasonable because they are inherently less polluting fuels. In this case the Department does not need to require scrubbing if the City can use a very low sulfur fuel oil.

G. Revised Determination

Based on the Department's review of the City's application, subsequent clarifications the applicable rules, and the existing permit conditions, the following changes are proposed in the Unit 3 PSD permit:

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 |

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.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.

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 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.

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 5.B.

From:

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 matter tests. Reference method 6 will be used for SO₂ tests. Method 7 will be used for NO_x tests.

To:

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 matter tests. Reference method 6 or 6C will be used for SO₂ tests. Method 7 or 7E will be used for NO_x tests.

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 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 the continuous monitoring data to calculate SO₂ reduction.

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)

Natural gas

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.

H. Other Issues

As previously discussed, the determination that there will be no increases in sulfuric acid mist or carbon monoxide emissions due to burning petcoke was based on inferences made between tests conducted while burning high sulfur coal and tests conducted while burning high sulfur fuel oil and petcoke. The Department accepted the inferences though not necessarily the statistical methods by which they were reached.

However in order to satisfy the reporting requirements of the new Condition 9, it will be necessary for the City to provide baseline test data for these two pollutants when burning low sulfur coal because that has been the "baseline fuel" in recent years. The Department has a good basis to require this confirmatory information based on the results of petcoke testing at other plants and articles which indicate likely increases in these pollutants when burning petcoke.

Rather than include a specific test requirement while burning low sulfur coal, the Department has asked the City to review past historical tests to see if they already have such data before conducting new baseline tests. If additional baseline testing is required, it is inexpensive to conduct for the pollutants of interest.

I. Conclusion

The changes in operation allowed by this permit amendment are not expected to cause an increase in emissions of air pollutants. The changes will not result in any increases in ambient concentrations of any air pollutants or cause or contribute to a violation of any ambient air quality standard or allowable increment.

H. Other Issues

As previously discussed, the determination that there will be no increases in sulfuric acid mist or carbon monoxide emissions due to burning petcoke was based on inferences made between tests conducted while burning high sulfur coal and tests conducted while burning high sulfur fuel oil and petcoke. The Department accepted the inferences though not necessarily the statistical methods by which they were reached.

However in order to satisfy the reporting requirements of the new Condition 9, it will be necessary for the City to provide baseline test data for these two pollutants when burning low sulfur coal because that has been the "baseline fuel" in recent years. The Department has a good basis to require this confirmatory information based on the results of petcoke testing at other plants and articles which indicate likely increases in these pollutants when burning petcoke.

Rather than include a specific test requirement while burning low sulfur coal, the Department has asked the City to review past historical tests to see if they already have such data before conducting new baseline tests. If additional baseline testing is required, it is inexpensive to conduct for the pollutants of interest.

I. Conclusion

The changes in operation allowed by this permit amendment are not expected to cause an increase in emissions of air pollutants. The changes will not result in any increases in ambient concentrations of any air pollutants or cause or contribute to a violation of any ambient air quality standard or allowable increment.

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11/3



October 26, 1995

Farzie Shelton
ENVIRONMENTAL COORDINATOR, Ch E.

VIA HAND DELIVERY

Hamilton S. Oven, Jr., Administrator
Power Plant Siting Section
Florida Department of Environmental Protection
2600 Blair Stone Road, M.S. 48
Tallahassee FL 32399-2400

RECEIVED

OCT 27 1995

BUREAU OF
AIR REGULATION

**RE: City of Lakeland C.D. McIntosh Unit No. 3; Request to Modify Site
Certification No. PA-78-06 and PSD Permit No. PSD-FL-8**

Dear Buck:

As you may recall, the City of Lakeland submitted a request for modification of the Site Certification for C.D. McIntosh Unit No. 3 on December 7, 1994. Subsequently, on April 6, 1995, the City temporarily withdrew that request pending resolution of an issue related to the sulfur dioxide emissions limit and removal efficiencies in the context of the Prevention of Significant Deterioration (PSD) permit for Unit No. 3. That sulfur dioxide issue has been resolved and the City by this letter requests that the Department resume its review of the City's request for modification of the Site Certification for C.D. McIntosh Unit No. 3. As stated in our letter of December 7, 1994, the City has identified several needed clarifications and minor revisions. In addition, the City has requested authority to burn petroleum coke as a fuel.

While virtually all of the provisions of the previous request for modification of Site Certification remain the same, there are a few minor changes being made to the previous submittal. Specifically, certain portions of the Revised Site Certification Application are being corrected to more generally reference coal and petroleum coke blends, and annual coal usage rates. Replacement pages for the December 7 submittal are included as Attachment A to this letter.

The City would appreciate the Department considering the requested Site Certification modification in conjunction with the City's revised request for PSD permit revision, which was submitted last week to the Department's Division of Air Resources Management. If any additional information is needed to process the City's Site Certification modification request, please let us know within 30 days, and we will immediately provide the requested information.

The City of Lakeland very much appreciates the Department of Environmental Protection's cooperation regarding its requests to modify the Site Certification and PSD permit for the C.D.

Hamilton S. Oven, Jr.
Florida Department of Environmental Protection
October 26, 1995
Page 2

McIntosh Unit No. 3. If you or any of the Department's air staff has any questions or would like to discuss the City's requests, please do not hesitate to contact me at (941) 499-6603.

Sincerely,

A handwritten signature in cursive script that reads "Farzie Shelton".

Farzie Shelton
Environmental Coordinator

cc: Howard Rhodes, FDEP
Clair Fancy, FDEP
Al Linero, FDEP
Martin Costello, FDEP
Ken Kosky, KBN
Angela Morrison, HGSS

ATTACHMENT A-1

CITY OF LAKELAND McIntosh Unit No. 3

Description of Amendments to Site Certification Application

Section 3.2.1 Fuel Types

In 1994, the City of Lakeland conducted a successful test burn of petroleum coke blended with coal. In an effort to use the most cost-effective fuels while not increasing emissions above allowable limits, the City of Lakeland requests that the Department approve its revised application to allow petroleum coke to be burned when blended with coal. Because continuous emissions monitors are installed for sulfur dioxide, nitrogen oxides, and opacity, as required by the PSD permit (Condition No. 6) and NSPS (40 CFR § 60.45), Lakeland can ensure that the emission limits for these pollutants are not exceeded when up to 20 percent petroleum coke is blended with coal (or coal and refuse) and burned in Unit No. 3. Lakeland has clarified in the revised application what fuels and fuel blends may be burned and the conditions under which such fuels and blends may be burned. Specifically, Lakeland is requesting authorization to burn petroleum coke and has clarified that natural gas and/or low sulfur oil will be used for ignition and fuel stabilization of the unit. Because natural gas and low sulfur oil are "clean fuels," such fuels may be burned at any time.

Section 3.2.2 Fuel Quantities

Heat Input Rate--The heat input rate provided in the site certification application was 2.162×10^{13} mmBtu per year for coal, based on manufacturer's data. The heat input rate was not included in the conditions of certification. Recently, Lakeland has carefully reviewed the heat input capacity for McIntosh Unit No. 3 and has identified that the rate in the original site certification application is not reflective of the unit's actual operating capability. The appropriate maximum heat input rate is 2.8697×10^{13} Btu per year. The heat input rate now requested is *not* the result of a physical change in, or change in the method of operation of, McIntosh Unit No. 3. The new heat input rate represents a *corrected* rate that more accurately reflects the maximum heat input capacity of the unit. Further, the correction of the heat input rate to reflect maximum unit capacity will not result in an increase in "actual" (annual) emissions. The Department should therefore allow the correction to the maximum heat input rate in the application, without the need for a revision to the conditions of certification and without triggering a "modification" under the Department's new source review rules (Chapter 62-212, F.A.C.).

Fuel Flow Rates--Similar to the heat input rate issue, the fuel flow rates for McIntosh Unit No. 3 that were provided in the application need to be adjusted to reflect the actual maximum fuel flow rates experienced at Unit No. 3. These slightly higher fuel rates are needed to produce the same megawatt output of 364. As with the adjustment to the heat input rate, the

(Replacement Page for previous Attachment 1)

ATTACHMENT A-3

CITY OF LAKE LAND
McINTOSH UNIT No. 3

Revised Site Certification Application

3.2 FUELS

3.2.1 FUEL TYPES

Unit #3 will have the capability of burning the types of fuels and fuel combinations described herein in the 250-MW application.

The primary fuel will be pulverized coal, and additionally the Unit has been designed to burn processed municipal solid waste, known as Refuse Derived Fuel or RDF, to supplement the pulverized coal. ~~The unit has been designed so that refuse can supply up to 10% of the necessary heat input for loads over the 50% of the design maximum capability (approximately 182 MW). However for the purposes of calculating the emission rates, flue gas volumes and flow rates, and for annual fuel consumption for this report, it was assumed that the unit would burn refuse at a constant rate of 26.25 tons per hour for 8 hours per day.~~

The furnace design is such that RDF can supply up to 10% of the expected full load heat input to the Unit.

As an alternative fuel source, petroleum coke will be added as a supplement to the pulverized coal. The blend rate can range from

(Excerpts from Revised Site Certification Application
showing additions and deletions from earlier versions;
replacement pages for previous Attachment 3)

0% to 20% by weight, depending on the quality of the coal. A 0% to 10% blended product will be used with medium sulfur coal (2.5% sulfur) and a 0% to 20% blended product with low sulfur coal (1% sulfur).

2.72629 x 10¹³ BTU's based on a 95% availability (347 days) at a 90% capacity factor.

It is anticipated that the coal-only-and-coal/refuse Unit will be operated in one of the four primary firing modes at all times (coal only, coal and RDF, coal and petroleum coke, or coal, RDF, and petroleum coke). will-be-available-for-311-days-annually-with-the oil-and-oil-refuse-modes-accounting-for-the-remaining-availability. Based on above-data,-typical these modes, the approximate average annual fuel uses-are: usage will be:

| <u>FUEL</u> | <u>QUANTITY</u> |
|---------------------------|--|
| Coal | 818,000 864,550 <u>970,452</u> tons <u>(Typical Coal)</u> |
| Refuse <u>RDF</u> | -72,450 <u>75,000</u> tons |
| Oil <u>Petroleum Coke</u> | 337,600-Bbls: 190,000 <u>194,000</u> tons |

The-expected-hourly-fuel-flow-requirements-at-both-maximum-load {364MW}-and-at-average-load-(272MW)-for-each-of-The maximum and average heat inputs and fuel flows for the primary firing modes as described in Section 3.2.1 are shown in Table 3.2.1.

rail haul, using CSX Transportation (CSXT). The unit train will reach the Plant site on a railroad spur line connecting the coal trestle with the CSXT track located one and one half miles east of the Plant. The coal will be unloaded using an elevated trestle approximately 1000 feet long. The bottom dump hopper cars will unload when they are given a signal through a third rail system as determined by an Operator.

PETROLEUM COKE

Petroleum coke will be obtained from a suitable source based on lowest evaluated delivered cost. Options to be evaluated include: purchasing a material blended with coal off site and delivered as a blended fuel ready for burning or purchasing a supply of petroleum coke to be delivered to the site and blended with the normal supply of coal.

The petroleum coke will be delivered to the Plant by truck from a nearby port or by rail, directly from a supply source. A blended fuel would be delivered either by rail or truck from a blending facility.

The blend will be carefully monitored and controlled to assure compliance with all regulated parameters at the stack exit with continuous emissions monitoring systems (i.e., sulfur dioxide, nitrogen oxide, and opacity). A blend of 90/10 (by weight) medium sulfur (2.5%) coal with petroleum coke and a blend of 80/20 (by

weight) low sulfur (1.0%) coal with and petroleum coke has been tested and all environmental and operational parameters checked. The entire range of blends A blend of coal and up to 20% petroleum coke provides good operation and no adverse environmental impacts.

The fuel blend supplied to Unit #3 and the flexibility built into the flue gas desulfurization system (Scrubber) will be fully controlled, to ensure complete environmental compliance at all times.

REFUSE

Refuse collected from Lakeland and the surrounding area will be delivered to the refuse processing facility by the collection trucks.

OIL

Oil will be delivered to the Plant site by fuel oil trucks from the Port of Tampa.

NATURAL GAS

Natural gas is supplied to the site by a high pressure main tied in with Florida Gas Transmission several miles north of the Plant.

ATTACHMENT A-2

PROPOSED REVISIONS TO THE C.D. McINTOSH POWER PLANT - UNIT NO. 3
 Recertification Application - June 1978, as Amended in 1987
 (December 1994; Additional Changes October 1995)

| <u>Section</u> | <u>Subject</u> | <u>Discard Old Pages</u> | <u>Insert New Pages Revised as of 12/94</u> | <u>Insert New Pages Revised as of 10/95</u> |
|----------------|---|------------------------------|---|---|
| 3.2 | Fuels | 3.2-1 - 3.2.6 | 3.2-2, 3.2-6, 3.2-7 | 3.2-1, 3.2-3, 3.2-4, 3.2-5 |
| 3.4 | Heat Dissipation System | 3.4-1 | 3.4-1 | |
| 3.5 | Changes in Chemical & Biocide Wastes | 3.5-1 -3.5-2 | 3.5-1 - 3.5-2 | |
| 3.6 | Changes in Sanitary & Other Wastes | 3.6-2 | 3.6-2 - 3.6-2a | |
| 3.7 | Air Emissions | 3.7-1 - 3.7-2 | 3.7-1 - 3.7-2 | |
| 5.6 | Other Effects of Plant Operation | 5.6-1 - 5.6-3 | 5.6-1 - 5.6-3 | |

66392.1

(Replacement pages for previous Exhibit A to
 Attachment 2 - Revised Site Certification Application)

Revised 10-25-95

3.2 FUELS

3.2.1 FUEL TYPES

Unit #3 will have the capability of burning the types of fuels and fuel combinations described herein.

The primary fuel will be pulverized coal. The Unit has been designed to burn processed municipal solid waste, known as Refuse Derived Fuel or RDF, to supplement the pulverized coal.

The furnace design is such that RDF can supply up to 10% of the expected full load heat input to the Unit.

As an alternative fuel source, petroleum coke will be added as a supplement to the pulverized coal. The blend rate can range from 0% to 20% by weight.

As a backup to pulverized coal, Unit #3 has the capability to burn low sulfur oil (.77% sulfur) as a primary fuel. In which case, RDF can also be burned with the low sulfur oil at a rate of up to 10% of expected full load heat input to the Unit.

Ignition or fuel stabilization of this Unit will be provided primarily by natural gas and/or low sulfur oil. Neither fuel can

2.72629 x 10¹³ BTU's based on a 95% availability (347 days) at a 90% capacity factor.

It is anticipated that the Unit will be operated in one of the four primary firing modes at all times (coal only, coal and RDF, coal and petroleum coke, or coal, RDF, and petroleum coke). Based on these modes, the approximate average annual fuel usage will be:

| <u>FUEL</u> | <u>QUANTITY</u> |
|----------------|-----------------------------|
| Coal | 970,452 tons (Typical Coal) |
| RDF | 75,000 tons |
| Petroleum Coke | 194,000 tons |

The maximum and average heat inputs and fuel flows for the primary firing modes as described in Section 3.2.1 are shown in Table 3.2.1.

3.2.3 TRANSPORTATION

COAL

Coal normally will be delivered to the Plant site in two continuously operating unit trains in ninety (90) cars of one hundred ton (nominal) bottom dump hopper cars per unit train.

The coal supply will be primarily from the area east of the Mississippi River. The majority of the coal will come from Eastern Kentucky, but may also be obtained from other sources of suitable quality.

The coal will normally be delivered to the Plant via single line rail haul, using CSX Transportation (CSXT). The unit train will reach the Plant site on a railroad spur line connecting the coal trestle with the CSXT track located one and one half miles east of the Plant. The coal will be unloaded using an elevated trestle approximately 1000 feet long. The bottom dump hopper cars will unload when they are given a signal through a third rail system as determined by an Operator.

PETROLEUM COKE

Petroleum coke will be obtained from a suitable source based on lowest evaluated delivered cost. Options to be evaluated include: purchasing a material blended with coal off site and delivered as a blended fuel ready for burning or purchasing a supply of petroleum coke to be delivered to the site and blended with the normal supply of coal.

The petroleum coke will be delivered to the Plant by truck from a nearby port or by rail, directly from a supply source. A blended fuel would be delivered either by rail or truck from a blending facility.

The blend will be carefully monitored and controlled to assure compliance with all regulated parameters at the stack exit with continuous emissions monitoring systems (i.e., sulfur dioxide, nitrogen oxide, and opacity). A blend of coal and petroleum coke has been tested and all environmental and operational parameters

checked. A blend of up to 20% petroleum coke provides good operation and no adverse environmental impacts.

The fuel blend supplied to Unit #3 and the flexibility built into the flue gas desulfurization system (Scrubber) will be fully controlled, to ensure complete environmental compliance at all times.

REFUSE

Refuse collected from Lakeland and the surrounding area will be delivered to the refuse processing facility by the collection trucks.

OIL

Oil will be delivered to the Plant site by fuel oil trucks from the Port of Tampa.

NATURAL GAS

Natural gas is supplied to the site by a high pressure main tied in with Florida Gas Transmission several miles north of the Plant.



Excellence Is Our Goal, Service Is Our Job

Farzie Shelton
ENVIRONMENTAL COORDINATOR, Ch E.

October 19, 1995

RECEIVED

VIA HAND DELIVERY

OCT 19 1995

Howard L. Rhodes, Director
Division of Air Resources Management
Department of Environmental Protection
Magnolia Park Courtyard
Tallahassee, FL 32301

Division of Air
~~Resources Management~~

RE: City of Lakeland C.D. McIntosh Unit No. 3--Requested
Amendment of PSD Permit No. PSD-FL-008 and
Modification of Site Certification No. PA-78-06

Dear Howard:

As you may recall, the City of Lakeland originally submitted a request to modify the Site Certification for its C.D. McIntosh Unit No. 3 on December 7, 1994, and submitted a request to revise the Prevention of Significant Deterioration (PSD) permit on January 4, 1995. The City subsequently revised its request regarding the PSD permit on April 6, 1995, while the City's request to modify the Site Certification was held in abeyance pending the outcome of the PSD permit revision request.

The City's April 6 submittal focused on the sulfur dioxide emission limit and removal efficiencies. A PSD permit amendment was subsequently issued by the Department, which has been accepted by the City, and those issues have therefore been resolved. As stated in the City's April 6 submittal to the Department and during our August 11 meeting, because those issues have been resolved, the City intends to again request that the PSD permit and Site Certification be modified to address the use of petroleum coke as a fuel. This letter and the attached documents constitute a revised request for PSD permit amendment (as described below). A separate notification to reinitiate the Department's review of the City's request for Site Certification modification is being submitted to the Department's Power Plant Siting Section.

After you and your staff have had an opportunity to review the information being provided, we would like to set up a meeting to discuss this submittal. If additional information is needed, please let us know within 30 days and we will provide you with the information immediately.

1. **Petroleum Coke**--As you know, the City of Lakeland conducted a successful test burn of petroleum coke blended with coal and coal/refuse in 1994. In an effort to use the most cost-effective fuels while not increasing emissions above allowable limits, the City of Lakeland respectfully requests that its PSD permit be revised to allow petroleum coke to be burned when

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Division of Air Resources Management
Department of Environmental Protection
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blended with coal and other fuels. Because continuous emissions monitors have been installed for sulfur dioxide, nitrogen oxides, and opacity, as required by the PSD permit (Specific Condition No. 6), New Source Performance Standard Subpart D (40 CFR § 60.45), and the federal acid rain program (40 CFR Part 75), the City can ensure that the emission limits for these pollutants are not exceeded when petroleum coke is blended with coal or other fuels and burned in Unit No. 3.

Based on what the City of Lakeland believes to be an appropriate analysis, PSD review should not be triggered for any pollutant. While the City does not concur with the Department's prior determination that the use of petroleum coke would constitute a "physical or operational change" to the Unit No. 3 boiler, in an effort to expedite review of its request for authorization to burn petroleum coke as a fuel, the City has assumed for purposes of determining PSD applicability that the use of petroleum coke constitutes an operational change. The issue then becomes whether a significant net emissions increase will result from the use of petroleum coke.

As you know, the Department's rules require a comparison of "past actual" emissions and "representative future actual" emissions to determine whether a significant net emissions increase will occur as a result of a physical or operational change. Rule 62-212.400(2)(e)1., F.A.C. Under the Department's rules, "past actual emissions" are determined based on the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive two-year representative period during the last five years. The Department's September 11, 1995, letter to the City states that in determining "past actual" emissions for McIntosh Unit No. 3, past actual sulfur dioxide emissions should be determined based on the new sulfur dioxide emission limits along with "actual hours of operation, actual fuel combusted, capacity factors, etc." The Department's letter goes on to state that for other pollutants, past actual emissions should be based on past (or new) compliance tests, continuous emissions monitoring data, applicable inferences from the petroleum coke test burn, engineering estimates, etc. Consistent with the Department's recommendations, past actual emissions have been calculated using this type of information, as set forth in Exhibit A.

"Representative future emissions" are based on the average rate at which the emissions unit is *projected* to emit a pollutant for the two-year period after a physical or operational change. Future actual emissions are projected by multiplying (1) the hourly emissions rate, based on the unit's capabilities following the change and federally enforceable operational restrictions affecting the hourly emissions rate, and (2) the projected capacity utilization following the change, based on historical annual utilization and other available information regarding the unit's likely post-change capacity utilization (excluding utilization rate increases based on utility system growth). (40 CFR § 52.21(b)(33), incorporated by reference in Rule 62-212.200(2)(d), F.A.C.) Unit No. 3 is a base-loaded unit, and the average annual

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hours of operation for Unit No. 3 over the past two years (which are representative) are 8042. Because the City does not anticipate increasing the Unit's utilization rate as a result of using petroleum coke, the most accurate comparison between past actual and future projected actual emissions would be based on short-term emission rates. Otherwise, statistically insignificant differences in short-term rates could potentially be extrapolated into statistically significant differences in annual rates. A comparison of short-term rates is more appropriate to determine whether emission increases can be expected in the future as well as whether a change in emissions will result from the use of petroleum coke.

A comparison of past actual emissions to future projected emissions of *sulfur dioxide* indicates that a net emissions increase would occur. The City, however, proposes to accept a federally enforceable emissions limit of 0.718 lb/mmBtu when burning petroleum coke to ensure that no significant net emissions increase would result. As shown in Exhibit A, the past actual emissions (calculated based on the revised PSD permit) are 7948 tons per year, at an emissions rate of 0.718 lb/mmBtu. By accepting emission limits of 0.718 lb/mmBtu and 7948 tons per year when burning petroleum coke, the future projected emissions would not increase. Because no increase in emissions occurs, PSD does not apply to sulfur dioxide emissions and BACT review is not triggered. As also shown in Exhibit A, the actual *particulate matter, nitrogen oxides, carbon monoxide, and sulfuric acid mist* emissions will also not increase as a result of petroleum coke use. Because a significant net emissions increase does not result, PSD does not apply to those emissions and BACT review is not required. PSD is therefore not triggered nor is BACT required for any pollutant.

The City therefore respectfully requests that Condition No. 2B be changed as follows:

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 this the sulfur dioxide emission limitation and percent reduction requirement shall be determined on a 30-day rolling average (based on days when no petroleum coke is burned). Whenever petroleum coke is burned, sulfur dioxide emissions shall not exceed 0.718 lb/mmBtu (based on a 30-day rolling average) or 7948 tons per year.

The City also requests that a Condition No. 8 be added as follows:

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8. The following fuels may be burned:

Coal only

Oil only

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

Oil and up to 10% refuse (based on heat input)

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

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

2. *Startup Fuels*--Because, like all other coal units, Unit No. 3 must be started on natural gas or fuel oil, the City requests that the PSD permit be revised to reflect that natural gas and low sulfur fuel oil (e.g., diesel) may be burned during startup. Further, because these fuels are "clean fuels," the City also requests that the PSD permit be revised to clarify that these fuels may be burned at any time. The current permit allows the use of fuel oil in at least emergency situations, and such the permit should be revised to clarify that use is allowed at any time. The City therefore requests that the following language be included in the permit:

8. The following fuels may be burned:

...

Natural Gas

Low Sulfur Fuel Oil (e.g., diesel)

3. *Permit Application*--The City has revised portions of the permit application previously submitted on January 4, 1995. An original and three copies are enclosed with this submittal (as part of Exhibit A).

Again, the City would like to thank you and your staff for your responsiveness to our requests. Please let us know if additional information is needed and we will provide the same to you immediately.

Sincerely,



Farzie Shelton

Environmental Coordinator

Howard L. Rhodes, Director
Division of Air Resources Management
Department of Environmental Protection
October 19, 1995
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cc: Clair Fancy, DEP
Al Linero, DEP
Martin Costello, DEP
Hamilton S. Oven, Jr., DEP
Jewell Harper, EPA Region IV
Brian Beals, EPA Region IV
Ken Kosky, KBN
Angela Morrison, HGSS

65993

**CITY OF LAKELAND C.D. MCINTOSH UNIT 3
REVISED APPLICATION FOR CO-FIRING PETROLEUM COKE**

This correspondence provides information on the City's application to co-fire petroleum coke and coal at McIntosh Unit 3. The information presented herein addresses the issues raised in the Department's September 11, 1995, correspondence. The information is organized according to each pollutant addressed in the Department's letter. For completeness, portions of the previous application have been revised and are enclosed herein.

Sulfur Dioxide Emissions

As noted in the September 11, 1995, correspondence, the Department proposes that the determination of actual sulfur dioxide (SO₂) emissions for comparison the future representative actual annual emissions should be based on the recently revised SO₂ emission limits.

The City proposes to co-fire petroleum coke and coal at a calculated allowable 1994 and 1995 emission rate based on the information presented in the application on heat input, coal heat content, 1994 and 1995 coal sulfur contents and annual usage rates, and allowable emission rate. The calculated allowable emission rate is as follows:

Design Data:

Coal usage for Unit 3 = 159.6 tons coal/hour

Heat input for Unit 3 = 3,640 MMBtu/hour

Note: Coal usage and heat input are the design basis provided in the application and the recently revised BACT determination.

Uncontrolled SO₂ Emissions:

1994 sulfur content = 1.12 percent (see attachment)

1995 sulfur content = 1.22 percent (see attachment)

1994/1995 average sulfur content = 1.17 percent

Note: Coal quality data are attached.

159.6 tons coal/hr x 0.0117 ton sulfur/ton coal x 2 tons SO₂ /ton sulfur
= 3.7346 tons SO₂

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**BUREAU OF
AIR REGULATION**

Calculated allowable SO₂ emission rate (based on revised BACT):

$$3.7346 \text{ tons SO}_2 \times (1 - 0.65) = 1.3071 \text{ tons/hr}$$

$$1.3071 \text{ tons/hr} \times 2,000 \text{ lb/ton} \times 1 \text{ hr}/3,640 \text{ MMBtu} = 0.7182 \text{ lb/MMBtu}$$

Calculated annual allowable SO₂ emissions:

$$1994 \text{ usage} = 991,351 \text{ tons/year}$$

$$1995 \text{ usage} = 949,553 \text{ tons/year (prorated from January through September)}$$

$$\text{(Usage through September} = 710,213.75 \text{ tons; days in October, November, and December} = 92; \text{ prorated usage} = 710,213.75 \text{ tons} \times 365 \times 1/273)$$

$$\text{Actual emissions} = 970,452 \text{ tons/year} \times 0.0117 \text{ ton sulfur/ton coal} \times 2 \text{ tons SO}_2/\text{ton sulfur} \times (1 - 0.65) = 7,948.0 \text{ tons/year}$$

The City proposes an emission limit of 0.7182 lb/MMBtu (30-day rolling average) when burning 10 to 20 percent petroleum coke. Because of the complexity of determining the exact proportions of coal at percentages less than 10 percent (this would usually occur at the beginning and end of blending), the emission limit in the revised BACT would govern.

The proposed emission limit is also supported by the coal quality of the 1994 and 1995 compliance tests. The allowable SO₂ emission rate is calculated as follows:

1994 Coal Quality

$$1.26\% \text{ S}/100 \times 2 \text{ lb SO}_2/\text{lb S} \times 1/12,847 \text{ Btu/lb} \times 10^6 \times 0.35 = 0.687 \text{ lb/MMBtu}$$

1995 Coal Quality

$$1.29\% \text{ S}/100 \times 2 \text{ lb SO}_2/\text{lb S} \times 1/12,806 \text{ Btu/lb} \times 10^6 \times 0.35 = 0.705 \text{ lb/MMBtu}$$

1994/95 Average

$$(0.687 + 0.705)/2 = 0.696 \text{ lb/MMBtu}$$

The coal quality data are attached.

The City also proposes to co-fire petroleum coke and coal so that emissions when co-firing do not exceed 7,948.0 tons/year which represents the calculated actual allowable emissions for 1994/1995. Taking together the proposed SO₂ emissions limit when co-firing and the actual hours of operation, the calculated actual annual SO₂ emissions and the "representative future SO₂ emissions" would be equal

for PSD purposes. Therefore, PSD review would not be necessary according to Rule 62-212.200(2)(d), F.A.C. and 40 CFR 52.21(b)(33).

Sulfuric Acid Mist Emissions

The co-firing test data do not support the Department's contention that the presence of vanadium in petroleum coke increases sulfuric acid mist emissions over the range of petroleum coke to be fired (i.e., up to 20 percent). As discussed in Attachment 1, statistical analysis clearly demonstrated that there was no statistically significant difference between any of the test conditions. As shown in Table 1 of Attachment 1, all tests were determined to be not statistically different based on the procedures in 40 CFR Part 60 Appendix C for determining increases in emission rates (see attached Appendix C). Moreover, the test condition using 10 percent petroleum coke with 90 percent coal was 11.25 percent *lower* than the coal-only test. The 20 percent petroleum coke with 80 percent coal was only 6.25 percent higher than the coal-only test. If there was an effect of vanadium in petroleum coke, then the effect should be consistent between test runs which is clearly not the case.

The conclusion that vanadium concentrations did not affect sulfuric acid mist concentrations in the range requested (up to 20 percent) is also supported by analyses of vanadium in the 10 percent and 20 percent petroleum coke and coal mixtures. The average vanadium concentrations were:

10 percent petroleum coke and high sulfur coal 311 ppm
20 percent petroleum coke and low sulfur coal 177 ppm

Again, if sulfuric acid mist emissions are directly proportional to vanadium, then the tests demonstrated the opposite effect.

Carbon Monoxide Emissions

The information previously presented supports the City's position that CO was a result of factors other than the use of petroleum coke. The data presented in Attachment 1 clearly suggest that the grindability and oxygen concentration are the major factors for the difference between coal-only and coal with 20 percent petroleum coke. Indeed, the effect of petroleum coke would appear to lower CO concentrations since the 10 percent petroleum coke with 90 percent high-sulfur coal was 7.4 percent *lower* than the high-sulfur coal-only test. If petroleum coke had an effect, it would have been apparent in this test comparison. The major difference using a slightly higher percentage of petroleum coke was the kind of coal, i.e., high sulfur versus low sulfur.

would have been apparent in this test comparison. The major difference using a slightly higher percentage of petroleum coke was the kind of coal, i.e., high sulfur versus low sulfur.

As noted in Attachment 1, oxygen concentration was quite different and lower during the low sulfur coal/20 percent petroleum coke test burn. This difference was about 0.8 percent O₂ or about 10 percent lower than the high sulfur coal test condition. Changes in oxygen concentration of this magnitude can have a significant influence on CO concentrations. Difference of several 100 ppm CO has been observed with oxygen concentrations of as little as 0.1 percent change.

Taking together the test data and engineering principals of CO formation, it is concluded that using up to 20 percent petroleum coke will not increase emissions of CO.

Nitrogen Oxides Emissions

The City does not believe additional tests of NO_x emissions are necessary and co-firing petroleum coke will not cause an increase in NO_x emissions. As discussed in Attachment 1, statistical analysis clearly demonstrated that there was no statistically significant difference or increase in NO_x emissions between any of the test conditions. While the test condition using 10 percent petroleum coke with 90 percent coal was 1.4 percent *higher* than the coal-only test, the 20 percent petroleum coke with 80 percent coal was 23.5 percent *lower* than the coal-only test. If there was an effect on NO_x emissions using petroleum coke, then the effect should be consistent between test runs, which was not the case. Indeed, there is more variability within the test method itself than the 1.4 percent difference detected.

Moreover, the 1995 CEM data support the variability in NO_x emissions that occur. The monthly NO_x emissions for 1995 are as follows: January - 0.50 lb/MMBtu; February - 0.47 lb/MMBtu; March - 0.45 lb/MMBtu; April - 0.51 lb/MMBtu; May - 0.49 lb/MMBtu; June - 0.54 lb/MMBtu; July - 0.56 lb/MMBtu. The NO_x emissions during the 1995 compliance test averaged 0.63 lb/MMBtu while low-sulfur coal was being used. During the test burn, the NO_x emission rates were 0.55 and 0.41 lb/MMBtu, respectively, for the 10 percent and 20 percent petroleum coke test burns. Clearly, the NO_x emission rate when firing coal or a blend of coal and petroleum coke within the proposed range is a function of combustion conditions and not the fuel.

Particulate Matter Emissions

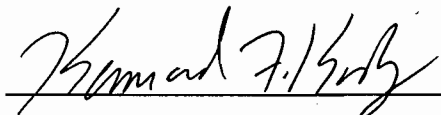
Emissions of particulate when firing petroleum coke were all less than when firing coal. Therefore, no effect of co-firing petroleum coke on the emission rate was observed, and PSD is not applicable since there is no increase in emissions.

Summary

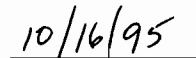
The City proposes that the Department approve the co-firing of up to 20 percent petroleum coke with coal at an emission rate not to exceed 0.718 lb/MMBtu and no more than 7,948 tons per year when co-firing petroleum coke and coal. This would effectively produce no net increase in actual emissions. For the other pollutants, no increase in emissions is attributable to firing petroleum coke. The test results for NO_x and sulfuric acid mist were determined to be not different based on 40 CFR Part 60 Appendix C. Emissions of CO are attributable to combustion conditions and not petroleum coke firing.

Professional Engineer's Statement

This revision to the original application is submitted under the same certification provided with the original application.



Signature



Date


SEAL

Professional Engineer Registration No. 14996

REVISED APPLICATION PAGES

(Note: The previous pollutant information pages are not relevant to the requested change. Only SO₂ will be affected by co-firing.)

Category II: All Air Operation Permit Applications Subject to Processing Under Rule 62-210.300(2)(b), F.A.C.

This Application for Air Permit is submitted to obtain:

- Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s): _____

- Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed: _____

- Air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g., to address one or more newly constructed or modified emissions units.

Operation permit to be revised: _____

Reason for revision: _____

Category III: All Air Construction Permit Applications for All Facilities and Emissions Units

This Application for Air Permit is submitted to obtain:

- Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

Current operation permit number(s), if any: PA 74-06-SR (PPSA); PSD-FL-008

- Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s): _____

- Air construction permit for one or more existing, but unpermitted, emissions units.

Professional Engineer Certification

1. Professional Engineer Name: Kennard F. Kosky
Registration Number: 14996

2. Professional Engineer Mailing Address:
Organization/Firm: KBN Engineering and Applied Sciences, Inc.
Street Address: 6241 NW 23rd Street, Suite 500
City: Gainesville State: FL Zip Code: 32653-1500

3. Professional Engineer Telephone Numbers:
Telephone: (904) 336-5600 Fax: (904) 336-6603

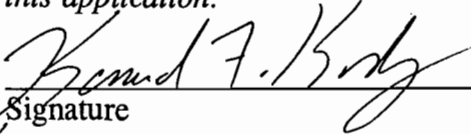
4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance (a) that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; or (b) for any application for a Title V source air operation permit, that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application;

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application; and

(3) For any application for an air construction permit for one or more proposed new or modified emissions units, the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.


Signature

October 16, 1995
Date

 (seal)

* Attach any exception to certification statement.

Application Contact

| |
|---|
| 1. Name and Title of Application Contact: Ms. Farzie Shelton, Environmental Coordinator |
| 2. Application Contact Mailing Address: Organization/Firm: Lakeland Department of Electric and Water Utilities Street Address: 501 East Lemon Street City: Lakeland State: FL Zip Code: 33801-5099 |
| 3. Application Contact Telephone Numbers: Telephone: (941) 499-6603 Fax: (941) 499-6688 |

Application Comment

This application is being submitted to obtain FDEP recognition that petroleum coke can be burned in McIntosh Unit 3. There will be no new construction of facilities or changes in the current procedures when petroleum coke is being fired in Unit 3. The application also addresses minor amendments to the PSD approval and previous application.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Name, Location, and Type

| | | | |
|--|-------------------------------|--|--|
| 1. Facility Owner or Operator: City of Lakeland, Department of Electric and Water Utilities | | | |
| 2. Facility Name: C.D. McIntosh Power Plant | | | |
| 3. Facility Identification Number: 40TPA530004 | | [] Unknown | |
| 4. Facility Location Information: Facility Street Address: 3030 East Lake Parker Drive City: Lakeland County: Polk Zip Code: 33805 | | | |
| 5. Facility UTM Coordinates: Zone: 17 East (km): 408.5 North (km): 3,105.8 | | | |
| 6. Facility Latitude/Longitude: Latitude (DD/MM/SS): Longitude (DD/MM/SS): | | | |
| 7. Governmental Facility Code: 4 | 8. Facility Status Code: A | 9. Relocatable Facility? [] Yes [X] No | 10. Facility Major Group SIC Code: 49 |
| 11. Facility Comment: | | | |

Facility Contact

| | | | |
|---|--|--|--|
| 1. Name and Title of Facility Contact: Ms. Farzie Shelton, Environmental Coordinator | | | |
| 2. Facility Contact Mailing Address: Organization/Firm: City of Lakeland, Department of Electric and Water Utilities Street Address: 501 East Lemon Street City: Lakeland State: FL Zip Code: 33801-5099 | | | |
| 3. Facility Contact Telephone Numbers: Telephone: (941) 499 - 6303 Fax: (941) 499 - 6688 | | | |

Emissions Unit Operating Capacity

| |
|---|
| 1. Maximum Heat Input Rate: <div style="text-align: right; margin-right: 100px;">3,640 mmBtu/hr</div> |
| 2. Maximum Incineration Rate: <div style="display: flex; justify-content: space-between;"> Not applicable lbs/hr tons/day </div> |
| 3. Maximum Process or Throughput Rate: Not Applicable |
| 4. Maximum Production Rate: Not Applicable |
| 5. Operating Capacity Comment: Emissions unit burns coal and refuse-derived fuel (RDF); The emissions unit is authorized to burn residual oil. |

Emissions Unit Operating Schedule

| | |
|---|----------------|
| Requested Maximum Operating Schedule: Co-firing of coal (and coal/refuse) with petroleum coke. | |
| hours/day | days/week |
| weeks/yr | 8,760 hours/yr |

Segment Description and Rate Information: Segment 5 of 7

| | |
|---|------------------------------------|
| 1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Coal and petroleum coke (80/20 weight basis) | |
| 2. Source Classification Code: 10100101 | |
| 3. SCC Units: Tons | |
| 4. Maximum Hourly Rate: 152.6 | 5. Maximum Annual Rate: 970,452 |
| 6. Estimated Annual Activity Factor: Not applicable | |
| 7. Maximum Percent Sulfur: 3.3 | 8. Maximum Percent Ash: < 15 |
| 9. Million Btu per SCC Unit: 23.85 | |
| 10. Segment Comment: Maximum hourly rates and percent sulfur will vary depending upon mixture. Coal and petroleum coke will be blended to a maximum sulfur content of 3.3 percent. Typical sulfur content of petroleum is 5 percent. Maximum hourly rate based on 122.1 TPH coal and 30.5 TPH petroleum coke. Heat content of mixture based on maximum hourly rate (TPH) and maximum heat input rating for unit of 3,640 MMBtu/hr. Maximum annual rate based on calculated actual allowable emissions for 1994 and 1995. Heat contents of coal and petroleum coke are 22.81 and 28.0 MMBtu/ton (see also FA-1). | |

Segment Description and Rate Information: Segment 6 of 7

| | |
|---|--------------------------------------|
| 1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Coal, petroleum coke, and RDF; coal/coke. (80/20 weight basis at 90% of heat input; RDF at 10% heat input) | |
| 2. Source Classification Code: 10100101 | |
| 3. SCC Units: Tons | |
| 4. Maximum Hourly Rate: 168.8 | 5. Maximum Annual Rate: 1,020,452 |
| 6. Estimated Annual Activity Factor: Not applicable | |
| 7. Maximum Percent Sulfur: 3.3 | 8. Maximum Percent Ash: < 15 |
| 9. Million Btu per SCC Unit: 21.56 | |
| 10. Segment Comment: Maximum hourly rates and percent sulfur will vary depending upon mixture. Coal, RDF, and petroleum coke will be blended to a maximum sulfur content of 3.3 percent for coal/petroleum mixture. Maximum hourly rate based on 100.9 TPH coal, 40.4 TPH RDF, and 27.5 TPH petroleum coke. Heat content of mixture based on maximum hourly rate (TPH) and maximum heat input rating for unit of 3,640 MMBtu/hr. Maximum annual rate based on calculated actual annual allowable emissions for 1994 and 1995, and 50,000 tons/year of RDF usage. | |

Segment Description and Rate Information: Segment 7 of 7

| | |
|---|---------------------------------------|
| 1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Natural gas | |
| 2. Source Classification Code: 10100601 | |
| 3. SCC Units: Million cubic feet | |
| 4. Maximum Hourly Rate: 3.529 | 5. Maximum Annual Rate: 30,914 |
| 6. Estimated Annual Activity Factor: Not applicable | |
| 7. Maximum Percent Sulfur: 0.003 | 8. Maximum Percent Ash: Negligible |
| 9. Million Btu per SCC Unit: 1,031.4 | |
| 10. Segment Comment: Natural gas is proposed as a supplementary fuel. Heat content of mixture based on maximum hourly rate (TPH) and maximum heat input rating for unit of 3,640 MMBtu/hr. | |

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 1 of 1

| | | |
|--|---------------------------------------|--|
| 1. Pollutant Emitted: SO ₂ | | |
| 2. Total Percent Efficiency of Control: | 87.0 | % |
| 3. Primary Control Device Code: 067 | | |
| 4. Secondary Control Device Code: Not applicable | | |
| 5. Potential Emissions: | 2,613.5 lbs/hr | 7,948 tons/yr |
| 6. Synthetically Limited? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| 7. Range of Estimated Fugitive/Other Emissions: Not applicable | | |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 _____ to _____ tons/yr |
| 8. Emission Factor: 0.718 lb/MMBtu | | |
| Reference: Proposed emission limit | | |
| 9. Emissions Method Code: | | |
| <input type="checkbox"/> 1 | <input checked="" type="checkbox"/> 2 | <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 |
| 10. Calculation of Emissions: | | |
| 3,640 MMBtu/hr x 0.718 lb/MMBtu = 2,613.5 lb/hour | | |
| 0.033 lb sulfur/lb coal x 2 lb SO ₂ /lb sulfur x 2,000 lb/ton x ton/23.85 MMBtu x (1 - 0.87) | | |
| = 0.718 lb/MMBtu | | |
| 11. Pollutant Potential/Estimated Emissions Comment: The overall efficiency of sulfur dioxide removal (i.e., 87.0 percent) applies to using a maximum 3.3 percent for the co-firing mixture. | | |

Emissions Unit Information Section 1 of 1

Allowable Emissions (Pollutant identified on front page)

A. Co-Firing

| | | |
|---|-----------------------|----------------------|
| 1. Basis for Allowable Emissions Code: ESCPSD | | |
| 2. Future Effective Date of Allowable Emissions: Not applicable | | |
| 3. Requested Allowable Emissions and Units: 0.718 lb/MMBtu (30-day rolling average) | | |
| 4. Equivalent Allowable Emissions: | 2,613.5 lbs/hr | 7,948 tons/yr |
| 5. Method of Compliance: Annual stack test | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): The allowable emission limit is based on FDEP Rule 62-212.200(2)(d) F.A.C. and 40 CFR Part 52.21(b)(33) and calculated actual allowable emissions to limit the emission rate and actual emissions below PSD significant emission rate. | | |

B.

| | | |
|--|--------|---------|
| 1. Basis for Allowable Emissions Code: | | |
| 2. Future Effective Date of Allowable Emissions: | | |
| 3. Requested Allowable Emissions and Units: | | |
| 4. Equivalent Allowable Emissions: | lbs/hr | tons/yr |
| 5. Method of Compliance: | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): | | |

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

- 1 The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- 1 The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- 1 The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- 1 For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

| | | | |
|---|---------------------------------------|----------------------------|----------------------------------|
| 3. Increment Consuming/Expanding Code: | | | |
| PM | <input checked="" type="checkbox"/> C | <input type="checkbox"/> E | <input type="checkbox"/> Unknown |
| SO2 | <input checked="" type="checkbox"/> C | <input type="checkbox"/> E | <input type="checkbox"/> Unknown |
| NO2 | <input type="checkbox"/> C | <input type="checkbox"/> E | <input type="checkbox"/> Unknown |
| 4. Baseline Emissions: | | | |
| PM | lbs/hr | | tons/yr |
| SO2 | lbs/hr | | tons/yr |
| NO2 | | 11,160 | tons/yr |
| 5. PSD Comment: Potential emissions assumed for NO _x baseline. | | | |
| | | | |

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the emissions unit addressed in this Emissions Unit Information Section. Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

Supplemental Requirements for All Applications

| | | |
|---|---|--|
| 1. Process Flow Diagram | <input checked="" type="checkbox"/> Attached, Document ID: <u>PFD-1</u> | <input type="checkbox"/> Waiver Requested |
| | <input type="checkbox"/> Not Applicable | |
| 2. Fuel Analysis | <input checked="" type="checkbox"/> Attached, Document ID: <u>FA-1</u> | <input type="checkbox"/> Waiver Requested |
| | <input type="checkbox"/> Not Applicable | |
| 3. Detailed Description of Control Equipment | <input type="checkbox"/> Attached, Document ID: _____ | <input type="checkbox"/> Waiver Requested |
| | <input checked="" type="checkbox"/> Not Applicable | |
| 4. Description of Stack Sampling Facilities | <input type="checkbox"/> Attached, Document ID: _____ | <input type="checkbox"/> Waiver Requested |
| | <input checked="" type="checkbox"/> Not Applicable | |
| 5. Compliance Test Report | <input type="checkbox"/> Attached, Document ID: _____ | <input checked="" type="checkbox"/> Not Applicable |
| | <input type="checkbox"/> Previously Submitted, Date: _____ | |
| 6. Procedures for Startup and Shutdown | <input type="checkbox"/> Attached, Document ID: _____ | <input checked="" type="checkbox"/> Not Applicable |
| 7. Operation and Maintenance Plan | <input type="checkbox"/> Attached, Document ID: _____ | <input checked="" type="checkbox"/> Not Applicable |
| 8. Supplemental Information for Construction Permit Application | <input checked="" type="checkbox"/> Attached, Document ID: <u>SI-1</u> | <input type="checkbox"/> Not Applicable |
| 9. Other Information Required by Rule or Statute | <input type="checkbox"/> Attached, Document ID: _____ | <input checked="" type="checkbox"/> Not Applicable |

ATTACHMENT 1
DISCUSSION OF TEST BURN

ATTACHMENT 1 - DISCUSSION OF TEST BURN

The City of Lakeland requested in August 1993 authorization from the Florida Department of Environmental Protection (FDEP) to conduct a trial test burn of co-firing petroleum coke and coal (see August 16, 1993 letter from Ms. Farzie Shelton, Environmental Coordinator for Lakeland Department Electric and Water Utilities to Mr. Buck Oven of FDEP). FDEP authorized the trial burn in January 1994 (see letter from Mr. Oven to Ms. Shelton dated January 31, 1994). The trial test burn was conducted in February 1994 with a report of the results furnished to FDEP (see Emission Test Report by Environmental Science & Engineering, Inc. dated February 1994).

Three operating conditions were evaluated during the trial test burn:

- Condition 1. High-sulfur coal only,
- Condition 2. A 90/10 percent blend of high-sulfur coal and petroleum coke, and
- Condition 3. A 80/20 percent blend of low-sulfur coal and petroleum coke.

Note: High-sulfur in this context refers to coal with a sulfur content of 2.5 percent. Low-sulfur refers to 1 percent sulfur coal.

Measurements were conducted using U.S. Environmental Protection Agency (EPA) and FDEP sampling procedures for particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and sulfuric acid mist.

The potential applicability of the Prevention of Significant Deterioration (PSD) rules [Rules 62-212.400(2)(d)4, Florida Administrative Code (F.A.C.)] as they may apply to modifications are related to whether a source has a significant increase in actual emissions. The results of the trial test can be used to determine if an emissions increase has occurred. In order to determine any differences in emissions rate for the pollutants that were sampled during the trial test burn, confidence intervals using the student "t" test were performed and are presented in Table 1. Calculations are attached. The results of the evaluation indicated that, except for CO, there was either no statistical difference between emissions from the three test conditions or that emissions when co-firing petroleum were lower than when firing high-sulfur coal. Unit 3 is currently authorized to burn coal with 3.3 percent sulfur content. While the emission rate for sulfuric acid mist under Condition 3 was higher than the emission rate for high-sulfur coal only test condition (Condition 1), the differences were not statistically significant. This was confirmed

using the approach outlined in Appendix C of 40 Code of Federal Regulations (CFR) Part 60 for determination of emission rate change (see calculations).

The emission rate of carbon monoxide for Condition 3 was statistically higher than Condition 1. The increase in CO emission was not due to petroleum coke in the coal/petroleum coke mixture. The primary and most important factor causing this increase was due to the hardness measured by the Hardgrove Grindability Index (HGI) of the coal that was being used for the trial test mixture in test condition 3. The petroleum coke used in the test burn had a high HGI. The higher the number, the softer the fuel. The 2.5 percent S coal used in test conditions 1 and 2 (alone and in combination with the coke) had a hardness of 43 HGI. The efficiency of fuel combustion is directly related to the particle size of pulverized coal; the softer (higher HGI) the coal, the greater amount of small particles which will produce overall better combustion and less CO concentrations.

Attached is a graph (Insert A) to show the effect of hardness on the performance of the pulverizers on coal particle size referred to as "fineness." As an example, both mixtures have been plotted based on a feed rate of 70,000 lb/hr. At this feed rate, the lower hardgrove mixture would be expected to give a fineness of ≈ 67 percent passing 200 mesh while the higher hardgrove mixture would be expected to give a fineness of ≈ 85 percent passing 200 mesh. This results in better fuel distribution and combustion and concomitantly lower CO generation. Insert B shows the hardness for the two mixtures used during the tests and an analysis of the petroleum coke used in the mixtures. If the fineness is reduced (i.e., a lower amount of small particles) it reduces the combustion efficiency and degrades the fuel distribution in the combustion zone, thus forming more CO. Therefore, the change in the CO noted during testing is primarily due to the difference between the high sulfur and low sulfur coal hardness and thus grindability.

The higher CO can also be affected by the oxygen (O_2) concentrations observed during the each test condition. The O_2 concentrations during Condition 3 (80/20 coal petroleum coke blend) averaged 6.9 percent. In contrast, the O_2 concentrations during Condition 1 (high-sulfur coal only) averaged 7.7 percent. CO and O_2 concentrations are inversely proportional, suggesting that the higher CO concentrations were a result of combustion conditions and not the fuel. This observation is confirmed by the results for Condition 2 in which O_2 concentrations were the

highest (7.8 percent) and CO emission rate was the lowest [0.05 pound per million British thermal units (lb/MMBtu)].

Table 1. Statistical Evaluation of Trial Test Burn for Co-Firing Petroleum Coke at City of Lakeland McIntosh Plant - Unit 3

| Pollutant | Test Condition (a) | Average | "t" - distribution | | Conclusions (b) |
|--------------------|--------------------|---------|--------------------|----------------|-----------------|
| | | | Lower 90% C.I. | Upper 90% C.I. | |
| Particulate | 1. HSC Only | 0.0481 | 0.0381 | 0.0582 | 1=2>3 |
| | 2. HSC w/10% PC | 0.0459 | 0.0329 | 0.0589 | 2=1>3 |
| | 3. LSC w/20% PC | 0.0141 | 0.0096 | 0.0187 | 3<1&2 |
| Sulfur Dioxide | 1. HSC Only | 1.0866 | 1.0639 | 1.1094 | 1=2>3 |
| | 2. HSC w/10% PC | 1.1087 | 1.0618 | 1.0618 | 2=1>3 |
| | 3. LSC w/20% PC | 0.8935 | 0.8585 | 0.9284 | 3<1&2 |
| Nitrogen Oxides | 1. HSC Only | 0.5391 | 0.5353 | 0.5428 | 1=2>3 |
| | 2. HSC w/10% PC | 0.5466 | 0.5329 | 0.5602 | 2=1>3 |
| | 3. LSC w/20% PC | 0.4126 | 0.4052 | 0.4199 | 3<1&2 |
| Carbon Monoxide | 1. HSC Only | 0.0054 | 0.0044 | 0.0064 | 1=2<3 |
| | 2. HSC w/10% PC | 0.0050 | 0.0047 | 0.0053 | 2=1<3 |
| | 3. LSC w/20% PC | 0.0890 | 0.0231 | 0.1549 | 3>1&2 |
| Sulfuric Acid Mist | 1. HSC Only | 0.0240 | 0.0166 | 0.0315 | 1=2=3 |
| | 2. HSC w/10% PC | 0.0213 | 0.0167 | 0.0258 | 2=1=3 |
| | 3. LSC w/20% PC | 0.0255 | 0.0174 | 0.0336 | 3=1=2 |

(a) HSC = High Sulfur Coal; LSC = Low Sulfur Coal; PC = Petroleum Coke

(b) "1, 2, and 3" refer to test conditions; "=" means no significant difference between test conditions; "< and >" refers to a significant difference between test conditions.

Calculations for Table 1

Calculations:

| PM HSC Only | | PM-HSCw/10%PC | PM-LSCw/20%PC |
|--------------|------------|----------------|----------------|
| Run 2 | 0.054 | Run 5 | 0.0399 |
| Run 3 | 0.0483 | Run 6 | 0.0432 |
| Run 4 | 0.0421 | Run 7 | 0.0546 |
| Mean | 0.04813333 | Mean | 0.0459 |
| STD. DEV. | 0.00485958 | STD. DEV. | 0.00629762 |
| V | 2 | V | 2 |
| ta/2 | 2.92 | ta/2 | 2.92 |
| C.I. | 0.01003383 | C.I. | 0.01300302 |
| Run 8 | | Run 8 | 0.0151 |
| | | Run 9 | 0.0162 |
| | | Run 10 | 0.0111 |
| | | Mean | 0.01413333 |
| | | STD. DEV. | 0.0021914 |
| | | V | 2 |
| | | ta/2 | 2.92 |
| | | C.I. | 0.00452469 |
| SO2 HSC Only | | SO2-HSCw/10%PC | SO2-LSCw/20%PC |
| Run 1 | 1.0744 | Run 4 | 1.1399 |
| Run 2 | 1.1011 | Run 5 | 1.0865 |
| Run 3 | 1.0844 | Run 6 | 1.0997 |
| Mean | 1.08663333 | Mean | 1.1087 |
| STD. DEV. | 0.01101403 | STD. DEV. | 0.02271035 |
| V | 2 | V | 2 |
| ta/2 | 2.92 | ta/2 | 2.92 |
| C.I. | 0.02274124 | C.I. | 0.04689124 |
| Run 7 | | Run 7 | 0.9113 |
| | | Run 8 | 0.8707 |
| | | Run 9 | 0.8984 |
| | | Mean | 0.89346667 |
| | | STD. DEV. | 0.01693799 |
| | | V | 2 |
| | | ta/2 | 2.92 |
| | | C.I. | 0.03497275 |
| NOx HSC Only | | NOx-HSCw/10%PC | NOx-LSCw/20%PC |
| Run 1 | 0.5385 | Run 4 | 0.5544 |
| Run 2 | 0.5372 | Run 5 | 0.5382 |
| Run 3 | 0.5415 | Run 6 | 0.5471 |
| Mean | 0.53906667 | Mean | 0.54656667 |
| STD. DEV. | 0.00180062 | STD. DEV. | 0.00662437 |
| V | 2 | V | 2 |
| ta/2 | 2.92 | ta/2 | 2.92 |
| C.I. | 0.00371783 | C.I. | 0.01367767 |
| Run 7 | | Run 7 | 0.4104 |
| | | Run 8 | 0.4097 |
| | | Run 9 | 0.4176 |
| | | Mean | 0.41256667 |
| | | STD. DEV. | 0.00357056 |
| | | V | 2 |
| | | ta/2 | 2.92 |
| | | C.I. | 0.00737232 |
| CO HSC Only | | CO-HSCw/10%PC | NOx-LSCw/20%PC |
| Run 1 | 0.0061 | Run 4 | 0.0051 |
| Run 2 | 0.005 | Run 5 | 0.0048 |
| Run 3 | 0.0051 | Run 6 | 0.0051 |
| Mean | 0.0054 | Mean | 0.005 |
| STD. DEV. | 0.00049666 | STD. DEV. | 0.00014142 |
| V | 2 | V | 2 |
| ta/2 | 2.92 | ta/2 | 2.92 |
| C.I. | 0.00102547 | C.I. | 0.000292 |
| Run 7 | | Run 7 | 0.0845 |
| | | Run 8 | 0.1301 |
| | | Run 9 | 0.0523 |
| | | Mean | 0.08896667 |
| | | STD. DEV. | 0.03191837 |
| | | V | 2 |
| | | ta/2 | 2.92 |
| | | C.I. | 0.06590351 |

Calculations for Table 1

| H2SO4 HSC Only | | H2SO4-HSCw/10%PC | | H2SO4-LSCw/20%PC | |
|----------------|------------|------------------|------------|------------------|------------|
| Run 1 | 0.0248 | Run 4 | 0.0204 | Run 7 | 0.0208 |
| Run 2 | 0.028 | Run 5 | 0.0243 | Run 8 | 0.0304 |
| Run 3 | 0.0193 | Run 6 | 0.0191 | Run 9 | 0.0254 |
| Mean | 0.02403333 | Mean | 0.02126667 | Mean | 0.02553333 |
| STD. DEV. | 0.00359289 | STD. DEV. | 0.00220958 | STD. DEV. | 0.00392032 |
| V | 2 | V | 2 | V | 2 |
| ta/2 | 2.92 | ta/2 | 2.92 | ta/2 | 2.92 |
| C.I. | 0.00741843 | C.I. | 0.00456222 | C.I. | 0.00809448 |

40 CFR Part 60, Appendix C Calculation

| H2SO4 HSC Only | | H2SO4-LSCw/20%PC | |
|----------------|------------|------------------|------------|
| Run 1 | 0.0248 | Run 7 | 0.0208 |
| Run 2 | 0.028 | Run 8 | 0.0304 |
| Run 3 | 0.0193 | Run 9 | 0.0254 |
| Mean | 0.02403333 | Mean | 0.02553333 |
| Sa^2 | 0.00001936 | Sa^2 | 0.00002305 |
| Sp^2 | 0.00460525 | | |
| t | 0.39891799 | | |
| t' | 2.132 | | |

no significant difference

40 CFR Part 60, Appendix C Calculation - Test

| Run A | | Run B | |
|-------|------------|-------|-----|
| Run 1 | 100 | Run 7 | 115 |
| Run 2 | 95 | Run 8 | 120 |
| Run 3 | 110 | Run 9 | 125 |
| Mean | 101.666667 | Mean | 120 |
| Sa^2 | 58.3333333 | Sb^2 | 25 |
| Sp^2 | 6.45497224 | | |
| t | 3.47850543 | | |
| t' | 2.132 | | |

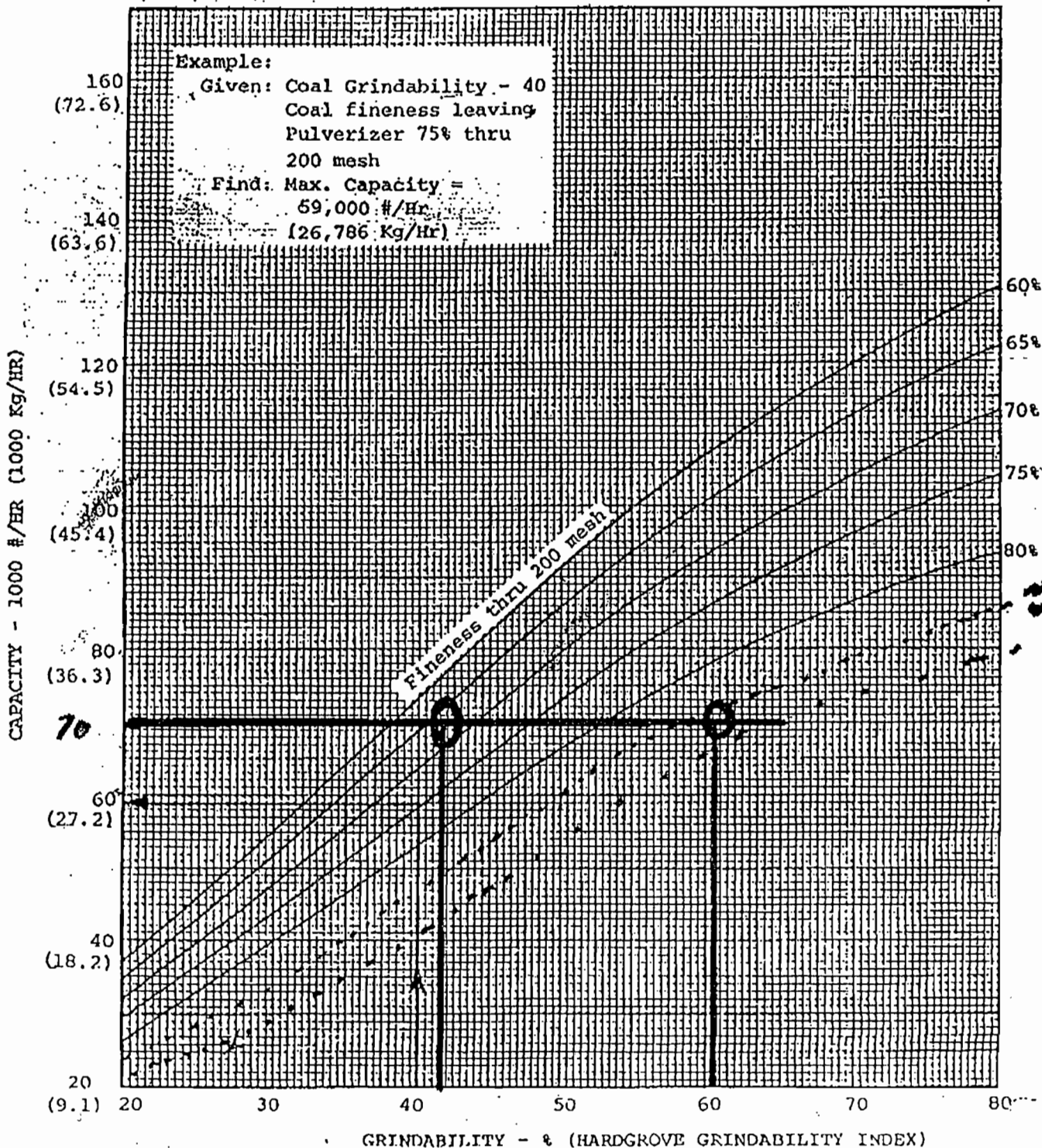
significant difference-same as CFR Example

Note: CFR example has round-off which produces slightly different values.

INSERT A

PULVERIZED FUEL SYSTEMS
TYPE MPS 75 PULVERIZER
OPERATING INSTRUCTIONS

FIG. 8 MPS-75 PULVERIZER EXPECTED PERFORMANCE
(NOT CORRECTED FOR MOISTURE)



INSERT B

COAL ANALYSIS
MCINTOSH POWER PLANT

DATE ANALYZED 2/17/94 DATE SAMPLED 2/15/94
 SAMPLE POINT C-3 Auto Sampler DATE RECEIVED 2/16/94
 SAMPLE ID # 112-94 SAMPLED BY Gandy
 ANALYZED BY Lindry / Parish RELEASED BY SPD

PROXIMATE ANALYSIS

| | AS RECEIVED | DRY BASIS | A-M FREE |
|--------------------|---------------|-------------------|-------------------|
| % MOISTURE (TOTAL) | <u>7.18</u> | <u> </u> | <u> </u> |
| % ASH | <u>7.34</u> | <u>7.90</u> | <u> </u> |
| % VOLATILE MATTER | <u>32.25</u> | <u>34.74</u> | <u>37.77</u> |
| % FIXED CARBON | <u>53.74</u> | <u>57.36</u> | <u>62.28</u> |
| BTU/LB | <u>12,962</u> | <u>13,965</u> | <u>15,163</u> |
| % SULFUR | <u>1.54</u> | <u>1.66</u> | <u>1.81</u> |

HARDGROVE GRINDABILITY INDEX 43

COAL ANALYSIS
McINTOSH POWER PLANT

| | | | |
|---------------|-------------------------|---------------|----------------|
| DATE ANALYZED | <u>2/14/94</u> | DATE SAMPLED | <u>2/9/94</u> |
| SAMPLE POINT | <u>C-3 Auto Sampler</u> | DATE RECEIVED | <u>2/10/94</u> |
| SAMPLE ID # | <u>107-94</u> | SAMPLED BY | <u>unknown</u> |
| ANALYZED BY | <u>Steven Parrish</u> | RELEASED BY | <u>SEP</u> |

PROXIMATE ANALYSIS

| | AS RECEIVED | DRY BASIS | A-M FREE |
|--------------------|---------------|-------------------|-------------------|
| % MOISTURE (TOTAL) | <u>10.64</u> | <u> </u> | <u> </u> |
| % ASH | <u>11.32</u> | <u>12.66</u> | <u> </u> |
| % VOLATILE MATTER | <u>23.38</u> | <u>26.17</u> | <u>29.96</u> |
| % FIXED CARBON | <u>54.66</u> | <u>61.17</u> | <u>70.04</u> |
| BTU/LB | <u>11,698</u> | <u>13,091</u> | <u>14,989</u> |
| % SULFUR | <u>2.83</u> | <u>3.17</u> | <u>3.63</u> |

HARDGROVE GRINDABILITY INDEX 61



Commercial Testing & Engineering Co.

ATTACHMENT B
PAGE 3

January 18, 1994

1212 N. 39th Street
Suite 323
Tampa, Florida 33605
Tel: (813) 249-6566
Fax: (813) 247-2562

KOCH CARBON, INC.
P. O. Box 2219
Wichita, KS 67201

CERTIFICATE OF ANALYSIS

KIND OF SAMPLE: PETROLEUM COKE
SAMPLE TAKEN AT: TECO, BIG BEND TERMINAL, TAMPA, FLORIDA
SAMPLE TAKEN BY: CT&E, TAMPA FROM BARGE "WANDA WHELOCK"
DATED SAMPLED: JANUARY 16, 1994
DATE RECEIVED: JANUARY 17, 1994.

ANALYSIS REPORT NO. 08-1680

| | <u>AS RECEIVED</u> | <u>DRY BASIS</u> |
|------------------------------|--------------------|------------------|
| Moisture | 10.35 % | xxxx |
| Ash | 0.28 % | 0.31 % |
| Volatile Matter | 9.11 % | 10.16 % |
| Fixed Carbon (by difference) | 80.26 % | 89.53 % |
| Sulfur | 4.46 % | 4.97 % |
| Gross Calorific Value | 13751 Btu/lb | 15339 Btu/lb |
| Moisture Ash Free Btu | | 15387 |

Hardgrove Grindability Index = 69

TRACE ELEMENTS P.P.M.

| | |
|-------------|------|
| Silicon, Si | 330 |
| Calcium, Ca | 155 |
| Iron, Fe | 130 |
| Nickle, Ni | 218 |
| Vanadium, V | 1090 |

SIZE ANALYSIS (Square Hole)

| | | |
|------------|------|--------|
| Over 3 | Inch | 3.79% |
| 3 x 2 | Inch | 5.89% |
| 2 x 1 | Inch | 16.63% |
| 1 x 1/2" | Inch | 15.53% |
| Under 1/2" | Inch | 58.36% |

COMMERCIAL TESTING & ENGINEERING CO.

Edward B. Linde
Edward B. Linde
Branch Manager

EBL/vi

COAL ANALYSIS DATA

UNIT TRAIN ANALYSIS SHEET 1994

City of Lakeland C.D. McIntosh Unit Number 3

| DATE | U.T.# | SULFUR | TONS | TONS/DATE |
|--------------|-------|--------|---------|------------|
| JAN | | | | |
| 4 | 1 | 0.96 | 9184.90 | 9,184.90 |
| 8 | 2 | 0.99 | 9552.97 | 18,737.87 |
| 11 | 3 | 0.94 | 9442.30 | 28,180.17 |
| 14 | 4 | 0.98 | 9487.57 | 37,667.74 |
| 26 | 5 | 0.94 | 9460.90 | 47,128.64 |
| | | | | 47,128.64 |
| JAN | 5 | 0.96 | | |
| YTD | 5 | 0.96 | | |
| FEB | | | | |
| 2 | 6 | 1.00 | 9472.62 | 56,601.26 |
| 3 | 7 | 2.60 | 9504.00 | 66,105.26 |
| 7 | 8 | 0.97 | 9306.60 | 75,411.86 |
| 7 | 9 | 1.73 | 9000.00 | 84,411.86 |
| 9 | 10 | 1.07 | 9177.00 | 93,588.86 |
| 10 | 11 | 0.98 | 9484.75 | 103,073.61 |
| 14 | 12 | 0.99 | 9661.97 | 112,735.58 |
| 16 | 13 | 1.00 | 9446.10 | 122,181.68 |
| 16 | 14 | 1.06 | 9336.00 | 131,517.68 |
| 23 | 15 | 1.38 | 9533.80 | 141,051.48 |
| 23 | 16 | 1.36 | 8966.60 | 150,018.08 |
| | | | | 150,018.08 |
| FEB | 11 | 1.28 | | |
| YTD | 16 | 1.18 | | |
| MAR | | | | |
| 1 | 17 | 0.96 | 9239.70 | 159,257.78 |
| 15 | 18 | 1.03 | 9566.10 | 168,823.88 |
| 15 | 19 | 1.02 | 9279.70 | 178,103.58 |
| 20 | 20 | 1.01 | 9564.00 | 187,667.58 |
| 22 | 21 | 1.02 | 9526.60 | 197,194.18 |
| 25 | 22 | 1.05 | 9559.47 | 206,753.65 |
| 28 | 23 | 0.86 | 9444.90 | 216,198.55 |
| | | | | 216,198.55 |
| MAR | 7 | 0.99 | | |
| YTD | 23 | 1.12 | | |
| APRIL | | | | |
| 1 | 24 | 1.09 | 9458.60 | 225,657.15 |
| 4 | 25 | 0.99 | 9431.40 | 235,088.55 |
| 8 | 26 | 0.90 | 9513.97 | 244,602.52 |
| 10 | 27 | 1.01 | 9305.20 | 253,907.72 |
| 13 | 28 | 1.04 | 9575.07 | 263,482.79 |
| 15 | 29 | 0.98 | 9134.80 | 272,617.59 |
| 21 | 30 | 1.05 | 9567.32 | 282,184.91 |
| 24 | 31 | 0.88 | 9510.07 | 291,694.98 |
| 27 | 32 | 1.00 | 9128.85 | 300,823.83 |
| | | | | 300,823.83 |
| APRIL | 9 | 0.99 | | |
| YTD | 32 | 1.09 | | |

| UNIT TRAIN ANALYSIS SHEET | | 1994 | | |
|--|-------|--------|------|-----------|
| City of Lakeland C.D. McIntosh Unit Number 3 | | | | |
| DATE | U.T.# | SULFUR | TONS | TONS/DATE |

MAY

| | | | | |
|----|----|------|---------|------------|
| 1 | 33 | 1.00 | 9570.00 | 310,393.83 |
| 4 | 34 | 0.97 | 9332.10 | 319,725.93 |
| 8 | 35 | 1.04 | 9529.10 | 329,255.03 |
| 10 | 36 | 0.98 | 9358.30 | 338,613.33 |
| 14 | 37 | 1.03 | 9573.55 | 348,186.88 |
| 15 | 38 | 0.87 | 9553.32 | 357,740.20 |
| 21 | 39 | 0.89 | 9513.87 | 367,254.07 |
| 22 | 40 | 0.86 | 9513.45 | 376,767.52 |
| 28 | 41 | 0.70 | 9501.65 | 386,269.17 |
| | | | | 386,269.17 |

| | | | | |
|-----|----|------|--|--|
| MAY | 9 | 0.93 | | |
| YTD | 41 | 1.05 | | |

JUNE

| | | | | |
|----|----|------|---------|------------|
| 3 | 42 | 1.22 | 9530.50 | 395,799.67 |
| 3 | 43 | 0.99 | 9249.40 | 405,049.07 |
| 8 | 44 | 1.03 | 9535.00 | 414,584.07 |
| 9 | 45 | 0.96 | 9269.70 | 423,853.77 |
| 13 | 46 | 1.06 | 9566.95 | 433,420.72 |
| 14 | 47 | 1.34 | 9544.50 | 442,965.22 |
| 18 | 48 | 1.10 | 9428.30 | 452,393.52 |
| 21 | 49 | 1.34 | 9410.00 | 461,803.52 |
| 24 | 50 | 1.38 | 9322.46 | 471,125.98 |
| | | | | 471,125.98 |

| | | | | |
|------|----|------|--|--|
| JUNE | 9 | 1.16 | | |
| YTD | 50 | 1.07 | | |

JULY

| | | | | |
|----|----|------|---------|------------|
| 2 | 51 | 1.30 | 9614.90 | 480,740.88 |
| 2 | 52 | 1.09 | 9506.10 | 490,246.98 |
| 9 | 53 | 1.07 | 9050.17 | 499,297.15 |
| 9 | 54 | 1.26 | 9512.40 | 508,809.55 |
| 16 | 55 | 1.26 | 9946.50 | 518,756.05 |
| 17 | 56 | 0.93 | 8566.30 | 527,322.35 |
| 21 | 57 | 1.26 | 9639.50 | 536,961.85 |
| 22 | 58 | 1.08 | 9573.00 | 546,534.85 |
| 27 | 59 | 0.99 | 9264.80 | 555,799.65 |
| | | | | 555,799.65 |

| | | | | |
|------|----|------|--|--|
| JULY | 9 | 1.14 | | |
| YTD | 59 | 1.08 | | |

AUG

| | | | | |
|----|----|------|---------|------------|
| 1 | 60 | 1.30 | 9469.10 | 565,268.75 |
| 1 | 61 | 1.08 | 9569.27 | 574,838.02 |
| 6 | 62 | 1.28 | 9515.50 | 584,353.52 |
| 8 | 63 | 1.00 | 9127.10 | 593,480.62 |
| 10 | 64 | 1.30 | 9604.50 | 603,085.12 |
| 13 | 65 | 1.05 | 9545.37 | 612,630.49 |
| 16 | 66 | 1.06 | 9574.25 | 622,204.74 |
| 18 | 67 | 1.34 | 9116.90 | 631,321.64 |
| 22 | 68 | 0.99 | 9255.80 | 640,577.44 |

UNIT TRAIN ANALYSIS SHEET 1994

City of Lakeland C.D. McIntosh Unit Number 3

| DATE | U.T.# | SULFUR | TONS | TONS/DATE |
|-------|-------|--------|---------|------------|
| 24 | 69 | 0.99 | 9251.40 | 649,828.84 |
| <hr/> | | | | |
| AUG | 10 | 1.14 | | |
| YTD | 69 | 1.09 | | |
| | | | | |
| SEPT | | | | |
| 6 | 70 | 1.01 | 9145.40 | 658,974.24 |
| 6 | 71 | 1.06 | 9580.17 | 668,554.41 |
| 11 | 72 | 1.07 | 9571.80 | 678,126.21 |
| 12 | 73 | 1.05 | 9238.50 | 687,364.71 |
| 16 | 74 | 1.10 | 9590.02 | 696,954.73 |
| 18 | 75 | 1.01 | 9123.40 | 706,078.13 |
| 26 | 76 | 0.99 | 9308.90 | 715,387.03 |
| <hr/> | | | | |
| SEPT | 7 | 1.04 | | |
| YTD | 76 | 1.09 | | |
| | | | | |
| OCT | | | | |
| 1 | 77 | 0.99 | 9204.70 | 724,591.73 |
| 2 | 78 | 1.26 | 9845.80 | 734,437.53 |
| 6 | 79 | 1.30 | 9587.80 | 744,025.33 |
| 7 | 80 | 1.08 | 9375.55 | 753,400.88 |
| 12 | 81 | 1.24 | 9357.40 | 762,758.28 |
| 14 | 82 | 1.09 | 9575.57 | 772,333.85 |
| 17 | 83 | 1.06 | 9594.72 | 781,928.57 |
| 20 | 84 | 1.26 | 9418.70 | 791,347.27 |
| 22 | 85 | 0.99 | 9324.60 | 800,671.87 |
| <hr/> | | | | |
| OCT | 9 | 1.14 | | |
| YTD | 85 | 1.09 | | |
| | | | | |
| NOV | | | | |
| 1 | 86 | 0.99 | 9850.50 | 810,522.37 |
| 1 | 87 | 1.34 | 9511.30 | 820,033.67 |
| 7 | 88 | 1.40 | 9472.90 | 829,506.57 |
| 7 | 89 | 1.04 | 9462.60 | 838,969.17 |
| 13 | 90 | 1.07 | 9565.10 | 848,534.27 |
| 13 | 91 | 1.04 | 9969.20 | 858,503.47 |
| 19 | 92 | 1.07 | 9588.55 | 868,092.02 |
| 20 | 93 | 1.36 | 9428.60 | 877,520.62 |
| 25 | 94 | 1.40 | 9609.90 | 887,130.52 |
| 28 | 95 | 1.68 | 9404.95 | 896,535.47 |
| <hr/> | | | | |
| NOV | 10 | 1.24 | | |
| YTD | 95 | 1.11 | | |
| | | | | |
| DEC | | | | |
| 3 | 96 | 1.85 | 9565.20 | 906,100.67 |
| 4 | 97 | 1.06 | 9561.22 | 915,661.89 |
| 9 | 98 | 1.40 | 9524.20 | 925,186.09 |
| 10 | 99 | 1.05 | 9498.27 | 934,684.36 |
| 15 | 100 | 1.28 | 9599.00 | 944,283.36 |
| 15 | 101 | 1.10 | 9583.40 | 953,866.76 |

UNIT TRAIN ANALYSIS SHEET 1994

City of Lakeland C.D. McIntosh Unit Number 3

| DATE | U.T.# | SULFUR | TONS | TONS/DATE |
|-------|-------|--------|---------|------------|
| 20 | 102 | 1.02 | 9460.70 | 963,327.46 |
| 21 | 103 | 1.42 | 9424.20 | 972,751.66 |
| 29 | 104 | 1.28 | 9180.00 | 981,931.66 |
| 30 | 105 | 1.34 | 9419.40 | 991,351.06 |
| <hr/> | | | | |
| DEC | 10 | 1.28 | | |
| YTD | 105 | 1.12 | | |

UNIT TRAIN ANALYSIS SHEET 1995

City of Lakeland

C.D. McIntosh

Unit Number 3

DATE U.T.# SULFUR TONS TONS/DATE

JAN

| | | | | |
|----|----|------|---------|------------|
| 4 | 1 | 0.98 | 9500.70 | 9,500.70 |
| 5 | 2 | 1.38 | 9642.20 | 19,142.90 |
| 9 | 3 | 0.96 | 9489.80 | 28,632.70 |
| 10 | 4 | 1.32 | 9432.90 | 38,065.60 |
| 14 | 5 | 1.49 | 9425.40 | 47,491.00 |
| 14 | 6 | 1.14 | 9350.00 | 56,841.00 |
| 19 | 7 | 1.48 | 9510.20 | 66,351.20 |
| 24 | 8 | 1.00 | 9436.10 | 75,787.30 |
| 25 | 9 | 0.98 | 9411.60 | 85,198.90 |
| 30 | 10 | 1.42 | 9496.80 | 94,695.70 |
| 31 | 11 | 0.99 | 9276.50 | 103,972.20 |
| | | | | 103,972.20 |

| | | | | |
|-----|----|------|--|--|
| JAN | 11 | 1.20 | | |
| YTD | 11 | 1.20 | | |

FEB

| | | | | |
|----|----|------|---------|------------|
| 5 | 12 | 1.01 | 9362.50 | 113,334.70 |
| 6 | 13 | 1.38 | 9359.50 | 122,694.20 |
| 10 | 14 | 0.99 | 9499.90 | 132,194.10 |
| 13 | 15 | 1.40 | 9418.70 | 141,612.80 |
| 16 | 16 | 1.05 | 9223.75 | 150,836.55 |
| 18 | 17 | 1.36 | 9650.10 | 160,486.65 |
| 21 | 18 | 1.34 | 9340.40 | 169,827.05 |
| 24 | 19 | 1.01 | 9536.60 | 179,363.65 |
| 28 | 20 | 1.34 | 9617.20 | 188,980.85 |
| | | | | 188,980.85 |

| | | | | |
|-----|----|------|--|--|
| FEB | 9 | 1.21 | | |
| YTD | 20 | 1.20 | | |

MAR

| | | | | |
|----|----|------|---------|------------|
| 1 | 21 | 0.99 | 9222.95 | 198,203.80 |
| 5 | 22 | 1.00 | 9259.00 | 207,462.80 |
| 8 | 23 | 1.34 | 9430.70 | 216,893.50 |
| 13 | 24 | 1.02 | 9422.30 | 226,315.80 |
| 14 | 25 | 1.18 | 9255.40 | 235,571.20 |
| 19 | 26 | 0.99 | 9320.90 | 244,892.10 |
| 20 | 27 | 1.34 | 9743.50 | 254,635.60 |
| 25 | 28 | 1.34 | 9700.40 | 264,336.00 |

UNIT TRAIN ANALYSIS SHEET 1995

City of Lakeland

C.D. McIntosh Unit Number 3

| DATE | U.T.# | SULFUR | TONS | TONS/DATE |
|------|-------|--------|---------|------------|
| 26 | 29 | 1.34 | 9659.30 | 273,995.30 |
| | | | | 273,995.30 |

| | | | | |
|-----|----|------|--|--|
| MAR | 9 | 1.17 | | |
| YTD | 29 | 1.19 | | |

APRIL

273,995.30

| | | | | |
|-------|----|------|--|--|
| APRIL | 0 | 0.00 | | |
| YTD | 29 | 1.19 | | |

MAY

| | | | | |
|----|----|------|---------|------------|
| 1 | 30 | 1.30 | 9611.10 | 283,606.40 |
| 1 | 31 | 0.90 | 9166.50 | 292,772.90 |
| 6 | 32 | 1.32 | 9451.20 | 302,224.10 |
| 9 | 33 | 1.39 | 9247.25 | 311,471.35 |
| 11 | 34 | 1.28 | 9506.00 | 320,977.35 |
| 16 | 35 | 0.94 | 9445.00 | 330,422.35 |
| 18 | 36 | 1.30 | 9497.40 | 339,919.75 |
| 22 | 37 | 0.97 | 9388.80 | 349,308.55 |
| 23 | 38 | 0.92 | 9279.00 | 358,587.55 |
| 30 | 39 | 0.91 | 9214.20 | 367,801.75 |
| 31 | 40 | 0.97 | 9296.70 | 377,098.45 |
| | | | | 377,098.45 |

| | | | | |
|-----|----|------|--|--|
| MAY | 11 | 1.11 | | |
| YTD | 40 | 1.17 | | |

JUNE

| | | | | |
|----|----|------|---------|------------|
| 1 | 41 | 1.34 | 9608.30 | 386,706.75 |
| 7 | 42 | 0.95 | 9444.40 | 396,151.15 |
| 10 | 43 | 1.40 | 9748.60 | 405,899.75 |
| 12 | 44 | 1.42 | 9586.30 | 415,486.05 |
| 16 | 45 | 1.50 | 9605.00 | 425,091.05 |
| 17 | 46 | 1.48 | 9721.40 | 434,812.45 |
| 21 | 47 | 1.50 | 9626.00 | 444,438.45 |
| 23 | 48 | 1.48 | 9602.50 | 454,040.95 |
| 26 | 49 | 1.42 | 9552.60 | 463,593.55 |
| 30 | 50 | 1.42 | 9627.00 | 473,220.55 |
| | | | | 473,220.55 |

| | | | | |
|------|----|------|--|--|
| JUNE | 10 | 1.39 | | |
| YTD | 50 | 1.22 | | |

UNIT TRAIN ANALYSIS SHEET 1995

City of Lakeland

C.D. McIntosh

Unit Number 3

DATE U.T.# SULFUR TONS TONS/DATE

JULY

| | | | | |
|----|----|------|---------|------------|
| 2 | 51 | 1.40 | 9690.00 | 482,910.55 |
| 6 | 52 | 1.44 | 9353.00 | 492,263.55 |
| 9 | 53 | 1.42 | 9525.30 | 501,788.85 |
| 11 | 54 | 1.01 | 9321.90 | 511,110.75 |
| 16 | 55 | 1.40 | 9301.70 | 520,412.45 |
| 17 | 56 | 0.99 | 9366.20 | 529,778.65 |
| 21 | 57 | 0.98 | 9362.40 | 539,141.05 |
| 22 | 58 | 1.34 | 9383.10 | 548,524.15 |
| | | | | 548,524.15 |

| | | | | |
|------|----|------|--|--|
| JULY | 8 | 1.25 | | |
| YTD | 58 | 1.22 | | |

AUG

| | | | | |
|----|----|------|---------|------------|
| 2 | 59 | 1.44 | 9513.80 | 558,037.95 |
| 4 | 60 | 1.44 | 9459.10 | 567,497.05 |
| 7 | 61 | 0.98 | 9585.60 | 577,082.65 |
| 11 | 62 | 1.42 | 9543.60 | 586,626.25 |
| 12 | 63 | 1.40 | 9478.80 | 596,105.05 |
| 16 | 64 | 0.99 | 9510.50 | 605,615.55 |
| 18 | 65 | 1.40 | 9573.60 | 615,189.15 |
| 22 | 66 | 1.30 | 9399.70 | 624,588.85 |
| 23 | 67 | 1.34 | 9465.10 | 634,053.95 |
| 28 | 68 | 0.97 | 9526.70 | 643,580.65 |
| | | | | 643,580.65 |

| | | | | |
|-----|----|------|--|--|
| AUG | 10 | 1.27 | | |
| YTD | 68 | 1.23 | | |

SEPT

| | | | | |
|----|----|------|---------|------------|
| 2 | 69 | 1.32 | 9529.10 | 653,109.75 |
| 8 | 70 | 0.93 | 9536.30 | 662,646.05 |
| 13 | 71 | 1.28 | 9449.10 | 672,095.15 |
| 16 | 72 | 0.92 | 9501.70 | 681,596.85 |
| 19 | 73 | 1.34 | 9639.80 | 691,236.65 |
| 22 | 74 | 0.92 | 9494.00 | 700,730.65 |
| 27 | 75 | 1.29 | 9483.10 | 710,213.75 |
| | | | | 710,213.75 |

| | | | | |
|------|----|------|--|--|
| SEPT | 7 | 1.14 | | |
| YTD | 75 | 1.22 | | |

UNIT TRAIN ANALYSIS SHEET 1995

City of Lakeland

C.D. McIntosh

Unit Number 3

| DATE | U.T.# | SULFUR | TONS | TONS/DATE |
|------|-------|--------|---------|------------|
| OCT | | | | |
| 5 | 76 | 0.00 | 9396.80 | 719,610.55 |
| 9 | 77 | | 9349.60 | 728,960.15 |
| | | | | 728,960.15 |
| OCT | 2 | 0.00 | | |
| YTD | 77 | 1.19 | | |
| NOV | | | | |
| 1 | 0 | 0.00 | 0.00 | 728,960.15 |
| | | | | 728,960.15 |
| NOV | 1 | 0.00 | | |
| YTD | 78 | 1.19 | | |
| DEC | | | | |
| 0 | 0 | 0.00 | 0.00 | 728,960.15 |
| | | | | 728,960.15 |
| DEC | 1 | 0.00 | | |
| YTD | 79 | 1.19 | | |

FROM : T

PHONE NO. : 9414996688

Sep. 22 1995 02:57PM P2



**LAKELAND
ELECTRIC & WATER**

Excellence Is Our Goal, Service Is Our Job

MCINTOSH POWER PLANT
3030 E. LAKE PARKER DR.
LAKELAND, FLORIDA 33805

Ph. (813) 499-6600
FAX (813) 499-6686

July 14, 1994

McIntosh Power Plant C-3 Stack Test

Date of Composite Coal Sample: June 08, 1994

Lab I.D. 461-94

Sulfur %WT.: 1.26 Method: Parr 1760

BTU per lb.: 12,847 Method: D-2015

DOUGLAS DOERR
E&W ENGINEER

$$\frac{1.26}{100} \times 2 \times \frac{1}{12,847} \times 10^6 = 1.961516 / \text{MADTU}$$

0.6865

FROM : T

PHONE NO. : 9414996688

Sep. 22 1995 02:58PM P3

FAX (813) 499-6686

Excellence Is Our Goal, Service Is Our Aim

July 31, 1995

McIntosh Power Plant C-3 Stack Test

Date of Composite Coal Sample: June 15, 1995

Lab I.D. 549-95

Sulfur %WT.: 1.29 Method: Parr 1760

BTU per Lb.: 12,806 Method: D-2015

John O'Mahony
John O'Mahony
Power Production Foreman

$$\frac{1.29}{100} \times 2 \times \frac{1}{12,806} \times 10^6 = 20147 \text{ lb/MM BTU uncontrolled}$$

0.705 lb/MM BTU

$$\begin{array}{r} 0.705 \\ 0.607 \\ \hline \bar{x} = 0.696 \text{ lb/MM BTU} \end{array}$$

40 CFR PART 60

APPENDIX C

PERFORMANCE OF RM AND CEMS DATA, RM Tests, Correlation of RM and CEMS Data, and Calculations. This is the same as PS 2, Sections 7.1, 7.2, 7.3, and 7.5, respectively. Note: For Method 16, a sample is made up of at least three separate injects equally spaced over time. For Method 16A, a sample is collected for at least 1 hour.

3.2 Reference Methods. Unless otherwise specified in an applicable subpart of the regulations, Method 16, Method 16A, or other approved alternative, shall be the RM for TRS.

4. Bibliography

1. Department of Commerce. Experimental Statistics. National Bureau of Standards. Handbook 91. 1963. Paragraphs 3-3.1.4, p. 3-31.

2. A Guide to the Design, Maintenance and Operation of TRS Monitoring Systems. National Council for Air and Stream Improvement Technical Bulletin No. 89. September 1977.

3. Observation of Field Performance of TRS Monitors on a Kraft Recovery Furnace. National Council for Air and Stream Improvement Technical Bulletin No. 91. January 1978.

PERFORMANCE SPECIFICATION 6—SPECIFICATIONS AND TEST PROCEDURES FOR CONTINUOUS EMISSION RATE MONITORING SYSTEMS IN STATIONARY SOURCES

1. Applicability and Principle

1.1 Applicability. The applicability for this specification is the same as Section 1.1 of Performance Specification 2 (PS 2), except this specification is to be used for evaluating the acceptability of continuous emission rate monitoring systems (CERMS's). The installation and measurement location specifications, performance specification test procedure, data reduction procedures, and reporting requirements of PS 2, Section 3, 5, 8, and 9, apply to this specification.

1.2 Principle. Reference method (RM), calibration drift (CD), and relative accuracy (RA) tests are conducted to determine that the CERMS conforms to the specification.

2. Definitions

The definitions are the same as in Section 2 of PS 2, except that this specification refers to the continuous emission rate monitoring system rather than the continuous emission monitoring system. The following definitions are added:

2.1 Continuous Emission Rate Monitoring System (CERMS). The total equipment required for the determination and recording of the pollutant mass emission rate (in terms of mass per unit of time).

2.2 Flow Rate Sensor. That portion of the CERMS that senses the volumetric flow rate and generates an output proportional to flow rate. The flow rate sensor shall have provided

slightly checked CD for each flow rate parameter that it measures individually (velocity pressure).

3. Performance and Equipment Specifications

3.1 Data Recorder Scale. Same as Section 4.1 of PS 2.

3.2 CD. Since the CERMS includes analyzers for several measurements, the CD shall be determined separately for each analyzer in terms of its specific measurement. The calibration for each analyzer used for the measurement of flow rate except a temperature analyzer shall not drift or deviate from either of its reference values by more than 1 percent of 1.25 times the average potential absolute value for that measurement. For a temperature analyzer, the specification is 1.5 percent of 1.25 times the average potential absolute value. The CD specification for each analyzer for which other PS's have been established (e.g., PS 2 for SO₂ and NO_x) shall be the same as in the applicable PS.

3.3 CERMS RA. The RA of the CERMS shall be no greater than 20 percent of the mean value of the RM's test data in terms of the units of the emission standard, or 10 percent of the applicable standard, whichever is greater.

4. CD Test Procedure

The CD measurements are to verify the ability of the CERMS to conform to the established CERMS calibrations used for determining the emission rate. Therefore, if periodic automatic or manual adjustments are made to the CERMS zero and calibration settings, conduct the CD tests immediately before these adjustments, or conduct them in such a way that CD can be determined.

Conduct the CD tests for pollutant concentration at the two values specified in Section 4.1 of PS 2. For each of the other parameters that are selectively measured by the CERMS (e.g., velocity pressure), use two analogous values: one that represents zero to 20 percent of the high-level value (a value that is between 1.25 and 2 times the average potential value) for that parameter, and one that represents 50 to 100 percent of the high-level value. Introduce, or activate internally, the reference signals to the CERMS (these need not be certified). Record the CERMS response to each, and subtract this value from the respective reference value (see example data sheet in Figure 6-1).

5. RA Test Procedure

5.1 Sampling Strategy for RM's Tests, Correlation of RM and CERMS Data, Number of RM's Tests, and Calculations. These are the same as PS 2, Sections 7.1, 7.2, 7.3, and 7.5, respectively. Summarize the results on a data sheet. An example is shown in Figure 6-2. The RA test may be conducted during the CD test period.

Reference Methods (RM's). Unless otherwise specified in the applicable subpart of the regulations, the RM for the pollutant gas in the appendix A method that is cited for compliance test purposes, or its approved alternatives. Methods 2, 2A, 2B, 2C, or 2D, as applicable are the RM's for the determination of volumetric flow rate.

6. Bibliography

1. Brooks, E.F., E.C. Beder, C.A. Flegal, D.J. Luciani, and R. Williams. Continuous Measurement of Total Gas Flow Rate from Stationary Sources. U.S. Environmental Protection Agency. Research Triangle Park, NC. Publication No. EPA-650/2-75-020. February 1975. 248 p.

PERFORMANCE SPECIFICATION 7—SPECIFICATIONS AND TEST PROCEDURES FOR HYDROGEN SULFIDE CONTINUOUS EMISSION MONITORING SYSTEMS IN STATIONARY SOURCES

1. Applicability and Principle

1.1 Applicability. 1.1.1 This specification is to be used for evaluating the acceptability of hydrogen sulfide (H₂S) continuous emission monitoring systems (CEMS's) at the time of or soon after installation and whenever specified in an applicable subpart of the regulations.

1.1.2 This specification is not designed to evaluate the installed CEMS performance over an extended period of time nor does it identify specific calibration techniques and other auxiliary procedures to assess CEMS performance. The source owner or operator, however, is responsible to calibrate, maintain, and operate the CEMS. To evaluate CEMS performance, the Administrator may require, under Section 114 of the Act, the source owner or operator to conduct CEMS performance evaluations at other times besides the initial test. See §60.13(c).

1.1.3 The definitions, installation specifications, test procedures, data reduction procedures for determining calibration drifts (CD) and relative accuracy (RA), and reporting of Performance Specification 2 (PS 2), Sections 2, 3, 5, 6, 8, and 9 apply to this specification.

1.2 Principle. Reference method (RM), CD, and RA tests are conducted to determine that the CEMS conforms to the specification.

2. Performance and Equipment Specifications

2.1 Instrument zero and span. This specification is the same as Section 4.1 of PS 2.

2.2 Calibration drift. The CEMS calibration must not drift or deviate from the reference value of the calibration gas or reference source by more than 5 percent of the established span value for 6 out of 7 test days (e.g., the established span value is 300 ppm for subpart J fuel gas combustion devices).

2.3 Relative accuracy. The RA of the CEMS shall be no greater than 20 percent of the mean value of the RM test data in terms of the units of the emission standard or 10 percent of the applicable standard, whichever is greater.

3. Relative Accuracy Test Procedure

3.1 Sampling Strategy for RM Tests, Correlation of RM and CEMS Data, Number of RM Tests, and Calculations. These are the same as that in PS 2, §7.1, 7.2, 7.3, and 7.5, respectively.

3.2 Reference Methods. Unless otherwise specified in an applicable subpart of the regulation, Method 11 is the RM for this PS.

4. Bibliography

1. U.S. Environmental Protection Agency. Standards of Performance for New Stationary Sources; Appendix B; Performance Specifications 2 and 3 for SO₂, NO_x, CO₂, and O₂ Continuous Emission Monitoring Systems; Final Rule. 48 CFR 23608. Washington, DC, U.S. Government Printing Office. May 25, 1983.

2. U.S. Government Printing Office. Gaseous Continuous Emission Monitoring Systems—Performance Specification Guidelines for SO₂, NO_x, CO₂, O₂, and TRS. U.S. Environmental Protection Agency. Washington, DC, EPA-450/3-82-026. October 1982. 26p.

3. Maines, G.D., W.C. Kelly (Scott Environmental Technology, Inc.), and J.B. Homolya. Evaluation of Monitors for Measuring H₂S in Refinery Gas. Prepared for the U.S. Environmental Protection Agency. Research Triangle Park, NC, Contract No. 68-02-2707. 1978. 60 p.

4. Ferguson, B.B., R.E. Lester (Harmon Engineering and Testing), and W.J. Mitchell. Field Evaluation of Carbon Monoxide and Hydrogen Sulfide Continuous Emission Monitors at an Oil Refinery. Prepared for the U.S. Environmental Protection Agency. Research Triangle Park, NC. Publication No. EPA-600/4-82-054. August 1982. 100 p.

[48 FR 13327, Mar. 30, 1983 and 48 FR 23611, May 25, 1983, as amended at 48 FR 32986, July 20, 1983; 51 FR 31701, Aug. 5, 1985; 52 FR 17556, May 11, 1987; 52 FR 30675, Aug. 18, 1987; 52 FR 34650, Sept. 14, 1987; 53 FR 7515, Mar. 9, 1988; 53 FR 41335, Oct. 21, 1988; 55 FR 18876, May 7, 1990; 55 FR 40178, Oct. 2, 1990; 55 FR 47474, Nov. 14, 1990; 56 FR 5526, Feb. 11, 1991]

APPENDIX C TO PART 60—DETERMINATION OF EMISSION RATE CHANGE

1. Introduction.

1.1 The following method shall be used to determine whether a physical or operational change to an existing facility resulted in an increase in the emission rate to the atmosphere. The method used is the Student's t

test, commonly used to make inferences from small samples.

2. Data.

2.1 Each emission test shall consist of n runs (usually three) which produce n emission rates. Thus two sets of emission rates are generated, one before and one after the change, the two sets being of equal size.

2.2 When using manual emission tests, except as provided in §60.8(b) of this part, the reference methods of appendix A to this part shall be used in accordance with the procedures specified in the applicable subpart both before and after the change to obtain the data.

2.3 When using continuous monitors, the facility shall be operated as if a manual emission test were being performed. Valid data using the averaging time which would be required if a manual emission test were being conducted shall be used.

3. Procedure.

3.1 Subscripts a and b denote prechange and postchange respectively.

3.2 Calculate the arithmetic mean emission rate, E , for each set of data using Equation 1.

$$E = \frac{\sum_{i=1}^n E_i}{n} = \frac{E_1 + E_2 + \dots + E_n}{n} \quad (1)$$

Where:

E_i = Emission rate for the i th run.
 n = number of runs.

3.3 Calculate the sample variance, S^2 , for each set of data using Equation 2.

$$S^2 = \frac{\sum_{i=1}^n (E_i - E)^2}{n-1} = \frac{\sum_{i=1}^n E_i^2 - \left(\sum_{i=1}^n E_i\right)^2/n}{n-1} \quad (2)$$

3.4 Calculate the pooled estimate, S_p , using Equation 3.

$$S_p = \left[\frac{(n_a - 1) S_a^2 + (n_b - 1) S_b^2}{n_a + n_b - 2} \right]^{1/2} \quad (3)$$

3.5 Calculate the test statistic, t , using Equation 4.

$$t = \frac{E_b - E_a}{S_p \left[\frac{1}{n_a} + \frac{1}{n_b} \right]^{1/2}} \quad (4)$$

4. Results.

4.1 If $E_b > E_a$ and $t > t'$, where t' is the critical value of t obtained from Table 1, then with 95% confidence the difference between E_a and

E_a is significant, and an increase in emission rate to the atmosphere has occurred.

TABLE 1

| Degrees of freedom ($n_a + n_b - 2$) | t' (95 percent confidence level) |
|--|------------------------------------|
| 2 | 2.920 |
| 3 | 2.353 |
| 4 | 2.132 |
| 5 | 2.015 |
| 6 | 1.943 |
| 7 | 1.895 |
| 8 | 1.860 |

For greater than 8 degrees of freedom, see any standard statistical handbook or text.

5.1 Assume the two performance tests produced the following set of data:

| Test a | Test b |
|------------|--------|
| Run 1. 100 | 115 |
| Run 2. 95 | 120 |
| Run 3. 110 | 125 |

5.2 Using Equation 1—

$$E_a = 100 + 95 + 110 / 3 = 102$$

$$E_b = 115 + 120 + 125 / 3 = 120$$

5.3 Using Equation 2—

$$S_a^2 = (100 - 102)^2 + (95 - 102)^2 + (110 - 102)^2 / 3 - 1 = 58.5$$

$$S_b^2 = (115 - 120)^2 + (120 - 120)^2 + (125 - 120)^2 / 3 - 1 = 25$$

5.4 Using Equation 3—

$$S_p = [(3 - 1)(58.5) + (3 + 1)(25) / 3 + 3 - 2]^{1/2} = 6.46$$

5.5 Using Equation 4—

$$t = \frac{120 - 102}{6.46 \left[\frac{1}{3} + \frac{1}{3} \right]^{1/2}} = 3.412$$

5.6 Since $(n^2 + n - 2) = 4$, $t' = 2.132$ (from Table 1). Thus since $t > t'$ the difference in the values of E_a and E_b is significant, and there has been an increase in emission rate to the atmosphere.

6. Continuous Monitoring Data.

6.1 Hourly averages from continuous monitoring devices, where available, should be used as data points and the above procedure followed.

[40 FR 50420, Dec. 16, 1975]

APPENDIX D TO PART 60—REQUIRED EMISSION INVENTORY INFORMATION

(a) Completed NEDS point source form(s) for the entire plant containing the designated facility, including information on the applicable criteria pollutants. If data concerning the plant are already in NEDS, only that information must be submitted which is necessary to update the existing

NEDS record for that plant. Plant and point identification codes for NEDS records shall correspond to those previously assigned in NEDS; for plants not in NEDS, these codes shall be obtained from the appropriate Regional Office.

(b) Accompanying the basic NEDS information shall be the following information on each designated facility:

(1) The state and county identification codes, as well as the complete plant and point identification codes of the designated facility in NEDS. (The codes are needed to match these data with the NEDS data.)

(2) A description of the designated facility including, where appropriate:

(i) Process name.
 (ii) Description and quantity of each product (maximum per hour and average per year).

(iii) Description and quantity of raw materials handled for each product (maximum per hour and average per year).

(iv) Types of fuels burned, quantities and characteristics (maximum and average quantities per hour, average per year).

(v) Description and quantity of solid wastes generated (per year) and method of disposal.

(3) A description of the air pollution control equipment in use or proposed to control the designated pollutant, including:

(i) Verbal description of equipment.

(ii) Optimum control efficiency, in percent. This shall be a combined efficiency when more than one device operates in series. The method of control efficiency determination shall be indicated (e.g., design efficiency, measured efficiency, estimated efficiency).

(iii) Annual average control efficiency, in percent, taking into account control equipment down time. This shall be a combined efficiency when more than one device operates in series.

(4) An estimate of the designated pollutant emissions from the designated facility (maximum per hour and average per year). The method of emission determination shall also be specified (e.g., stack test, material balance, emission factor).

[40 FR 53349, Nov. 17, 1975]

APPENDIX E TO PART 60—[RESERVED]

APPENDIX F TO PART 60—QUALITY ASSURANCE PROCEDURES

PROCEDURE 1. QUALITY ASSURANCE REQUIREMENTS FOR GAS CONTINUOUS EMISSION MONITORING SYSTEMS USED FOR COMPLIANCE DETERMINATION

1. Applicability and Principle

1.1 Applicability. Procedure 1 is used to evaluate the effectiveness of quality control (QC) and quality assurance (QA) procedures and the quality of data produced by any con-

tinuous emission monitoring system (CEMS) that is used for determining compliance with the emission standards on a continuous basis as specified in the applicable regulation. The CEMS may include pollutant (e.g., SO₂ and NO_x) and diluent (e.g., O₂ or CO₂) monitors.

This procedure specifies the minimum QA requirements necessary for the control and assessment of the quality of CEMS data submitted to the Environmental Protection Agency (EPA). Source owners and operators responsible for one or more CEMS's used for compliance monitoring must meet these minimum requirements and are encouraged to develop and implement a more extensive QA program or to continue such programs where they already exist.

Data collected as a result of QA and QC measures required in this procedure are to be submitted to the Agency. These data are to be used by both the Agency and the CEMS operator in assessing the effectiveness of the CEMS QC and QA procedures in the maintenance of acceptable CEMS operation and valid emission data.

Appendix F, Procedure 1 is applicable December 4, 1987. The first CEMS accuracy assessment shall be a relative accuracy test audit (RATA) (see section 5) and shall be completed by March 4, 1988 or the date of the initial performance test required by the applicable regulation, whichever is later.

1.2 Principle. The QA procedures consist of two distinct and equally important functions. One function is the assessment of the quality of the CEMS data by estimating accuracy. The other function is the control and improvement of the quality of the CEMS data by implementing QC policies and corrective actions. These two functions form a control loop: When the assessment function indicates that the data quality is inadequate, the control effort must be increased until the data quality is acceptable. In order to provide uniformity in the assessment and reporting of data quality, this procedure explicitly specifies the assessment methods for response drift and accuracy. The methods are based on procedures included in the applicable performance specifications (PS's) in appendix B of 40 CFR part 60. Procedure 1 also requires the analysis of the EPA audit samples concurrent with certain reference method (RM) analyses as specified in the applicable RM's.

Because the control and corrective action function encompasses a variety of policies, specifications, standards, and corrective measures, this procedure treats QC requirements in general terms to allow each source owner or operator to develop a QC system that is most effective and efficient for the circumstances.

2. Definitions

2.1 Continuous Emission Monitoring Sys-



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

September 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: Modification of PSD-FL-008, Petcoke Project
City of Lakeland, C.D. McIntosh Unit No. 3

We have reviewed the information which you provided at the August 11 meeting between City and Department representatives. The City indicated its intent to pursue the petroleum coke (petcoke) project upon amendment of the Final Determination (permit) applicable to C. D. McIntosh Unit 3. The City provided a summary of previous understandings from past meetings with Department personnel and requested a prompt decision on applicability of Prevention of Significant Deterioration (PSD) and Best Available Control Technology (BACT) to the proposed project.

A Department summary of the early meetings might vary on a few points. In any case, the project will be reviewed in light of the amended PSD permit and the applicable rules in Chapter 62, Florida Administrative Code (FAC).

Actual emissions prior to the petcoke project should be calculated based on the lower of the historical actual emissions or allowable emissions. Since the Unit was apparently operating in excess of allowable sulfur dioxide (SO₂) limits contained in both the previous and amended PSD permits, allowable emissions should be used. We propose to rely on the new SO₂ limits rather than the previous ones which required 85 percent scrubbing efficiency for all grades of coal. This will benefit the City. Annual estimates of emissions prior to the project should be based on actual hours of operation, actual fuel combusted, capacity factors, etc. In the case of pollutants other than SO₂, actual emissions reflecting past operation, should be based on past (or new) compliance tests, CEMS data, applicable inferences from the petcoke test program, engineering estimates, etc.

Ms. Farzie Shelton
September 11, 1995
Page Two

Actual emissions (representative actual annual emissions) following the proposed change should be projected in accordance with the definitions given in FAC 62-212.200(2)(d) and 40 CFR 52.21(b)(33). This method is also favorable to the City since it does not require future annual emissions to be estimated as the Potential-to-Emit. Actual emissions after the change should be estimated from information and inferences derived from the previous petcoke tests, engineering estimates, etc.

We estimate SO₂ emissions before the change (based on present allowable emission rates and recent coal sulfur specifications) to be between 0.6 pounds per million Btu heat input (lb/10⁶ Btu) and 0.75 lb/10⁶ Btu. It appears that the SO₂ emission rate when firing the proposed petcoke blend will be less than or equal to 0.75 lb/10⁶ Btu. Therefore it is possible that there will be a relatively small increase in annual SO₂ emissions.

Sulfuric acid mist emissions may increase because of catalytic transformation of SO₂ to SO₃ in the presence of vanadium, all other factors being equal. We recommend that the City review past records to see if there are any test data upon which to base historical sulfuric acid mist emissions. The data would need to come from tests during which the SO₂ emissions were roughly equal to the present allowable limit. There does not appear to be a way to infer past or future acid mist emissions from the petcoke test program. Since the trigger level is only 7 tons per year, we recommend that methods of control be considered. It is possible that the scrubber will remove the additional mist. In any case, tests are easy to conduct and inexpensive.

Although carbon monoxide (CO) emissions appear to increase when burning petcoke, the City theorizes that the increase is due to the grindability characteristics of low sulfur coal. Testing while burning low sulfur coal (without petcoke) could prove this hypothesis. If true, no increase would be expected in CO following the proposed switch to the petcoke/low sulfur coal blend. Again, CO data are easy and inexpensive to obtain.

With respect to nitrogen oxides (NO_x), we note that there are past compliance test data indicating emission rates of 0.324, 0.473, and 0.434 lb/10⁶ Btu during 1992, 1993, and 1994 respectively. Since these tests were presumably conducted when firing low sulfur coal, it would not be necessary to conduct more tests. Interestingly, it appears that there is no significant difference between the NO_x data obtained when burning low sulfur coal (0.410 lb/10⁶ Btu) and that obtained when burning a petcoke/low sulfur coal blend (0.413 lb/10⁶ Btu). Additionally, the SO₂ emissions were within present allowable levels thus further validating these tests. Similar arguments appear to hold for particulate matter.

Ms. Farzie Shelton
September 11, 1995
Page Three

Ultimately it is up to the City to submit the most appropriate comparisons of actual annual emissions prior to the proposed petcoke switch with representative actual annual emissions following the switch. It may turn out that no increases in emissions are predicted thus exempting the project from PSD and BACT. However the definitions cited above require reporting to determine at future dates if there were increases such that PSD/BACT was triggered. We recommend that the City prepare some basic cost data to control any pollutants which increase as a result of the petcoke project. Please refer to our letter of May 5, 1995 for a description on how such information should be presented.

We look forward to receiving your application and are prepared to discuss these matters with you at your convenience. If you have any questions, please call A. A. Linero, P.E., Administrator, New Source Review Section, at (904)488-1344.

Sincerely,



C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/aal/1

cc: J. Harper EPA
P. Bunyak NPS
H. Rhodes DEP
B. Owen DEP
D. Beason DEP
B. Thomas, SWD
R. Harwood, PCESD
K. Kosky, KBN
A. Morrison, HGSS

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 Garzie Shelton, ChE
 City of Lakeland
 Dept. of Water & Electric Ut.
 501 E. Lemon St.
 Lakeland, FL 33801-5050

4a. Article Number
 2 392 979 039

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

7. Date of Delivery
 9/14/95

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

5. Signature (Addressee)
 Garzie Shelton

6. Signature (Agent)
 [Signature]

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

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| TOTAL Postage & Fees | \$ |
| Postmark or Date | PSD-FI-008 9-12-95 |
| | Petcoke #3 |

HOPPING GREEN SAMS & SMITH

PROFESSIONAL ASSOCIATION

ATTORNEYS AND COUNSELORS

123 SOUTH CALHOUN STREET

POST OFFICE BOX 6526

TALLAHASSEE, FLORIDA 32314

(904) 222-7500

FAX (904) 224-8551

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JULIE R. STEINMEYER

OF COUNSEL
CARLOS ALVAREZ
W. ROBERT FOKES

September 6, 1995

RECEIVED
SEP 7 1995

Bureau of
Air Regulation

VIA HAND DELIVERY

Kenneth Plante, Esquire
Office of General Counsel
Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Re: City of Lakeland, Department of Electric and Water Utilities
Proposed Amendment to PSD Permit Number PSD-FL-008
C.D. McIntosh Power Plant No. 3, Polk County, Florida --
Withdrawal of Request for Extension of Time

Dear Mr. Plante:

The City of Lakeland, Department of Electric and Water Utilities, received a proposed permit amendment to the above referenced Prevention of Significant Deterioration (PSD) permit on July 17, 1995, for its C.D. McIntosh Power Plant, Unit No. 3, located in Polk County, Florida. The proposed permit amendment was issued by the Florida Department of Environmental Protection's Bureau of Air Regulation, and the Intent to Issue was signed by Clair H. Fancy, P.E., Chief of the Bureau of Air Regulation. Pursuant to the Department's Order dated August 16, 1995, the City of Lakeland has until November 1, 1995, to file a petition for administrative proceedings regarding the proposed permit amendment. The Department has since issued a final, revised permit amendment that resolves the City's concerns and that is acceptable to the City.

Therefore, on behalf of the City of Lakeland, I hereby withdrawal the City's request for extension of time in which to file a petition for administrative proceedings regarding the revised permit and accept the permit revision issued on September 1, 1995. By the City's acceptance of the revised permit, we assume that the Department's file on this matter will be closed and that no further action is necessary.

I have attempted without success to contact Douglas Beason of the Department's Office of General Counsel regarding the City's withdrawal of the request for extension of time. The

Kenneth Plante, Esquire
September 6, 1995
Page 2

City of Lakeland appreciates the Department's cooperation and assistance in this matter. Please call me if you have any questions.

Sincerely,


Angela R. Morrison

cc: Clair Fancy, DEP BAR
Al Linero, DEP BAR
Douglas Beason, Esquire, DEP OGC
Farzie Shelton, City of Lakeland



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

September 5, 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: Amendment of PSD-FL-008A
City of Lakeland, C.D. McIntosh Unit No. 3

Attached is one copy of the Amendment of the Conditions of Approval related to sulfur dioxide emissions in the subject Final Determination (dated December 27, 1978) pursuant to 40CFR 52.21 - Prevention of Significant Deterioration (PSD Permit). Accompanying the Amendment is our Final Determination based on comments received following the Public Notice of August 2, 1995.

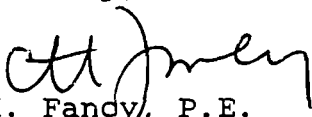
We agree that changing the Nitrogen Oxide (NO_x) emission limitation from 0.7 pounds per million Btu heat input (lb/10⁶ Btu) averaged over 3 hours to 0.6 lb/10⁶ Btu averaged over 30 days probably would have represented a relaxation of the present condition and would have contravened NSPS Subpart D requirements. We concur that adding a second NO_x limitation would result in additional but unnecessary documentation. In our opinion, the issue will be adequately addressed by the future development by EPA of NO_x limits applicable to Group 2 dry bottom wall-fired Units pursuant to Title IV, "Acid Rain" of the 1990 Clean Air Act Amendments. Accordingly, Condition 4.A. will remain per the Final Determination referenced above.

The changes in the PSD permit do not conflict with the maximum sulfur dioxide air emissions limits given in Section 3.7.1 of the State of Florida Conditions of Certification (PA 74-06) applicable to Unit No. 3. However we will update the Certification shortly to reflect the sulfur dioxide reduction requirements as well as the correct particulate emission limits from the PSD Permit.

Ms. Farzie Shelton
September 5, 1995
Page two

If you have any questions please call me or Mr. A. A. Linero,
P.E., at (904)488-1344.

Sincerely,


C.H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/aal/1

Enclosure

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

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- Complete items 1 and/or 2 for additional services.
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*Garsie Shelton
 City of Lakeland
 Dept. of Water & Electric
 501 E. Lemon St.
 Lakeland, FL 33801-5050*

4a. Article Number
2 392 979 037

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

7. Date of Delivery
9-8-95

5. Signature (Addressee)
[Signature]

6. Signature (Agent)
[Signature]

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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PS Form 3800, March 1993

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| Street address | <i>City of Lakeland</i> |
| P.O. / State and ZIP Code | <i>Lakeland - FL</i> |
| Postage | \$ |
| Certified Fee | |
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| TOTAL Postage & Fees | \$ |
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| | <i>Machose Unit # 3</i> |



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

September 5, 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: Amendment of PSD-FL-008A Final Determination
City of Lakeland, C.D. McIntosh Unit No. 3

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

0
Condition 2.B.

From:

A flue gas desulfurization system will be installed to treat all exhaust gases and will operate at a minimum SO₂ removal efficiency of 85 percent whenever coal is burned.

To:

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.

Ms. Farzie Shelton
September 5, 1995
Page Two

Condition 6. Continuous Monitoring Requirements

From:

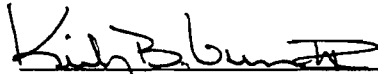
Continuous monitors shall be installed and operated in accordance with 40 CFR 60.45 and 60.13. In addition, a continuous SO₂ monitor shall be installed prior to the flue gas desulfurization system for the purposes of calculating SO₂ removal efficiencies.

To:

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.

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


Virginia B. Wetherell, Secretary

Ms. Farzie Shelton
September 5, 1995
Page Three

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 September 5, 1995.

FILING AND ACKNOWLEDGEMENT

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

K. Kosky 9-5-95
Clerk Date

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

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-008A

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

September 5, 1995

Final Determination

On July 11, 1995 a proposed Permit Amendment, Intent to Issue, Public Notice of Intent to Issue, and Technical Evaluation and Preliminary Determination applicable to the existing C. D. McIntosh Power Plant Unit No. 3 were sent to The City of Lakeland, EPA Region IV, the Southwest Florida DEP District, Polk County, and the National Park Service. The Permit Amendment was to change sulfur dioxide (SO₂) and nitrogen oxides (NO_x) removal requirements and limitations.

The Public Notice was published by the City of Lakeland on August 2, 1995 in the The Ledger, a newspaper of general circulation in Polk County, Florida.

A communication was received from EPA based on a draft package submitted to them for prior review. They indicated no adverse comments at the time. No comments were received during the 30-day review and comment period except from the City of Lakeland by letter dated July 25, 1995.

The City contends that a change in their present NO_x emission limit from 0.7 pounds per million Btu heat input (lb/10⁶ Btu) on a 3-hour basis to 0.6 lb/10⁶ on a 30-day basis would constitute a relaxation of the existing limit and contravene the applicable NSPS Subpart D. Furthermore, the City contends that if the second limit were made an additional requirement, it would result in additional but unnecessary documentation.

The Department has determined that the long-term mean of NO_x emissions will probably be lower with the existing limit than the proposed one. Additionally, the issue will be adequately addressed by the future development by EPA of NO_x limits applicable to Group 2 dry bottom wall-fired unit pursuant to Title IV, "Acid Rain" of the 1990 Clean Air Act Amendments.

Accordingly, the Technical Evaluation and Preliminary Determination dated July 11, 1995 is incorporated into this Final Determination with the exception of the portions related to NO_x emission limits.

The Final Determination of the Department is to amend PSD Permit No. PSD-FL-008 as described in the public information package with the exception of the amendment of the NO_x emission limit indicated above.

Florida Department of
Environmental Protection

Memorandum

TO: Virginia Wetherell
THROUGH: Kirby Green
FROM: Howard Rhodes *HR*
DATE: September 1, 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 amends the original 1978 EPA-issued PSD permit to account for the fact that EPA determined in 1979 that a particular set of New Source Performance Standards (NSPS) did not apply to this unit. The NSPS formed the basis for sulfur dioxide emission limits contained in the original PSD permit.

The City requested earlier this year that conditions requiring specific sulfur dioxide removal efficiencies be removed as long as the unit met the maximum emission limit of 1.2 pounds per million Btu heat input. We negotiated an agreement that requires them to reduce potential sulfur dioxide emissions to between 65 and 90 percent. The result is that under most operating scenarios their emissions will be 0.75 pounds per million Btu or less.

Unit No. 3 is equipped with an electrostatic precipitator for particulate control and a limestone scrubber for sulfur dioxide control.

We are now working with the City to evaluate a proposal to burn petroleum coke in the same unit.

I recommend your approval of the attached amendment.

HLR/aal/1

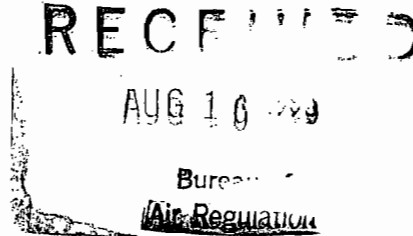
Attachments

Farzie Shelton
ENVIRONMENTAL COORDINATOR, Ch E.

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 7, 1995

Mr. C.H. Fancy, P.E.
Chief Bureau of Air Regulation
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400



Dear Mr. Fancy:

**Re: Amendment of PSD-FL-008
City of Lakeland, C.D. McIntosh Unit No. 3**

We are in receipt of your letter dated July 11, 1995 and attached Proposed Permit Amendment, Intent to Issue, Public Notice of Intent to Issue Permit Amendment for the above referenced facility.

Pursuant to Section 403.815, Florida Statutes and DEP Rule 62-103.150, F.A.C., on August 1, 1995 we published the "Notice of Intent to Issue Permit Amendment". Therefore, enclosed please find Affidavit of Publication confirming publication of the Department's notice.

If you should have any questions, please do not hesitate to contact me at (941) 499-6603.

Sincerely



Farzie Shelton
Environmental Division

Enclosure

CC: BUCK OVEN, DEP

CC EPA
SWD

D. Beason, OGC
M. Costello

R. Harwood, Polk Co
A. Uniero, BAR

AFFIDAVIT OF PUBLICATION

THE LEDGER Lakeland, Polk County, Florida

Case No.....

STATE OF FLORIDA)
COUNTY OF POLK)

Before the undersigned authority personally appeared Robert Lee, who on oath says that he is Classified Manager of The Ledger, a daily newspaper published in Polk County, Florida; that the attached copy of advertisement, being a

.....Notice of Intent.....

.....In the matter of.....

.....PSD-FL-008A.....

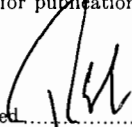
.....in the.....

.....Court, was published in said newspaper in the issues of.....

.....August 2;.....

.....1995.....

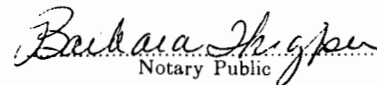
Affiant further says that said The Ledger is a newspaper published at Lakeland, in said Polk County, Florida, and that the said newspaper has heretofore been continuously published in said Polk County, Florida, daily, and has been entered as second class matter at the post office in Lakeland, in said Polk County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Signed 
Classified Advertising Manager

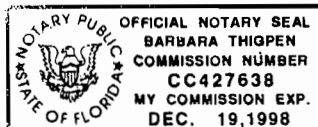
by Robert E. Lee who is
personally known to me

Sworn to and subscribed before me this..... 2nd

day of August..... A.D. 19 95

(Seal) 
Notary Public

My Commission Expires BARBARA THIGPEN
City of
Lakeland



STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT PSD-FL-008A

The Department of Environmental Protection (Department) gives notice of its intent to issue an amendment to Permit PSD-FL-008 to the City of Lakeland Department of Electric and Water Utilities (501 E. Lemon Street, Lakeland, Florida 33801) (City) to change certain Conditions of Approval related to sulfur dioxide (SO₂) and nitrogen oxides (NO_x) emission limits contained in the Final Determination dated December 27, 1978 applicable to the C.D. McIntosh Power Plant, Unit No. 3.

The minimum sulfur dioxide (SO₂) removal efficiency requirement when burning coal will be changed from 85 percent to:

0.12 lb/million Btu and 10 percent of the potential combustion concentration, (90 percent reduction), or

0.35 percent of the potential combustion concentration (65 percent reduction), when emissions are less than 0.75 lb/million Btu.

The method for calculating SO₂ removal efficiency will be changed from continuous monitors before and after the scrubber to analysis of fuel together with continuous SO₂ monitoring after the scrubber.

The NO_x emission limit when firing coal or oil/firuse will be reduced from 0.7 lb/million Btu to 0.60 lb/million Btu.

Compliance with applicable NO_x and SO₂ limits will be demonstrated on a 30 day rolling average basis as well as by annual performance tests.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays at:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619

Polk County ESD
330 W. Church Street
Barrow, Florida 33850

Any person may send written comments on the proposed action to Administrator, New Source Review, at the Department of Environmental Protection, Division of Air Resources Management, 2600 Blair Stone Road - Mail Station 5509, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such requests must be submitted within 30 days of this notice.

F118-8-2, 1995

HOPPING GREEN SAMS & SMITH

PROFESSIONAL ASSOCIATION

ATTORNEYS AND COUNSELORS

123 SOUTH CALHOUN STREET

POST OFFICE BOX 6526

TALLAHASSEE, FLORIDA 32314

(904) 222-7500

FAX (904) 224-8551

FAX (904) 425-3415

JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
ELIZABETH C. BOWMAN
RICHARD S. BRIGHTMAN
PETER C. CUNNINGHAM
RALPH A. DEMEO
THOMAS M. DEROSE
WILLIAM H. GREEN
WADE L. HOPPING
FRANK E. MATTHEWS
RICHARD D. MELSON
DAVID L. POWELL
WILLIAM D. PRESTON
CAROLYN S. RAEPPEL
GARY P. SAMS
ROBERT P. SMITH
CHERYL G. STUART

KRISTIN M. CONROY
CONNIE C. DURRENCE
JONATHAN S. FOX
JAMES C. GOODLETT
GARY K. HUNTER, JR.
JONATHAN T. JOHNSON
ROBERT A. MANNING
ANGELA R. MORRISON
GARY V. PERKO
KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
LISA K. RUSHTON
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
CARLOS ALVAREZ
W. ROBERT FOKES

July 25, 1995

RECEIVED
JUL 25 1995
Bureau of
Air Regulation

VIA HAND DELIVERY

Kenneth Plante, Esquire
Office of General Counsel
Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Re: City of Lakeland, Department of Electric and Water Utilities
Proposed Amendment to PSD Permit Number PSD-FL-008
C.D. McIntosh Power Plant No. 3, Polk County, Florida

Dear Mr. Plante:

The City of Lakeland, Department of Electric and Water Utilities, received a proposed permit amendment to the above referenced Prevention of Significant Deterioration (PSD) permit on July 17, 1995, for its C.D. McIntosh Power Plant, Unit No. 3, located in Polk County, Florida. The proposed permit amendment was issued by the Florida Department of Environmental Protection's Bureau of Air Regulation, and the Intent to Issue was signed by Clair H. Fancy, P.E., Chief of the Bureau of Air Regulation. Pursuant to Section 120.57, Florida Statutes, and Rule 62-103.070, Florida Administrative Code, the City of Lakeland has until July 31, 1995, to file a petition for administrative proceedings regarding the proposed permit amendment.

On behalf of the City of Lakeland, I hereby request, pursuant to Rule 62-103.070, F.A.C., an extension to and including November 1, 1995, in which to file a petition for administrative proceedings regarding the revised permit. As good cause for granting the request for extension of time for filing, the City of Lakeland states the following:

1. The proposed permit amendment contains conditions which warrant changes, clarification, and correction.
2. Representatives of the City of Lakeland have conferred and corresponded with the appropriate representatives from the Department's Bureau of Air Regulation regarding these

Kenneth Plante, Esquire
July 25, 1995
Page 2

conditions. The City of Lakeland representatives will continue their efforts in working with the Bureau in an attempt to reach a mutually acceptable resolution of the City's concerns regarding the proposed permit amendment.

3. This request is filed simply as a protective measure to avoid waiver of the City of Lakeland's right to challenge the proposed permit amendment as issued. Grant of this request will not prejudice either party, but will further their mutual interest and likely avoid the need to initiate formal administrative proceedings.

4. I hereby certify that I have attempted without success to contact Douglas Beason of the Department's Office of General Counsel regarding this request to determine whether he would have an objection.

Accordingly, I hereby request that you formally extend the time for filing a petition for administrative proceedings in regards to the Department's proposed permit amendment to Permit No. PSD-FL-008 to and including November 1, 1995.

Sincerely,



Angela R. Morrison

cc: Clair Fancy, DEP BAR
Al Linero, DEP BAR
Douglas Beason, Esquire, DEP OGC
Farzie Shelton, City of Lakeland

July 25, 1995

VIA HAND DELIVERY

Howard L. Rhodes, Director
Division of Air Resources Management
Department of Environmental Protection
Magnolia Park Courtyard
Tallahassee, FL 32301

RE: City of Lakeland C.D. McIntosh Unit No. 3--Requested
Amendment to PSD Permit No. PSD-FL-008

Dear Howard:

As you may recall, the City of Lakeland originally submitted a request to amend the Prevention of Significant Deterioration (PSD) permit for its C.D. McIntosh Unit No. 3 on January 4, 1995, and subsequently revised that request on April 6, 1995. The City's revised request to amend the PSD permit focused on the sulfur dioxide emission limit and removal efficiencies. In response to the City's request, the Department sent the City a proposed PSD permit amendment along with an "Intent to Issue" the permit amendment, which the City received on July 17, 1995. While the City appreciates the responsiveness of the Department to its request and for agreeing to a more reasonable sulfur dioxide removal efficiency, the City still has concerns about the permit amendment language being proposed by the Department, as described below.

Because the City has concerns about the draft permit amendment proposed by the Department and because it believes these concerns can be resolved through further negotiations, the City has asked for a three-month extension of the time within which a formal petition for administrative hearing may be requested. It is the City's understanding that the Department has no objection to its request. The City is hopeful that it will be able to resolve any concerns regarding the draft permit amendment language suggested by the Department within this three-month period. It may be necessary, of course, to obtain a further extension in the future if the City is not able to achieve a timely resolution.

In addition, as you may recall, the City requested a modification of its site certification for Unit No. 3 in December of 1994, and that request was held in abeyance pending the outcome of the PSD permit revision issues. Once these issues in the current permit revision have been

Howard L. Rhodes, Director
Division of Air Resources Management
Department of Environmental Protection
July 25, 1995
Page 2

finally resolved (following public notice and issuance of a final permit amendment), the City would like to submit a supplemental permit revision request that would address the use of petroleum coke. At that time, the request for site certification modification would again be reviewed by the Department. It is the City's understanding that no additional processing fees are needed since the Department's review has been ongoing and the underlying request for site certification modification has not changed. If this understanding is not correct, please notify us immediately.

After you and your staff have had an opportunity to review the information being provided, the City would like to set up a meeting to discuss the issues being raised by the City.

1. *Sulfur Dioxide Emission Limits and Removal Efficiencies:* The City is still somewhat concerned about the potential impacts of the Department's proposed sulfur dioxide emission limits and required sulfur dioxide removal efficiencies. What was proposed by the Department, as described in the Department's preliminary evaluation, "lies roughly mid-way between the City's proposal and the Final Subpart Da limits." While the City appreciates relief from the current permit conditions as well as from the NSPS Subpart Da limits, the City has some questions about the total annualized costs of complying with the limits and removal efficiencies being proposed by the Department. The City continues to believe that its proposal was justifiable, especially since the suggested limits were *below* other limits determined by the U.S. Environmental Protection Agency to be "Best Available Control Technology" subsequent to the time that the City's original 1978 permit was issued. While the City has not yet had an opportunity to fully analyze the costs of complying with what has been proposed by the Department, because the Department has been willing to work with the City on a compromised approach and the City would like to see this aspect of the permit revision finalized so the City can begin to address the possibility of using petroleum coke as a fuel at Unit No. 3, the City will accept what has been proposed by the Department for sulfur dioxide in Specific Condition 2.B. *if* it is able to reach an amicable resolution on the nitrogen oxides issue discussed below.

2. *Nitrogen Oxides Emissions Limit:* The City of Lakeland, as you know, did not propose to make any physical or operational changes as a result of the requested clarification of Specific Condition 2.B. regarding the sulfur dioxide emissions limit and removal efficiency. Certainly no change was requested regarding the nitrogen oxides emissions limit in Specific Condition 4.A. As the Department states in its technical evaluation and preliminary evaluation dated July 10, 1995, the U.S. Environmental Protection Agency established the nitrogen oxides limit of 0.7 lb/mmBtu as "Best Available Control Technology" when the permit was originally issued in 1978. Further, the nitrogen oxides emissions limit under New Source Performance Standard (NSPS) Subpart D is 0.7 lb/mmBtu, and the current emissions limit for Unit No. 3 is consistent with that limit. The Subpart Da limit of 0.6 lb/mmBtu for nitrogen oxides which the Department is attempting to establish to Unit No. 3 *does not apply*. The Department states in

Howard L. Rhodes, Director
Division of Air Resources Management
Department of Environmental Protection
July 25, 1995
Page 3

its own technical evaluation and preliminary evaluation that the C.D. McIntosh Unit No. 3 is subject to Subpart D and *not* Subpart Da. It is therefore appropriate, since both the applicable NSPS and EPA's BACT determination establish the appropriate nitrogen oxides emissions limit as 0.7 lb/mmBtu, that the Department make no changes and retain the current limit.

What is more, if the PSD permit were to establish a nitrogen oxides emissions limit of 0.6 lb/mmBtu based on a thirty-day rolling average, the three-hour limit of 0.7 lb/mmBtu would still apply under NSPS Subpart D. With a thirty-day rolling average, a three-hour average could be above 0.7 lb/mmBtu as long as the thirty-day average was 0.6 lb/mmBtu or lower. Therefore, the City would effectively be subject to two different emission limits for nitrogen oxides--a three-hour limit of 0.7 lb/mmBtu and a thirty-day rolling average limit of 0.6 lb/mmBtu. This would be administratively difficult to track, and it would be much more appropriate for the Department to have only one limit and to retain the limit of 0.7 lb/mmBtu, based on a three-hour average.

In addition, the Department has not indicated that ambient air quality, PSD increments, or public safety or welfare is being jeopardized by the existing emissions limit for nitrogen oxides. Because no physical or operational change is being made which affects nitrogen oxides emissions and the Department has no statutory or regulatory authority to arbitrarily change emission limits, the City respectfully requests that no change be made to Specific Condition 4.A. and that the nitrogen oxides limit remain 0.7 lb/mmBtu when firing coal or coal/refuse.

Again, the City would like to thank you and your staff for your cooperation and responsiveness to its request. I will call your office within the next few days to schedule a meeting to discuss these issues in more detail in an effort to reach an amicable resolution of this matter. Please feel free to call me if you have any questions in the meantime.

Sincerely,



Farzie Shelton
Environmental Coordinator

Howard L. Rhodes, Director
Division of Air Resources Management
Department of Environmental Protection
July 25, 1995
Page 4

cc: Clair Fancy, DEP
Al Linero, DEP
Martin Costello, DEP
Hamilton S. Oven, Jr., DEP
Jewell Harper, EPA Region IV
Brian Beals, EPA Region IV
Ken Kosky, KBN
Angela Morrison, HGSS



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 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: Amendment of PSD-FL-008A
City of Lakeland, C.D. McIntosh Unit No. 3

Attached is one copy of the Proposed Permit Amendment, Intent to Issue, Public Notice of Intent to Issue Permit Amendment (for publication by the City), and Technical Evaluation and Preliminary Determination for the existing C.D. McIntosh Power Plant Unit No. 3 located in Lakeland, Florida.

Please submit any written comments you may wish to have considered concerning the Department's proposed action to Mr. A. A. Linero, P.E. at the above address. If you have any questions please call me or Mr. Linero at (904)488-1344.

Sincerely,

C.H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/aal/l

Enclosure

cc: B. Thomas, SWD
J. Harper, EPA
J. Bunyak, NPS
L. Novak, PCESD
K. Kosky, KBN
Buck Oven, DEP

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
*Suzie Shelton, Ch.E.
 City of Lakeland
 Dept of Water & Electric Util
 501 E. Lemon St
 Lakeland, FL 33801-5050*

4a. Article Number
Z 392 979 053

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

7. Date of Delivery
NOV 17 1995

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**

Is your RETURN ADDRESS completed on the reverse side? Thank you for using Return Receipt Service.

Z 392 979 053



Receipt for Certified Mail

No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

PS Form 3800, March 1993

| | |
|---|----|
| Sent to <i>Suzie Shelton</i> | |
| Street and No. <i>City of Lakeland</i> | |
| P.O. State and ZIP Code <i>Lakeland, FL</i> | |
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |
| Postmark or Date <i>PSO-FI-008 7-11-95</i> <i>Unit #3</i> | |



Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
August XX, 1995

Virginia B. Wetherell
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

DRAFT

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: Amendment of PSD-FL-008A Final Determination
City of Lakeland, C.D. McIntosh Unit No. 3

The Department hereby amends the Conditions of Approval related to sulfur dioxide (SO₂) and nitrogen oxides (NO_x) emissions in the subject Final Determination pursuant to 40 CFR 52.21 - Prevention of Significant Deterioration (PSD Permit). The PSD Permit is amended as follows:

Condition 2.B.

From:

A flue gas desulfurization system will be installed to treat all exhaust gases and will operate at a minimum SO₂ removal efficiency of 85 percent whenever coal is burned.

To:

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.

Ms. Farzie Shelton
August XX, 1995
Page Two

DRAFT

Condition 4.A.

From:

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.

To:

NO_x emitted to the atmosphere from the boiler shall not exceed 0.60 pounds per million Btu heat input from coal or coal/refuse on a 30-day rolling average basis.

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, a continuous SO₂ monitor shall be installed prior to the flue gas desulfurization system for the purposes of calculating SO₂ removal efficiencies.

To:

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.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the applicant of the amendment request/application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

DRAFT

Ms. Farzie Shelton
August XX, 1995
Page Three

The Petition shall contain the following information:

- (a) The name, address and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,
- (g) A statement of the relief sought by petitioner, stating precisely the action the petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the amendment request/application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this amendment in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

DRAFT

Ms. Farzie Shelton
August XX, 1995
Page Four

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

Virginia B. Wetherell, Secretary

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 August XX, 1995.

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

Clerk

Date

cc: B. Thomas, SWD
L. Novak, PCESD
J. Harper, EPA
J. Bunyak, NPS
H. Oven, PPS

Technical Evaluation
and
Preliminary Evaluation

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
Solid Fossil Fuel/Municipal Refuse/Oil - Fired Boiler
364 MW

Permit No. PSD-FL-008A

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

July 10, 1995

I. General Information

A. Applicant

City of Lakeland
Department of Water and Electric Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

B. Request

On January 4, 1995, the City of Lakeland (City) submitted a request (Attachment 1) for an amendment to Permit PSD-FL-008A originally issued by the United States Environmental Protection Agency (EPA) on December 27, 1978 and applicable to the City's C. D. McIntosh Power Plant, Unit No. 3 (Unit 3) in Lakeland, Florida. The requested amendments to EPA's Final Determination were:

- o Adjust particulate matter limits to 0.1 pounds per million Btu (lb/mmBtu) heat input regardless of fuel;
- o Clarify that the minimum sulfur dioxide (SO₂) removal efficiency of 85 percent applies only when high sulfur coal is burned;
- o Delete the requirement to install an SO₂ monitor at the inlet to the scrubber, since the monitor at the stack is sufficient for use in determining SO₂ removal efficiencies;
- o Recognize that natural gas and low sulfur fuel oil may be used as startup fuels or at any other time; and
- o Allow co-firing of petroleum Coke with other fuels following a successful test burn.

On April 6, 1995, the City submitted a modification (Attachment 2) of its original submittal excluding the issues related to particulate matter, SO₂ monitoring, natural gas, and low sulfur oil while deferring the issue of petcoke co-firing. The modification addressed only the revision of Condition of Approval 2.B. of the Final Determination which the City requested to amend as follows:

From: A flue gas desulfurization system will be installed to treat all exhaust gases and will operate at a minimum SO₂ removal efficiency of 85 percent whenever coal is burned.

To: A flue gas desulfurization system will be designed to treat exhaust gases. 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. Justification

The City justified its request on the premise that the Final Determination made by EPA in 1978 was based on applicability of 40 CFR Part 60 - Standards of Performance for New Stationary Sources, Subpart Da - Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978 (NSPS Subpart Da). The City received a review from EPA dated March 9, 1979 (Attachment 3) wherein the Regional Counsel concludes that Unit 3 is not subject to Subpart Da.

D. Rule Applicability

The City inferred that the earlier NSPS Subpart D (applicable to units for which construction commenced after August 17, 1971) and the information contained in its application (submitted before Subpart Da was proposed) are the applicable requirements. In summary, these are a maximum SO₂ emission limit of 1.2 lb/mmBtu and 80 percent SO₂ removal efficiency when burning high sulfur (greater than 3.3 percent) coal. The City apparently believed that the Best Available Control Technology (BACT) determination (based on a proposed version of Subpart Da) was annulled by the opinion of EPA's Regional Counsel. Following the Department's opinion to the contrary, the City requested that the Department first amend the Final Determination (PSD Permit) prior to addressing the petcoke request.

The Department reviewed the correspondence, the Preliminary and Final Determinations, EPA Guidelines for conducting BACT reviews, EPA Guidance memos, etc. and concludes that the opinion of EPA's Regional Counsel did not invalidate the case-by-case BACT determination or the related Conditions of Approval contained in the PSD Permit which was pursuant to implementation of Section 165 of the 1977 Clean Air Act Amendments (CAAA's). The Department agrees that Subpart Da is not applicable, therefore Unit 3 does not presently need to comply with its provisions except those which were included in the PSD Permit or required by Subpart D.

Although Subpart Da does not apply, according to a memo (Attachment 4) dated November 15, 1978, EPA clearly expected case-by-case BACT reviews made by its regional offices after the date of the proposed Subpart Da (September 18, 1978) to reflect that level of control technology (85 percent SO₂ scrubbing efficiency) even if project applications were received prior to date of the proposed Subpart Da. The memo afforded applicants the opportunity to "present evidence of unusual circumstances which justify less control."

The federal rules under which the PSD Permit was issued were adopted by the Department pursuant to Chapter 403, Florida Statutes, and included in Chapters 62-4, 62-210, 62-212, 62-272, 62-275, 62-296, and 62-297 of the Florida Administrative Code. Accordingly, EPA delegated PSD Permitting authority to the Department.

E. Historical Operation of Unit 3

Since startup in 1982, the unit has primarily burned relatively low sulfur coal. Tests conducted in 1992, 1993, and 1994 (Attachment 5) indicated compliance with the maximum emission limits given in the PSD Permit for nitrogen oxides (NOx), and SO₂. SO₂ emissions were 0.65, 0.35, and 0.62 lb/mmBtu for the three years respectively. NOx emissions were under 0.5 lb/mmBtu compared with the PSD Permit limitation of 0.7 lb/mmBtu.

Data from 1994 (Attachment 6) indicate that the scrubbing efficiency (including by-pass for re-heat) ranged from 40 to 70 percent. This equates to overall SO₂ potential emission reduction of 45 to 75 percent including sulfur retention in the ash. While awaiting a decision, the City is operating the scrubber at 85 percent SO₂ removal efficiency while burning relatively low sulfur coal. However, more lime is used, more sludge is generated and stack re-heat is accomplished at substantial cost. Also there is no spare scrubbing capacity to provide for malfunctioning of the flue gas desulfurization (FGD) system.

F. Revised Determination

The SO₂ BACT determined by EPA was based on the more stringent proposed NSPS Da requirements of September 18, 1978 rather than the less stringent final version issued June 11, 1979. By its memo of January 10, 1979 (Attachment 7), the EPA Office of Air Quality Planning and Standards (OAQPS) directed Regions to review BACT determinations made between the time NSPS Subpart Da was issued and finalized to determine if "alternative (less stringent) controls would be more appropriate." It also reiterated that where the final version is more stringent than the proposed one, the more stringent controls would need to be incorporated into revised BACT determinations.

Based on the above, the BACT for Unit 3 would likely have been revised to account for the less stringent SO₂ requirements of the final Subpart Da if it was subject to Subpart Da provisions. Because the BACT was based on the proposed Subpart Da, it is logical to assume that the BACT can be reconsidered in light of the the EPA directive. Considering the non-applicability of Subpart Da BACT determinations made for similarly affected units, and the existing equipment serving Unit 3, the Department proposes to revise the SO₂ emissions limitations in the PSD permit as follows:

Condition 2.B.

From:

A flue gas desulfurization system will be installed to treat all exhaust gases and will operate at a minimum SO₂ removal efficiency of 85 percent whenever coal is burned.

To:

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 lb/mmBtu 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 lb/mmBtu heat input. Compliance with the sulfur dioxide emission limitation and percent reduction requirements shall be determined on a 30-day rolling average.

EPA set a BACT emission limit for NO_x at 0.7 lb/mmBtu which is higher than the proposed or final Subpart Da requirement of 0.60 lb/mmBtu. The reason given by EPA was that the applicant would incur significant time delays if the requirement of Subpart Da (whether applicable or not) was imposed. Based on the compliance test results provided by the City, the Department considers a more stringent limit to be appropriate and proposes a change as follows:

Condition 4.A.

From:

NO_x emitted to the atmosphere from the boiler shall not exceed 0.7 lb/mmBtu heat input when firing coal or coal/refuse.

To:

NO_x emitted to the atmosphere from the boiler shall not exceed 0.60 lb/mmBtu heat input from coal or coal/refuse on a 30-day rolling average basis.

Between the proposed and final Subpart Da, the basis for calculating SO₂ removal was changed from scrubbing efficiency to overall reduction of sulfur dioxide concentration potential including consideration of retention in ash. The Department proposes to change the scrubber inlet monitoring requirement to one which determines fuel sulfur content. The Department proposes to change the the present requirement as follows:

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, a continuous SO₂ monitor shall be installed prior to the flue gas desulfurization system for the purpose of calculating SO₂ removal efficiencies.

To:

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.

G. Cost, Energy and Other Environmental Impacts

The Department reviewed impact information provided by the City. It is summarized in Attachment 8. Compared to the City's request, application of Final Subpart Da limits of (70 percent sulfur dioxide potential concentration reduction when emissions are less than 0.6 lb/mmBtu) costs an additional \$1,900,000 on an annualized basis. The present requirement of 85 percent scrubber efficiency costs \$2,800,000 (\$4,850,000 with a new scrubber module) more than the City's proposal on an annualized basis. These represent incremental costs of between \$1,000 and \$2000 per ton of SO₂ removed (roughly \$3000-4000 per ton of SO₂ if a new module is purchased).

The energy impacts are included within in the cost analysis and represent the additional energy required to operate the scrubber and well as the energy penalty due to stack re-heat when it is not possible to use bypassed flue gas. The increases over the City's proposal are 16,400 MW-hr/yr and 21,100 MW-hr/yr for the Final Subpart Da limits the existing PSD Permit respectively.

The other main impact relates to the amount of scrubber sludge generated. Compared to the City's request, the Final Subpart Da option generates 5 percent more sludge while the present PSD Permit requirements result in 15 percent more sludge. Water consumption is also greater by roughly 53 percent for both the Final Subpart Da scenario the current PSD Permit requirements.

The Department's proposal lies roughly mid-way between the City's proposal and the Final Subpart Da limits. It is achievable using existing equipment and appears to be cost effective.

H. Other Issues

The City has pointed out that Unit 3 has only two modules, each of which can process only 55 percent of the flue gas and that Subpart Da units typically have at least one spare module. The City contends that they cannot meet the Final Subpart Da limits or the 85 percent efficiency requirement in the PSD Permit as soon as a single module malfunctions. This is correct. However extra modules are required for emergency purposes only for Da units of

365 MW while Unit 3 is a non-Da 364 MW unit. Emergency conditions were already addressed in the PSD Permit which allows burning of oil and refuse without use of the scrubber as long as SO₂ emissions do not exceed 0.8 lb/mmBtu. Furthermore the Department's proposal will give the City much flexibility than it now has to continue operating Unit 3 during a partial malfunction without having to implement emergency operation modes.

The City contends that EPA permitted FPC Crystal River Units 4 and 5 about the same time as Unit 3, yet allowed them to use specification coal with no scrubbing and to comply only with the requirements of Subpart D. Apparently EPA issued Lakeland's permit on December 27, 1978 in accordance with the PSD regulations (requiring case-by-case BACT determination) proposed on November 3, 1977 and promulgated on June 19, 1978. EPA issued FPC's permit on February 27, 1978 in accordance with the previous regulations. EPA applied the newer PSD rules to permits issued after March 1, 1978 which was the originally scheduled date for final rule promulgation. Moreover, low sulfur coal was proposed by FPC and accepted by EPA (together with PSD-based SO₂ reductions at its existing Units 1 and 2).

The City provided information to the Department that the Louisa Generating Station Unit 3 in Illinois received a much less stringent BACT determination under identical permitting circumstances (non-Subpart Da unit but subject to case-by-case BACT pursuant to the 1977 CAAA's). The Louisa Unit 3 was the case-in-point of the EPA November, 1978 memo discussed above which directed regions to presume the 85 percent scrubbing efficiency requirement of the then-proposed Subpart Da. The applicant proposed a low sulfur coal strategy which was approved. The applicant received an SO₂ emission limit of 0.96 lb/mmBtu (30-day basis) in the permit issued in August, 1979. The Department considered the information provided by the City in developing its proposed action which is less stringent than the Final Subpart Da but more stringent than the BACT determination made for the Louisa Plant.

The City proposed to comply with an emissions limit of 0.90 lb/mmBtu on a 30 day rolling basis. There appears to be no actual benefit to the City or improvement to air quality since both the present and proposed SO₂ reduction requirements will insure that a value much less than 0.90 lb/mmBtu is achieved unless the City switches to a very high sulfur fuel program. There may be a benefit related to SO₂ increment consumption and the Department will accept the new value if the City wishes to have it imposed on its operations.

INTENT TO ISSUE

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Application for Permit by:

The City of Lakeland
Department of Electric & Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5099

DEP File No. PSD-FL-008A
Polk County

INTENT TO ISSUE

The Department of Environmental Protection (Department) gives notice of its intent to issue an amendment (copy attached) for the proposed changes as detailed in the application specified above and the Department's Technical Evaluation (copy attached), for the reasons stated below.

The applicant, City of Lakeland Department of Electric and Water Utilities (City), applied on January 4, 1995 (revised April 6, 1995) to the Department of Environmental Protection for an amendment of the Conditions of Approval related to sulfur dioxide (SO₂) emissions limits contained in the Final Determination (PSD Permit) applicable to the C.D. McIntosh Plant, Unit No. 3. The determination was originally issued by the United States Environmental Protection Agency (EPA) on December 27, 1978, pursuant to 40 CFR 52.21, "Prevention of Significant Deterioration." The Department proposes to amend the nitrogen oxides (NO_x) emissions limits contained in the same PSD permit as well as the method to demonstrate compliance with the NO_x and SO₂ Limits.

The Department has permitting jurisdiction under F.A.C. 62-212, "Stationary Source-Preconstruction Review," which incorporates the requirements of 40 CFR 52.21 pursuant to delegation of authority for the program by EPA to the Department. The above actions are not exempt from permitting procedures. The Department has determined that an amendment to the Final Determination is required.

Pursuant to Section 403.815, Florida Statutes and DEP Rule 62-103.150, F.A.C., you (the City) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit Amendment. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department, at 2600 Blair Stone Road, Tallahassee, Florida 32399, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the amendment.

The Department will issue the amendment with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this intent in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 7-11-95 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kenneth J. Baker 7-11-95
Clerk Date

Copies furnished to:

B. Thomas, SW District
L. Novak, PCESD
J. Harper, EPA
J. Bunyak, NPS
H. Oven, PPS
K. Kosky, KBN

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT
PSD-FL-008A

The Department of Environmental Protection (Department) gives notice of its intent to issue an amendment of Permit PSD-FL-008 to the City of Lakeland Department of Electric and Water Utilities (City) to change certain Conditions of Approval related to sulfur dioxide (SO₂) and nitrogen oxides (NO_x) emission limits contained in the Final Determination dated December 27, 1978 applicable to the C.D. McIntosh Power Plant, Unit No. 3.

The minimum sulfur dioxide (SO₂) removal efficiency requirement when burning coal will be changed from 85 percent to:

- o 1.2 lb/million Btu and 10 percent of the potential combustion concentration (90 percent reduction), or
- o 35 percent of the potential combustion concentration (65 percent reduction), when emissions are less than 0.75 lb/million Btu.

The method for calculating SO₂ removal efficiency will be changed from continuous monitors before and after the scrubber to analysis of fuel together with continuous SO₂ monitoring after the scrubber.

The NO_x emission limit when firing coal or coal/refuse will be reduced from 0.7 lb/million Btu to 0.60 lb/million Btu.

Compliance with applicable NO_x and SO₂ limits will be demonstrated on a 30 day rolling average basis as well as by annual performance tests.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information; (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619

Polk County ESD
330 W. Church Street
Bartow, Florida 33830

Any person may send written comments on the proposed action to Administrator, New Source Review at the Department of Environmental Protection, Division of Air Resources Management, 2600 Blair Stone Road - Mail Station 5505, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such requests must be submitted within 30 days of this notice.

Florida Department of
Environmental Protection

Memorandum

TO: Clair Fancy
FROM: A. A. Linero *AAL Linero 7/10*
DATE: July 10, 1995
RE: City of Lakeland, McIntosh Unit 3

Following EPA's cursory review, attached is the package to amend the PSD Permit for the referenced unit. After thorough research, I have concluded that EPA intended to impose the Conditions of Approval on Unit 3 based on the originally proposed NSPS Subpart Da whether or not the unit was, strictly speaking, a Da source. I also discovered that EPA intended to revise BACT determinations made between the time Da was proposed and when it was finalized to adjust for the level of stringency between the two Da versions. It is on that basis (together with the non-applicability of Da) that I am recommending the amendments in the attached package.

The cost to the City will be on the order of \$1,000,000 per year compared to its request largely because of stack reheat costs, additional limestone requirements etc. To comply with the existing 85 percent scrubber efficiency requirement would cost them \$2,800,000 beyond their proposal. Of course it can be argued that we are saving them on the order of \$2,000,000 per year compared with their present permit whereas they would like to save \$2,800,000.

I recommend making their NO_x limit stricter. Their data show that they can easily comply. I am recommending that we let them meet their continuous monitoring requirement through fuel analysis and outlet CEMS instead of inlet and outlet CEMS. Compliance with both SO₂ and NO_x limits and removal requirements will also be demonstrated on a 30 day rolling average basis along with the required annual compliance tests.

AAL/aal/1

June 7, 1995

Farzie Shelton
ENVIRONMENTAL COORDINATOR, Ch E.

RECEIVED

VIA HAND DELIVERY

JUN 7 1995

Howard L. Rhodes, Director
Division of Air Resources Management
Florida Department of Environmental Protection
Magnolia Park Courtyard
Tallahassee, FL 32301

Division of Air
Resources Management

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

Dear Howard:

The City of Lakeland would like to thank you again for meeting with us at the C.D. McIntosh Power Plant on May 2 and for meeting with us at your offices on April 21 to discuss the City's request to revise its Prevention of Significant Deterioration Permit for Unit No. 3. In response to the Department's request, the City submitted additional information on May 17, 1995, which we hope will provide the Department with sufficient data to complete its review and issue the requested revision. Subsequently, the City received a letter dated May 18, 1995, from Al Linero attaching two memoranda describing a coal-fired unit in Illinois which was permitted by the U.S. Environmental Protection Agency (EPA) at the same time as the McIntosh Unit No. 3 was being permitted by EPA.

We appreciate the Department directing our attention to these memoranda. The November 1978 memorandum from EPA Headquarters clarifies that while "Best Available Control Technology" determinations may require more control than an old New Source Performance Standard (NSPS), each determination is made on a case-by-case basis. EPA may presume that a new source will be able to comply with proposed NSPS standards but that presumption may be rebutted and, again, each determination is case-by-case. The unit described in the memoranda is similar to the McIntosh Unit No. 3, only larger (650 MW compared to 364 MW). It is very interesting to note that the PSD permit issued in August of 1979 for the Illinois unit (eight months *after* the McIntosh permit was issued) provides for a sulfur dioxide limit of 0.96 lb/mmBtu¹ based on a thirty-day rolling average, with *no requirement to install a scrubber*. (A copy of the PSD permit and final determination are enclosed for your information.) Since

¹ It is our understanding that this limit was accepted at least in part because of ambient air quality standard concerns. In fact, annual limits were eventually accepted because of ambient air quality concerns.

Howard L. Rhodes
Department of Environmental Protection
June 7, 1995
Page 2

no scrubber or sulfur dioxide removal device was required, no corresponding sulfur dioxide removal efficiency was required. EPA's final BACT determination for that unit recognizes that standards under NSPS Subpart Da had been *proposed* but did *not* require compliance with the proposed standards. Instead, EPA issued an independent BACT determination, finding that an emission limit of 0.96 lb/mmBtu based on a 30-day rolling average was sufficient for BACT, without the need for a scrubber or sulfur dioxide removal efficiencies (as *proposed* under NSPS Subpart Da). The *proposed* NSPS Subpart Da standards were more stringent than the *final* standards, requiring scrubbing with a minimum 85 percent sulfur dioxide removal efficiency unless emissions were below 0.20 lb/mmBtu.

As you may recall, the sulfur dioxide limit being proposed by the City of Lakeland for the McIntosh Unit No. 3 is 0.90 lb/mmBtu based on a thirty-day rolling average. In addition, Lakeland is proposing to operate its scrubber at all times, with a minimum overall sulfur dioxide removal efficiency of 85 percent whenever high sulfur coal is burned and 60 percent whenever sulfur dioxide emissions are 0.90 lb/mmBtu or less (also based on a thirty-day rolling average). Because the EPA-issued permit for the Illinois unit was issued subsequent to the McIntosh Unit No. 3 permit and contains a less stringent emission limit than what has been proposed by the City, it seems reasonable for the Department to revise Unit No. 3's permit as requested. Not only is the emission limit proposed by the City lower than the limit in the EPA-issued permit for the Illinois unit (0.90 vs. 0.96 lb/mmBtu), the City has proposed to operate its sulfur dioxide scrubber with 85 and 60 percent overall removal efficiencies.

In other words, if the "Best Available Control Technology" was determined by EPA to be 0.96 lb/mmBtu, thirty-day rolling average, with no scrubbing in August of 1979, it would certainly be reasonable for a BACT determination for a December 1978 permit to be at least as stringent. The City's proposal would, in fact, be *more* stringent than the August 1979 BACT determination for the Illinois unit. We hope that you consider this when deciding whether to revise the City of Lakeland's permit as requested.

If you have any questions or would like any additional information regarding this issue, please let me know. Again, we want to thank you and your staff for your continued cooperation in this matter.

Sincerely,



Farzie Shelton
Environmental Coordinator

Howard L. Rhodes
Department of Environmental Protection
June 7, 1995
Page 3

cc: Clair Fancy, FDEP
Al Linero, FDEP
Martin Costello, FDEP
Jewell Harper, EPA
Brian Beals, EPA
Ken Kosky, KBN
Angela Morrison, HGSS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
324 EAST ELEVENTH STREET
KANSAS CITY, MISSOURI - 64106

August 7, 1979

Mr. R.B. Miller
Vice President - Operations
Iowa-Illinois Gas and Electric Company
2016 East Second Street
Davenport, Iowa 52808

Dear Mr. Miller:

Your application for a Prevention of Significant Air Quality Deterioration (PSD) permit has been reviewed in accordance with the PSD regulations found at 43 FR 26403, and codified in the Code of Federal Regulations at 40 CFR 52.21. Based on the information contained in your November 28, 1977, application for a permit to construct, and all the supplemental information which has been submitted since that time, the Environmental Protection Agency (EPA) has determined that your proposal to construct the 650-megawatt coal-fired Louisa Generating Station in Louisa County, Iowa, complies with all applicable federal air pollution control regulations. This letter is your approved PSD permit to construct the plant as proposed, subject to the following conditions:

1. The new generating station will be required to meet the following enforceable best available control technology (BACT) emission limits:

- a. sulfur dioxide: 0.96 pounds-per-million-BTUs of heat input, thirty-day rolling average;
- b. particulates: 0.03 pounds-per-million BTUs of heat input;
- c. oxides of nitrogen: 0.5 pounds-per-million BTUs of heat input, thirty-day rolling average;

2. Within the time limits imposed by 40 CFR 60.8, the Louisa Generating Station shall be performance tested to verify compliance with the BACT emission limits specified in Condition 1. These performance tests to determine compliance with Condition 1 shall be determined in accordance with the testing procedures specified in 40 CFR Part 60, Subpart Da, which are in effect as of the date of initial startup, with the exception that there is no need to install a second set of sulfur dioxide monitors at the outlet to the sulfur removal device since the sulfur dioxide emission limits are to be met by burning low-sulfur coal. Sampling time(s), sampling volume(s), sampling train gas temperature(s), sampling extraction rate(s),

sampling interval(s), and such other matters, will be set forth by the EPA or its delegate(s) at the pretest meeting referenced in Condition 3. Continued compliance with the above-referenced BACT emission limits shall be determined by all continuous monitoring and reporting methods which may be specified in 40 CFR Part 60, Subpart Da as of the date of initial source startup (i.e., operation of the boiler for any purpose), with the exception that the control efficiency of the sulfur dioxide removal device need not be demonstrated, since no flue gas desulfurization is required. Notwithstanding the fact that the Louisa Generating Station is not subject to 40 CFR Part 60, Subpart Da under Section 111 of the Clean Air Act (42 U.S.C. 7411), Subpart Da is being referenced to specify methods for determining compliance with the BACT emission limits specified in Condition 1, which are established under the PSD regulations promulgated pursuant to Section 110 of the Act (42 U.S.C. 7410). Applicable portions of 40 CFR Part 60 which must be met under Section 111 are stated later in this approval;

3. A pretest meeting shall be held at the site of the source at least fifteen days prior to the date of the performance test required by Condition 2. Such meetings shall be attended by the EPA or its delegate(s), the Iowa Department of Environmental Quality (IDEQ), the Iowa-Illinois Gas and Electric Company, and the independent testing firm (if such firm is contracted). It shall be the responsibility of the Iowa-Illinois Gas and Electric Company to schedule this meeting at least fifteen days in advance of the performance tests;

4. The applicant shall submit to the EPA, within six months of the date of this conditional approval, detailed plans, drawings, and operational procedures for the control of dust in the coal handling and storage system. The EPA will review this information to determine if BACT is represented. Failure to meet the BACT requirement will cause this conditional approval to be immediately invalidated;

5. The applicant shall submit to the EPA within six months of the date of this conditional approval, detailed design parameters, specifications, drawings and other information as necessary to demonstrate that the electrostatic precipitator will provide adequate control to meet the above-specified BACT limit for particulate matter. If, upon review, the EPA finds the proposed precipitator is inadequate, the permit will become immediately invalid;

6. Approval to construct the new power plant will become invalid if a continuous program of construction is not commenced within eighteen months after the issuance date of this PSD permit, if construction is discontinued for a period of eighteen months or more, or if construction is not completed within a reasonable period of time;

7. The Iowa-Illinois Gas and Electric Company shall be responsible for the construction and use of a new emission stack at the Grain Processing Corporation, Muscatine, Iowa, to handle the exhaust from the boilers prior to commencement of operation of the Louisa Generating Station. Such stack shall be constructed according to the specifications in the agreement between the Iowa-Illinois Gas and Electric Company and the Grain Processing Corporation, dated July 6, 1979. Detailed plans and specifications, and a construction schedule for this proposed stack shall be submitted to the EPA or its delegate not later than January 1, 1980.

Numerous public comments were received as a result of the two public comment periods which lasted from February 26, 1979, to April 3, 1979, and from July 20, 1979, to August 6, 1979, and the two public hearings held on April 3, 1979, and August 2, 1979. Because of the number of comments received and the length of our response, we have chosen to attach our discussion of the public comments to this letter as a separate document, rather than inserting them in the body of this letter. The reader is referred to the attachment for a complete discussion of the public comments received and the EPA response to such comments.

Your fossil fuel-fired steam generator will be subject to the federally established performance standards for new stationary sources. The applicable regulations are codified in the Code of Federal Regulations at 40 CFR Part 60, Subparts A and D. Subpart A contains certain notification requirements which are outlined as follows:

1. A notification to the EPA of the date construction of an affected facility is commenced, postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are produced in completed form;
2. A notification to the EPA of the anticipated date of initial startup of an affected facility, postmarked not more than 60 days nor less than 30 days prior to such date;
3. A notification of the actual date of initial startup of an affected facility, postmarked within 15 days after such date.

It should be understood that the IDEQ has full responsibility to implement and enforce all requirements of 40 CFR Part 60, Subpart D for fossil fuel-fired steam electric generators. However, certain testing requirements contained in the above conditions are not directly enforceable by the IDEQ, and compliance with such conditions will be determined by the EPA or its delegate(s).

We wish to emphasize that the approval being issued today pertains only to the requirements of 40 CFR 52.21. The approval will not relieve the Iowa-Illinois Gas and Electric Company of its continuing responsibility to comply fully with the requirements of the applicable state implementation plan, the Federal New Source Performance Standards (NSPS) (40 CFR Part 60), or any other requirements of federal, state, or local regulations. Construction activity which is commenced in violation of such other requirements will be at the risk of the company.

The owner and/or operator is reminded that it is his responsibility to demonstrate that his performance testing and monitoring equipment, locations, and procedures will be acceptable according to the applicable regulations. To minimize the many problems created by improper test port locations and unapproved continuous monitoring locations, it is suggested that the EPA Region VII Surveillance and Analysis Division or its delegate(s), and the IDEQ be contacted at the earliest date to avoid delays and expenses caused by replacing and/or modifying locations and equipment.

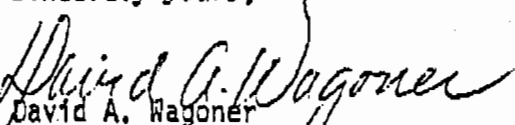
A recent decision in the U.S. Court of Appeals (copy enclosed) which remanded certain PSD regulations to the EPA for revision, may ultimately affect the conditions of this permit, require imposition of additional conditions, and/or modify the applicability of EPA regulations to your proposal. The effect of the above decision has been stayed pending further court proceedings, and, in the interim, the above-referenced EPA regulations are in full force and effect.

If you wish to withdraw your application for PSD approval or suspend EPA consideration of the application, please provide written notification and return this approval letter within ten calendar days of receipt of this letter. However, you are again reminded that under existing EPA regulations, you are subject to appropriate enforcement action if you construct, modify, or operate your proposed source without a PSD permit. The EPA considers the approval in this letter to be final unless we are otherwise notified by you. Also, any owner or operator who constructs, modifies, or operates an affected source not in accordance with the PSD application as reviewed, approved, and conditioned herein shall be subject to federal enforcement action under Sections 113 and 167 of the Clean Air Act (42 U.S.C. 7413 and 7467).

Future correspondence, notifications, and/or reports relating to the PSD program and the NSPS regulations, except as noted above, should hereafter be submitted to the Director, Enforcement Division, Environmental Protection Agency, Region VII, 324 East 11th Street, Kansas City, Missouri 64106.

A copy of this letter is being made available at the following locations:
Environmental Protection Agency, Region VII Office, Kansas City, Missouri;
Iowa Department of Environmental Quality, Henry A. Wallace Building, 900
East Grand, Des Moines, Iowa; and at the Muscatine County Auditor's Office,
Third and Walnut Streets, Muscatine, Iowa.

Sincerely yours,



David A. Wagoner
Director, Air and Hazardous Materials Division

2 Enclosures

cc: Mr. Charles C. Miller
Director, Air and Land Quality Division
Iowa Department of Environmental Quality

Mr. Richard P. Cool
Community Action Research Group

Mr. Kevin Greene
Citizens for a Better Environment



FILE - PSD-IA - LOUISA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
324 EAST ELEVENTH STREET
KANSAS CITY, MISSOURI 64106

January 19, 1981

Mr. Karl H. Schafer
Vice-President, Energy Supply and Engineering
Iowa-Illinois Gas and Electric Company
206 East Second Street
Davenport, Iowa 52801

Dear Mr. Schafer:

Pursuant to 40 CFR 52.21(r), this letter, and the enclosed final determination and final review document, constitute the final determination of the Environmental Protection Agency (EPA) on reconsideration of the best available control technology (BACT) emission rate for sulfur dioxide in the August 7, 1979 permit issued for the Louisa Generating Station. EPA has determined that the emission rate for sulfur dioxide (0.96 lbs. per million BTU) will be retained as representing BACT for the facility. EPA has also determined to modify the permit to require a limitation on hourly and daily SO₂ emissions, as explained in detail in this document. All other permit conditions remain in effect.

A copy of this letter is being made available at the following locations: Environmental Protection Agency, Region VII Office, Kansas City, Missouri; Iowa Department of Environmental Quality, Des Moines, Iowa; and Muscatine County Auditor's Office, Muscatine, Iowa.

Sincerely yours,

Kathleen Q. Camin
Kathleen Q. Camin
Regional Administrator

Enclosures

cc: Community Action Research Group
Eighth Circuit Court of Appeals, Robert St. Vrain, Clerk of Court

FINAL REVIEW FOR SIGNIFICANT AIR QUALITY DETERIORATION
UNDER 40 C.F.R. 52.21
IOWA-ILLINOIS GAS & ELECTRIC COMPANY
LOUISA GENERATING STATION
LOUISA COUNTY, IOWA
RECONSIDERATION OF BACT FOR SULFUR DIOXIDE

The Environmental Protection Agency (EPA) issued a prevention of significant air quality deterioration (PSD) permit to the Iowa-Illinois Gas and Electric Company (the "Company") on August 7, 1979. As a result of issues raised by the Community Action Research Group of Iowa, Inc. (CARG), EPA determined that it was appropriate, to reconsider one aspect of the permit, the emission limitation established as best available control technology (BACT) for sulfur dioxide (SO₂). A detailed account of the permit review and issuance, the allegations in the CARG challenge to the permit, and the rationale for and scope of EPA's reconsideration of the factual basis for the original BACT determination is provided in the preliminary review document for the August 1, 1980 Preliminary Determination. See, August 1 Preliminary Determination at pp. 1-9. Generally, the preliminary determination stated that the August 7, 1979 BACT determination had established the appropriate BACT emission rate for SO₂ removal and, should be reaffirmed. The preliminary determination also stated that the rationale for the emission rate was a comparison of the costs associated with more stringent emission limitations (based on various degrees of SO₂ removal -- SO₂ scrubbing) and the amount of PSD increment preserved by such scrubbing

systems. EPA determined that the cost of preserving additional increment by requiring SO₂ removal was not reasonable, particularly in view of the relatively small portion of increment consumed without SO₂ scrubbing. The analysis and conclusions are presented in detail in the August 1 Preliminary Determination at pp. 13-21.

EPA has made a final determination that the emission limitation established for LCS in the August 7, 1979 permit for SO₂ should be reaffirmed. Therefore, the permit emission rate of 0.96 lbs. SO₂ per million BTU heat input, 30-day rolling average, is finally adopted by EPA. However, EPA also finally adopts a new permit condition, discussed below, which will affect the operation of LCS. EPA has reached this determination after review of public comment on the August 1 Preliminary Determination. Except as otherwise provided in this final determination, EPA adopts as final the determinations made in the preliminary determination.

EPA has modified in two respects the analysis of impacts of BACT alternatives, which were discussed in the August 1 Preliminary Determination at pp. 13-21, and the conclusions concerning the appropriate BACT for SO₂. First, in response to comments by CARG, EPA has clarified and supplemented the discussion of the air quality impacts of LCS included in the

preliminary determination at pp. 14-17. EPA's modification of this analysis is found in Section II of the attached support document.

As a result of the modified analysis of air quality impacts of LCS, EPA is also establishing a new permit condition, which will require that LCS operate at a capacity of 83 percent of full capacity, or limit SO₂ emissions in some other way to 83 percent of the allowable (1.05 lbs. per million BTU) 24-hour emission rate. The rationale for this new permit condition is detailed in Sections II.B.2 and II.B.3 of the attachment to this final determination. The August 7, 1979 permit is amended to add a new condition 8 as follows:

8. Emissions of SO₂ shall not exceed 146,000 pounds per calendar day, nor shall emissions of SO₂ exceed 6,100 pounds per hour for more than 5 hours in any calendar day. Iowa-Illinois Gas and Electric Company shall maintain records of SO₂ emissions for each calendar day and shall submit a summary of such emissions to EPA within 10 days of the end of each calendar month. Any exceedance of the allowable emission rates shall be reported to EPA within 5 working days of its occurrence.

Second, in response to comments, EPA has partially revised its description of the economic impacts of the BACT options, included at pp. 17-18 of the preliminary determination, and the analysis

of the relationship between economic and environmental impacts, at pp. 18-21 of the preliminary determination. The latter is described in Section IV. of the attachment. These modifications and all other relevant issues raised in the public comments are explained in detail in the attached response.

The final determination means that EPA has taken final action to retain the emission rate established for SO₂ in the LCS permit, 0.96 lbs. SO₂ per million BTU heat input, 30-day rolling average. The Company has demonstrated that this rate can be met without SO₂ scrubbing. Therefore, no SO₂ scrubber will be required. However, the Company will be required to meet new Condition 8 of the permit, set out above, relating to limitations on operation of LCS.



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

May 19, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Jewell Harper, Chief
Air Branch Program
U.S. EPA - Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308

Re: Revision to Modification Request
Permit PSD-FL-008, City of Lakeland
C.D. McIntosh, Unit 3

Dear Ms. Harper:

Enclosed for your records is a response to our completeness review of a PSD modification request previously submitted to us by the City of Lakeland. A copy of the original request, dated January 4, 1995, was sent to your office by the City.

We are presently reviewing the City of Lakeland's request and their response to our completeness review. If you have any questions, please call me at (904)488-1344.

Sincerely,

A handwritten signature in cursive script, appearing to read "A. A. Linero", followed by the date "5/19".

A. A. Linero, Administrator
New Source Review Section

AL/t

Enclosure

cc: G. Worley, EPA

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:
 Jewell Harper, Chief
 Air Branch Program
 U.S. EPA - Region IV
 345 Courtland St, NE
 Atlanta, GA 30308

4a Article Number
 Z 311 902 907

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

5 Signature (Addressee)
 Charles Davis

6 Signature (Agent) MAY 29 1995

7 Date of Delivery

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

Thank you for using Return Receipt Service

Z 311 902 907



Receipt for Certified Mail

No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

PS Form 3800, March 1993

| | |
|---|------------------|
| Sent to | Jewell Harper |
| Street and No. | EPA |
| City, State, and ZIP Code | Atlanta, GA |
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |
| Postmark or Date | 5-19-95 |
| | City of Lakeland |
| | PO-FI-008 |



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

May 5, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

Dear Ms. Shelton:

Re: Requests to Modify PA-78-06, PSD-FL-008
City of Lakeland, McIntosh Unit No. 3

We have reviewed your letter of April 6, revising your previous modification requests of Site Certification PA-78-06 and PSD-FL-008 for C.D. McIntosh Unit 3. To finalize our review, the following information is requested.

- o Basic drawings of the scrubber serving Unit 3 along with a short process description, the name of the manufacturer, model number and serial number. The basic operating manual would suffice if it has this information.
- o Results of the three most recent annual stack tests for particulate matter, nitrogen oxides, and sulfur dioxide.
- o Rationale for Best Available Control Technology (BACT) requested by the City (0.90 lb/MMBtu, 55% minimum scrubber efficiency). This should be expressed in a manner similar to the attached "Least-Cost-Envelope." It should also include the NSPS "D" and NSPS "D(a)" cases as well as the 85% removal case. Details of credits and charges as appropriate should be included for reagents, water, energy penalties, fuel cost differentials, SO₂ allowances, etc. You may wish to show three curves and sample backup calculations for roughly 1.1% sulfur fuel, as well as 2.2 and 3.3% sulfur fuel.
- o A tabulation (hard copy or diskette) of the past two years worth of coal data, including sulfur content, SO₂ emissions, SO₂ removal efficiency (or sulfur reduction percentage). There is no need for the individual coal analysis sheets.

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Printed on recycled paper.

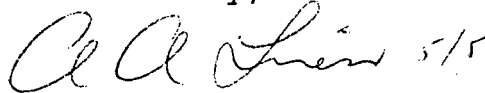
Ms. Farzie Shelton
May 5, 1995
Page Two

- o Your proposed method of determining and reporting compliance with the SO₂ emission limit and sulfur reduction (scrubber efficiency) requirement.

Your application will not be considered complete until we receive the foregoing items. However, we will continue to work on your request in order to expedite our action once we receive the requested information.

If you have any questions about this matter, please call me at (904)488-1344.

Sincerely,

A handwritten signature in cursive script, appearing to read "A. A. Linero 5/5".

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/kt

Enclosure

cc: Howard L. Rhodes
Clair H. Fancy
Buck Oven

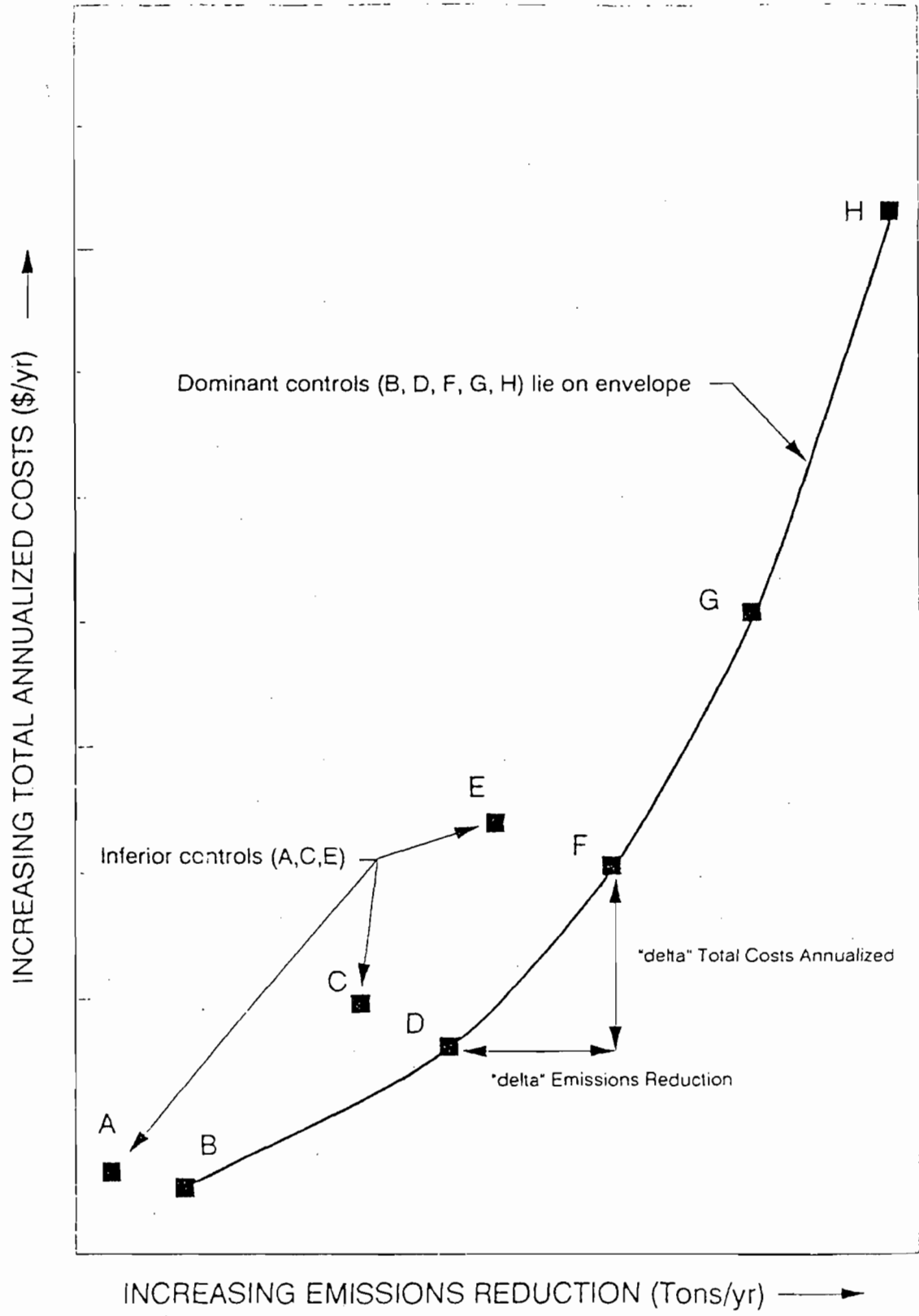


Figure B-1. LEAST-COST ENVELOPE

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):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Ms. Farzie Shelton, Ch. E.
Env. Coordinator
City of Lakeland
Dept. of Elec. & Water Utilities
501 East Lemon Street
Lakeland, FL 33801-5050

4a. Article Number
Z 311 902 910

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

7. Date of Delivery
0108 24 05/08/95

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: 1992-323-402 **DOMESTIC RETURN RECEIPT**

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service

Z 311 902 910



Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

PS Form 3800, March 1993

| | |
|---|-------------------------|
| Sent to | Farzie Shelton |
| Street and No. | 501 East Lemon Street |
| P.O., State and ZIP Code | Lakeland, FL 33801-5050 |
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |
| Postmark or Date | Mailed 5/5/95 |



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

May 4, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Jewell Harper, Chief
Air Branch Program
U.S. EPA - Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308

Re: Revision to Modification Request
Permit PSD-FL-008, City of Lakeland
C.D. McIntosh, Unit 3

Dear Ms. Harper:

Enclosed for your records is a revision to a PSD modification request previously submitted to us by the City of Lakeland. A copy of the original request, dated January 4, 1995, was sent to your office by the City.

We are presently reviewing the City of Lakeland's request. If you have any questions, please call me at (904)488-1344.

Sincerely,

A handwritten signature in cursive script, appearing to read "A. A. Linero". To the right of the signature is the date "5/4".

A. A. Linero, Administrator
New Source Review Section

AL/t

Enclosure

cc: F. Shelton, City of Lakeland
G. Worley, EPA

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.

following services (for an extra fee)

1 Addressee's Address

2 Restricted Delivery

Consult postmaster for fee.

3 Article Addressed to:
 Ms. Jewell Harper, Chief
 Air Branch Prog.
 U.S. EPA - Region IV
 345 Courtland St, NE
 Atlanta, GA 30305

4a Article Number
 Z 311 902 927

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

7 Date of Delivery

5 Signature (Addressee)
 Charles

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

6 Signature (Sender)
 Charles

is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

Z 311 902 927

Receipt for Certified Mail
 No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

PS Form 3800, March 1993

Sent to
 Jewell Harper

Street and No.
 EPA

P. O., State and ZIP Code
 Atlanta, GA

Postage \$

Certified Fee

Special Delivery Fee

Restricted Delivery Fee

Return Receipt Showing to Whom & Date Delivered

Return Receipt Showing to Whom, Date, and Addressee's Address

TOTAL Postage & Fees \$

Postmark or Date
 5-3-95
 City of Lakeland



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

RECEIVED

APR 06 1995

Bureau of
Air Regulation

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.

Hamilton S. Oven, Jr.
Florida Department of Environmental Protection
April 6, 1995
Page 2

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

Hamilton S. Oven, Jr.
Florida Department of Environmental Protection
April 6, 1995
Page 3

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.

Hamilton S. Oven, Jr.
Florida Department of Environmental Protection
April 6, 1995
Page 4

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

Hamilton S. Oven, Jr.
Florida Department of Environmental Protection
April 6, 1995
Page 5

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.

49155.02

March 9, 1995

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Bureau of
Air Regulation

VIA HAND DELIVERY

Hamilton S. Oven, Jr., Administrator
Power Plant Siting Section
Department of Environmental Regulation
3900 Commonwealth Boulevard
Tallahassee, FL 32399-3000

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

Dear Buck:

As you know, the City of Lakeland submitted a request to modify the above-referenced Site Certification on December 7, 1994, and a request to revise the above-referenced air permit on January 4, 1995. The Department of Environmental Protection promptly reviewed these applications and requested additional information by letters dated January 11 and January 27, 1995. We have subsequently prepared responses, and are providing additional information with this letter. The responses to the January 11 and 27 requests are included as Exhibits 1 and 2, respectfully. In addition, supplemental and replacement pages for the air permit application form are included as Exhibit 3.

While the City of Lakeland does not concur with the Department's position that the use of petroleum coke in Unit No. 3 would trigger Prevention of Significant Deterioration (PSD) and Best Available Control Technology (BACT) review, the requested information has been provided in an effort to expedite the Department's review and anticipated authorization to utilize petroleum coke. You may notice that PSD and BACT review information is being provided only for carbon monoxide. The City of Lakeland is proposing limits on the hours of operation when petroleum coke is cofired to prevent any significant net emissions increases of other pollutants, based on the Department's methodology for emission comparisons. The Department's methodology was explained to us at a meeting on February 7 by Clair Fancy and his staff, and based on this methodology and a limit on the hours of operation, PSD and BACT review information is being submitted only for carbon monoxide.

As a result, it is the City's understanding that the Department will issue a BACT determination only for carbon monoxide. The City would like to confirm that this BACT determination and the limitation on the hours of operation will apply only during periods when petroleum coke is cofired. The City of Lakeland will continue to be permitted to operate 8760 hours per year when Unit No. 3 utilizes fuels other than petroleum coke.

Hamilton Oven
March 9, 1995
Page Two

Thank you for your prompt attention to this matter. Once you and your staff have had an opportunity to review the attached information, please let us know whether any additional clarification is needed. Your cooperation and assistance with this matter is very much appreciated.

Sincerely,



Farzie Shelton / *arm*
Environmental Coordinator
Department of Electric and Water Utilities

cc: Clair Fancy, FDEP (Exhibit 2 and 3)
Al Rushanan, FDEP (Exhibit 1)
Jan Mandrup-Poulsen, FDEP (Exhibit 1)
Don Kell, FDEP (Exhibit 1)
Michael Hickey, FDEP (Exhibit 1)
Richard Garrity, FDEP (Exhibit 1)
Angela Morrison, HGSS
Ken Kosky, KBN

M E M O
TCB-0295-14

TO: FARZIE SHELTON
FROM: TIM BATES ³ *CB*
SUBJECT: PETROLEUM COKE MODIFICATION REQUEST
DATE: MARCH 2, 1995

This is in response to the Department of Environmental Protection communication dated January 27, 1995, in which the Bureau of Air Regulation is seeking information in relation to the request for modification of site certification for Unit No. 3. I have had the enclosed information assembled. You will find the information organized by lettered paragraph with some brief comments below:

- a) Please specify any operational changes associated with handling and blending the petroleum coke and coal for your application, if you are requesting this option. If there will not be any equipment and/or operational changes, please state this.

Response: The petroleum coke will be delivered either blended or will be mixed on site using existing operational procedures used to handle coal. Operational procedures will be essentially the same.

- b) Please provide the maintenance records, quality assurance records, listing of monitor downtimes (include cause and corrective actions taken for each downtime), and emissions data recorded from the scrubber inlet SO₂ CEMS for the years 1989 through 1994.

Response: The analyzers were removed on 3-30-89 and 4-28-89 due to poor performance and inability to keep them functioning properly in the hostile environment. Additionally, the removal efficiency of 85 percent of the sulfur dioxide from the stack gases through installation of a limestone scrubber was based on the expectation of utilizing "high sulfur" coal (sulfur content of greater than 3.0 percent). Therefore, any fuel (or combination of fuels) with a sulfur content of less than 3.1 percent sulfur does not require 85 percent removal efficiency. Since Lakeland has been utilizing fuels containing less than 3.1 percent sulfur, the scrubber efficiency was not a critical issue. However, Unit No. 3 has been in compliance with its allowable emission limit of 1.2 lb/MMBTU.

- c) Please provide the following test data from the trial burn test period in February: Provide all operational data collected from the ESP and wet scrubber, including power levels, scrubber liquid and air flows, and the number of scrubber modules and ESP fields online for each test. Provide boiler operational data for each test including load, excess

Memo to Farzie Shelton
March 2, 1995
Page Two

air levels, fuel feed types and rates, and steam rates. If any of this information was provided in the trial burn test report, please indicate where it is located in that document. Please submit fuel analysis data for trace metals (arsenic, beryllium, and mercury) for both the coal and coke burned. Provide scrubber efficiencies for each test run. Provide CEMS data from the scrubber inlet monitor during each test; and, explain the reasons for any monitor downtimes. Submit comparisons of the stack SO₂ CEMS data with the Method 6C data for each test. Compute the relative accuracy based on the limited number of Method 6C tests conducted during February.

Response: Please see data collected and memos under Section "C" of attached information.

- d) Please explain the cause of the sharp decrease in particulate matter emissions and opacity from the low sulfur coal/coke tests compared to both the 2.5% sulfur coal/coke and baseline coal tests. Provide a description of any changes (maintenance, adjustments to operations, liquid and exhaust flow rates, or electrical power inputs) made to the particulate matter and SO₂ control equipment between the test runs conducted in February, 1994.

Response: See attached memo in Section "D" with supplemental information.

- e) Please submit a monthly summary of the coal sulfur content levels, percent by weight, burned during the previous five years.

Response: See attached information.

- f) Based on the test results and the approved test protocol, PSD new source review requirements pursuant to Rule 62-212.400(5), F.A.C., shall apply at least to SO₂, NO_x, CO, and H₂SO₄ mist. Part of the new source review requirements includes BACT pursuant to Rule 62-212.410, F.A.C. Therefore, submit a PSD new source review application package for the requested modification.

Response: You have taken care of per our conversation.

TIMOTHY C. BATES
McIntosh Plant Manager

TCB/lh
Enclosures

cc: Ron Tomlin
Jack Libey



**LAKELAND
ELECTRIC & WATER**

Excellence Is Our Goal, Service Is Our Job

BEST AVAILABLE COPY

(813) 499-6603

February 24, 1995

Farzie Shelton
ENVIRONMENTAL COORDINATOR, Ch E.

Mr Scott Sheplak
Department of Environmental Protection
Bureau of Air Regulation
Title V - 1993 FEE
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: 1994 Annual Operation Licensing Fee for
Lakeland Electric & Water Utilities
McIntosh Power Plant Facility ID# 40TPA530004

Dear Mr. Sheplak:

Please find enclosed the completed DEP Form 62-213.900(1) and associated source information forms for the above referenced facility. As per our calculations, the annual operation licensing fees for McIntosh Power Plant ID# 40TPA530004 is the sum of \$234,721.00. Therefore enclosed you will find a check made payable to the Department of Environmental Protection (Department) covering this amount.

Additionally I would like to bring to your attention that in September 1994 while researching the Departments' files, as part of procedures for modification of Unit No. 3 site Certification permit, we discovered copy of a PSD permit for this unit. It was interesting to note that the maximum allowable particulate matter in the PSD permit were 0.04 and 0.05 lb/MMBTU for burning coal and coal/refuse respectively. However, there are certain letters and communications between City of Lakeland (COL) and EPA that causes COL to believe the PSD limits should be revised to reflect the 0.1 lb/MMBTU.

Presently COL is requesting the Department to modify the PSD permit to reflect 0.1 lb/MMBTU maximum allowable particulate matter. Therefore, until such a time the Department has made a determination, and in order to avoid any penalty and interest on insufficient fee payment, we have utilized 0.1 lb/MMBTU in our calculation. This is on the understanding that the Department would refund all overpayment of fees for the years 1992-1994.

If you should have any questions, please do not hesitate to contact me at (813) 499-6603.

Sincerely

Farzie Shelton(Ms)

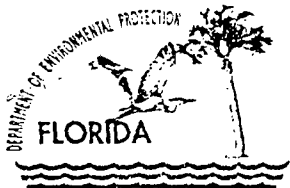
Enc.

cc: Bill Rodriguez
Ron Tomlin
Jack Libey

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-Tally PSD

Department of

Environmental Protection



Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

January 27, 1995

Ms. Farzie Shelton
Environmental Division
Department of Electric & Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Re: McIntosh Power Plant Unit #3, No. PA 74-06-SR
PETCOKE Modification Request

Dear Ms. Shelton:

The Department has reviewed the modification request that you provided on December 7, 1994. Included in this letter are comments received from the Division of Air Resources Management. Please review and respond to these comments as appropriate. Please furnish me with a copy of any response. If you wish my assistance in setting up a meeting with any members of the department's staff, I will be pleased to assist you.

The Bureau of Air Regulation's comments are as follows:
The following information is needed to supplement the above referenced request:

- a) Please specify any operational changes associated with handling and blending the petroleum coke and coal for your application, if you are requesting this option. If there will not be any equipment and/or operational changes, please state this.
- b) Please provide the maintenance records, quality assurance records, listing of monitor downtimes (include cause and corrective actions taken for each downtime), and emissions data recorded from the scrubber inlet SO₂ CEMS for the years 1989 through 1994.
- c) Please provide the following test data from the trial burn test period in February: Provide all operational data collected from the ESP and wet scrubber, including power levels, scrubber liquid and air flows, and the number of scrubber modules and ESP fields online for each test. Provide boiler operational data for each test including load, excess air levels, fuel feed types and rates, and steam rates. If any of this information was provided in the trial

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burn test report, please indicate where it is located in that document. Please submit fuel analysis data for trace metals (arsenic, beryllium, and mercury) for both the coal and coke burned. Provide scrubber efficiencies for each test run. Provide CEMS data from the scrubber inlet monitor during each test; and, explain the reasons for any monitor downtimes. Submit comparisons of the stack SO₂ CEMS data with the Method 6C data for each test. Compute the relative accuracy based on the limited number of Method 6C tests conducted during February.

d) Please explain the cause of the sharp decrease in particulate matter emissions and opacity from the low sulfur coal/coke tests compared to both the 2.5% sulfur coal/coke and baseline coal tests. Provide a description of any changes (maintenance, adjustments to operations, liquid and exhaust flow rates, or electrical power inputs) made to the particulate matter and SO₂ control equipment between the test runs conducted in February, 1994.

e) Please submit a monthly summary of the coal sulfur content levels, percent by weight, burned during the previous five years.

f) Based on the test results and the approved test protocol, PSD new source review requirements pursuant to Rule 62-212.400(5), F.A.C., shall apply at least to SO₂, NO_x, CO, and H₂SO₄ mist. Part of the new source review requirements includes BACT pursuant to Rule 62-212.410, F.A.C. Therefore, submit a PSD new source review application package for the requested modification.

Sincerely,

Hamilton S. Owen
Hamilton S. Owen, P.E.
Administrator, Siting
Coordination Office

cc: Richard Donelan
Angela Morrison
Martin Costello



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JAN 17 1995

Bureau of
Air Regulation

January 17, 1995

VIA HAND DELIVERY

Clair Fancy, Chief
Bureau of Air Regulation
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

Re: City of Lakeland--C.D. McIntosh Power Plant, Unit No. 3
Request to Amend PSD Permit No. PSD-FL-8

Dear Clair:

Please make the following corrections to the package submitted to the Department On January 4, 1995, in the above-referenced matter:

1. Please remove the "seventh" page 26. (Ref. No. 14262Y1/F3/TVD-S16 (12/30/94) (bottom right corner)) The previous page, which also provides information regarding natural gas and includes a max sulfur content of 1%, is correct.
2. Please replace page 28 (Ref. no. 14262Y1/F3/TVE-PI1 (12/30/94)). Line no. 5 should read "Method of Compliance: Annual Stack Test if > 400 hours of operation."
3. Please replace page 28 (Ref. no. 14262Y2/F3/TVE-PI3a (01/04/95) with the enclosed page (poor copy quality).

Thank you for your assistance in this matter. Please call me if you have any questions.

Sincerely,

Farzie Shelton

Allowable Emissions (Pollutant identified on front page)

A.

| | | |
|---|-------------------|----------------------|
| 1. Basis for Allowable Emissions Code: Rule | | |
| 2. Future Effective Date of Allowable Emissions: Not applicable | | |
| 3. Requested Allowable Emissions and Units: 0.1 lb/MMBtu | | |
| 4. Equivalent Allowable Emissions: | 364 lbs/hr | 1,594 tons/yr |
| 5. Method of Compliance: Annual Stack Test if > 400 hours of operation | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): The allowable emission limit is based on FDEP Rule 62-296.800; 40 CFR Part 60, Subpart D (see also Attachment 1). | | |

B. Not Applicable

| | | |
|--|--------|---------|
| 1. Basis for Allowable Emissions Code: | | |
| 2. Future Effective Date of Allowable Emissions: | | |
| 3. Requested Allowable Emissions and Units: | | |
| 4. Equivalent Allowable Emissions: | lbs/hr | tons/yr |
| 5. Method of Compliance: | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): | | |

Allowable Emissions (Pollutant identified on front page)

C. Natural gas firing

| | | | |
|---|-------------------|----------------|----------------|
| 1. Basis for Allowable Emissions Code: Rule | | | |
| 2. Future Effective Date of Allowable Emissions: Not applicable | | | |
| 3. Requested Allowable Emissions and Units: 0.2 lb/MMBtu | | | |
| 4. Equivalent Allowable Emissions: | 728 lbs/hr | 3,188.6 | tons/yr |
| 5. Method of Compliance: Annual stack test if > 400 hours operation | | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): The allowable emission limit is based on FDEP Rule 62-296.800; 40 CFR Part 60, Subpart D, Section 60.44(a)(1) (see also Attachment 1). | | | |

D.

| | | | |
|--|---------------|----------------|--|
| 1. Basis for Allowable Emissions Code: | | | |
| 2. Future Effective Date of Allowable Emissions: | | | |
| 3. Requested Allowable Emissions and Units: | | | |
| 4. Equivalent Allowable Emissions: | lbs/hr | tons/yr | |
| 5. Method of Compliance: | | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): | | | |



January 4, 1995

Clair H. Fancy, Chief
Bureau of Air Regulation
Division of Air Resources Management
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

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JAN 04 1995

Bureau of
Air Regulation

RE: City of Lakeland--C.D. McIntosh Power Plant, Unit No. 3
Request to Amend PSD Permit No. PSD-FL-8

Dear Clair:

The City of Lakeland ("Lakeland") requests minor amendments to the above-referenced prevention of significant deterioration (PSD) permit (and corresponding application) for its McIntosh Power Plant, Unit No. 3. Lakeland originally submitted a PSD permit application to the U.S. Environmental Protection Agency (EPA) in February of 1978, and EPA subsequently issued the permit on December 27, 1978, authorizing construction of the coal-, municipal refuse-, and oil-fired steam electric generation unit. Consistent with its permit, the unit was later constructed and actual start-up occurred on September 1, 1982. As a result of the final unit design, the City has identified several needed changes to the PSD permit and corresponding application:

- Adjust particulate matter limits to 0.1 lb/mmBtu heat input (regardless of the fuel being burned);
- Clarify that the minimum sulfur dioxide (SO₂) removal efficiency of 85 percent applies only when high sulfur coal is burned;
- Delete the requirement to install an SO₂ monitor at the inlet to the scrubber, since the monitor at the stack is sufficient for use in determining SO₂ removal efficiencies; and
- Recognize that natural gas and low sulfur oil may be used as startup fuels or at any other time.

In addition, based on a successful test burn of petroleum coke, the City requests that the PSD permit be amended to specifically allow such fuel to be cofired with permitted fuels. When petroleum coke is blended in the appropriate amounts with coal (or coal and refuse), the

Clair H. Fancy, Chief
Bureau of Air Regulation
January 4, 1995
Page 2

particulate matter, sulfur dioxide, nitrogen oxides, and opacity limits will not be exceeded. The total amount of petroleum coke will not exceed 20 percent (by weight).

As we stated in our December 1, 1994, letter to you, neither New Source Performance Standard Subpart Da applicability nor Prevention of Significant Deterioration (PSD) review should be triggered by the requested permit revisions. Based on recent telephone conversations with Bruce Mitchell of the Department's Bureau of Air Regulation, I understand that the Department has concurred with our analysis, except that it may be appropriate to require PSD review for carbon monoxide and sulfur acid mist emissions. As the information from the test burn indicates, however, no increase in sulfuric acid mist emissions should occur as a result of cofiring petroleum coke with other permitted fuels.

The test burn data indicates only a slightly higher emission rate for sulfuric acid mist when cofiring petroleum coke with coal than when coal with a sulfur content of 2.5 percent is burned alone; however, the student "t" test indicates that there is no statistical difference between these emission rates. This approach for determining emission rate changes is consistent with 40 CFR Part 60, Appendix C. Further, while the emission rate for carbon monoxide when petroleum coke was cofired during the test burn is statistically higher than when coal was burned alone during the test, the higher rate is attributable to the differences in grindability between the high and low sulfur coals used and to combustion conditions, as opposed to the characteristics of petroleum coke. (See memorandum from Timothy C. Bates, Acting Plant Manager for McIntosh Power Plant, dated December 29, 1994, included as Attachment C.)

Because no increase in regulated air pollutant emissions will occur as a result of cofiring petroleum coke with other permitted fuels, PSD review should not be triggered for any pollutants. Moreover, even if PSD review is required, control technology review for the boiler should not be required since no physical or operational changes are being made to the boiler to cofire petroleum coke.

The City of Lakeland respectfully requests that the Department accept the requested changes to the PSD application and make the requested changes to the PSD permit. In support of Lakeland's requested permit revisions and to illustrate the requested changes to its application, a permit application has been prepared on the Department's new form and is enclosed as Attachment A. (Some of the information requested on the application form will be submitted within the next few months when the Title V application for the McIntosh Plant is submitted.) In addition, the PSD permit, as proposed to be revised, is enclosed as Attachment B and is also being provided on a computer disk, WordPerfect 5.1 format.

In support of its request, Lakeland provides the following information.

Clair H. Fancy, Chief
Bureau of Air Regulation
January 4, 1995
Page 3

Particulate Matter Limits

The particulate matter limits included in the PSD permit should be changed to 0.1 lb/mmBtu heat input (regardless of the type of fuel burned), consistent with the corresponding Site Certification and New Source Performance Standard (NSPS) Subpart D. The lower limits were included in the permit because it was anticipated that the Unit might be subject to NSPS Subpart Da (40 CFR 60.40a-60.49a), which was proposed on September 19, 1978--just three months prior to issuance of the permit. The Subpart Da requirements would have applied to the Unit *if* it had commenced construction on or after the proposal date of September 19, 1978, even though the rules were not finalized until the following year. After the Unit's permit had been issued, the U.S. Environmental Protection Agency determined in March of 1979 that the Unit had commenced construction on March 21, 1978, *prior* to the effective date of Subpart Da. The Unit was therefore subject only to Subpart D and *not* Subpart Da. The particulate matter limits should therefore be appropriately adjusted to the Subpart D limit of 0.1 lb/mmBtu heat input. 40 CFR § 60.42(a)(1). This limit is also consistent with Rule 62-296.405(1)(b), Florida Administrative Code.

Accordingly, the City requests that Condition No. 1 of the permit be changed as follows:

- A. Particulate matter emitted to the atmosphere from the boiler shall not exceed 0.1 lb/mmBtu heat input, regardless of the fuel burned.

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

Sulfur Dioxide Removal Efficiency

The City of Lakeland proposed a removal efficiency of 85 percent of the sulfur dioxide from the stack gases through installation of a limestone scrubber based on the expectation of utilizing "high sulfur" coal (sulfur content of 3.3 percent). Because the City's application was based on a proposed revision to the New Source Performance Standards for power plants under Subpart Da and Unit No. 3 is *not* subject to Subpart Da standards, the Unit should *not* be required to comply with an 85 percent removal rate when lower sulfur fuels are burned. See letter from the U.S. Environmental Protection Agency to the City of Lakeland dated March 2,

Clair H. Fancy, Chief
Bureau of Air Regulation
January 4, 1995
Page 4

1979. Further, the limit of 1.2 lb/mmBtu heat input applies, regardless of the removal efficiency.

The actual sulfur dioxide emissions will be much less than 1.2 lb/mmBtu even when the 85 percent removal rate is not achieved because the desulfurization unit will continue to operate even when lower sulfur coal (or coal/refuse/petroleum coke combinations) is burned. In other words, the resultant sulfur dioxide emissions when burning a lower sulfur fuel (sulfur content of less than 3.3 percent) and operating the desulfurization unit will be less than the sulfur dioxide emissions would be if high sulfur coal (3.3 percent sulfur) were burned, even with the desulfurization unit operating at an 85 percent removal efficiency. An 85 percent removal efficiency should therefore not be required when lower sulfur fuels are burned.

Accordingly, Condition 2.B. should be changed as follows:

A flue gas desulfurization system will be installed to treat all exhaust gases. The desulfurization system and will operate at a minimum SO₂ removal efficiency of 85 percent whenever high sulfur (3.3% sulfur) coal is burned.

Monitor for Sulfur Dioxide Removal Efficiency

The PSD permit for McIntosh Unit No. 3 required the installation and operation of sulfur dioxide (SO₂) continuous emissions monitors (CEMs), both before and after the flue gas desulfurization unit, to calculate sulfur removal efficiencies. Consequently, when Unit No. 3 was constructed, SO₂ CEMs were installed both before and after the flue gas desulfurization unit. Subsequent to installation however, the CEM located before the flue gas desulfurization unit has not performed as consistently as desired (and has in fact malfunctioned) due to the high level of sulfuric acid in the flue gas prior to the desulfurization unit. Sulfur removal efficiencies can be determined by calculating the sulfur dioxide emission rate prior to the desulfurization unit based on the sulfur content of the fuel being burned and comparing that rate to the sulfur dioxide emission rate recorded by the CEM installed *after* the desulfurization unit. Because this alternative method of determining the sulfur removal efficiency exists and because it is impracticable to successfully operate a CEM prior to the desulfurization unit, the City respectfully requests that Condition No. 6 be revised as follows:

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.~~

Clair H. Fancy, Chief
Bureau of Air Regulation
January 4, 1995
Page 5

Startup Fuels

Because, like all other coal units, Unit No. 3 must be started on natural gas or fuel oil, Lakeland requests that the PSD permit be revised to reflect that natural gas and low sulfur fuel oil may be burned during startup. Further, because these fuels are "clean fuels," Lakeland also requests that the PSD permit be revised to clarify that these fuels may be burned at any time.

Petroleum Coke

As stated above, the City of Lakeland recently conducted a successful test burn of petroleum coke blended with coal. In an effort to use the most cost-effective fuels while not increasing emissions above allowable limits, the City of Lakeland requests that its PSD permit be revised to allow petroleum coke to be burned when blended with coal. Because continuous emissions monitors are installed for sulfur dioxide, nitrogen oxides, and opacity, as required by the PSD permit (Condition No. 6) and NSPS (40 CFR § 60.45), the City can ensure that the emission limits for these pollutants are not exceeded when petroleum coke is blended with coal (or coal and refuse) and burned in Unit No. 3. The City accordingly requests that a Condition No. 8 be added as follows:

8. The following fuels may be burned:

Coal only

Oil only

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

Oil and up to 10% refuse (based on heat input)

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

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

In addition to this request to amend the PSD permit and application, Lakeland is seeking a separate modification of the site certification for Unit No. 3, which was issued pursuant to the Florida Power Plant Siting Act (PA-74-06) on December 7, 1978. The request for modification of the site certification, dated December 7, 1994, is attached to the enclosed permit application as Attachment SI-1.

Clair H. Fancy, Chief
Bureau of Air Regulation
January 4, 1995
Page 6

Thank you for your consideration of this request. If you have any questions, please contact me at 813-499-6603.

Sincerely,



and Farzie Shelton
Environmental Affairs
Department of Electric & Water Utilities

(4 copies enclosed)

cc: Hamilton S. Oven, Jr., DEP
Bill Thomas, DEP SW District
Mike Hickey, DEP SW District
Jewell Harper, EPA Region IV
Brian Beals, EPA Region IV
Ken Kosky, KBN
Angela Morrison, HBGS

M. Castillo

C. Holladay

2. Novak, Polk Co.

G. Runyak NPS

45193

MEMO

TCB-1294-13

TO: Farzie Shelton Page 1 of 2

FROM: Timothy C. Bates, P.E. ³⁰⁶
Acting Plant Manager

DATE: December 29, 1994

SUBJECT: **Carbon Monoxide (CO) Emission While Utilizing a Mixture of Coal and Petroleum Coke in Unit No. 3 McIntosh Power Plant.**

In reference to the differences in CO emission experienced on stack tests conducted on February 8, 9 and 15 1994 on Unit No. 3 while burning 2.5 % sulfur (S) coal, 90/10 % by weight 2.5 % S coal and coke, 80/20 % by weight low S coal and coke, I would like to explain the causes of increase in emission of CO in relation to the 80/20 % mixture.

The increase in CO emission **is not due to the addition of coke to the coal.** The primary and most important factor causing this increase was due to the hardness (HGI) of the coal that was being used for the mixture. The petroleum coke used in the test burn had a hardness (HGI) of 69 HGI **(the higher the number the softer the fuel)**. The 2.5% S coal used alone and in combination with the coke had a hardness of 61 HGI while the low S coal had the hardness of 43 HGI. The efficiency of fuel combustion is directly related to the fineness of pulverized coal hence the softer (higher HGI) the coal the finer it would pulverize and better it would combust and cause less CO emission.

I have attached a graph (Attachment A) to show the effect of hardness on the performance of the pulverizers on coal fineness. As an example we have graphed both mixtures based on a feed rate of 70,000 lb/hr. You should note at this feed rate the lower hardgrove mixture would be expected to give us a fineness of ≈67% passing 200 mesh and the higher hardgrove mixture would be expected to give us a fineness of ≈85% passing 200 mesh thus resulting in better fuel distribution and combustion and lower CO generation. (Attachment B shows the hardness for the two mixtures used during the tests and an analysis of the petroleum coke used in the mixtures.) If the fineness is reduced (less fine) it reduces the combustion efficiency and worsens the fuel distribution in the combustion zone, thus forming more CO due to poorer combustion. The change in the CO noted during testing is therefore primarily due to the difference between the high sulfur and low sulfur coal hardness and thus grindability. It should also be noted that the oxygen content of the boiler/stack was lower in the low sulfur test which is another factor in causing the CO concentration to rise.

MEMO

TCB-1294-13

TO: Farzie Shelton

Page 2 of
2

FROM: Timothy C. Bates, P.E.
Acting Plant Manager

DATE: December 29, 1994

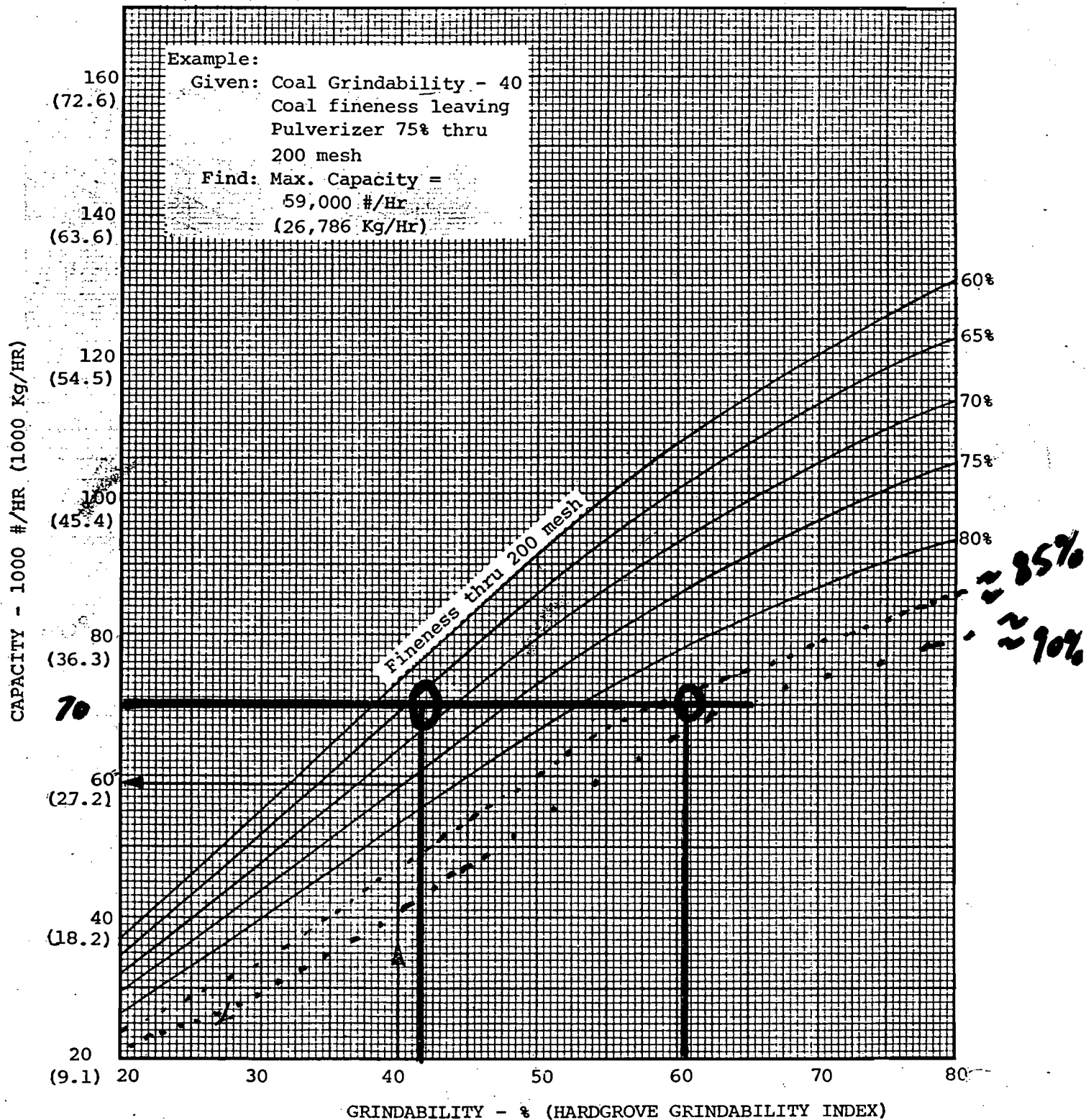
I have also attached the section explaining combustion and how it relates to CO generation, from Babcock & Wilcox 40th edition of Steam, (Attachment C).

I have also enclosed a page from the 1984 copyright of General Physics Corporation's training material Fundamentals of Power Plant Performance for Utility Engineers, which describes how CO is formed and the items which causes incomplete combustion, thus CO (Attachement D).

9P1 (FPG)
6R211 - (75)
7A3
57/10-5-77

PULVERIZED FUEL SYSTEMS
TYPE MPS 75 PULVERIZER
OPERATING INSTRUCTIONS

FIG. 8 MPS-75 PULVERIZER EXPECTED PERFORMANCE
(NOT CORRECTED FOR MOISTURE)



COAL ANALYSIS
McINTOSH POWER PLANT

DATE ANALYZED 2/17/94 DATE SAMPLED 2/15/94
SAMPLE POINT C-3 Auto Sampler DATE RECEIVED 2/16/94
SAMPLE ID # 112-94 SAMPLED BY Gandy
ANALYZED BY Landry/Parrish RELEASED BY SEP

PROXIMATE ANALYSIS

| | AS RECEIVED | DRY BASIS | A-M FREE |
|--------------------|---------------|-------------------|-------------------|
| % MOISTURE (TOTAL) | <u>7.18</u> | <u> </u> | <u> </u> |
| % ASH | <u>7.34</u> | <u>7.90</u> | <u> </u> |
| % VOLATILE MATTER | <u>32.25</u> | <u>34.74</u> | <u>37.72</u> |
| % FIXED CARBON | <u>53.24</u> | <u>57.36</u> | <u>62.28</u> |
| BTU/LB | <u>12,962</u> | <u>13,965</u> | <u>15,163</u> |
| % SULFUR | <u>1.54</u> | <u>1.66</u> | <u>1.81</u> |

HARDGROVE GRINDABILITY INDEX 43

COAL ANALYSIS
McINTOSH POWER PLANT

DATE ANALYZED 2/14/94 DATE SAMPLED 2/9/94
SAMPLE POINT C-3 Auto Sampler DATE RECEIVED 2/10/94
SAMPLE ID # 107-94 SAMPLED BY Unknown
ANALYZED BY Steve Parrish RELEASED BY SEP

PROXIMATE ANALYSIS

| | AS RECEIVED | DRY BASIS | A-M FREE |
|--------------------|---------------|-------------------|-------------------|
| % MOISTURE (TOTAL) | <u>10.64</u> | <u> </u> | <u> </u> |
| % ASH | <u>11.32</u> | <u>12.66</u> | <u> </u> |
| % VOLATILE MATTER | <u>23.38</u> | <u>26.17</u> | <u>29.96</u> |
| % FIXED CARBON | <u>54.66</u> | <u>61.17</u> | <u>70.04</u> |
| BTU/LB | <u>11,698</u> | <u>13,091</u> | <u>14,989</u> |
| % SULFUR | <u>2.83</u> | <u>3.17</u> | <u>3.63</u> |

HARDGROVE GRINDABILITY INDEX 61



Commercial Testing & Engineering Co.

ATTACHMENT B
PAGE 3

January 18, 1994

1212 N. 39th Street
Suite 323
Tampa, Florida 33605
Tel: (813) 248-6566
Fax: (813) 247-2562

KOCH CARBON, INC.
P. O. Box 2219
Wichita, KS 67201

CERTIFICATE OF ANALYSIS

KIND OF SAMPLE: PETROLEUM COKE
SAMPLE TAKEN AT: TECO, BIG BEND TERMINAL, TAMPA, FLORIDA
SAMPLE TAKEN BY: CT&E, TAMPA FROM BARGE "WANDA WHELOCK"
DATED SAMPLED: JANUARY 16, 1994
DATE RECEIVED: JANUARY 17, 1994

ANALYSIS REPORT NO. 08-1680

| | <u>AS RECEIVED</u> | <u>DRY BASIS</u> |
|------------------------------|--------------------|------------------|
| Moisture | 10.35 % | xxxx |
| Ash | 0.28 % | 0.31 % |
| Volatile Matter | 9.11 % | 10.16 % |
| Fixed Carbon (by difference) | 80.26 % | 89.53 % |
| Sulfur | 4.46 % | 4.97 % |
| Gross Calorific Value | 13751 Btu/lb | 15339 Btu/lb |
| Moisture Ash Free Btu | | 15387 |

Hardgrove Grindability Index = 69

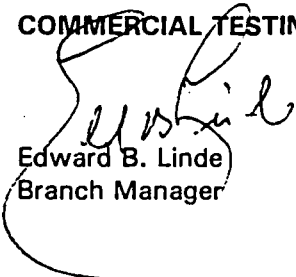
TRACE ELEMENTS P.P.M.

| | |
|-------------|------|
| Silicon, Si | 330 |
| Calcium, Ca | 155 |
| Iron, Fe | 130 |
| Nickle, Ni | 218 |
| Vanadium, V | 1090 |

SIZE ANALYSIS (Square Hole)

| | | |
|------------|------|--------|
| Over 3 | Inch | 3.79% |
| 3 x 2 | Inch | 5.69% |
| 2 x 1 | Inch | 16.63% |
| 1 x 1/2" | Inch | 15.53% |
| Under 1/2" | Inch | 58.36% |

COMMERCIAL TESTING & ENGINEERING CO.


Edward B. Linde
Branch Manager

EBL/vl

Combustion

The manner in which pulverized coal burns depends on its rank and properties as well as the furnace conditions. As a coal particle enters the furnace (see Fig. 2), its surface temperature increases due to radiative and convective heat transfer from furnace gases and other burning particles. As particle temperature increases, the moisture is vaporized and volatile matter is released. This volatile matter, which ignites and burns almost immediately, further raises the temperature of the char particle, which is primarily composed of carbon and mineral matter. The char particle is then consumed at high temperature leaving the ash content and a small amount of unburned carbon. The volatile matter, fixed carbon (char precursor), moisture and ash content of the fuel are identified on a percentage basis as part of the proximate analysis discussed in Chapter 8.

Volatile matter content

Volatile matter is critical for maintaining flame stability and accelerating char burnout. Coals with minimal volatile matter, such as anthracites and low volatile bituminous, are more difficult to ignite and require specially designed combustion systems. The amount of volatile matter evolved from a coal particle depends on coal composition, the temperature to which it is exposed, and the time of this exposure. The American Society for Testing and Materials (ASTM) Method D 3175 stipulates a temperature of $950 \pm 20\text{C}$ for seven minutes for volatile matter content determination.² Raising the temperature would increase volatile yield with other factors held constant. Coals with higher volatile matter content also benefit from more effective NO_x control by combustion methods. Ignition is influenced by the quality and the quantity of volatile matter. Volatile matter from bituminous and higher rank coals is rich in hydrocarbons and high in heating value. Volatile matter from lower rank coals includes larger quantities of carbon monoxide and moisture (from thermal decomposition) and consequently has a lower heating value. Volatile matter from higher rank coals can provide twice the heating value per unit weight as that from low grade coals.

Char particles

The speed of the char particle combustion depends on several factors including particle size, porosity, thermal environment, and oxygen partial pressure. Char reactions often begin as the coal particle is heated and

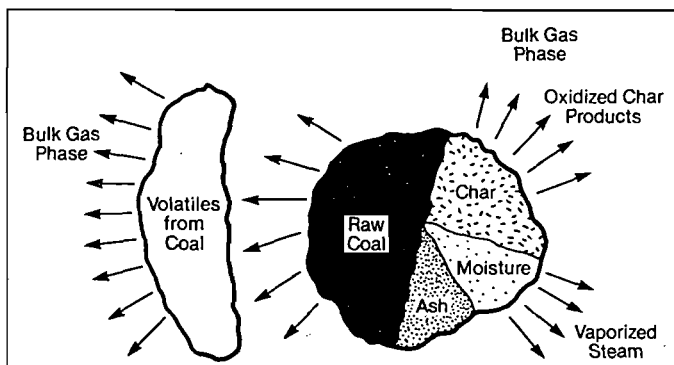


Fig. 2 Coal particle combustion.

devolatilizes, but they continue long after devolatilization is complete. Devolatilization is mostly completed after 0.01 seconds but char-based reactions continue for one to two seconds. The char particle retains a fraction of the hydrocarbons. Small particles, with 10 to 20 micron diameters, benefit from high surface to mass ratios and heat up rapidly, while coarse particles heat more slowly. Many coals go through plastic deformation and swell by 10 to 15% when heated. These changes can significantly impact the porosity of the coal particle.

Char oxidation requires oxygen to reach the carbon in the particle and the carbon surface area is primarily within the particle interior structure. Char combustion generally begins at relatively low particle temperatures. Reaction rates are primarily dependent upon local temperature as well as oxygen diffusion and char reactivity. For larger particles, the solid mass is reduced as carbon monoxide (CO) and carbon dioxide (CO_2) form, but particle volume is maintained. Coarse particles, more than 100 micron diameter, burn out slowly as a result of their lower surface to mass ratios. Longer burnout times cause these larger char particles to continue reacting downstream where the flame temperature has moderated.

Rapid heat transfer to and combustion of smaller particles lead to higher particle temperatures. Reaction rates increase exponentially with temperature, and oxygen (O_2) diffusion into the particle becomes the controlling parameter. Particle diameter and density change in the process. At higher particle temperatures, char reactions are so fast that oxygen is consumed before it can penetrate the particle surface. The particle shrinks as the outer portions are consumed, and transport of oxygen from the surroundings to the particle is the factor governing combustion rate.

Effect of moisture content

The moisture content of the coal also influences combustion behavior. Direct pulverized coal-fired systems convey all of the moisture to the burners. This moisture presents a burden to coal ignition; the water must be vaporized and superheated as the particles devolatilize. Further energy is absorbed at elevated temperatures as the water molecules dissociate.

Moisture content increases as rank decreases as discussed in Chapter 8. 15% moisture is common in high volatile bituminous coals, 30% is seen in subbituminous, and more than 40% is common in some lignites. Moisture contents in excess of 40% exceed the ignition capability of conventional PC-fired systems. Alternate systems are then required to boost drying during fuel preparation and/or divert a portion of the evaporated moisture from the burners. Char burnout is impaired by moisture which depresses the flame temperature. This is compensated for in part by the generally higher inherent reactivities and porosities of the higher moisture coals.

Effect of mineral matter content

The mineral matter, or resulting ash, of the coal is inert and dilutes the coal's heating value. Consequently, more fuel by weight is required as ash content increases in order to reach the furnace net heat input.

The ash absorbs heat and interferes with radiative heat transfer to coal particles, inhibiting the combustion

can be controlled by maintaining a set amount of free oxygen in the flue gas. Power plants use oxygen recorders to monitor the amount of excess air used. Portable instruments are also available to check the amount of free oxygen in the flue gas.

Another method of checking the amount of excess air is to measure only the amount of carbon dioxide in the flue gas and use a nomograph. This method is not as accurate as measuring the amount of oxygen.

5.1.3.3.1 Flue Gas Analysis

Flue gas analysis is used for checking combustion effectiveness and overall steam generator efficiency, by determining the gaseous products of combustion. The results of the analysis, CO_2 , O_2 , CO , and N_2 , are reported on a percent-by-volume basis.

Such analysis may be performed by continuous on-line analyzers (in which one or more of the above constituents are indicated), or it may be performed with a portable Orsat analyzer, in which a sample of flue gas is bubbled through water and then passed through chemical reagents that selectively remove the individual gaseous products of combustion.

Since the water vapor portion of the combustion gases is removed by contact with the water in the analyzer, the gas analysis obtained from an Orsat analyzer is always on a dry basis.

5.1.3.3.2 Incomplete Combustion

As the fuel burns, much of it vaporizes. If combustion is not complete, the vaporizing carbon will burn only partially to produce carbon monoxide, instead of burning completely to produce carbon dioxide. Unburned fuel consists mostly of solid carbon particles. These particles become part of the ash.

Incomplete combustion can be caused by (1) insufficient air being supplied with the fuel, (2) the fuel not being mixed properly with the air, (3) the temperature being too low to allow the fuel to burn completely, and (4) the fuel particles being too large to burn thoroughly.



Farzie Shelton
ENVIRONMENTAL COORDINATOR, Ch E.

December 7, 1994

DEPARTMENT OF
ENVIRONMENTAL PROTECTION

DEC 11 1994

SITING CERTIFICATION

Hamilton S. Oven, Jr., P.E.
Administrator, Power Plant Siting Section
Department of Environmental Protection
3900 Commonwealth Boulevard, MS #48
Tallahassee, FL 32399-3000

RE: City of Lakeland--C.D. McIntosh Power Plant, Unit No. 3
Proposed Agreement to Modify Site Certification--PA-74-06

Dear Mr. Oven:

The City of Lakeland ("Lakeland") hereby requests that its Site Certification for the above-referenced C.D. McIntosh Power Plant, Unit No. 3 be revised. As you may recall, the Certification Order for Unit No. 3 was issued in 1978 and subsequently revised in 1980, 1988, and 1993. Consistent with that Certification and the Conditions of Certification, Lakeland constructed a coal-, municipal refuse-, and oil-fired steam electric generation unit, which began operating in 1982. Based on a successful test burn of petroleum coke earlier this year, Lakeland is proposing revisions to its application to describe this alternative fuel and its characteristics. In addition, as a result of the final design of Unit No. 3, Lakeland has identified several needed clarifications and minor revisions to the Site Certification application. To update citations and to clearly authorize the burning of petroleum coke, Lakeland is also proposing amendments to the Conditions of Certification. A more detailed description of the proposed changes to the application and Conditions of Certification is included in Attachment 1.

In support of its request, Lakeland has prepared a "Proposed Agreement for Modification of Site Certification" (Attachment 2), which includes revised portions of the Site Certification application and suggested minor changes to the Conditions of Certification (which are attached to the Agreement as Exhibits 1 and 2, respectively). The Conditions of Certification, as proposed to be revised, are also included on the enclosed computer disk in WordPerfect 5.1 format. Another version of the revised application pages (showing additions with double underlining and deletions with strike throughs) is included as Attachment 3 to this request.

The Proposed Agreement for Modification of Site Certification is submitted to the Department of Environmental Protection pursuant to Rule 62-17.211, Florida Administrative Code, and Section 403.516(1)(b), Florida Statutes, which authorizes the Department to modify the Site Certification when no objection is raised by a party or substantially affected person. We have enclosed eleven copies of this request for the Department's use, and we are sending copies to all of the other parties to the original certification proceeding. Lakeland will inform the Department as to responses received from any of the parties as a result of this notice, and we would appreciate hearing from you if any of the parties notify the Department.

Hamilton S. Oven, Jr., P.E.
Department of Environmental Protection
December 7, 1994
Page 2

In addition to the Proposed Agreement for Modification of Site Certification, Lakeland is seeking a separate amendment to the Prevention of Significant Deterioration (PSD) permit for Unit No. 3, which was issued by the U.S. Environmental Protection Agency in December of 1978 (PSD-FL-08). A copy of the formal request for PSD permit revision will be sent to you once it has been prepared for submission to the Department's Bureau of Air Regulation.

Thank you for your consideration of the Proposed Agreement for Modification. A check in the amount of \$10,000 is enclosed as the fee for review of the requested modification. After you and other Department staff have had an opportunity to review the proposed revisions, please let me know within the next thirty days if you have any questions, need any additional information, or do not agree with the approach taken in this letter to revise the application through a formal modification.

Sincerely,



am/ Farzie Shelton
Environmental Coordinator
Department of Electric & Water Utilities

cc: Clair Fancy, DEP
Bill Thomas, DEP SW District
Mike Hickey, DEP SW District
Ken Kosky, KBN
Angela Morrison, HBGS

**CITY OF LAKELAND
McIntosh Unit No. 3**

Description of Amendments to Site Certification Application

Section 3.2.1 Fuel Types

Earlier this year, the City of Lakeland conducted a successful test burn of petroleum coke blended with coal. In an effort to use the most cost-effective fuels while not increasing emissions above allowable limits, the City of Lakeland requests that the Department approve its revised application to allow petroleum coke to be burned when blended with coal. Because continuous emissions monitors are installed for sulfur dioxide, nitrogen oxides, and opacity, as required by the PSD permit (Condition No. 6) and NSPS (40 CFR § 60.45), Lakeland can ensure that the emission limits for these pollutants are not exceeded when coke is blended with coal (or coal and refuse) and burned in Unit No. 3. A 0 to 10 percent blended petroleum coke product will be used with medium to high sulfur coal and a 0 to 20 percent blended petroleum coke product will be used with low sulfur coal. Lakeland has clarified in the revised application what fuels and fuel blends may be burned and the conditions under which such fuels and blends may be burned. Specifically, Lakeland is requesting authorization to burn petroleum coke and has clarified that natural gas and/or low sulfur oil will be used for ignition and fuel stabilization of the unit. Because natural gas and low sulfur oil are "clean fuels," such fuels may be burned at any time.

Section 3.2.2 Fuel Quantities

Heat Input Rate--The heat input rate provided in the site certification application was 2.162×10^{13} mmBtu per year for coal, based on manufacturer's data. The heat input rate was not included in the conditions of certification. Recently, Lakeland has carefully reviewed the heat input capacity for McIntosh Unit No. 3 and has identified that the rate in the original site certification application is not reflective of the unit's actual operating capability. The appropriate maximum heat input rate is 2.8697×10^{13} Btu per year. The heat input rate now requested is *not* the result of a physical change in, or change in the method of operation of, McIntosh Unit No. 3. The new heat input rate represents a *corrected* rate that more accurately reflects the maximum heat input capacity of the unit. Further, the correction of the heat input rate to reflect maximum unit capacity will not result in an increase in "actual" (annual) emissions. The Department should therefore allow the correction to the maximum heat input rate in the application, without the need for a revision to the conditions of certification and without triggering a "modification" under the Department's new source review rules (Chapter 62-212, F.A.C.).

Fuel Flow Rates--Similar to the heat input rate issue, the fuel flow rates for McIntosh Unit No. 3 that were provided in the application need to be adjusted to reflect the actual maximum fuel flow rates experienced at Unit No. 3. These slightly higher fuel rates are needed to produce the same megawatt output of 364. As with the adjustment to the heat input rate, the

Department of Environmental Protection

DIVISION OF AIR RESOURCES MANAGEMENT APPLICATION FOR AIR PERMIT - LONG FORM

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

This section of the Application for Air Permit form provides general information on the scope of this application, the purpose for which this application is being submitted, and the nature of any construction or modification activities proposed as a part of this application. This section also includes information on the owner or authorized representative of the facility (or the responsible official in the case of a Title V source) and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department on diskette, this section of the Application for Air Permit must also be submitted in hard-copy.

Identification of Facility Addressed in This Application

Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility name, if any; and a brief reference to the facility's physical location. If known, also enter the ARMS or AIRS facility identification number. This information is intended to give a quick reference, on the first page of the application form, to the facility addressed in this application. Elsewhere in the form, numbered data fields are provided for entry of the facility data in computer-input format.

**City of Lakeland, Department of Electric and Water Utilities; C.D. McIntosh Power Plant; Unit 3;
Lakeland, Polk County, 40TPA50004**

Application Processing Information (DEP Use)

| | |
|------------------------------------|----------------|
| 1. Date of Receipt of Application: | 08-DEC-1994 |
| 2. Permit Number: | AC-1050604-001 |
| 3. PSD Number (if applicable): | |
| 4. Siting Number (if applicable): | |

Owner/Authorized Representative or Responsible Official

| | |
|---|----------------------------------|
| 1. Name and Title of Owner/Authorized Representative or Responsible Official: Ronald W. Tomlin, Assistant Managing Director | |
| 2. Owner/Authorized Representative or Responsible Official Mailing Address: Organization/Firm: City of Lakeland, Department of Electric and Water Utilities Street Address: 501 East Lemon Street City: Lakeland State: Florida Zip Code: 33801-5099 | |
| 3. Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: (813) 499-6300 Fax: (813) 499-6344 | |
| 4. Owner/Authorized Representative or Responsible Official Statement: <i>I, the undersigned, am the owner or authorized representative* of the facility (non-Title V source) addressed in this Application for Air Permit or the responsible official, as defined in Chapter 62-213, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. Further, I agree to operate and maintain the air pollutant emissions units and air pollution control equipment described in this application so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. If the purpose of this application is to obtain an air operation permit or operation permit revision for one or more emissions units which have undergone construction or modification, I certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.</i> | |
| <u>Ronald W. Tomlin</u> Signature | <u>December 27, 1994</u> Date |

* Attach letter of authorization if not currently on file.

Scope of Application

This Application for Air Permit addresses the following emissions unit(s) at the facility (or Title V source). An Emissions Unit Information Section (a Section III of the form) must be included for each emissions unit listed.

| Emissions Unit Id | Description of Emissions Unit |
|--------------------------|--|
| Unit 3 | Unit 3 Boiler at C.D. McIntosh Power Plant |
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Purpose of Application and Category

Check one (except as otherwise indicated):

Category I: All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain:

- Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.
- Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: _____

- Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed: _____

- Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: _____

Operation permit to be revised: _____

- Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. Also check Category III.

Operation permit to be revised/corrected: _____

- Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit to be revised: _____

Reason for revision: _____

Category II: All Air Operation Permit Applications Subject to Processing Under Rule 62-210.300(2)(b), F.A.C.

This Application for Air Permit is submitted to obtain:

- Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s): _____

- Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed: _____

- Air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g., to address one or more newly constructed or modified emissions units.

Operation permit to be revised: _____

Reason for revision: _____

Category III: All Air Construction Permit Applications for All Facilities and Emissions Units

This Application for Air Permit is submitted to obtain:

- Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

Current operation permit number(s), if any: PA 74-06-SR (PPSA); PSD-FL-0008

- Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s): _____

- Air construction permit for one or more existing, but unpermitted, emissions units.

Application Processing Fee

Check one:

Attached - Amount: \$ 10,000*

Not Applicable.

Construction/Modification Information

| |
|---|
| 1. Description of Proposed Project or Alterations: Use of up to 20 percent (weight basis) of petroleum coke with coal. Minor amendments to PSD permit. |
| 2. Projected or Actual Date of Commencement of Construction (DD-MON-YYYY): No construction of new facilities required |
| 3. Projected Date of Completion of Construction (DD-MON-YYYY): Not Applicable |

*Submitted on December 7, 1994 under a modification request of the Site Certification for the unit (PA 74-06-SR).

Professional Engineer Certification

1. Professional Engineer Name: Kennard F. Kosky
Registration Number: 14996

2. Professional Engineer Mailing Address:
Organization/Firm: KBN Engineering and Applied Sciences, Inc.
Street Address: 6241 NW 23rd Street, Suite 500
City: Gainesville State: FL Zip Code: 32653-1500

3. Professional Engineer Telephone Numbers:
Telephone: (904) 336-5600 Fax: (904) 336-6603

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance (a) that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; or (b) for any application for a Title V source air operation permit, that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application;

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application; and

(3) For any application for an air construction permit for one or more proposed new or modified emissions units, the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

Kennard F. Kosky

December 27, 1994

Date



Attach any exception to certification statement.

Application Contact

| |
|---|
| 1. Name and Title of Application Contact: Ms. Farzie Shelton, Environmental Coordinator |
| 2. Application Contact Mailing Address: Organization/Firm: Lakeland Department of Electric and Water Utilities Street Address: 501 East Lemon Street City: Lakeland State: FL Zip Code: 33801-5099 |
| 3. Application Contact Telephone Numbers: Telephone: (813) 499-6603 Fax: (813) 499-6688 |

Application Comment

This application is being submitted to obtain FDEP recognition that petroleum coke can be burned in McIntosh Unit 3. There will be no new construction of facilities or changes in the current procedures when petroleum coke is being fired in Unit 3. The application also addresses minor amendments to the PSD approval and previous application.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Name, Location, and Type

| | | | |
|--|-------------------------------|--|--|
| 1. Facility Owner or Operator: City of Lakeland, Department of Electric and Water Utilities | | | |
| 2. Facility Name: C.D. McIntosh Power Plant | | | |
| 3. Facility Identification Number: 40TPA530004 | | [] Unknown | |
| 4. Facility Location Information: Facility Street Address: 3030 East Lake Parker Drive City: Lakeland County: Polk Zip Code: 33805 | | | |
| 5. Facility UTM Coordinates: Zone: 17 East (km): 408.5 North (km): 3,105.8 | | | |
| 6. Facility Latitude/Longitude: Latitude (DD/MM/SS): | | Longitude (DD/MM/SS): | |
| 7. Governmental Facility Code: 4 | 8. Facility Status Code: A | 9. Relocatable Facility? [] Yes [X] No | 10. Facility Major Group SIC Code: 49 |
| 11. Facility Comment: The C.D. McIntosh Power Plant includes two oil- and gas-fired steam electric generating units (Units 1 and 2), one coal-, refuse-, and oil-fired steam electric generating unit (Unit 3), and three combustion turbines (Units 1-3). This application addresses only the steam electric generating Unit 3. | | | |

Facility Contact

| | | | |
|---|--|--|--|
| 1. Name and Title of Facility Contact: Ms. Farzie Shelton, Environmental Coordinator | | | |
| 2. Facility Contact Mailing Address: Organization/Firm: City of Lakeland, Department of Electric and Water Utilities Street Address: 501 East Lemon Street City: Lakeland State: FL Zip Code: 33801-5099 | | | |
| 3. Facility Contact Telephone Numbers: Telephone: (813) 499 - 6303 Fax: (813) 499 - 6688 | | | |

Facility Regulatory Classifications

| | | | |
|--|---|--|---|
| 1. Small Business Stationary Source? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 2. Title V Source? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 3. Synthetic Non-Title V Source? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 5. Synthetic Minor Source of Pollutants Other than HAPs? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 6. Major Source of HAPs? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> Possible* |
| 7. Synthetic Minor Source of HAPs? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 8. One or More Emissions Units Subject to NSPS? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 9. One or More Emissions Units Subject to NESHAP? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 10. Title V Source by EPA Designation? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 11. Facility Regulatory Classifications Comment: This application addresses only Unit 3; therefore, facility information is not applicable. | | | |
| *The HAPS emissions are not expected to change as a result of this modification request. A detailed HAPS emission inventory for the facility will be submitted with the Title V application. | | | |

B. FACILITY REGULATIONS

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of federal, state, and local regulations applicable to the facility as a whole. (Regulations applicable to individual emissions units within the facility are addressed in Subsection III-B of the form.)

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

Not Applicable

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.) **Not Applicable.** Refer to Page 22 for regulations applicable to Unit 3.

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C. FACILITY POLLUTANT INFORMATION

This subsection of the Application for Air Permit form allows for the reporting of potential and estimated emissions of selected pollutants on a facility-wide basis. It must be completed for each pollutant for which the applicant proposes to establish a facility-wide emissions cap and for each pollutant for which emissions are not reported at the emissions-unit level.

Facility Pollutant Information: Pollutant ____ of ____ Not Applicable

| | | |
|----------------------------------|---------|-----------|
| 1. Pollutant Emitted: | | |
| 2. Estimated Emissions: | | (tons/yr) |
| 3. Requested Emissions Cap: | (lb/hr) | (tons/yr) |
| 4. Basis for Emissions Cap Code: | | |
| 5. Facility Pollutant Comment: | | |

Facility Pollutant Information Pollutant ____ of ____

| | | |
|----------------------------------|---------|-----------|
| 1. Pollutant Emitted: | | |
| 2. Estimated Emissions: | | (tons/yr) |
| 3. Requested Emissions Cap: | (lb/hr) | (tons/yr) |
| 4. Basis for Emissions Cap Code: | | |
| 5. Facility Pollutant Comment: | | |

Facility Pollutant Information Pollutant ____ of ____

| | | |
|----------------------------------|---------|-----------|
| 1. Pollutant Emitted: | | |
| 2. Estimated Emissions: | | (tons/yr) |
| 3. Requested Emissions Cap: | (lb/hr) | (tons/yr) |
| 4. Basis for Emissions Cap Code: | | |
| 5. Facility Pollutant Comment: | | |

Facility Pollutant Information Pollutant ____ of ____

| | | |
|----------------------------------|---------|-----------|
| 1. Pollutant Emitted: | | |
| 2. Estimated Emissions: | | (tons/yr) |
| 3. Requested Emissions Cap: | (lb/hr) | (tons/yr) |
| 4. Basis for Emissions Cap Code: | | |
| 5. Facility Pollutant Comment: | | |

D. FACILITY SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the facility as a whole. (Supplemental information related to individual emissions units within the facility is provided in Subsection III-I of the form.) Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

Supplemental Requirements for All Applications

| |
|---|
| 1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested |
| 2. Facility Plot Plan: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested |
| 3. Process Flow Diagram(s): <input type="checkbox"/> Attached, Document ID(s): _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested |
| 4. Precautions to Prevent Emissions of Unconfined Particulate Matter: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable |
| 5. Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable |
| 6. Supplemental Information for Construction Permit Application: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable |

Additional Supplemental Requirements for Category I Applications Only

| |
|---|
| 7. List of Insignificant Activities: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable |
| 8. List of Equipment/Activities Regulated under Title VI: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities Onsite but Not Required to be Individually Listed <input checked="" type="checkbox"/> Not Applicable |

| |
|--|
| <p>9. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p> |
| <p>10. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p> |
| <p>11. Enhanced Monitoring Plan: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p> |
| <p>12. Risk Management Plan Verification:</p> <p><input type="checkbox"/> Plan Submitted to Implementing Agency - Verification Attached Attached, Document ID: _____</p> <p><input type="checkbox"/> Plan to be Submitted to Implementing Agency by Required Date</p> <p><input checked="" type="checkbox"/> Not Applicable</p> |
| <p>13. Compliance Report and Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p> |
| <p>14. Compliance Statement (Hard-copy Required) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p> |

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION

This subsection of the Application for Air Permit form provides general information on the emissions unit addressed in this Emissions Unit Information Section, including information on the type, control equipment, operating capacity, and operating schedule of the emissions unit.

Type of Emissions Unit Addressed in This Section

Check one:

- This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.
- This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Description and Status

| | | |
|--|---|---|
| 1. Description of Emissions Unit Addressed in This Section: McIntosh Unit 3 | | |
| 2. ARMS Identification Number: <input type="checkbox"/> No Corresponding ID <input type="checkbox"/> Unknown 40TPA530004-06 | | |
| 3. Emissions Unit Status Code: A | 4. Acid Rain Unit? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | 5. Emissions Unit Major Group SIC Code: 49 |
| 6. Initial Startup Date (DD-MON-YYYY): 01-SEP-1982 | | |
| 7. Long-term Reserve Shutdown Date (DD-MON-YYYY): Not applicable | | |
| 8. Package Unit: Not Applicable Manufacturer: _____ Model Number: _____ | | |
| 9. Generator Nameplate Rating: 364 MW | | |
| 10. Incinerator Information: Not Applicable Dwell Temperature: _____ °F Dwell Time: _____ seconds Incinerator Afterburner Temperature: _____ °F | | |
| 11. Emissions Unit Comment: Initial start-up date is the unit's commercial operation date. | | |

Emissions Unit Control Equipment

A.

| |
|--|
| 1. Description: Electrostatic Precipitator (ESP) |
| 2. Control Device or Method Code: 010 |

B.

| |
|---|
| 1. Description: Flue Gas Desulfurization (FGD) System |
| 2. Control Device or Method Code: 067 |

C.

| |
|--|
| 1. Description: Low-NO _x Burner |
| 2. Control Device or Method Code: 024 |

Emissions Unit Operating Capacity

| |
|---|
| 1. Maximum Heat Input Rate: 3,640 mmBtu/hr |
| 2. Maximum Incineration Rate: Not applicable lbs/hr tons/day |
| 3. Maximum Process or Throughput Rate: Not Applicable |
| 4. Maximum Production Rate: Not Applicable |
| 5. Operating Capacity Comment: The maximum heat input rate applies to all fuels and fuel combinations. |

Emissions Unit Operating Schedule

| | | | |
|---------------------------------------|-----------|-------|-----------|
| Requested Maximum Operating Schedule: | | | |
| 24 | hours/day | 7 | days/week |
| 52.143 | weeks/yr | 8,760 | hours/yr |

Emissions Unit Operating Capacity

| |
|---|
| 1. Maximum Heat Input Rate: 3,640 mmBtu/hr |
| 2. Maximum Incineration Rate: Not applicable lbs/hr tons/day |
| 3. Maximum Process or Throughput Rate: Not Applicable |
| 4. Maximum Production Rate: Not Applicable |
| 5. Operating Capacity Comment: Emissions unit burns coal and refuse-derived fuel (RDF); The emissions unit is authorized to burn residual oil. |

Emissions Unit Operating Schedule

| | | | |
|---------------------------------------|-----------|-------|-----------|
| Requested Maximum Operating Schedule: | | | |
| 24 | hours/day | 7 | days/week |
| 52.143 | weeks/yr | 8,760 | hours/yr |

B. EMISSIONS UNIT REGULATIONS

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of all federal, state, and local regulations applicable to the emissions unit addressed in this Emissions Unit Information Section.

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

Not Applicable.

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

| | |
|---------------------|-------------------------------------|
| 62-296.405(2)(a) | 62-297.401(9) |
| 62-296.405(2)(b) | 62-297.401(17) |
| 62-296.405(2)(c) | 62-297.401(19) |
| 62-296.405(2)(d) | 40 CFR 60 Subpart D (as applicable) |
| 62-296.800(2)(a)(1) | 40 CFR Part 72 (as applicable) |
| 62-296.800(3) | 40 CFR Part 73 (as applicable) |
| 62-296.800(4)(a) | 40 CFR Part 75 (as applicable) |
| 62-296.800(4)(b) | 62-296.405 (1)(f) |
| 62-296.800(4)(e) | 62-296.405 (1)(e) |
| 62-297.310 | 62-296.405(1)(g) |
| 62-297.330 | |
| 62-297.340 | |
| 62-297.345(1) | |
| 62-297.345(3) | |
| 62-297.350 | |
| 62-297.400 | |
| 62-297.401(1) | |
| 62-297.401(2) | |
| 62-297.401(3) | |
| 62-297.401(4) | |
| 62-297.401(5) | |
| 62-297.401(6) | |
| 62-297.401(7) | |

C. EMISSION POINT (STACK/VENT) INFORMATION

This subsection of the Application for Air Permit form provides information about the emission point associated with the emissions unit addressed in this Emissions Unit Information Section. An emission point is typically a stack or vent but can be any identifiable location at which air pollutants, including fugitive emissions, are discharged into the atmosphere.

Emission Point Description and Type

| | |
|---|--------|
| 1. Identification of Point on Plot Plan or Flow Diagram: S003 in attached flow diagram | |
| 2. Emission Point Type Code: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 | |
| 3. Descriptions of Emissions Points Comprising this Emissions Unit: Unit 3 stack, S003 in attached flow diagram; PFD-1 | |
| 4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: Not applicable | |
| 5. Discharge Type Code: <input type="checkbox"/> D <input type="checkbox"/> F <input type="checkbox"/> H <input type="checkbox"/> P <input type="checkbox"/> R <input checked="" type="checkbox"/> V <input type="checkbox"/> W | |
| 6. Stack Height: | 250 ft |

Emissions Unit Information Section 1 of 1

| | | |
|-------------------------------------|--|-------|
| 7. Exit Diameter: | 18 | ft |
| 8. Exit Temperature: | 167 | °F |
| 9. Actual Volumetric Flow Rate: | 1,260,536 | acfm |
| 10. Percent Water Vapor: | 11.5 | % |
| 11. Maximum Dry Standard Flow Rate: | 925,198 | dscfm |
| 12. Nonstack Emission Point Height: | Not applicable | ft |
| 13. Emission Point UTM Coordinates: | Zone: 17 East (km): 408.5 North (km): 3,105.8 | |
| 14. Emission Point Comment: | Stack parameters reflect design conditions. Exit temperature is operated greater than 167°F during normal operation. For oil firing with no SO ₂ scrubbing, the estimated exit gas temperature and flow are 250°F and 1,093,685 ACFM, respectively. | |

D. SEGMENT (PROCESS/FUEL) INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of segment data (Fields 1-10) must be completed for each segment required to be reported and for each alternative operating method or mode (emissions trading scenario) under Chapter 62-213, F.A.C., for which the maximum hourly or annual segment-related rate would vary. A segment is a material handling, process, fuel burning, volatile organic liquid storage, production, or other such operation to which emissions of the unit are directly related. See instructions for further details on this subsection of the Application for Air Permit.

Segment Description and Rate Information: Segment 1 of 7

| | |
|---|--------------------------------------|
| 1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Coal | |
| 2. Source Classification Code (SCC): 10100101 | |
| 3. SCC Units: Tons | |
| 4. Maximum Hourly Rate: 159.6 | 5. Maximum Annual Rate: 1,398,096 |
| 6. Estimated Annual Activity Factor: Not applicable | |
| 7. Maximum Percent Sulfur: 3.3 | 8. Maximum Percent Ash: < 15 |
| 9. Million Btu per SCC Unit: 22.81 | |
| 10. Segment Comment: Maximum hourly rates and percent sulfur will vary depending upon coal source but will not exceed 3.3 percent. Heat content based on maximum hourly rate (TPH) and maximum heat input rating for unit of 3,640 MMBtu/hr. | |

Segment Description and Rate Information: Segment 2 of 7

| | |
|--|--------------------------------------|
| 1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Coal and RDF (90/10 heat input basis) | |
| 2. Source Classification Code: 10100101 and 10101202 | |
| 3. SCC Units: Tons | |
| 4. Maximum Hourly Rate: 184.1 | 5. Maximum Annual Rate: 1,612,716 |
| 6. Estimated Annual Activity Factor: Not applicable | |
| 7. Maximum Percent Sulfur: 2.6 (3.3/0.1) | 8. Maximum Percent Ash: < 15 |
| 9. Million Btu per SCC Unit: 21.56 | |
| 10. Segment Comment: Maximum hourly rates and percent sulfur will vary depending upon mixture. Coal and RDF are blended to a sulfur content of 2.6 percent with coal at 3.3 percent sulfur and RDF at 0.1 percent sulfur. Maximum hourly rate based on 143.7 TPH coal and 40.4 TPH RDF. Heat content of mixture based on maximum hourly rate (TPH) and maximum heat input rating for unit of 3,640 MMBtu/hr. Typical heat contents for coal and RDF are 24.6 and 9 MMBtu/ton, respectively. | |

Segment Description and Rate Information: Segment 3 of 7

| | |
|--|--------------------------------------|
| 1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Oil | |
| 2. Source Classification Code: 10100401 | |
| 3. SCC Units: 1000 gallons | |
| 4. Maximum Hourly Rate: 24.268 | 5. Maximum Annual Rate: 212,584.2 |
| 6. Estimated Annual Activity Factor: Not applicable | |
| 7. Maximum Percent Sulfur: 2.5 | 8. Maximum Percent Ash: < 1 |
| 9. Million Btu per SCC Unit: 150 | |
| 10. Segment Comment: Heat content based on maximum hourly rate (TPH) and maximum heat input rating for unit of 3,640 MMBtu/hr. Distillate oil is used for unit startup and load stabilization. The PSD permit also provides that oil or a combination of oil and RFD may be used as an emergency fuel without the use of the SO ₂ scrubber only when the scrubber malfunctions and the SO ₂ cannot exceed 0.8 lb/mmBtu, resulting in a maximum sulfur content limit of 0.77% when the scrubber is not used. | |

Segment Description and Rate Information: Segment 4 of 7

| | |
|--|--|
| 1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Oil and RDF (90/10 heat input basis) | |
| 2. Source Classification Code: 10100401 and 10101202 | |
| 3. SCC Units: 1000 gallons and tons | |
| 4. Maximum Hourly Rate: 21.84/40.4 | 5. Maximum Annual Rate: 192,318.4 and 353,904 |
| 6. Estimated Annual Activity Factor: Not applicable | |
| 7. Maximum Percent Sulfur: 2.5 | 8. Maximum Percent Ash: < 2 |
| 9. Million Btu per SCC Unit: 150 and 9.0 | |
| 10. Segment Comment: Maximum hourly rates and percent sulfur will vary depending upon mixture. Oil and RDF will be blended to a maximum sulfur content of 2.5 percent. Maximum hourly rate based on 90/10 percent heat input basis, respectively, for oil/RDF. Heat content of mixture based on maximum hourly rate (TPH) and maximum heat input rating for unit of 3,640 MMBtu/hr. | |

Segment Description and Rate Information: Segment 5 of 7

| | |
|--|--------------------------------------|
| 1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Coal and petroleum coke (80/20 weight basis) | |
| 2. Source Classification Code: 10100101 | |
| 3. SCC Units: Tons | |
| 4. Maximum Hourly Rate: 152.6 | 5. Maximum Annual Rate: 1,336,776 |
| 6. Estimated Annual Activity Factor: Not applicable | |
| 7. Maximum Percent Sulfur: 2.75 | 8. Maximum Percent Ash: < 15 |
| 9. Million Btu per SCC Unit: 23.85 | |
| <p>10. Segment Comment:</p> <p>Maximum hourly rates and percent sulfur will vary depending upon mixture. Coal and petroleum coke will be blended to a maximum sulfur content of 2.75 percent. Typical sulfur content of petroleum coke is 5 percent. Maximum hourly rate based on 122.1 TPH coal and 30.5 TPH petroleum coke. Heat content of mixture based on maximum hourly rate (TPH) and maximum heat input rating for unit of 3,640 MMBtu/hr.</p> <p>Heat contents of coal and petroleum coke are 22.81 and 28.0 MMBtu/ton (see also FA-1).</p> | |

Segment Description and Rate Information: Segment 6 of 7

| | |
|---|--|
| <p>1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Coal, petroleum coke, and RDF; coal/coke. (80/20 weight basis at 90% of heat input; RDF at 10% heat input)</p> | |
| <p>2. Source Classification Code: 10100101</p> | |
| <p>3. SCC Units: Tons</p> | |
| <p>4. Maximum Hourly Rate: 168.8</p> | <p>5. Maximum Annual Rate: 1,478,688</p> |
| <p>6. Estimated Annual Activity Factor: Not applicable</p> | |
| <p>7. Maximum Percent Sulfur: 2.75</p> | <p>8. Maximum Percent Ash: < 15</p> |
| <p>9. Million Btu per SCC Unit: 21.56</p> | |
| <p>10. Segment Comment: Maximum hourly rates and percent sulfur will vary depending upon mixture. Coal, RDF, and petroleum coke will be blended to a maximum sulfur content of 2.75 percent. Maximum hourly rate based on 100.9 TPH coal, 40.4 TPH RDF, and 27.5 TPH petroleum coke. Heat content of mixture based on maximum hourly rate (TPH) and maximum heat input rating for unit of 3,640 MMBtu/hr.</p> | |

Segment Description and Rate Information: Segment 7 of 7

| | |
|--|---------------------------------------|
| 1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Natural gas | |
| 2. Source Classification Code: 10100601 | |
| 3. SCC Units: Million cubic feet | |
| 4. Maximum Hourly Rate: 3.529 | 5. Maximum Annual Rate: 30,576 |
| 6. Estimated Annual Activity Factor: Not applicable | |
| 7. Maximum Percent Sulfur: 0.1 | 8. Maximum Percent Ash: Negligible |
| 9. Million Btu per SCC Unit: 1,031.4 | |
| 10. Segment Comment: Natural gas is proposed as a supplementary fuel, to be burned alone or with any other fuel or fuel combination. Heat content of mixture based on maximum hourly rate (TPH) and maximum heat input rating for unit of 3,640 MMBtu/hr. | |

Segment Description and Rate Information: Segment 7 of 7

| | |
|---|---------------------------------------|
| 1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Natural gas | |
| 2. Source Classification Code: 10100601 | |
| 3. SCC Units: Million cubic feet | |
| 4. Maximum Hourly Rate: 3.529 | 5. Maximum Annual Rate: 30,576 |
| 6. Estimated Annual Activity Factor: Not applicable | |
| 7. Maximum Percent Sulfur: 0.003 | 8. Maximum Percent Ash: Negligible |
| 9. Million Btu per SCC Unit: 1,031.4 | |
| 10. Segment Comment: Natural gas is proposed as a supplementary fuel. Heat content of mixture based on maximum hourly rate (TPH) and maximum heat input rating for unit of 3,640 MMBtu/hr. | |

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 1 of 5

| | | | |
|--|---------------------------------------|--|---|
| 1. Pollutant Emitted: PM | | | |
| 2. Total Percent Efficiency of Control: | 99.1 | % | |
| 3. Primary Control Device Code: 010 | | | |
| 4. Secondary Control Device Code: Not applicable | | | |
| 5. Potential Emissions: | 364 | lbs/hr | 1,594 tons/yr |
| 6. Synthetically Limited? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | |
| 7. Range of Estimated Fugitive/Other Emissions: Not applicable | | | |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | _____ to _____ tons/yr |
| 8. Emission Factor: 0.1 lb/MMBtu | | | |
| Reference: Regulatory requirement | | | |
| 9. Emissions Method Code: | | | |
| <input type="checkbox"/> 1 | <input checked="" type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 <input type="checkbox"/> 5 |
| 10. Calculation of Emissions: 3,640 MMBtu/hr x 0.1 lb/MMBtu | | | |
| 11. Pollutant Potential/Estimated Emissions Comment: Specific conditions of site certification (PA 74-06-SR) have a limitation of 0.1 lb/MMBtu; the PSD permit (PSD-FL-008) has emission limitations of 0.044 lb/MMBtu for coal; 0.05 lb/MMBtu for coal/refuse (RDF); 0.07 lb/MMBtu for oil and 0.075 lb/MMBtu for oil/refuse (RDF). This application includes a request to make the PSD emission rate consistent with the site certification. See Section A. | | | |

Allowable Emissions (Pollutant identified on front page)

A.

| | | |
|---|-------------------|----------------------|
| 1. Basis for Allowable Emissions Code: Rule | | |
| 2. Future Effective Date of Allowable Emissions: Not applicable | | |
| 3. Requested Allowable Emissions and Units: 0.1 lb/MMBtu | | |
| 4. Equivalent Allowable Emissions: | 364 lbs/hr | 1,594 tons/yr |
| 5. Method of Compliance: Annual Stack Test | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): The allowable emission limit is based on FDEP Rule 62-296.800; 40 CFR Part 60, Subpart D (see also Attachment 1). | | |

B. Not Applicable

| | | |
|--|--------|---------|
| 1. Basis for Allowable Emissions Code: | | |
| 2. Future Effective Date of Allowable Emissions: | | |
| 3. Requested Allowable Emissions and Units: | | |
| 4. Equivalent Allowable Emissions: | lbs/hr | tons/yr |
| 5. Method of Compliance: | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): | | |

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 2 of 5

| | | |
|--|---------------------|-----------------------|
| 1. Pollutant Emitted: SO₂ | | |
| 2. Total Percent Efficiency of Control: | 85 | % |
| 3. Primary Control Device Code: 067 | | |
| 4. Secondary Control Device Code: Not applicable | | |
| 5. Potential Emissions: | 4,368 lbs/hr | 19,131 tons/yr |
| 6. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |
| 7. Range of Estimated Fugitive/Other Emissions: Not applicable | | |
| <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/yr | | |
| 8. Emission Factor: 1.2 lb/MMBtu | | |
| Reference: Regulatory requirement | | |
| 9. Emissions Method Code: | | |
| <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 | | |
| 10. Calculation of Emissions: 3,640 MMBtu/hr x 1.2 lb/MMBtu | | |
| 11. Pollutant Potential/Estimated Emissions Comment: The total percent efficiency of control (i.e., 85 percent) applies to using 3.3 percent sulfur coal only. The PSD approval has a control efficiency of 85 percent. See also Section A. | | |

Allowable Emissions (Pollutant identified on front page)

A. Coal firing

| | | |
|--|--------------|----------------|
| 1. Basis for Allowable Emissions Code: Rule | | |
| 2. Future Effective Date of Allowable Emissions: Not applicable | | |
| 3. Requested Allowable Emissions and Units: 1.2 lb/MMBtu | | |
| 4. Equivalent Allowable Emissions: | 4,368 lbs/hr | 19,131 tons/yr |
| 5. Method of Compliance: Annual stack test if > 400 hours of operation | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): The allowable emission limit is based on FDEP Rule 62-296.800; 40 CFR Part 60, Subpart D. Section 60.43(a)(2) (see also Attachment 1). | | |

B. Oil firing

| | | |
|--|--------------|------------------|
| 1. Basis for Allowable Emissions Code: Rule | | |
| 2. Future Effective Date of Allowable Emissions: Not Applicable | | |
| 3. Requested Allowable Emissions and Units: 0.8 lb/MMBtu | | |
| 4. Equivalent Allowable Emissions: | 2,912 lbs/hr | 12,754.6 tons/yr |
| 5. Method of Compliance: N/A (testing done on worst-case fuel (coal)) | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): The allowable emission limit is based on FDEP Rule 62-296.800; 40 CFR Part 60, Subpart D. Section 60.43(a)(1). | | |

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 3 of 5

| | | | |
|---|--|---------------------|-----------------------|
| 1. Pollutant Emitted: NO_x | | | |
| 2. Total Percent Efficiency of Control: Not Applicable % | | | |
| 3. Primary Control Device Code: 024 | | | |
| 4. Secondary Control Device Code: Not applicable | | | |
| 5. Potential Emissions: | | 2,548 lbs/hr | 11,160 tons/yr |
| 6. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | |
| 7. Range of Estimated Fugitive/Other Emissions: Not applicable | | | |
| <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/yr | | | |
| 8. Emission Factor: 0.7 lb/MMBtu | | | |
| Reference: Regulatory requirement | | | |
| 9. Emissions Method Code: | | | |
| <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 | | | |
| 10. Calculation of Emissions: 3,640 MMBtu/hr x 0.7 lb/MMBtu | | | |
| 11. Pollutant Potential/Estimated Emissions Comment: NO_x control is integral to the boiler. See Section A | | | |

Allowable Emissions (Pollutant identified on front page)

A. Coal firing

| | | | |
|--|---------------------|---------------|----------------|
| 1. Basis for Allowable Emissions Code: Rule | | | |
| 2. Future Effective Date of Allowable Emissions: Not applicable | | | |
| 3. Requested Allowable Emissions and Units: 0.7 lb/MMBtu | | | |
| 4. Equivalent Allowable Emissions: | 2,548 lbs/hr | 11,160 | tons/yr |
| 5. Method of Compliance: Annual stack test; if > 400 hours operation | | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): The allowable emission limit is based on FDEP Rule 62-296.800; 40 CFR Part 60, Subpart D, Section 60.44(a)(3) (see also Attachment 1). | | | |

B. Oil firing

| | | | |
|--|---------------------|----------------|----------------|
| 1. Basis for Allowable Emissions Code: Rule | | | |
| 2. Future Effective Date of Allowable Emissions: Not Applicable | | | |
| 3. Requested Allowable Emissions and Units: 0.3 lb/MMBtu | | | |
| 4. Equivalent Allowable Emissions: | 1,092 lbs/hr | 4,783.0 | tons/yr |
| 5. Method of Compliance: Annual stack test; if > 400 hours operation | | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): The allowable emission limit is based on FDEP Rule 62-296.800; 40 CFR Part 60, Subpart D, Section 60.44(a)(2). | | | |

Allowable Emissions (Pollutant identified on front page)

C. Natural gas firing

| | | | |
|--|------------|---------|---------|
| 1. Basis for Allowable Emissions Code: Rule | | | |
| 2. Future Effective Date of Allowable Emissions: Not applicable | | | |
| 3. Requested Allowable Emissions and Units: 0.2 lb/MMBtu | | | |
| 4. Equivalent Allowable Emissions: | 728 lbs/hr | 3,188.6 | tons/yr |
| 5. Method of Compliance: Annual stack test if > 400 hours operation | | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): The allowable emission limit is based on FDEP Rule 62-296.800; 40 CFR Part 60, Subpart D, Section 60.44(a)(1) (see also Attachment 1). | | | |

D.

| | | | |
|--|--------|--|---------|
| 1. Basis for Allowable Emissions Code: | | | |
| 2. Future Effective Date of Allowable Emissions: | | | |
| 3. Requested Allowable Emissions and Units: | | | |
| 4. Equivalent Allowable Emissions: | lbs/hr | | tons/yr |
| 5. Method of Compliance: | | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): | | | |

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 4 of 5

| | | |
|---|---------------|-----------------|
| 1. Pollutant Emitted: CO | | |
| 2. Total Percent Efficiency of Control: Not applicable % | | |
| 3. Primary Control Device Code: Not applicable | | |
| 4. Secondary Control Device Code: Not applicable | | |
| 5. Potential Emissions: | 323.96 lbs/hr | 1,418.9 tons/yr |
| 6. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |
| 7. Range of Estimated Fugitive/Other Emissions: Not applicable | | |
| <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/yr | | |
| 8. Emission Factor: 0.089 lb/MMBtu | | |
| Reference: Trial Test Burn | | |
| 9. Emissions Method Code: | | |
| <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 | | |
| 10. Calculation of Emissions: 3,640 MMBtu/hr x 0.0893 lb/MMBtu | | |
| 11. Pollutant Potential/Estimated Emissions Comment: CO emissions dependent upon combustion conditions. CO emissions estimate based on trial test burn (see Attachment 1). | | |

Emissions Unit Information Section 1 of 1

Allowable Emissions (Pollutant identified on front page) Not applicable.

A.

| |
|---|
| 1. Basis for Allowable Emissions Code: |
| 2. Future Effective Date of Allowable Emissions: |
| 3. Requested Allowable Emissions and Units: |
| 4. Equivalent Allowable Emissions: lbs/hr tons/yr |
| 5. Method of Compliance: |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): |

B. Not Applicable

| |
|---|
| 1. Basis for Allowable Emissions Code: |
| 2. Future Effective Date of Allowable Emissions: |
| 3. Requested Allowable Emissions and Units: |
| 4. Equivalent Allowable Emissions: lbs/hr tons/yr |
| 5. Method of Compliance: |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): |

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 5 of 5

| | | |
|--|------------------------------|--|
| 1. Pollutant Emitted: SAM | | |
| 2. Total Percent Efficiency of Control: | ~ 50 % | |
| 3. Primary Control Device Code: 067 | | |
| 4. Secondary Control Device Code: Not applicable | | |
| 5. Potential Emissions: | 92.86 lbs/hr | 406.6 tons/yr |
| 6. Synthetically Limited? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| 7. Range of Estimated Fugitive/Other Emissions: Not applicable | | |
| <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 _____ to _____ tons/yr |
| 8. Emission Factor: 0.0255 lb/MMBtu | | |
| Reference: Trial test burn | | |
| 9. Emissions Method Code: | | |
| <input checked="" type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 |
| 10. Calculation of Emissions: 3,640 MMBtu/hr x 0.0255 lb/MMBtu | | |
| 11. Pollutant Potential/Estimated Emissions Comment: Sulfuric acid mist (SAM) emissions based on trial test burn (see Attachment 1). | | |

Allowable Emissions (Pollutant identified on front page) Not applicable.

A.

| | | |
|--|--------|---------|
| 1. Basis for Allowable Emissions Code: | | |
| 2. Future Effective Date of Allowable Emissions: | | |
| 3. Requested Allowable Emissions and Units: | | |
| 4. Equivalent Allowable Emissions: | lbs/hr | tons/yr |
| 5. Method of Compliance: | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): | | |

B. Not Applicable

| | | |
|--|--------|---------|
| 1. Basis for Allowable Emissions Code: | | |
| 2. Future Effective Date of Allowable Emissions: | | |
| 3. Requested Allowable Emissions and Units: | | |
| 4. Equivalent Allowable Emissions: | lbs/hr | tons/yr |
| 5. Method of Compliance: | | |
| 6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): | | |

Visible Emissions Limitations: Visible Emissions Limitation 2 of 2

| |
|--|
| 1. Visible Emissions Subtype: VEX |
| 2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other |
| 3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: 100 % Maximum Period of Excess Opacity Allowed: 2 hr/24 hrs* min/hr |
| 4. Method of Compliance: None |
| 5. Visible Emissions Comment: Excess VE emissions allowed under FDEP Rule 62-210.700(a) for startup, shut down, or malfunction conditions. * > 2 hours allowed if prior FDEP approval received. |

Visible Emissions Limitations: Visible Emissions Limitation of

| |
|---|
| 1. Visible Emissions Subtype: |
| 2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other |
| 3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hr |
| 4. Method of Compliance: |
| 5. Visible Emissions Comment: |

G. CONTINUOUS MONITOR INFORMATION

This subsection of the Application for Air Permit form must be completed for only those emissions units which are required by rule or permit to install and operate one or more continuous emission, opacity, flow, or other type monitors. A separate set of continuous monitor information (fields 1-6) must be completed for each monitoring system required.

Continuous Monitoring System Continuous Monitor 1 of 3

| | | |
|--|---|--------------------------------|
| 1. Parameter Code: SO ₂ | | |
| 2. CMS Requirement: | <input checked="checked" type="checkbox"/> Rule | <input type="checkbox"/> Other |
| 3. Monitor Information: Manufacturer: Lear Siegler Model Number: SM 810 Serial Number: 29259-M | | |
| 4. Installation Date (DD-MON-YYYY): 1982 | | |
| 5. Performance Specification Test Date (DD-MON-YYYY): 1982 | | |
| 6. Continuous Monitor Comment: CEMS required under 40 CFR Part 75 will be addressed in forthcoming Title V application | | |

| | |
|--|--|
| 1. Parameter Code: NO _x | |
| 2. CMS Requirement: | <input type="checkbox"/> Rule <input type="checkbox"/> Other |
| 3. Monitor Information: | |
| Manufacturer: | |
| Model Number: | Serial Number: |
| 4. Installation Date (DD-MON-YYYY): | |
| 5. Performance Specification Test Date (DD-MON-YYYY): | |
| 6. Continuous Monitor Comment: No CEM required as during certification Unit No. 3 demonstrated NO _x emission less than 70 percent of its allowable emission rate. CEMS required under 40 CFR Part 75 will be addressed in forthcoming Title V application. | |

| | |
|--|---|
| 1. Parameter Code: VE | |
| 2. CMS Requirement: | <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other |
| 3. Monitor Information: | |
| Manufacturer: Lear Siegler | |
| Model Number: RM-41 | Serial Number: 291-230 |
| 4. Installation Date (DD-MON-YYYY): 1982 | |
| 5. Performance Specification Test Date (DD-MON-YYYY): 1982 | |
| 6. Continuous Monitor Comment: CEMS required under 40 CFR Part 75 will be addressed in forthcoming Title V application | |

H. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

This subsection of the Application for Air Permit form must be completed for all applications, not just those undergoing prevention-of-significant-deterioration (PSD) review pursuant to Rule 62-212.400, F.A.C. The intent of this subsection is to make a preliminary determination as to whether the emissions unit addressed in this Emissions Unit Information Section consumes PSD increment. PSD increment is consumed (or expanded) as a result of emission increases (decreases) occurring after pollutant-specific baseline dates. Pollutants for which baseline dates have been established are sulfur dioxide, particulate matter, and nitrogen dioxide.

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

- [X] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- [] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- [] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- [] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- [] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

maximum fuel flow rates (hourly and annual) were not included in the conditions of certification, rather only in the application.

Section 3.2.3 Transportation

Lakeland has clarified several fuel transportation issues in the site certification application. Specifically, Lakeland has updated the application to indicate that the fuel trains include 90 rather than 70 one-hundred-ton bottom dump hopper cars per unit. The train unloading operations are more fully described in the application revisions.

Lakeland has also clarified that its coal supply is primarily from the area east of the Mississippi River, with a majority of the coal coming from Eastern Kentucky. Other sources of suitable quality may also be used. Petroleum coke will be obtained from a suitable source based on lowest evaluated delivered cost. It will be delivered by truck from a nearby port or by rail, directly from a supply source. If the petroleum coke is blended off-site, it will be delivered either by rail or truck from a blending facility. The blend will be carefully monitored and controlled to assure compliance with all regulated air pollutant emissions through continuous emission monitors (i.e., sulfur dioxide, nitrogen oxides, and opacity).

Natural gas will be supplied to the site by a high-pressure main tied in with Florida Gas Transmission several miles north of the McIntosh Plant.

Section 3.2.4 Storage

Lakeland is also clarifying its fuel storage operations. Coal is stored on a sealed surface with a complete run-off control system to collect rain water or dust control water. Coal is delivered from this storage area to the unit silos by a series of conveyors through several transfer points, which are more fully described in the revisions than in the original application. Petroleum coke will be stored in the coal storage area either as an unblended or blended product.

Oil is stored in on-site tanks within containment areas. These tanks are more fully described in this application than in the original application.

Refuse is not stored on site. All material received is processed and burned as quickly as possible. Lakeland has included clarification language regarding the storage of refuse in the application.

Section 3.2.5 Fuel Analysis

As a supplement to the application, Lakeland has provided a fuel analysis for petroleum coke.

Section 3.2.7 Coal Pile Run-Off

The application revisions clarify that coal pile runoff will be collected and transported to a surge pond before being pumped to the current settling pond for reuse. (See also Section 3.5.)

Section 3.4 Heat Dissipation System

The application is being revised to clarify that Lakeland has abandoned the Marsh Treatment System because the water now goes directly to Lakeland's public works system. In addition, the application revisions clarify that the mechanical draft cooling tower includes thirteen cells and is supplemented by a two-cell draft auxiliary tower.

Section 3.5 Changes in Chemical and Biocide Wastes

Lakeland also clarifies that the settling pond will be lined with bitumastic to prevent leaking and that collected runoff will be pumped from the north landfill surge pond to the final wastewater ponds for reuse on site.

Section 3.6.3 Flue Gas Desulfurization Scrubber Sludge

Sulfur Dioxide Removal Efficiency--Lakeland originally proposed a removal efficiency of 80 percent of the sulfur dioxide from the stack gases through installation of a limestone scrubber based on the expectation of utilizing "high sulfur" coal (sulfur content of greater than 3.0 percent). Any fuel (or combination of fuels) with a sulfur content of less than 3.1 percent sulfur should not require 80 percent removal efficiency since the 1.2 lb/mmBtu heat input limit could be achieved without the desulfurization unit being operated. The actual sulfur dioxide emissions will be much less than 1.2 lb/mmBtu even when the 80 percent removal rate is not achieved because the desulfurization unit will continue to operate even when lower sulfur coal (or coal/refuse/coke combinations) is burned. In other words, the resultant sulfur dioxide emissions when burning a non-high, lower sulfur fuel and operating the desulfurization unit will be less than the sulfur dioxide emissions would be if high sulfur (greater than 3.0 percent sulfur) were burned, even with the desulfurization unit operating at an 85 percent removal efficiency. Accordingly, Lakeland has revised its application to clarify that the 80 percent removal efficiency applies only when high sulfur coal (or blends) is burned. This same change is being made to Section 3.7.4, Sulfur Dioxide Compliance Method. In addition, Lakeland has clarified this section of the application to show that the sulfur dioxide limit of 1.2, rather than 0.8 applies when coal is burned in the unit, consistent with Section 3.7.

Section 3.7 Air Emissions

Compliance Standards--Lakeland has clarified in the application that the same limits that apply to coal and coal/refuse blends will apply to coke blends as well. As stated above,

Lakeland has also clarified that the 80 percent removal efficiency for sulfur dioxide applies only when high sulfur coal is burned.

Section 5.6

Lakeland has revised the application to describe an expansion to the present refuse processing plant tipping floor, with the addition of a relatively small building (approximately 100' by 70').

Section 5.6.2 Scrubber Sludge Disposal

Lakeland is clarifying in the application revisions that the stabilized sludge operation and various silos are equipped with dust control systems.

Description of Proposed Changes to Conditions of Certification

Citations

Citations throughout the Conditions of Certification have been updated with current chapter and rule numbers. Similarly, the state agencies' names have been corrected, where necessary, such as changing the Department of Environmental *Regulation* to the Department of Environmental *Protection*.

General Condition No. 1

Because the only certified unit is Unit No. 3., Lakeland suggests a revision to this condition to clarify that only *proposed* changes in discharges from Unit No. 3 and expansions of Unit No. 3's generating capacity would require a new or supplemental application. In addition, to clarify that only regulated air pollutant emissions must be identified, the word "regulated" is being added.

General Condition No. 2

Lakeland proposes to clarify that it must notify the Department in writing of a noncompliance situation within 72 working day hours. Because certain holiday weekends extend beyond 3 days, it would be appropriate for the notice requirements to correspond to working day hours.

General Condition No. 3

Because only Unit No. 3 is certified under the Site Certification, Lakeland proposes to clarify this condition to refer to Unit No. 3 rather than the entire "facility."

Special Condition No. I.B.5.

The unit number is being corrected to Unit No. 3 (rather than Unit No. 2).

Special Condition No. I.D.

Lakeland is requesting that this condition be changed to allow it to submit fuel usage and analysis data annually rather than quarterly.

Special Condition No. I.H.

The various fuels and fuel combinations that are specifically authorized to be burned have been listed in a proposed subsection H., including petroleum coke, which is being proposed in this request.

Special Condition Nos. II.A.1. and IV.A., B.

Because the artificial marsh is being phased out and is no longer used, Lakeland is requesting that references to it be deleted from the Conditions of Certification.

**BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION AND
THE GOVERNOR AND CABINET OF THE STATE OF FLORIDA**

IN RE:)
)
McIntosh Unit No. 3, Modification) **Certification PA-74-06**
of Site Certification proposed by)
the City of Lakeland.)
_____)

PROPOSED AGREEMENT FOR MODIFICATION OF SITE CERTIFICATION

I.

The City of Lakeland ("Lakeland") hereby requests a modification of the Site Certification for C.D. McIntosh Power Plant Unit Number 3 ("McIntosh Unit No. 3") (PA-74-06) pursuant to Section 403.516(1)(b), Florida Statutes; Rule 62-17-211, Florida Administrative Code; and General Condition of Certification Number 12. Those provisions authorize the Department of Environmental Protection (Department) to modify the certification after public notice and opportunity for review by the public and by the parties to the original certification proceeding and upon no objection to the proposed modifications being raised.

This agreement for modification addresses several changes to the Site Certification application and to the Conditions of Certification. In support of the proposed modification, Lakeland states:

II.

On December 7, 1978, the Siting Board issued a final Certification to Lakeland pursuant to Chapter 403, Part II, Florida Statutes, authorizing the construction and operation of McIntosh Unit No. 3. The Site Certification was subsequently modified in 1980, 1988, and 1993. Subject to the provisions of the Certification Order and the associated Conditions of Certification,

Lakeland constructed a coal-, refuse-, and oil-fired steam electric generating unit, along with various associated support facilities, and began operating the unit in 1982. Based on a successful test burn of petroleum coke earlier this year, Lakeland has proposed several revisions to its Site Certification application to allow petroleum coke to be blended with other fuels and burned in McIntosh Unit No. 3. In addition, as a result of the final design of Unit No. 3 and its associated facilities, Lakeland has identified several needed clarifications and minor revisions to the Site Certification application and Conditions of Certification. The revised pages of the Site Certification application are attached hereto as Exhibit A and the Conditions of Certification as proposed to be revised are attached as Exhibit B.

Petroleum Coke

Specifically, Lakeland is proposing to burn petroleum coke when blended with other fuels in amounts up to 20 percent based on weight. At this rate of 20 percent or less, the permitted emission limits will not be exceeded, which will be confirmed through the use of continuous emission monitors for sulfur dioxide. A fuel analysis of petroleum coke is provided with the proposed application revisions. The application clarifies that the same air emission limits that apply to coal and coal/refuse blends will apply to petroleum coke blends as well. The Conditions of Certification have also been revised to authorize the use of petroleum coke, as shown in Exhibit B.

Application

The 80 percent sulfur dioxide removal efficiency achievable through the use of the desulfurization unit is based on high-sulfur coal, and this point is clarified in the revised application.

Lakeland has updated the application to indicate that the refuse processing plant tipping floor is being expanded to include a relatively small building. Lakeland has also clarified that the stabilized sludge operation and various silos are equipped with dust control systems.

Lakeland has also clarified that natural gas and/or low sulfur oil will be used for ignition and fuel stabilization of the unit, and that these fuels may be used at any time.

The application has been revised to reflect the actual maximum heat input achievable by the unit, as well as the actual fuel flow rates experienced. These higher rates are needed to produce the same megawatt output of 364.

Lakeland has also revised the application to clarify several fuel transportation and storage issues. Petroleum coke will be obtained from a suitable source, delivered by truck or rail, and stored in the coal storage area. Natural gas will be supplied to the site by pipeline.

The application clarifies that the coal pile runoff will be pumped from the north landfill surge pond to the final wastewater ponds for reuse on site. Lakeland also clarifies that the Marsh Treatment System is being abandoned because the water now goes directly to the public works system.

Conditions of Certification

The citations and agency names are being updated, and the certified site is being more clearly identified in certain conditions as Unit No. 3

The conditions are also being revised to clarify that Lakeland has 72 working day hours within which to provide written notice of noncompliance situations.

The conditions also reflect that fuel analysis and fuel quality data must be submitted annually. Further, as in the application, references to the artificial marsh are being deleted since this system is being phased out and is no longer used.

REQUEST FOR RELIEF

Accordingly, Lakeland requests that:

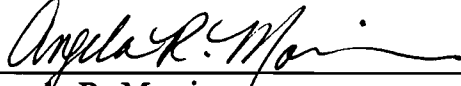
1. All parties to the original Certification agree to, or otherwise do not object to, this proposed Modification and the attached revised Site Certification application pages and revised Conditions of Certification attached hereto within forty-five (45) days of submittal of this proposed Agreement, as provided for in Section 403.516(1)(b), Florida Statutes.

2. Upon no objection being raised by the parties as provided above or by a substantially affected person within thirty (30) days of public notice of this proposed modification, the Department of Environmental Protection issue an order modifying the Site Certification, pursuant to Section 403.516(1)(b), Florida Statutes.

3. The Department of Environmental Protection grant such other relief as may be appropriate, including necessary additional conditions of certification proposed by agency parties and accepted by Lakeland.

Respectfully submitted this 7th day of December, 1994.

HOPPING BOYD GREEN & SAMS



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(904) 425-2258
Attorneys for the City of Lakeland

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing and attachment have been furnished to the following by U.S. mail, certified and return receipt requested, on this 7th day of December, 1994:

Hamilton S. Oven, Jr., P.E.
Administrator, Power Plant Siting Section
Department of Environmental Protection
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ATTORNEY

45467
12/6/94

PROPOSED REVISIONS TO THE C.D. McINTOSH POWER PLANT - UNIT NO. 3
 Recertification Application - June 1978, as Amended in 1987
 (December 1994)

| <u>Section</u> | <u>Subject</u> | <u>Discard Old Pages</u> | <u>Insert New Pages</u> |
|----------------|---|------------------------------|-----------------------------|
| 3.2 | Fuels | 3.2-1 - 3.2-6 | 3.2-1 - 3.2-7 |
| 3.4 | Heat Dissipation System | 3.4-1 | 3.4-1 |
| 3.5 | Changes in Chemical & Biocide Wastes | 3.5-1 - 3.5-2 | 3.5-1 - 3.5-2 |
| 3.6 | Changes in Sanitary & Other Wastes | 3.6-2 | 3.6-2 - 3.6-2a |
| 3.7 | Air Emissions | 3.7-1 - 3.7-2 | 3.7-1 - 3.7-2 |
| 5.6 | Other Effects of Plant Operation | 5.6-1 -5.6-3 | 5.6-1 - 5.6-3 |

3.2 FUELS

3.2.1 FUEL TYPES

Unit #3 will have the capability of burning the types of fuels and fuel combinations described herein.

The primary fuel will be pulverized coal. The Unit has been designed to burn processed municipal solid waste, known as Refuse Derived Fuel or RDF, to supplement the pulverized coal.

The furnace design is such that RDF can supply up to 10% of the expected full load heat input to the Unit.

As an alternative fuel source, petroleum coke will be added as a supplement to the pulverized coal. The blend rate can range from 0% to 20% by weight, depending on the quality of the coal. A 0% to 10% blended product will be used with medium sulfur coal (2.5% sulfur) and a 0% to 20% blended product with low sulfur coal (1% sulfur).

As a backup to pulverized coal, Unit #3 has the capability to burn low sulfur oil (.77% sulfur) as a primary fuel. In which case, RDF can also be burned with the low sulfur oil at a rate of up to 10% of expected full load heat input to the Unit.

Ignition or fuel stabilization of this Unit will be provided primarily by natural gas and/or low sulfur oil. Neither fuel can

provide full load capability and only nominal loads can be achieved. They are primarily used for start-up and low load operation.

In summary, Unit #3 will have the capability of firing modes including (primary plus alternate fuels):

1. Pulverized coal only
2. Pulverized coal and RDF
3. Pulverized coal and petroleum coke
4. Pulverized coal, RDF, and petroleum coke
5. Low sulfur oil only
6. Low sulfur oil and RDF

It is possible for Unit #3 to operate under any of the above firing modes on a given day, but the primary operating modes will be 1 thru 4. Natural gas may be burned during startup or at any other time.

3.2.2 FUEL QUANTITIES

Unit #3 has a maximum annual heat input requirement of 2.8697×10^{13} BTU's based on 100% availability (365 days) at a 90% capacity factor. The predicted annual average heat input requirement is

2.72629 x 10¹³ BTU's based on a 95% availability (347 days) at a 90% capacity factor.

It is anticipated that the Unit will be operated in one of the four primary firing modes at all times (coal only, coal and RDF, coal and petroleum coke, or coal, RDF, and petroleum coke). Based on these modes, the approximate average annual fuel usage will be:

| <u>FUEL</u> | <u>QUANTITY</u> |
|----------------|-----------------------------|
| Coal | 864,550 tons (Typical Coal) |
| RDF | 75,000 tons |
| Petroleum Coke | 190,000 tons |

The maximum and average heat inputs and fuel flows for the primary firing modes as described in Section 3.2.1 are shown in Table 3.2.1.

3.2.3 TRANSPORTATION

COAL

Coal normally will be delivered to the Plant site in two continuously operating unit trains in ninety (90) cars of one hundred ton (nominal) bottom dump hopper cars per unit train.

The coal supply will be primarily from the area east of the Mississippi River. The majority of the coal will come from Eastern Kentucky, but may also be obtained from other sources of suitable quality.

The coal will normally be delivered to the Plant via single line rail haul, using CSX Transportation (CSXT). The unit train will reach the Plant site on a railroad spur line connecting the coal trestle with the CSXT track located one and one half miles east of the Plant. The coal will be unloaded using an elevated trestle approximately 1000 feet long. The bottom dump hopper cars will unload when they are given a signal through a third rail system as determined by an Operator.

PETROLEUM COKE

Petroleum coke will be obtained from a suitable source based on lowest evaluated delivered cost. Options to be evaluated include: purchasing a material blended with coal off site and delivered as a blended fuel ready for burning or purchasing a supply of petroleum coke to be delivered to the site and blended with the normal supply of coal.

The petroleum coke will be delivered to the Plant by truck from a nearby port or by rail, directly from a supply source. A blended fuel would be delivered either by rail or truck from a blending facility.

The blend will be carefully monitored and controlled to assure compliance with all regulated parameters at the stack exit with continuous emissions monitoring systems (i.e., sulfur dioxide, nitrogen oxide, and opacity). A blend of 90/10 (by weight) medium

sulfur (2.5%) coal with petroleum coke and a blend of 80/20 (by weight) low sulfur (1.0%) coal with petroleum coke has been tested and all environmental and operational parameters checked. The entire range of blends provide good operation and no adverse environmental impacts.

The fuel blend supplied to Unit #3 and the flexibility built into the flue gas desulfurization system (Scrubber) will be fully controlled, to ensure complete environmental compliance at all times.

REFUSE

Refuse collected from Lakeland and the surrounding area will be delivered to the refuse processing facility by the collection trucks.

OIL

Oil will be delivered to the Plant site by fuel oil trucks from the Port of Tampa.

NATURAL GAS

Natural gas is supplied to the site by a high pressure main tied in with Florida Gas Transmission several miles north of the Plant.

3.2.4 STORAGE

COAL

Coal will be stored on site in open piles for immediate use (active pile) and an emergency reserve storage of approximately sixty days will be maintained in sealed piles.

Coal will be stored on a sealed surface and will be provided with a complete run-off control system to collect rain water or dust control water. Fugitive emissions from coal piles will be minimized by a dust water separation system.

Coal will be delivered to Unit #3 silos by a series of conveyors thru several transfer points. These transfer points and the silos will be equipped for dust control.

OIL

Oil will be stored in on-site tanks within containment areas. Diesel oil tanks piping, and receiving areas all conform to regulations and rules of the Department governing petroleum products.

PETROLEUM COKE

Petroleum coke will be stored in the coal storage area either as a unblended or blended product.

REFUSE

Refuse will not be stored on site. All material received will be processed and burned as quickly as possible.

3.2.5 FUEL ANALYSIS

Typical fuel analysis for coal, petroleum coke, refuse, and oil are located in Tables 3.2.2, 3.2.3, 3.2.4, and 3.2.5 respectively.

3.2.6 PLANS FOR EMERGENCY SPILLS

As described in Section 3.2.4, no new oil tanks will be required, so existing fuel oil unloading areas will be utilized. Since these areas already comply with the U.S. Environmental Protection Agency's rule on the prevention of oil spills, no additional spill protection will be required.

3.2.7 COAL PILE RUN-OFF

The entire coal receiving and storage area is constructed on an impermeable base and is surrounded by a series of asphalt lined ditches to collect all rainfall run-off and dust control water. The collected water will be directed to a series of sumps and will be pumped to the north landfill sedimentation pond or to the ash settling ponds. The collected water will be recycled for reuse in Plant systems in an effort to minimize the consumptive use of water. The design of the storm water run-off system for the coal yard has been designed for a ten year, twenty-four hour storm event. More detailed information is given in Section 3.3.

Table 3.2.3

TYPICAL PETROLEUM COKE ANALYSISUNIT #3

Petroleum Coke Quality: As Rec'd Basis

| | | |
|---------------------------------|----------------|----------------|
| Moisture | 8.00% | 12.00% Max |
| Ash | 0.25% | 1.00% Max |
| Volatile | 10.00% | 14.00% Max |
| Sulfur | 4.75% | 5.50% Max |
| Btu/lb | 14,200 | 14,200 Penalty |
| Hardgrove Grindability Index | 65 | 50 Min |
| | <u>Typical</u> | <u>Maximum</u> |
| Vanadium | 950 ppm | 1500 ppm |
| Iron | 100 ppm | 500 ppm |
| Silicon | 50 ppm | 250 ppm |
| Calcium | 100 ppm | 250 ppm |
| Nickel | 250 ppm | 500 ppm |
| Sizing | +3 " | 5% |
| | 2x3 " | 5% |
| | 1x2 " | 25% |
| | ½x1 " | 20% |
| | -½ " | 45% |

Revised 12-06-94

Table 3.2.1

FIRING MODES
FUEL FLOW RATES

| <u>MODE/LOAD</u> | <u>HOURLY FLOW RATES</u> |
|--|-------------------------------------|
| | 364 Mw |
| NO. 1 COAL ONLY (TONS/HR) | 159.6 |
| NO. 2 COAL/RDF: (10% RDF) | |
| COAL (TONS/HR) | 143.7 |
| RDF (TONS/HR) | 40.4 |
| NO. 3 OIL ONLY (BBL/HR) | 577.8 |
| NO. 4 OIL/RDF: (10% RDF) | |
| OIL (BBL/HR) | 520.0 |
| RDF (TONS/HR) | 40.4 |
| NO. 5 COAL/COKE (80/20) | 122.1 COAL 30.5 COKE |
| NO. 6 COAL/COKE/RDF (80/20 - 90%) (RDF - 10%) | 100.9 COAL 40.4 RDF 27.5 COKE |

Revised 12-06-94

Table 3.2.4

MCINTOSH PLANT SITE - PETROLEUM STORAGE

| EMISSION POINT | TYPE | LOCATION | SIZE (GALLON) | EMISSION |
|--------------------------------|------|-----------------------|------------------|----------|
| DIESEL TANK | VENT | E OF WATER TANK | 2,000 | VOC |
| GASOLINE TANK | VENT | S OF WELD BARN | 1,000 | VOC |
| DIESEL STORAGE TANK | VENT | TANK FARM | 101,346 | VOC |
| DIESEL TANK | VENT | S OF WELD BARN | 1,000 | VOC |
| DIESEL FUEL TANK (REFUSE AREA) | VENT | SE OF LARGE THICKENER | 1,000 | VOC |
| DIESEL FUEL (10,000 GAL) TANK | VENT | N OF PEO BLDG | 9,000 | VOC |
| HEAVY OIL TANK | VENT | TANK FARM | 4,057,200 | VOC |
| HEAVY OIL TANK | VENT | TANK FARM | 4,057,200 | VOC |
| HEAVY OIL TANK | VENT | TANK FARM | 4,057,200 | VOC |
| DIESEL STORAGE TANK | VENT | TANK FARM | 22,500 | VOC |

Revised 12-06-94

Table 5.6.2

MCINTOSH PLANT SITE - DUST COLLECTORS

| EMISSION POINT | TYPE | LOCATION | EMISSION |
|-----------------------------------|---------|--------------------|----------|
| LIMESTONE SILO DUST COLLECTOR | EXHAUST | N OF SCRUBBER #32 | DUST |
| QUICKLIME SILO DUST COLLECTOR | EXHAUST | N OF CSI BLDG | DUST |
| SODA ASH SILO DUST COLLECTOR | EXHAUST | WWTP/ABOVE BLDG RO | DUST |
| QUICKLIME SILO DUST COLLECTOR | EXHAUST | WWTP/ABOVE BLDG RO | DUST |
| FLY ASH SILO DUST COLLECTOR | EXHAUST | E OF CSI BLDG | DUST |
| SHREDDER EXPLOSION VENT | VENT | REFUSE | DUST |
| KLEISLER FILTER | VENT | REFUSE | DUST |
| SILO 31 DUST COLL. EXHAUST/C4 | EXHAUST | TRIPPER HOUSE | DUST |
| SILO 32 DUST COLL. EXHAUST | EXHAUST | TRIPPER HOUSE | DUST |
| SILO 33 DUST COLL. EXHAUST/C5 | EXHAUST | TRIPPER HOUSE | DUST |
| SILO 34 DUST COLL. EXHAUST | EXHAUST | TRIPPER HOUSE | DUST |
| CRUSHER HOUSE DUST COLLECTOR | EXHAUST | COAL CRUSHER HOUSE | DUST |
| C2 COAL CONVEYOR DUST COLLECTOR | EXHAUST | C2 CONV. (BEGIN) | DUST |
| C3 REFUSE CONVEYOR DUST COLLECTOR | EXHAUST | REFUSE | DUST |
| C5 REFUSE CONVEYOR DUST COLLECTOR | EXHAUST | REFUSE | DUST |
| PUGMILL #31 DUST COLLECTOR | EXHAUST | CSI | DUST |
| PUGMILL #32 DUST COLLECTOR | EXHAUST | CSI | DUST |

Revised 12-06-94

3.4 HEAT DISSIPATION SYSTEM

The Unit will use a thirteen-cell wet mechanical draft cooling tower supplemented by a two cell mechanical draft auxiliary tower, for dissipation of waste heat from the condenser and accessory equipment cooling water.

The tower will have a total circulating water flow of 144300 GPM with a design inlet water temperature of 114.7°F. The tower will be designed to dissipate 1636 MMBTUH with a 79°F inlet wet bulb air temperature.

Condenser cooling water will comprise 138300 GPM of the circulating water flow and 6000 GPM will be utilized to cool a secondary fluid for accessory equipment cooling.

Process wastewater and blowdown from the tower will be utilized as makeup for the SO₂ removal system (scrubber) on the boiler. Any excess blowdown will be transported to the new City of Lakeland's Public Works Sewage Plant Wetlands Treatment System located seven and one-half miles south of McIntosh Power Plant. The present on-site Marsh Treatment System will be phased out, because the new wetlands system has proven to be very effective. A new pipeline has been constructed to transport the blowdown from the tower to the Sewage Plant to be combined with its effluent going to the new Wetlands Treatment System.

3.5 CHANGES IN CHEMICAL AND BIOCIDES WASTES

The flow diagram shown in Figure 3.3.1 shows the major wastewater flow paths. The Figure shows that Unit No. 3 will not discharge waste streams to any water body. Waste streams will be reused to the extent practicable and that the remaining process wastewaters will be treated on site and pumped to the Sewage Plant Wetlands Treatment Systems (Wetlands system). Excess cooling tower blowdown will be transported also to the Sewage Plant Wetlands Treatment System.

Figure 3.3.1 shows that after the scrubber makeup water is taken from the cooling tower blowdown stream, approximately 500 GPM or 720,000 gallons per day, will be pumped to the Sewage Plant Wetlands Treatment System. The wastewater treatment scheme shown in Figure 3.3.1 is similar to that which was originally presented in the 250 MW application. One notable change in the system is the addition of bottom ash dewatering bins for separating bottom ash and sluice water in lieu of a 5-acre sluice pond. This change was made to facilitate the handling of bottom ash for the sludge stabilization process. The flow diagram shows a settling pond will be used as a backup system to the ash dewatering bin system, a storage area for sluice water makeup, and a holding area for the collection of runoff from the coal pile and coal handling area and water used in the dust suppression system.

The north landfill surge pond will help collect and contain the

coal pile runoff from the 12-acre coal storage area that is expected from the 10-year, 24-hour storm event. The 10-year, 24-hour storm event in the Lakeland area is 6.60 inches. The settling pond is lined with bitumastic to prevent leaking of the water to shallow groundwater. Collected runoff will be pumped from the north landfill surge pond to the final wastewater ponds for reuse on site.

Disposal of the cooling tower blowdown and process wastewaters will be to the back end of the sewage treatment plant of the City of Lakeland. Disposal of the solids from the process wastewater treatment plant will be to the plant stabilized sludge landfill.

5.6 OTHER EFFECTS OF PLANT OPERATION

5.6.1 ENERGY RECOVERY FROM SOLID WASTE

As discussed in the 250 MW Unit #3 application, processed municipal refuse will be used as a supplemental fuel supply to the Unit. The processing system will still consist of shredding, magnetic separation of ferrous materials and air classification prior to combustion in the boiler. However, with the 364 MW Unit #3, refuse will be burned with both coal and oil rather than just with coal as in the 250 MW Unit #3.

For calculation purposes, the amount of refuse that will be burned has been limited to what is collected within the city limits of Lakeland and from contiguous outlying areas. This will produce approximately 300 tons per day of raw refuse and 210 tons per day of combustible material to be used as a refuse derived fuel (RDF).

In addition to the use of the RDF, the Unit #3 architect engineers are currently studying the possibility of burning the sewage sludge from the Lakeland Sewage Treatment Plant. Sewage sludge has a heating value of 4000 to 7000 BTU/per pound and its use would eliminate another City of Lakeland disposal problem.

Another important aspect of the refuse burning capability of Unit #3 is that Polk County has been designated by the Florida Department of Environmental Protection to develop a county wide plan for resource recovery, and while the plan is in its beginning

stages, preliminary discussions with Polk County representatives have indicated that the processing facility

at the McIntosh site and the Unit #3 RDF capability could be an integral part of the Polk County resource recovery plan.

Tests from the pilot RDF project in St. Louis at Union Electric's Merrimac Station have concluded that up to 20% of boiler heat requirements can be from RDF without noticeable boiler damage. Based on this assumption, Unit #3 could burn over 1000 tons per day of the County's refuse. In order to produce the 1000 tons per day of RDF, over 1450 tons per day, essentially all the raw refuse projected to go to landfills in 1983 would have to be processed.

The present refuse processing Plant tipping floor will be expanded to the north with an addition of a building approximately 100' x 70'.

5.6.2 SCRUBBER SLUDGE DISPOSAL

The 250 MW Unit #3 application indicated that at the time of submittal, four (4) methods of disposing of sulfur sludge were being considered. The methods under consideration were:

1. Stabilized landfill with load bearing capacity.
2. Returning the sludge to the limestone mine where the limestone for the SO₂ scrubber was taken.
3. Using the sludge as a reclamation fill for phosphate strip mines.
4. Permanent ponding of the sludge on site in clay lined ponds.

The "Conditions of Certification" for the 250 MW Unit #3 stipulated that "Flue as desulfurization sludge shall be stabilized prior to disposal in other than a lined pond or basin". In keeping with this stipulation, the 364 MW Unit #3 will combine all the sludges and ash generated by the Unit to form a stabilized fill material.

The stabilized sludge (pozzolanic) will be primarily used as a landfill material in the immediate area of the Plant site. However, once the Plant is in operation and actual samples of stabilized material are available, a study will be undertaken to determine the suitability and marketability of this material for use as a road and parking lot base coarse material, earthen embankments, impermeable liners for holding ponds and synthetic aggregate for concrete block and asphalt formulations.

The stabilized sludge operation will be located at the McIntosh Plant site. The operations will consist of blending the scrubber sludge, as well as other sludges generated in the operation of Unit #3 with fly ash, bottom ash and lime to form the stabilized pozzolanic material, prior to its use or disposal in the dedicated Plant site landfill. The stabilized pozzolanic sludge process provided by Conversion Systems, Inc. is located in a building next to the scrubber sludge thickener. This building, as well as the silos (fly ash, lime, etc.), is equipped with the proper dust control systems, as listed in Table 5.6.2.

All quantities of collected ash from the operation of Unit #3 will be used as an integral ingredient in the sludge stabilization process described in Sections 3.6.3 and 5.6.2.

3.6.3 FLUE GAS DESULFURIZATION SCRUBBER SLUDGE

Sulfur dioxide emissions in the flue gas from the coal, coal and petroleum coke, coal, RFD and petroleum coke, and coal and RFD firing modes will comply with the State and Federal new source performance standard of 1.2 lbs/mmBTU by using a limestone slurry flue gas scrubber with an 80% removal efficiency for high sulfur fuel (higher than 3.0% sulfur).

The end product of the SO₂ scrubber system will be a 50% solids sludge consisting of the following materials:

| <u>Constituent</u> | <u>% By Weight</u> |
|--------------------------------------|--------------------|
| CaCO ₃ | 33 |
| CaSO ₃ •2H ₂ O | 58 |
| CaSO ₄ •2H ₂ O | 9 |

The quality of sludge expected to be produced from Unit #3 is shown in Table 3.6.1.

In order to dispose of the annual amounts of sludge shown in Table 3.6.1 and the amounts of fly ash and bottom ash described in Section 3.6.2 in an acceptable manner, all sludge and ash quantities will be brought to an on-site stabilization process. In

this process, ash and scrubber sludge will be combined with lime and other aggregates to form a cementitious material suitable for use as landfill material, road base material, embankments and impermeable liners.

3.7 AIR EMISSIONS

3.7.1 AIR EMISSIONS COMPLIANCE STANDARDS

Unit #3 will be required to meet the State and Federal emission limits for Nitrous Oxide (NO_x), Sulfur Dioxide (SO₂), Particulate Matter (PM) and Opacity as listed in Rule 62-296.405, F.A.C. As discussed in Section 3.2, Unit #3 will be capable of burning four different fuels in six firing modes, which will require meeting various emission limits depending on the firing mode. The following are the emission limits for each firing mode:

| <u>FIRING MODE</u> | <u>SO₂ LB/MMBTU</u> | <u>NO_x LB/MMBTU</u> | <u>PM LB/MMBTU</u> | <u>OPACITY %</u> |
|-----------------------------|------------------------------------|------------------------------------|------------------------|----------------------|
| Coal Only | 1.2 | 0.7 | 0.1 | 20 |
| Coal/RDF | 1.2 | 0.7 | 0.1 | 20 |
| Coal/Petroleum Coke | 1.2 | 0.7 | 0.1 | 20 |
| Coal/Petroleum Coke /RDF | 1.2 | 0.7 | 0.1 | 20 |
| Oil Only | 0.8 | 0.3 | 0.1 | 20 |
| Oil/RDF | 0.8 | 0.3 | 0.1 | 20 |

Natural gas and/or low sulfur fuel oil may be burned during startup or at any other time.

3.7.2 NITROUS OXIDES (NO_x) COMPLIANCE METHOD

NO_x will be maintained within the established limits through either boiler, burner or a combination of boiler and burner design. Each of the boiler companies that are currently bidding on this project uses a different method, however each company guarantees that applicable NO_x emission limits will be met.

3.7.3 PARTICULATE (PM) COMPLIANCE METHOD

Particulate emissions will be maintained within the limit of 0.1 lb/mmBTU with a cold side precipitator with a minimum removal

efficiency of 99.5%.

Particulate compliance during the oil only firing mode will not require the use of the precipitator since the ash content of 0.77% sulfur oil results in PM emission levels of less than the emission standard.

A certain amount of particulate removal will also take place in the SO₂ limestone scrubbing system during the (1) coal, (2) coal and RDF, (3) coal and petroleum coke, and (4) coal, RDF and petroleum coke firing mode when use of the scrubber will be required. However, for the purpose of determining the PM emission rates for these modes, it was assumed that no removal would take place in the scrubber.

3.7.4 SULFUR DIOXIDE (SO₂) COMPLIANCE METHOD

As discussed above, compliance with SO₂ emission limits for the (1) coal, (2) coal and RDF, (3) coal and petroleum coke, and (4) coal, RDF and petroleum coke firing modes will be achieved with limestone slurry scrubbing system. The system used in the 364 MW size will have removal efficiency of 80% for high sulfur fuel and is the same as described in the 250 MW Unit #3 certification application. SO₂ emission limits due to the low amounts of sulfur in both the fuels.

3.7.5 EMISSIONS DISPERSION METHOD

As reported in the 250 MW application, flue gas exiting the boiler and pollution control equipment will be discharged from a 250 foot stack. Flue gas from the (1) coal, (2) coal and RDF, (3) coal and petroleum coke and (4) coal, RDF, and petrolum coke firing modes which require SO₂ scrubbing will be reheated to approximately 200°F and exit the stack at 170°F. Flue gas from the oil only

State of Florida Department of Environmental Regulation
City of Lakeland
C.D. McIntosh, Jr. Power Plant - Unit No. 3
Case No. PA 74-06-SR
CONDITIONS OF CERTIFICATION

GENERAL

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Proposed to be Revised 12/06/94

State of Florida Department of Environmental Regulation
City of Lakeland
C.D. McIntosh, Jr. Power Plant - Unit No. 3
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CONDITIONS OF CERTIFICATION

GENERAL

1. Change in Discharge

All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any regulated pollutant not identified in the application, or any discharge more frequent than, or at a level in excess of that authorized herein, shall constitute a violation of the certification. Any anticipated proposed facility expansions, production increases, or process modifications which will result in new, different or increased discharges or expansion in steam generating capacity of Unit No. 3 will require a submission of a new or supplemental application pursuant to Chapter 403, Florida Statutes.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any limitation specified in this certification, the permittee shall notify the Southwest District Manager of the Department by telephone during the working day during which said noncompliance occurs and shall confirm this situation in writing within seventy-two (72) working-day hours of first becoming aware of such conditions, supplying the following information:

- a. A description and cause of noncompliance; and
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying event.

3. Facilities Unit No. 3 Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this certification. Such systems are not to be bypassed without prior department approval.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact resulting from noncompliance with any limitation specified in this certification, including but not limited to such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying event.

5. Right of Entry

The permittee shall allow the Secretary of the Florida Department of Environmental Protection Regulation and/or authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where an effluent source is located or in which records are required to be kept under the terms and conditions of this permit; and
- b. To have access to and copy all records required to be kept under the conditions of this certification; and
- c. To inspect and test any monitoring equipment or monitoring method required in this certification and to sample any discharge or pollutants, and
- d. To assess any damage to the environment or violation of ambient standards.

6. Revocation or Suspension

This certification may be suspended or revoked pursuant to Section 403.512, Florida Statutes, or for violations of any General or Special Condition.

7. Civil and Criminal Liability

This certification does not relieve the permittee from civil or criminal responsibility or liability for noncompliance with any conditions of this certification, applicable rules or regulations of the Department, or Chapter 403, Florida Statutes, or regulations thereunder.

Subject to Section 403.511, Florida Statutes, this certification shall not preclude the institution of any legal action or relieve the permittee from any responsibilities or penalties established pursuant to any other applicable State Statutes or regulations.

8. Property Rights

The issuance of this certification does not convey any property rights in either real or personal property tangible or intangible, nor any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. The applicant will obtain title, lease or right of use from the State of Florida, to any sovereign submerged lands occupied by plant, transmission line structures, or appurtenant facilities.

9. Severability

The provisions of this certification are severable, and if any provision of this certification, or the application of any provision of this certification to any circumstances, is held invalid, the application of such provision to other circumstances and the remainder of the certification shall not be affected thereby.

10. Definitions

The meaning of terms used herein shall be governed by the definitions contained in Chapter 403, Florida Statutes, and any regulation adopted pursuant thereto. In the event of any dispute over the meaning of a term used in these general or special conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statute or regulation or, in the alternative by the use of the commonly accepted meaning as determined by the Department.

11. Review of Site Certification

The certification shall be final unless revised, revoked or suspended pursuant to law. At least every five years from the date of issuance of this certification or any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control Act Amendments of 1972, for the plant units, the Department shall review all monitoring data that has been submitted to it during the preceding five-year period, for the purposes of determining the extent of the permittee's compliance with the conditions of this certification and the environmental impact of this facility unit. The Department shall submit the results of its review and recommendations to the permittee. Such review will be repeated at least every five years thereafter.

12. Modification of Conditions

The conditions of this certification may be modified in the following manner:

- a. The Board hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to monitoring or sampling.
- b. All other modifications shall be made in accordance with Section 403.516, F.S.

State of Florida Department of Environmental Protection Regulation
 City of Lakeland
 C.D. McIntosh, Jr. Power Plant Unit No. 3
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City of Lakeland
Power Plant No. 3 - Unit No. 3
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CONDITIONS OF CERTIFICATION

SPECIAL

I. Air

The construction and operation of the Unit No. 3 at the McIntosh Plant shall be in accordance with all applicable provisions of the Chapters ~~17-2, 17-5, and 17-7~~ 62-210 - 62-297, Florida Administrative Code. The permittee shall comply with the following conditions of certification:

A. Emission Limitations

1. Stack emissions shall not exceed those specified in Chapter ~~17-2.04(6)(e)-1.~~ 62-296.405, FAC.
2. The permittee shall not burn a fuel oil containing more than an average of 0.7% sulfur unless it can be demonstrated that either, a) heat efficiency is such as to insure compliance with all applicable emission limitations, or b) that a flue gas desulfurization unit is installed that will insure compliance with applicable emission limitations.
3. The height of the boiler exhaust stack for Unit 3 shall be not less than 250 feet above grade. The height of stacks for future units shall be determined after review of supplemental applications.
4. Particulate emissions from the coal handling facilities:
 - a. The applicant shall not cause to be discharged into the atmosphere from any coal processing or conveying equipment, coal storage system, or coal transfer and loading system ~~processing coal~~, visible emissions which exceed 20 percent opacity.
 - b. The applicant must submit to the Department within five (5) working days after it becomes available, copies of technical data pertaining to the selected particulate emissions control for the coal handling facility. These data should include, but not be limited to, a copy of the formal bid from the successful bidder, guaranteed efficiency and emission rates, and major design parameters such as air/cloth ratio and flow rate. The Department may, upon review of these data, disapprove the use of such device if the Department determines the selected control device to be inadequate to meet the visible emission limit specified in 5 (a) above.

B. Air Monitoring Program

1. The permittee shall install and operate continuously monitoring devices for the Unit No. 3 boiler exhaust for sulfur dioxide, nitrogen dioxide and opacity. The monitoring devices shall meet the applicable requirements of 1-7-2-08 62-297.500, FAC.
2. The permittee shall operate the ambient monitoring device for sulfur dioxide in accordance with EPA reference methods in 40 CFR Part 53 and two ambient monitoring device for suspended particulates. New and existing monitoring devices shall be located as designated by the Department. The frequency of operation shall be every six days or as specified by the Department.
3. The permittee shall maintain a daily log of fuels used and copies of fuel analyses containing information on sulfur content, ash content and heating values to facilitate calculations of emissions.
4. The permittee shall provide sampling ports into the stack and shall provide access to the sampling ports, in accordance with Standard Sampling Techniques and Methods of Analysis for The Determination of Air Pollutants from Point Sources, July 1975.
5. The ambient monitoring program may be reviewed annually beginning two years after start-up of Unit No. 23 by the Department and the permittee.
6. Emission Control Systems:

Prior to operation of the source, the owner or operator shall submit to the Department a standardized plan or procedure that will allow the company to monitor emission control equipment efficiency and enable the company to return malfunctioning equipment to proper operation as expeditiously as possible.

C. Stack Testing:

1. Within 60 days after achieving the maximum capacity at which the facility will be operated, but no later than 180 days after initial startup, the owner or operator shall conduct performance tests for particulates and SO₂ and promptly furnish the Department a written report of the results of such performance tests.

2. Performance tests shall be conducted and data reduced in accordance with methods and procedures in accordance with Standard Sampling Techniques and Methods of the Determination on Air Pollutants from Point Sources, July 1975.
3. Performance tests shall be conducted under such conditions as the Department shall specify based on representative performance of the facility. The owner or operator shall make available to the Department such records as may be necessary to determine the conditions of the performance tests.
4. The owner or operator shall provide the Department with 30 days prior notice of the performance tests and afford the Department the opportunity to have an observer present.
5. Stack tests for particulates NO_x and SO₂ shall be performed annually in accordance with conditions 2, 3 and 4 above.

D. Reporting

1. Stack monitoring, ~~fuel usage and fuel analysis~~ data shall be reported to the Department on a quarterly basis in accordance with 40 CFR, Part 60, Section 60.7 and in accordance with 17-2-08 62-297.500(2), FAC. Fuel usage and fuel analysis data shall be reported to the Department on an annual basis.
2. Ambient air monitoring data shall be reported to the Department quarterly by the last day of the month following the quarterly reporting period utilizing the SAROAD or other format approved by the Department in writing.

E. Coal Characteristics and Contracts

Before approval can be granted by the Department for use of control devices, characteristics of the coal to be fired must be known. Therefore, before these approvals are granted, the applicant must submit to the Department copies of coal contracts which should include the expected sulfur content, ash content, and heat content of the coal to be fired. These data will be used by the Department in its evaluation of the adequacy of the control devices.

F. Coal Information

As an alternative to the submittal of contracts for purchase of coal under condition E above, the applicant may submit the following information:

1. The name of the coal supplier;
2. The sulfur content, ash content, and heat content of the coal as specified in the purchase contracts;
3. The location of the coal deposits covered by the contract (including mine name and seam);

4. The date by which the first delivery of coal will be made;
5. The duration of the contract; and
6. An opinion of counsel for the applicant that the contract(s) are legally binding and enforceable.

G. Reporting:

Beginning one month after certification the applicant shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of major pieces of equipment (including control equipment). All reports and information required to be submitted under this condition shall be submitted to Mr. Hamilton S. Oven, Jr., Administrator of Power Plant Siting, Department of Environmental Protection Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32301.

H. Fuels:

The following fuels may be burned:

Coal only

Oil only

Coal and up to 10% RFD (by heat input)

Oil and up to 10% RFD (by heat input)

Coal and up to 20% petroleum coke (by weight)

Coal and up to 20% petroleum coke (by weight) and 10% RFD (by heat input)

In addition, natural gas may be used during startup or at any other time.

II. Water Discharges

Discharges during construction and operation of the Unit No. 3 shall be in accordance with all applicable provisions of Chapter 62-302 47-3, Florida Administrative Code and 40 CFR 423, Effluent Guidelines and Standards for Steam Electric Power Generating Point Source Category. In addition, the permittee shall comply with the following conditions of certification:

A. Pretreatment Standards

Wastewater discharges from Unit No. 3 to the Lakeland wetlands treatment system shall comply with the effluent limitation guidelines contained in 40 CFR, ~~Part~~ § 423.12 and amendments. The specific standards applicable to the facilities as planned are:

1. Cooling Tower Blowdown

There shall be no detectable amounts of materials added for corrosion inhibition containing zinc and chromium in cooling tower blowdown discharged to the City of Lakeland wetland treatment system. ~~On an emergency basis the on site Marsh Treatment System may be used to treat cooling tower blowdown.~~

2. pH

The pH of all discharges shall be within the range of 6.0 to 9.0.

3. Polychlorinated Biphenyl Compounds

There shall be no release to the environment of polychlorinated biphenyl compounds.

4. Chemical Wastes and Boiler Blowdown

All low volume wastes (demineralizer regeneration, cooling tower basin cleaning wastes, floor drainage, sample drains and similar wastes), metal cleaning wastes (including preheater and fireside wash) and boiler blowdown shall be treated as required for pH adjustment and removal of chemical constituents. These wastewaters will be treated in an process wastewater treatment system capable of complying with 40 CFR, ~~Part~~ § 423.12 and discharged with the cooling tower blowdown via a return pipeline to the Lakeland wetlands treatment system. The remaining sludge shall be disposed of in the on site FGD stabilized sludge landfill.

5. Sluice Pond Overflow

Sluice pond overflow (coal pile runoff from less than 10-year, 24-hour rainfall and bottom and fly ash transport water) shall be treated if required to meet the requirements of 40 CFR § ~~Part~~ 423.12 and discharged with the cooling tower blowdown to the Lakeland wetlands treatment system.

6. Flue Gas Desulfurization Sludge Pond Overflow

The flue gas desulfurization sludge pond overflow shall be treated if required to meet the requirements of 40 CFR § ~~Part~~ 423.12 in a process waste system and discharged with the cooling tower blowdown to the Lakeland wetlands treatment system.

B. In-Plant Water Monitoring Program

A monitoring program shall be undertaken by the City of Lakeland on each effluent stream within the facility to determine compliance by Unit 3 with the applicable effluent guidelines of 40 CFR, Part 423.12 for those wastewaters discharged to the Lakeland wetlands treatment system. This monitoring program may be reviewed annually to determine the necessity for its continuance.

III. Groundwater

A. General

The use of groundwater shall be minimized to the greatest extent practicable.

B. Well Criteria

The well locations shall be approved by the Southwest Florida Water Management District. Design and construction of new wells shall be in accordance with the applicable rules of the Department of Environmental Protection Regulation and Southwest Florida Water Management District.

C. Groundwater Use Limitations

1. Groundwater used for makeup for the cooling tower for Unit No. 3 shall be limited to emergency use only, not to exceed 0.2166 million gallons per day on an average annual basis or 5.271 mgd on a maximum daily basis from 3 new wells.
2. Daily water use from the new wells shall be reported quarterly to the Southwest Florida Water Management District.

IV. Leachate

A. Compliance

Leachate from coal storage piles, settling and treatment ponds, ~~artificial-marsh,~~ ~~rapid-infiltration-beds,~~ secure land fills and flue gas desulfurization sludge ponds (FGD) shall not contaminate waters of the State (including both surface and groundwaters) in excess of the limitations of Chapters 62-302 and 62-520 17-3, FAC.

B. Monitoring

A monitoring well system shall be used to determine whether or not leachate from the treatment ponds, ~~artificial-marsh,~~ secure landfill, ash sluice ponds, and the flue gas desulfurization sludge ponds is reaching the groundwater.

1. Permittee shall collect background samples monthly commencing at least two months prior to construction of the wastewater treatment system sampling the following parameters: specific conductance, chlorides, sulfates, pH, zinc and iron.
2. The permittee shall annually monitor Arsenic, Barium, Cadmium, Lead, Mercury, Nitrates, Gross Alpha, Selenium and Silver beginning with commencement of construction of the wastewater treatment system.
3. The permittee shall monthly monitor specific conductance, chlorides, sulfates, pH, zinc and iron beginning with commencement of operation of the wastewater treatment system.

4. If any the monitoring parameters listed in paragraph 3 above exceed the average background levels by 35 %, the permittee shall commence monthly monitoring on the parameters listed in paragraph 2 above.

5. A quarterly summary of the results of the monitoring shall be provided by the permittee to the Southwest District of the Department of Environmental Protection Regulation and to the Southwest Florida Water Management District.

6. The permittee shall keep a monthly record of the monitoring results and shall notify the Department's Southwest District Manager and the Southwest Florida Water Management District when said measurements reach 90% of the levels permitted in the water quality standards of Rule 62-520.420 17-3.101, F.A.C.

C. Corrective Action

When the leachate monitoring system indicates significant leakage to the groundwater in the shallow aquifer, the appropriate ponds (settling spray or sludge) shall be sealed, relocated or closed, or the operation of the affected pond shall be altered in such a manner as to assure the Department that no significant contamination of the groundwater will occur.

V. Control Measures During Construction

A. Stormwater Runoff

During construction and plant operation, necessary measures shall be used to settle, filter, treat or absorb silt containing or pollutant laden stormwater runoff to limit the suspended solids to 50 mg/1 or less during rainfall periods not exceeding the 10-year, 24-hour rainfall, and to prevent an increase in turbidity to more than 50 Jackson Turbidity Units above background in waters of the State.

Control measures shall consist at the minimum, of filters, sediment traps, barriers, berms or vegetative planting. Exposed or disturbed soil shall be protected as soon as possible to minimize silt and sediment laden runoff. The pH shall be kept within the range of 6.0 to 8.5.

B. Sanitary Wastes

Disposal of sanitary wastes from construction toilet facilities shall be in accordance with applicable regulations of the Department and appropriate local health agency.

C. Environmental Control Program

An environmental control program shall be established under the supervision of a qualified person to assure that all construction activities conform to good environmental practices and the applicable conditions of certification.

The permittee shall notify the Department if unexpected harmful effects or evidence of irreversible environmental damage are detected during construction, shall immediately cease work and shall provide an analysis of the problem and a plan to eliminate or significantly reduce the harmful effects or damage, and to prevent reoccurrence.

VI. Solid Wastes

Solid Wastes resulting from construction or operation shall be disposed of in accordance with the applicable regulations of Chapter ~~17-7~~ 62-701, FAC.

Open burning in connection with land clearing shall be in accordance with Chapter ~~71-5~~ 62-256, FAC, no additional permits shall be required, but the Division of Forestry shall be notified. Open burning shall not occur if the Division of forestry has issued a ban on burning due to fire hazard conditions.

VII. Operation Safeguards

The overall design and layout of the facilities shall be such as to minimize hazards to humans and the environment. Security control measures shall be utilized to prevent exposure of the public to hazardous conditions.

VIII. Solid Waste Utilization System

The solid waste utilization facility shall be designed and operated in compliance with all applicable regulations of the Department, including but not limited to Chapter ~~71-7~~ 62-701, FAC.

IX. Screening

The permittee shall provide screening of the site through the use of aesthetically acceptable structures, vegetated earthen walls and/or existing or planted vegetation.

X. Potable Water Supply System

The potable water supply system shall be designed and operated in conformance with Chapter ~~17-22~~ 62-550, 62-551, 62-555, and 62-560, FAC. ~~Information as required in 17-22.05 shall be submitted to the Department prior to construction and operation. The operator of the potable water supply system shall be certified in accordance with Chapter 17-16, FAC.~~

XI. Transformer and Electric Switching Gear

The foundations for transformers, capacitors, and switching gear necessary for McIntosh Unit 3 to the existing distribution system shall be constructed of an impervious material and shall be constructed in such a manner to allow complete collection and recovery of any spills or leakage of oily, toxic, or hazardous substances.

XII. Toxic, Deleterious, or Hazardous Materials

The spill of any toxic, deleterious, or hazardous materials shall be reported in the manner specified by General Condition 2.

XIII. Transmission Line

Directly associated transmission lines shall be constructed and maintained in a manner to minimize environmental impacts in accordance with Chapter 403, F.S., and Chapter 2227F-6, FAC.

A. Construction

1. Filling and construction in waters of the State shall be minimized to the extent practicable. No such activities shall take place without obtaining lease or title from the Board of Trustees of the Internal Improvement Trust Fund Department of Natural Resources.
2. Placement of fill in wetland areas shall be minimized by spanning such areas with the maximum transmission lines span practicable. Such areas should be bridged by maintenance or access roads.
3. Construction and access roads should avoid wetlands and be located in surrounding uplands. Any fill required in wetlands for construction but not required for maintenance purposes shall be removed and the ground restored to its original contours after transmission line placement.
4. Keyhole fills from upland areas are preferable to a single road and should be oriented as nearly parallel to surface water flow lines as possible.
5. Sufficient culverts shall be placed through fill causeways to maintain sheet flow. The number and locations of such culverts will be determined in the field by consultation with DERP field inspectors.
6. Maintenance roads shall be planted with native species to prevent erosion and subsequent water quality degradation.
7. Construction activities should proceed as much as possible during the dry season.
8. Turbidity control measures, where needed, shall be employed to prevent violation of water quality standards.

9. Good environmental practices as described in Environmental Criteria for Electric Transmission Systems or published by the U.S. Department of Interior and the U.S. Department of Agriculture should be followed.
10. Any archaeological sites discovered during construction of the transmission line shall be disturbed as little as possible and such discovery shall be communicated to the Department of State, Division of Archive History and Records Management.

B. Maintenance

1. Vegetative removal for maintenance should be carried out in the following manner:

Vegetation within the right-of-way may be cut or removed no lower than the soil surface under the conductor, and for a distance up to 20 feet to either side of the outermost conductor, while maintaining the remainder of the project right-of-way by selectively clearing vegetation which has an expected mature height above 14 feet. Brazilian pepper, Australian pine and Melaleuca shall be eradicated throughout the wetland portion of the right-of-way.

2. Herbicides registered with the U.S. Environmental Protection Agency may be used for vegetation control within the transmission line easement without prior approval of the Department.

XIV. Construction in Waters of the State

No construction in waters of the State shall commence without obtaining lease or title from the Board of Trustees of the Internal Improvement Trust Fund ~~Department of Natural Resources~~.

XV. Cooling Water Treatment

A study to determine the presence of pathogenic organisms in the sewage treatment plant effluent shall be performed to determine the degree of treatment required prior to use in cooling towers. A plan or study will be developed by the Department and the Department of Health & Rehabilitative Services. Based on the number of pathogenic organisms detected, the final degree of treatment and amount of chlorination to be required will be determined by the Department.

XVI. Sanitary Waste Disposal

Sanitary waste from operating plant facilities shall be disposed of in a septic tank system, as approved by the Health Department of Health & Rehabilitative Services, as long as the average daily flow does not exceed 2,000 gallons per day. If the sanitary waste exceeds 2000 gpd, a properly designed treatment system shall be constructed upon receipt of approval by the Department.

CITY OF LAKELAND
McINTOSH UNIT No. 3

Revised Site Certification Application

3.2 FUELS

3.2.1 FUEL TYPES

Unit #3 will have the capability of burning the types of fuels and fuel combinations described herein in the 250-MW application.

The primary fuel will be pulverized coal, and additionally the Unit has been designed to burn processed municipal solid waste, known as Refuse Derived Fuel or RDF, to supplement the pulverized coal. ~~The unit has been designed so that refuse can supply up to 10% of the necessary heat input for loads over the 50% of the design maximum capability (approximately 182 MW). However for the purposes of calculating the emission rates, flue gas volumes and flow rates, and for annual fuel consumption for this report, it was assumed that the unit would burn refuse at a constant rate of 26.25 tons per hour for 8 hours per day.~~

The furnace design is such that RDF can supply up to 10% of the expected full load heat input to the Unit.

As an alternative fuel source, petroleum coke will be added as a supplement to the pulverized coal. The blend rate can range from 0% to 20% by weight, depending on the quality of the coal. A 0% to 10% blended product will be used with medium sulfur coal (2.5% sulfur) and a 0% to 20% blended product with low sulfur coal (1%

sulfur).

As a backup to pulverized coal, Unit #3 will-also-have has the capability to burn low sulfur oil (.77% sulfur) as a principal primary fuel. ~~The-unit-will-also-have-the-capability-to-burn processed-refuse-with-the-oil:~~ In which case, RDF can also be burned with the low sulfur oil at a rate of up to 10% of expected full load heat input to the Unit. ~~Oil-and-the-oil/refuse-will-be used-during-those-periods-when-the-use-of-coal-is-impossible-due-to precipitator-or-scrubber-malfunction-or-disruption-of-the-coal supply:---Possible-disruptions-could-result-from-coal-handling equipment-failures,-coal-mine-strikes,-railroad-strikes,-etc:~~

Ignition or fuel stabilization of this Unit will be provided primarily by natural gas and/or low sulfur oil. Neither fuel can provide full load capability and only nominal loads can be achieved. They are primarily used for start-up and low load operation.

In summary, Unit #3 will have the capability of firing modes including (primary plus alternate fuels):

1. Pulverized coal only
2. Pulverized coal and processed-refuse RDF
3. Pulverized coal and petroleum coke
4. Pulverized coal, RDF, and petroleum coke
35. Low sulfur oil only
46. Low sulfur oil and processed-refuse RDF

It is entirely possible that ~~any or all~~ for Unit #3 to operate under any of the above firing modes could be utilized on a given day, however, ~~during normal operation, firing modes 1 and 2 will be considered the primary~~ but the primary operating modes will be 1 thru 4. Natural gas may be burned during startup or at any other time.

3.2.2 FUEL QUANTITIES

Unit #3 will ~~have an~~ has a maximum annual heat input requirement of 2.162×10^{13} BTU's based on ~~a 75% load factor and annual 100%~~ availability of 95% or 345 days: (365 days) at a 90% capacity factor. The predicted annual average heat input requirement is

2.72629 x 10¹³ BTU's based on a 95% availability (347 days) at a 90% capacity factor.

It is anticipated that the coal-only-and-coal/refuse Unit will be operated in one of the four primary firing modes at all times (coal only, coal and RDF, coal and petroleum coke, or coal, RDF, and petroleum coke). will-be-available-for-311-days-annually-with-the oil-and-oil-refuse-modes-accounting-for-the-remaining-availability. Based on above-data, -typical these modes, the approximate average annual fuel uses-are: usage will be:

| <u>FUEL</u> | <u>QUANTITY</u> |
|---------------------------|--|
| Coal | 818,000 <u>864,550 tons (Typical Coal)</u> |
| Refuse <u>RDF</u> | -72,450 <u>75,000 tons</u> |
| Oil <u>Petroleum Coke</u> | 337,600-Bbls- <u>190,000 tons</u> |

The-expected-hourly-fuel-flow-requirements-at-both-maximum-load (364MW)-and-at-average-load-(272MW)-for-each-of tThe maximum and average heat inputs and fuel flows for the primary firing modes as described in Section 3.2.1 are shown in Table 3.2.1.

3.2.3 TRANSPORTATION

COAL

Coal normally will be delivered to the plant site in two continuously operating unit trains in 70-one-hundred-ton ninety (90) cars of one hundred ton (nominal) bottom dump hopper cars per unit train. At this time a particular coal supplier has not been determined, but an investigation is currently in progress to determine the most economical sources of coal the transportation costs involved with each source. Presently, four potential areas have been identified. They are:

1. District-13-----Alabama
2. District-9-----West-Kentucky
3. District-8-----East-Kentucky and parts of West-Virginia;
-----Tennessee and Virginia
4. District-3-----North-West-Virginia

Coals from Alabama, East-Kentucky and West-Kentucky can be transported to Lakeland by single-line rail-haul (L&N/SCL-RR) and can be expected to have the lowest unit-train-freight rates. Northern West-Virginia (the "Fairmont" coal-field) represents a source of high-quality, medium-to-high-sulfur coal, suitable for use in the proposed Lakeland unit; and, despite a two-line rail haul to Lakeland (Chessie-System/SCL-RR), is considered potentially competitive with coals from other areas. Although West-Virginia District-8 coals originating on the N&W-RWY and the C&O would likewise involve two-line rail hauls, they cannot at this stage of the Coal-Supply-Study be ruled out as non-competitive.

Unit-trains-from-any-of-the-above-mentioned-sources-will-reach-the
plant-site-on-a-railroad-spur-line-which-will-be-constructed-

from the coal unloading area to an existing Seaboard Coast Line tract located 1.5 miles due east of the plant site. The spur will cross Combee Road in a northwesterly direction to pass north of Fish Lake. The coal storage area, as shown on map 2.1.2, has been moved from the location shown in the 250-MW application to a site located northeast of the boiler. The spur line, as shown on map 2.1.1 will loop around Fish Lake with the coal unloading area being located due west of the lake.

The coal pile as shown on map 2.1.2, will be entirely located within the existing plant property and will not require the purchase of additional adjacent land.

Oil will be delivered into the plant site by fuel oil trucks from Port Tampa as is presently done for existing units.

Refuse collected in the Lakeland area will be delivered to the refuse processing area located on the plant site by collection and/or transfer trucks.

The coal supply will be primarily from the area east of the Mississippi River. The majority of the coal will come from Eastern Kentucky, but may also be obtained from other sources of suitable quality.

The coal will normally be delivered to the Plant via single line

rail haul, using CSX Transportation (CSXT). The unit train will reach the Plant site on a railroad spur line connecting the coal trestle with the CSXT track located one and one half miles east of the Plant. The coal will be unloaded using an elevated trestle approximately 1000 feet long. The bottom dump hopper cars will unload when they are given a signal through a third rail system as determined by an Operator.

PETROLEUM COKE

Petroleum coke will be obtained from a suitable source based on lowest evaluated delivered cost. Options to be evaluated include: purchasing a material blended with coal off site and delivered as a blended fuel ready for burning or purchasing a supply of petroleum coke to be delivered to the site and blended with the normal supply of coal.

The petroleum coke will be delivered to the Plant by truck from a nearby port or by rail, directly from a supply source. A blended fuel would be delivered either by rail or truck from a blending facility.

The blend will be carefully monitored and controlled to assure compliance with all regulated parameters at the stack exit with continuous emissions monitoring systems (i.e., sulfur dioxide, nitrogen oxide, and opacity). A blend of 90/10 (by weight) medium sulfur (2.5%) coal with petroleum coke and a blend of 80/20 (by

weight) low sulfur (1.0%) coal with petroleum coke has been tested and all environmental and operational parameters checked. The entire range of blends provide good operation and no adverse environmental impacts.

The fuel blend supplied to Unit #3 and the flexibility built into the flue gas desulfurization system (Scrubber) will be fully controlled, to ensure complete environmental compliance at all times.

REFUSE

Refuse collected from Lakeland and the surrounding area will be delivered to the refuse processing facility by the collection trucks.

OIL

Oil will be delivered to the Plant site by fuel oil trucks from the Port of Tampa.

NATURAL GAS

Natural gas is supplied to the site by a high pressure main tied in with Florida Gas Transmission several miles north of the Plant.

3.2.4 STORAGE

COAL

Coal will be stored on site in open piles for immediate use and an approximate 60-day emergency reserve supply (active pile) and an emergency reserve storage of approximately sixty days will be maintained in a sealed piles. The emergency reserve pile will require approximately 20 acres of land when the coal is compacted and layered to a height of 20 feet. The reserve pile will store approximately 185,000 tons of coal and the active pile will store approximately 10,000 tons.

Coal will be stored on a sealed surface and will be provided with a complete run-off control system to collect rain water or dust control water. Fugitive emissions from coal piles will be minimized by a dust water separation system.

Coal will be delivered to Unit #3 silos by a series of conveyors thru several transfer points. These transfer points and the silos will be equipped for dust control.

OIL

Oil will be stored in the two (2) existing 96,000-barrel low-sulfur oil tanks. -- Unlike the original 250-MW application, no additional fuel oil storage tanks will be constructed for the 364 MW unit. on-site tanks within containment areas. Diesel oil tanks, piping, and receiving areas all conform to regulations and rules of the Department governing petroleum products.

PETROLEUM COKE

Petroleum coke will be stored in the coal storage area either as a unblended or blended product.

REFUSE

Refuse will be received and not be stored in the same manner as described in the original 250-MW application on site. All material received will be processed and burned as quickly as possible.

3.2.5 FUEL ANALYSIS

Typical fuel analysis for coal, oil, and petroleum coke, refuse, and oil - that will be burned in Unit #3 are located in Tables 3.2.2, 3.2.3, 3.2.4, and 3.2.5 respectively.

3.2.6 PLANS FOR EMERGENCY SPILLS

As described the entire in Section 3.2.4, no new oil tanks will be required, so existing fuel oil unloading areas will be utilized. Since these areas already comply with the U.S. Environmental

Protection Agency's rule on the prevention of oil spills, no additional spill protection will be required.

3.2.7 COAL PILE RUN-OFF

~~As described in the original 250-MW application, the entire coal handling facility will be encircled by a trench system which will collect and direct coal pile run-off (up to and including the amount of run-off expected from the ten-year, 24 hour storm event.)~~ receiving and storage area is constructed on an impermeable base and is surrounded by a series of asphalt lined ditches to collect all rainfall run-off and dust control water. The collected water will be directed to a series of sumps and will be pumped to the north landfill sedimentation pond or to the ash settling ponds. The collected water will be recycled for reuse in Plant systems in an effort to minimize the consumptive use of water. The design of the storm water run-off system for the coal yard has been designed for a ten year, twenty-four hour storm event. Run-off quantities and diagrams are shown in more detail More detailed information is given in Section 3.3.

TYPICAL PETROLEUM COKE ANALYSIS

UNIT #3

Petroleum Coke Quality: As Rec'd Basis

| | | |
|---|----------------|-----------------------|
| <u>Moisture</u> | <u>8.00%</u> | <u>12.00% Max</u> |
| <u>Ash</u> | <u>0.25%</u> | <u>1.00% Max</u> |
| <u>Volatile</u> | <u>10.00%</u> | <u>14.00% Max</u> |
| <u>Sulfur</u> | <u>4.75%</u> | <u>5.50% Max</u> |
| <u>Btu/lb</u> | <u>14,200</u> | <u>14,200 Penalty</u> |
| <u>Hardgrove Grindability Index</u> | <u>65</u> | <u>50 Min</u> |
| | <u>Typical</u> | <u>Maximum</u> |
| <u>Vanadium</u> | <u>950 ppm</u> | <u>1500 ppm</u> |
| <u>Iron</u> | <u>100 ppm</u> | <u>500 ppm</u> |
| <u>Silicon</u> | <u>50 ppm</u> | <u>250 ppm</u> |
| <u>Calcium</u> | <u>100 ppm</u> | <u>250 ppm</u> |
| <u>Nickel</u> | <u>250 ppm</u> | <u>500 ppm</u> |
| <u>Sizing</u> | <u>+3"</u> | <u>5%</u> |
| | <u>2x3"</u> | <u>5%</u> |
| | <u>1x2"</u> | <u>25%</u> |
| | <u>½x1"</u> | <u>20%</u> |
| | <u>-½"</u> | <u>45%</u> |

Table 3.2.1

FIRING MODES
FUEL FLOW RATES

| <u>MODE/LOAD</u> | <u>HOURLY FLOW RATES</u> |
|--|--|
| | 364 Mw |
| NO. 1 COAL ONLY (TONS/HR) | 140.9 <u>159.6</u> |
| NO. 2 COAL/REFUSERDF: (10% REFUSERDF) COAL (TONS/HR) REFUSERDF (TONS/HR) | 129.4 <u>143.7</u> 26.25 <u>40.4</u> |
| NO. 3 OIL ONLY (BBL/HR) | 531.1 <u>577.8</u> |
| NO. 4 OIL/REFUSERDF: (10% REFUSERDF) OIL (BBL/HR) REFUSERDF (TONS/HR) | 488.1 <u>520.0</u> 26.25 <u>40.4</u> |
| <u>NO. 5 COAL/COKE (80/20)</u> | <u>122.1 COAL</u> <u>30.5 COKE</u> |
| <u>NO. 6 COAL/COKE/RDF (80/20 - 90%)</u> <u>(RDF - 10%)</u> | <u>100.9 COAL</u> <u>40.4 RDF</u> <u>27.5 COKE</u> |

Table 3.2.4

MCINTOSH PLANT SITE - PETROLEUM STORAGE

| <u>EMISSION POINT</u> | <u>TYPE</u> | <u>TITLE V LOCATOR</u> | <u>LOCATION</u> | <u>SIZE (GALLON)</u> | <u>EMISSION</u> |
|---------------------------------------|-------------|----------------------------|------------------------------|--------------------------|-----------------|
| <u>DIESEL TANK</u> | <u>VENT</u> | <u>T009</u> | <u>E OF WATER TANK</u> | <u>2,000</u> | <u>VOC</u> |
| <u>GASOLINE TANK</u> | <u>VENT</u> | <u>T020</u> | <u>S OF WELD BARN</u> | <u>1,000</u> | <u>VOC</u> |
| <u>DIESEL STORAGE TANK</u> | <u>VENT</u> | <u>T021</u> | <u>TANK FARM</u> | <u>101,346</u> | <u>VOC</u> |
| <u>DIESEL TANK</u> | <u>VENT</u> | <u>T022</u> | <u>S OF WELD BARN</u> | <u>1,000</u> | <u>VOC</u> |
| <u>DIESEL FUEL TANK (REFUSE AREA)</u> | <u>VENT</u> | <u>T068</u> | <u>SE OF LARGE THICKENER</u> | <u>1,000</u> | <u>VOC</u> |
| <u>DIESEL FUEL (10,000 GAL) TANK</u> | <u>VENT</u> | <u>T109</u> | <u>N OF PEO BLDG</u> | <u>9,000</u> | <u>VOC</u> |
| <u>HEAVY OIL TANK</u> | <u>VENT</u> | <u>T113</u> | <u>TANK FARM</u> | <u>4,057,200</u> | <u>VOC</u> |
| <u>HEAVY OIL TANK</u> | <u>VENT</u> | <u>T114</u> | <u>TANK FARM</u> | <u>4,057,200</u> | <u>VOC</u> |
| <u>HEAVY OIL TANK</u> | <u>VENT</u> | <u>T115</u> | <u>TANK FARM</u> | <u>4,057,200</u> | <u>VOC</u> |
| <u>DIESEL STORAGE TANK</u> | <u>VENT</u> | <u>T116</u> | <u>TANK FARM</u> | <u>22,500</u> | <u>VOC</u> |

Table 5.6.2

3.4 HEAT DISSIPATION SYSTEM

The unit will use a thirteen-cell utilize-a wet mechanical draft cooling tower supplemented by a two cell mechanical draft auxiliary tower, for dissipation of waste heat from condenser and accessory equipment cooling water. ~~The-proposed-tower-location-is-shown-on~~ Map-2-1-2.

The tower will have a total circulating water flow of 144300 GPM with a design inlet water temperature of 114.7°F, ~~and-a-design~~ outlet-water-temperature-of-91°F. The tower will be designed to dissipate 1636 MMBTUH with a 79°F inlet wet bulb air temperature.

Condenser cooling water will comprise 138300 GPM of the circulating water flow and 6000 GPM will be utilized to cool a secondary fluid for accessory equipment cooling..

Process wastewater and bBlowdown from the tower will be utilized as makeup for the SO₂ removal system (scrubber) on the boiler. Any excess blowdown will be transported to the new City of Lakeland's Public Works Sewage Plant Wetlands Treatment System located seven and one-half miles south of McIntosh Power Plant. The present on-site Marsh Treatment System will be ~~kept-functional-as-a-backup-~~ phased out, because the new wetlands system has proven to be very effective. A new pipeline will-be has been constructed to transport the blowdown from the tower to the Sewage Plant to be

combined with its effluent going to the Wetlands Treatment System.

Figure 3.4.1 (P. 3.4-2) shows all flows and temperatures in the circulating water system. Table 3.4.1 (P. 3.4-2) tabulates all quantities for maximum plant conditions.

3.5 CHANGES IN CHEMICAL AND BIOCIDES WASTES

The flow diagram shown in Figure 3.3.1 shows the major wastewater flow paths. The Figure shows that Unit No. 3 will not discharge waste streams to any water body. Waste streams will be reused to the extent practicable and that the remaining process wastewaters will be treated on site and pumped to disposal-facilities the Sewage Plant Wetlands Treatment System (Wetlands system). Excess cooling tower blowdown will be transported also to the Sewage Plant Wetlands Treatment System.

Figure 3.3.1 shows that after the scrubber makeup water is taken from the cooling tower blowdown stream, approximately 500 GPM or 720,000 gallons per day, will be pumped to the Sewage Plant Wetlands Treatment System. ~~The on-site Marsh Treatment System will be used as a backup. The City of Lakeland has instructed its consultant to investigate the possibility of reusing more of the process wastewater and cooling tower blowdown in other plant systems to further reduce the volume of wastewater that must be treated by the on-site facilities.~~ The wastewater treatment scheme shown in Figure 3.3.1 is similar to that which was originally presented in the 250 MW application. One notable change in the system is the addition of bottom ash dewatering bins for separating bottom ash and sluice water in lieu of a 5-acre sluice pond. This change was made to facilitate the handling of bottom ash for the sludge stabilization process. The flow diagram shows a settling

pond will be used as a backup system to the ash dewatering bin system, a storage area for sluice water makeup, and a holding area for the collection of runoff from the coal pile and coal handling area and water used

in the dust suppression system.

The north landfill surge pond will help ~~The settling pond will be sized to collect and contain all the coal pile runoff from the 12-acre coal storage area that is expected from the 10-year, 24-hour storm event. The 10-year, 24-hour storm event in the Lakeland area is 6.60 inches. so the pond will be sized to contain 2.151 million gallons of water, or 6.60 acre-feet, which would be expected from this event.~~ The settling pond is lined with bitumastic to prevent leaking of the water to shallow groundwater. Collected runoff will be pumped from the north landfill surge pond to the final wastewater ponds for reuse on site. ~~will be clay-lined to prevent leaking of the water to shallow groundwater supplies. As described in the original 250 MW application, all storage or holding areas shown in Figure 3.3.1 will be clay-lined.~~

Disposal of the cooling tower blowdown and process wastewaters will be to the back end of the sewage treatment plant of the City of Lakeland. Disposal of the solids from the process wastewater treatment plant will be to the plant stabilized sludge landfill.

All quantities of collected ash from the operation of Unit #3 will be used as an integral ingredient in the sludge stabilization process described in Sections 3.6.3 and 5.6.2.

3.6.3 FLUE GAS DESULFURIZATION SCRUBBER SLUDGE

As-reported-in-Section-3.7, -sSulfur dioxide emissions in the flue gas from the coal, coal and petroleum coke, coal, RFD and petroleum coke, and coal/refuse and RFD firing modes will comply with the State and Federal new source performance standard of 0.80 1.2 lbs/mmBTU by using a limestone slurry flue gas scrubber with an 80% removal efficiency for high sulfur fuel (higher than 3.0% sulfur).

The end product of the SO₂ scrubber system will be a 50% solids sludge consisting of the following materials:

| <u>Constituent</u> | <u>% By Weight</u> |
|--------------------------------------|--------------------|
| CaCO ₃ | 33 |
| CaSO ₃ •2H ₂ O | 58 |
| CaSO ₄ •2H ₂ O | 9 |

The quality of sludge expected to be produced from Unit #3 is shown in Table 3.6.1.

In order to dispose of the annual amounts of sludge shown in Table 3.6.1 and the amounts of fly ash and bottom ash described in Section 3.6.2 in an acceptable manner, all sludge and ash quantities will be brought to an on-site stabilization process. In this process, ash and scrubber sludge will be combined with lime

and other aggregates to form a cementitious material suitable for use as landfill material, road base material, embankments and impermeable liners.

3.7 AIR EMISSIONS

3.7.1 AIR EMISSIONS COMPLIANCE STANDARDS

Unit #3 will be required to meet the State and Federal new source emission limits for Nitrous Oxide (NO_x), Sulfur Dioxide (SO₂), Total Suspended Particulate matter (TSP) and Opacity as listed in chapter 17-3 - (FAC) - and 40 - CFR - 60 Rule 62-296.405, F.A.C. As discussed in Section 3.2, Unit #3 will be capable of burning three four different fuels in four six firing modes, which will require meeting various emission limits depending on the firing mode. The following are the emission limits for each firing mode:

| <u>FIRING MODE</u> | <u>SO₂ LB/MMBTU</u> | <u>NO_x LB/MMBTU</u> | <u>TSP LB/MMBTU</u> | <u>OPACITY %</u> |
|---|------------------------------------|------------------------------------|-------------------------|----------------------|
| Coal Only | 1.2 | 0.7 | 0.1 | 20 |
| Coal/RefuseRDF | 1.2 | 0.7 | 0.1 | 20 |
| <u>Coal/Petroleum Coke</u> | <u>1.2</u> | <u>0.7</u> | <u>0.1</u> | <u>20</u> |
| <u>Coal/Petroleum Coke</u> <u>/RDF</u> | <u>1.2</u> | <u>0.7</u> | <u>0.1</u> | <u>20</u> |
| Oil Only | 0.8 | 0.3 | 0.1 | 20 |
| Oil/RefuseRDF | 0.8 | 0.3 | 0.1 | 20 |

Natural gas and/or low sulfur fuel oil may be burned during startup or at any other time.

3.7.2 NITROUS OXIDES (NO_x) COMPLIANCE METHOD

NO_x will be maintained within new-source-performance-standards (NSPS) the established limits through either boiler, burner or a combination of boiler and burner design. Each of the boiler companies that are currently bidding on this project uses a different method, however each company guarantees that applicable NO_x emission limits will be met.

3.7.3 PARTICULATE (TSP PM) COMPLIANCE METHOD

Particulate emissions resulting from the coal-only, coal/refuse and oil/refuse firing modes will be maintained within the new-source performance-standard limit of 0.1 lb/mmBTU with a cold side

stack. Flue gas from the (1) coal, only-and-coal/refuse (2) coal and RFD, (3) coal and petroleum coke and (4) coal, RFD, and petroleum coke firing modes which require SO₂ scrubbing will be reheated to approximately 200°F and exit the stack at 170°F. Flue gas from the oil only

5.6 OTHER EFFECTS OF PLANT OPERATION

5.6.1 ENERGY RECOVERY FROM SOLID WASTE

As discussed in the 250 MW Unit #3 application, processed municipal refuse will be used as a supplemental fuel supply to the Unit. The processing system will still consist of shredding, magnetic separation of ferrous materials and air classification prior to combustion in the boiler. However, with the 364 MW Unit #3, refuse will be burned with both coal and oil rather than just with coal as in the 250 MW Unit #3.

For calculation purposes, the amount of refuse that will be burned has been limited to what is collected within the city limits of Lakeland and from contiguous outlying areas. This will produce approximately 300 tons per day of raw refuse and 210 tons per day of combustible material to be used as a refuse derived fuel (RDF).

In addition to the use of the RDF, the Unit #3 architect engineers are currently studying the possibility of burning the sewage sludge from the Lakeland Sewage Treatment Plant. Sewage sludge has a heating value of 4000 to 7000 BTU/per pound and its use would eliminate another City of Lakeland disposal problem.

Another important aspect of the refuse burning capability of Unit #3 is that Polk County has been designated by the Florida Department of Environmental Regulation Protection to develop a county wide plan for resource recovery, and while the plan is in

its beginning stages, preliminary discussions with Polk County representatives have indicated that the processing facility

at the McIntosh site and the Unit #3 RDF capability could be an integral part of the Polk County resource recovery plan.

Tests from the pilot RDF project in St. Louis at Union Electric's Merrimac Station have concluded that up to 20% of a boiler heat requirements can be from RDF without noticeable boiler damage. Based on this assumption, Unit #3 could burn over 1000 tons per day of the County's refuse. In order to produce the 1000 tons per day of RDF, over 1450 tons per day, essentially all the raw refuse projected to go to landfills in 1983 would have to be processed.

The present refuse processing Plant tipping floor will be expanded to the north with an addition of a building approximately 100' x 70'.

5.6.2 SCRUBBER SLUDGE DISPOSAL

The 250 MW Unit #3 application indicated that at the time of submittal, four (4) methods of disposing of sulfur sludge were being considered. The methods under consideration were:

1. Stabilized landfill with load bearing capacity.
2. Returning the sludge to the limestone mine where the limestone for the SO₂ scrubber was taken.
3. Using the sludge as a reclamation fill for phosphate strip mines.
4. Permanent ponding of the sludge on site in clay lined ponds.

The "Conditions of Certification" for the 250 MW Unit #3 stipulated that "Flue as desulfurization sludge shall be stabilized prior to disposal in other than a lined pond or basin". In keeping with this stipulation, the 364 MW Unit #3 will combine all the sludges and ash generated by the uUnit to form a stabilized fill material.

The stabilized sludge (pozzolanic) will be primarily used as a landfill material in the immediate area of the plant site. However, once the plant is in operation and actual samples of stabilized material are available, a study will be undertaken to determine the suitability and marketability of this material for use as a road and parking lot base coarse material, earthen embankments, impermeable liners for holding ponds and synthetic aggregate for concrete block and asphalt formulations.

The stabilized sludge operation will be located at the McIntosh Plant site. The operations will consist of blending the scrubber sludge, as well as other sludges generated in the operation of Unit #3 with fly ash, bottom ash and lime to form the stabilized pozzolanic material, prior to its use or disposal in the dedicated Plant site landfill. The stabilized pozzolanic sludge process provided by Conversion Systems, Inc. is located in a building next to the scrubber sludge thickener. This building, as well as the silos (fly ash, lime, etc.), is equipped with the proper dust control systems, as listed in Table 5.6.2.

MCINTOSH PLANT SITE - DUST COLLECTORS

| <u>EMISSION POINT</u> | <u>TYPE</u> | <u>LOCATION</u> | <u>EMISSION</u> |
|--|----------------|---------------------------|-----------------|
| <u>LIMESTONE SILO DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>N OF SCRUBBER #32</u> | <u>DUST</u> |
| <u>QUICKLIME SILO DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>N OF CSI BLDG</u> | <u>DUST</u> |
| <u>SODA ASH SILO DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>WWTP/ABOVE BLDG RO</u> | <u>DUST</u> |
| <u>QUICKLIME SILO DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>WWTP/ABOVE BLDG RO</u> | <u>DUST</u> |
| <u>FLY ASH SILO DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>E OF CSI BLDG</u> | <u>DUST</u> |
| <u>SHREDDER EXPLOSION VENT</u> | <u>VENT</u> | <u>REFUSE</u> | <u>DUST</u> |
| <u>KLEISLER FILTER</u> | <u>VENT</u> | <u>REFUSE</u> | <u>DUST</u> |
| <u>SILO 31 DUST COLL. EXHAUST/C4</u> | <u>EXHAUST</u> | <u>TRIPPER HOUSE</u> | <u>DUST</u> |
| <u>SILO 32 DUST COLL. EXHAUST</u> | <u>EXHAUST</u> | <u>TRIPPER HOUSE</u> | <u>DUST</u> |
| <u>SILO 33 DUST COLL. EXHAUST/C5</u> | <u>EXHAUST</u> | <u>TRIPPER HOUSE</u> | <u>DUST</u> |
| <u>SILO 34 DUST COLL. EXHAUST</u> | <u>EXHAUST</u> | <u>TRIPPER HOUSE</u> | <u>DUST</u> |
| <u>CRUSHER HOUSE DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>COAL CRUSHER HOUSE</u> | <u>DUST</u> |
| <u>C2 COAL CONVEYOR DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>C2 CONV. (BEGIN)</u> | <u>DUST</u> |
| <u>C3 REFUSE CONVEYOR DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>REFUSE</u> | <u>DUST</u> |
| <u>C5 REFUSE CONVEYOR DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>REFUSE</u> | <u>DUST</u> |
| <u>PUGMILL #31 DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>CSI</u> | <u>DUST</u> |
| <u>PUGMILL #32 DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>CSI</u> | <u>DUST</u> |

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

- The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

| | | | |
|---|---------------------------------------|----------------------------|----------------------------------|
| 3. Increment Consuming/Expanding Code: | | | |
| PM | <input checked="" type="checkbox"/> C | <input type="checkbox"/> E | <input type="checkbox"/> Unknown |
| SO2 | <input checked="" type="checkbox"/> C | <input type="checkbox"/> E | <input type="checkbox"/> Unknown |
| NO2 | <input type="checkbox"/> C | <input type="checkbox"/> E | <input type="checkbox"/> Unknown |
| 4. Baseline Emissions: | | | |
| PM | lbs/hr | | tons/yr |
| SO2 | lbs/hr | | tons/yr |
| NO2 | | 11,160 | tons/yr |
| 5. PSD Comment: Potential emissions assumed for NO _x baseline. Attachment 2 presents modeling analysis for CO and H ₂ SO ₄ emissions from co-firing coal and petroleum coke. | | | |

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the emissions unit addressed in this Emissions Unit Information Section. Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

Supplemental Requirements for All Applications

| | | |
|---|---|--|
| 1. Process Flow Diagram | <input checked="" type="checkbox"/> Attached, Document ID: <u> PFD-1 </u> | <input type="checkbox"/> Waiver Requested |
| | <input type="checkbox"/> Not Applicable | |
| 2. Fuel Analysis | <input checked="" type="checkbox"/> Attached, Document ID: <u> FA-1 </u> | <input type="checkbox"/> Waiver Requested |
| | <input type="checkbox"/> Not Applicable | |
| 3. Detailed Description of Control Equipment | <input type="checkbox"/> Attached, Document ID: _____ | <input type="checkbox"/> Waiver Requested |
| | <input checked="" type="checkbox"/> Not Applicable | |
| 4. Description of Stack Sampling Facilities | <input type="checkbox"/> Attached, Document ID: _____ | <input type="checkbox"/> Waiver Requested |
| | <input checked="" type="checkbox"/> Not Applicable | |
| 5. Compliance Test Report | <input type="checkbox"/> Attached, Document ID: _____ | <input checked="" type="checkbox"/> Not Applicable |
| | <input type="checkbox"/> Previously Submitted, Date: _____ | |
| 6. Procedures for Startup and Shutdown | <input type="checkbox"/> Attached, Document ID: _____ | <input checked="" type="checkbox"/> Not Applicable |
| 7. Operation and Maintenance Plan | <input type="checkbox"/> Attached, Document ID: _____ | <input checked="" type="checkbox"/> Not Applicable |
| 8. Supplemental Information for Construction Permit Application | <input checked="" type="checkbox"/> Attached, Document ID: <u> SI-1 </u> | <input type="checkbox"/> Not Applicable |
| 9. Other Information Required by Rule or Statute | <input type="checkbox"/> Attached, Document ID: _____ | <input checked="" type="checkbox"/> Not Applicable |

Additional Supplemental Requirements for Category I Applications Only

| |
|---|
| 10. Alternative Methods of Operation |
| <input checked="" type="checkbox"/> Attached, Document ID: <u> AMO-1 </u> <input type="checkbox"/> Not Applicable |
| 11. Alternative Modes of Operation (Emissions Trading) |
| <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable |
| 12. Enhanced Monitoring Plan |
| <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable |
| 13. Identification of Additional Applicable Requirements |
| <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable |
| 14. Acid Rain Permit Application |
| <input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ |
| <input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ |
| <input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ |
| <input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ |
| <input checked="" type="checkbox"/> Not Applicable |

ATTACHMENT 1 - POLLUTION INFORMATION

The City of Lakeland requested in August 1993 authorization from the Florida Department of Environmental Protection (FDEP) to conduct a trial test burn of co-firing petroleum and coal (see August 16, 1993 letter from Ms. Farzie Shelton, Environmental Coordinator for Lakeland Department Electric and Water Utilities to Mr. Buck Oven of FDEP). FDEP authorized the trial burn in January 1994 (see letter from Mr. Oven to Ms. Shelton dated January 31, 1994). The trial test burn was conducted in February 1994 with a report of the results furnished to FDEP (see Emission Test Report by Environmental Science & Engineering, Inc. dated February 1994).

Three operating conditions were evaluated during the trial test burn:

- Condition 1. High-sulfur coal only,
- Condition 2. A 90/10 percent blend of high-sulfur coal and petroleum coke, and
- Condition 3. A 80/20 percent blend of low-sulfur coal and petroleum coke.

Note: High-sulfur in this context refers to coal with a sulfur content of 2.5 percent. Low-sulfur refers to 1 percent sulfur coal.

Measurements were conducted using U.S. Environmental Protection Agency (EPA) and FDEP sampling procedures for particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and sulfuric acid mist.

The potential applicability of the Prevention of Significant Deterioration (PSD) rules [Rules 62-212.400(2)(d)4, Florida Administrative Code (F.A.C.)] as they may apply to modifications are related to whether a source has a significant increase in actual emissions. The results of the trial test can be used to determine if an emissions increase has occurred. In order to determine any differences in emissions rate for the pollutants that were sampled during the trial test burn, confidence intervals using the student "t" test were performed and are presented in Table 1. Calculations are attached. The results of the evaluation indicated that, except for CO, there was either no statistical difference between emissions from the three test conditions or that emissions when co-firing petroleum were lower than when firing high-sulfur coal. Unit 3 is currently authorized to burn coal with 3.3 percent sulfur content. While the emission rate for sulfuric acid mist under Condition 3 was higher than the emission rate for high-sulfur coal only test condition (Condition 1), the differences were not statistically significant. This was confirmed using the

approach outlined in Appendix C of 40 Code of Federal Regulations (CFR) Part 60 for determination of emission rate change (see calculations).

The emission rate of carbon monoxide for Condition 3 was statistically higher than Condition 1. The increase in CO emission was not due to petroleum coke in the coal/petroleum coke mixture. The primary and most important factor causing this increase was due to the hardness measured by the Hardgrove Grindability Index (HGI) of the coal that was being used for the trial test mixture in test condition 3. The petroleum coke used in the test burn had a high HGI. The higher the number, the softer the fuel. The 2.5 percent S coal used in test conditions 1 and 2 (alone and in combination with the coke) had a hardness of 43 HGI. The efficiency of fuel combustion is directly related to the particle size of pulverized coal; the softer (higher HGI) the coal, the greater amount of small particles which will produce overall better combustion and less CO concentrations.

Attached is a graph (Insert A) to show the effect of hardness on the performance of the pulverizers on coal particle size referred to as "fineness." As an example, both mixtures have been plotted based on a feed rate of 70,000 lb/hr. At this feed rate, the lower hardgrove mixture would be expected to give a fineness of ≈ 67 percent passing 200 mesh while the higher hardgrove mixture would be expected to give a fineness of ≈ 85 percent passing 200 mesh. This results in better fuel distribution and combustion and concomitantly lower CO generation. Insert B shows the hardness for the two mixtures used during the tests and an analysis of the petroleum coke used in the mixtures. If the fineness is reduced (i.e., a lower amount of small particles) it reduces the combustion efficiency and degrades the fuel distribution in the combustion zone, thus forming more CO. Therefore, the change in the CO noted during testing is primarily due to the difference between the high sulfur and low sulfur coal hardness and thus grindability.

The higher CO can also be affected by the oxygen (O_2) concentrations observed during the each test condition. The O_2 concentrations during Condition 3 (80/20 coal petroleum coke blend) averaged 6.9 percent. In contrast, the O_2 concentrations during Condition 1 (high-sulfur coal only) averaged 7.7 percent. CO and O_2 concentrations are inversely proportional, suggesting that the higher CO concentrations were a result of combustion conditions and not the fuel. This observation is confirmed by the results for Condition 2 in which O_2 concentrations were the

highest (7.8 percent) and CO emission rate was the lowest [0.05 pound per million British thermal units (lb/MMBtu)].

This application has been completed based on:

- Emissions of particulate matter (PM), sulfur dioxide (SO₂), and nitrogen oxides (NO_x) when co-firing coal and petroleum coke were based on allowable emission rates.
- For emissions of CO and sulfuric acid mist, the highest emission rate from the trial test burn was used to estimate emissions.

Table 1. Statistical Evaluation of Trial Test Burn for Co-Firing Petroleum Coke at City of Lakeland
McIntosh Plant - Unit 3

| Pollutant | Test Condition (a) | Average | "t" - distribution | | Conclusions (b) |
|--------------------|--------------------|---------|--------------------|-------------------|-----------------|
| | | | Lower 90% C.I. | Upper 90% C.I. | |
| Particulate | 1. HSC Only | 0.0481 | 0.0381 | 0.0582 | 1=2>3 |
| | 2. HSC w/10% PC | 0.0459 | 0.0329 | 0.0589 | 2=1>3 |
| | 3. LSC w/20% PC | 0.0141 | 0.0096 | 0.0187 | 3<1&2 |
| Sulfur Dioxide | 1. HSC Only | 1.0866 | 1.0639 | 1.1094 | 1=2>3 |
| | 2. HSC w/10% PC | 1.1087 | 1.0618 | 1.0618 | 2=1>3 |
| | 3. LSC w/20% PC | 0.8935 | 0.8585 | 0.9284 | 3<1&2 |
| Nitrogen Oxides | 1. HSC Only | 0.5391 | 0.5353 | 0.5428 | 1=2>3 |
| | 2. HSC w/10% PC | 0.5466 | 0.5329 | 0.5602 | 2=1>3 |
| | 3. LSC w/20% PC | 0.4126 | 0.4052 | 0.4199 | 3<1&2 |
| Carbon Monoxide | 1. HSC Only | 0.0054 | 0.0044 | 0.0064 | 1=2<3 |
| | 2. HSC w/10% PC | 0.0050 | 0.0047 | 0.0053 | 2=1<3 |
| | 3. LSC w/20% PC | 0.0890 | 0.0231 | 0.1549 | 3>1&2 |
| Sulfuric Acid Mist | 1. HSC Only | 0.0240 | 0.0166 | 0.0315 | 1=2=3 |
| | 2. HSC w/10% PC | 0.0213 | 0.0167 | 0.0258 | 2=1=3 |
| | 3. LSC w/20% PC | 0.0255 | 0.0174 | 0.0336 | 3=1=2 |

(a) HSC = High Sulfur Coal; LSC = Low Sulfur Coal; PC = Petroleum Coke

(b) "1, 2, and 3" refer to test conditions; "=" means no significant difference between test conditions;
"< and >" refers to a significant difference between test conditions.

Calculations for Table 1

Calculations:

| PM HSC Only | | PM-HSCw/10%PC | | PM-LSCw/20%PC | |
|--------------|------------|----------------|------------|----------------|------------|
| Run 2 | 0.054 | Run 5 | 0.0399 | Run 8 | 0.0151 |
| Run 3 | 0.0483 | Run 6 | 0.0432 | Run 9 | 0.0162 |
| Run 4 | 0.0421 | Run 7 | 0.0546 | Run 10 | 0.0111 |
| Mean | 0.04813333 | Mean | 0.0459 | Mean | 0.01413333 |
| STD. DEV. | 0.00485958 | STD. DEV. | 0.00629762 | STD. DEV. | 0.0021914 |
| V | 2 | V | 2 | V | 2 |
| ta/2 | 2.92 | ta/2 | 2.92 | ta/2 | 2.92 |
| C.I. | 0.01003383 | C.I. | 0.01300302 | C.I. | 0.00452469 |
| SO2 HSC Only | | SO2-HSCw/10%PC | | SO2-LSCw/20%PC | |
| Run 1 | 1.0744 | Run 4 | 1.1399 | Run 7 | 0.9113 |
| Run 2 | 1.1011 | Run 5 | 1.0865 | Run 8 | 0.8707 |
| Run 3 | 1.0844 | Run 6 | 1.0997 | Run 9 | 0.8984 |
| Mean | 1.08663333 | Mean | 1.1087 | Mean | 0.89346667 |
| STD. DEV. | 0.01101403 | STD. DEV. | 0.02271035 | STD. DEV. | 0.01693799 |
| V | 2 | V | 2 | V | 2 |
| ta/2 | 2.92 | ta/2 | 2.92 | ta/2 | 2.92 |
| C.I. | 0.02274124 | C.I. | 0.04689124 | C.I. | 0.03497275 |
| NOx HSC Only | | NOx-HSCw/10%PC | | NOx-LSCw/20%PC | |
| Run 1 | 0.5385 | Run 4 | 0.5544 | Run 7 | 0.4104 |
| Run 2 | 0.5372 | Run 5 | 0.5382 | Run 8 | 0.4097 |
| Run 3 | 0.5415 | Run 6 | 0.5471 | Run 9 | 0.4176 |
| Mean | 0.53906667 | Mean | 0.54656667 | Mean | 0.41256667 |
| STD. DEV. | 0.00180062 | STD. DEV. | 0.00662437 | STD. DEV. | 0.00357056 |
| V | 2 | V | 2 | V | 2 |
| ta/2 | 2.92 | ta/2 | 2.92 | ta/2 | 2.92 |
| C.I. | 0.00371783 | C.I. | 0.01367767 | C.I. | 0.00737232 |
| CO HSC Only | | CO-HSCw/10%PC | | NOx-LSCw/20%PC | |
| Run 1 | 0.0061 | Run 4 | 0.0051 | Run 7 | 0.0845 |
| Run 2 | 0.005 | Run 5 | 0.0048 | Run 8 | 0.1301 |
| Run 3 | 0.0051 | Run 6 | 0.0051 | Run 9 | 0.0523 |
| Mean | 0.0054 | Mean | 0.005 | Mean | 0.08896667 |
| STD. DEV. | 0.00049666 | STD. DEV. | 0.00014142 | STD. DEV. | 0.03191837 |
| V | 2 | V | 2 | V | 2 |
| ta/2 | 2.92 | ta/2 | 2.92 | ta/2 | 2.92 |
| C.I. | 0.00102547 | C.I. | 0.000292 | C.I. | 0.06590351 |

Calculations for Table 1

| H2SO4 HSC Only | | H2SO4-HSCw/10%PC | | H2SO4-LSCw/20%PC | |
|----------------|------------|------------------|------------|------------------|------------|
| Run 1 | 0.0248 | Run 4 | 0.0204 | Run 7 | 0.0208 |
| Run 2 | 0.028 | Run 5 | 0.0243 | Run 8 | 0.0304 |
| Run 3 | 0.0193 | Run 6 | 0.0191 | Run 9 | 0.0254 |
| Mean | 0.02403333 | Mean | 0.02126667 | Mean | 0.02553333 |
| STD. DEV. | 0.00359289 | STD. DEV. | 0.00220958 | STD. DEV. | 0.00392032 |
| V | 2 | V | 2 | V | 2 |
| ta/2 | 2.92 | ta/2 | 2.92 | ta/2 | 2.92 |
| C.I. | 0.00741843 | C.I. | 0.00456222 | C.I. | 0.00809448 |

40 CFR Part 60, Appendix C Calculation

| H2SO4 HSC Only | | H2SO4-LSCw/20%PC | |
|----------------|------------|------------------|------------|
| Run 1 | 0.0248 | Run 7 | 0.0208 |
| Run 2 | 0.028 | Run 8 | 0.0304 |
| Run 3 | 0.0193 | Run 9 | 0.0254 |
| Mean | 0.02403333 | Mean | 0.02553333 |
| Sa ^ 2 | 0.00001936 | Sa ^ 2 | 0.00002305 |
| Sp ^ 2 | 0.00460525 | | |
| t | 0.39891799 | | |
| t' | 2.132 | | |

no significant difference

40 CFR Part 60, Appendix C Calculation - Test

| Run A | | Run B | |
|--------|------------|--------|-----|
| Run 1 | 100 | Run 7 | 115 |
| Run 2 | 95 | Run 8 | 120 |
| Run 3 | 110 | Run 9 | 125 |
| Mean | 101.666667 | Mean | 120 |
| Sa ^ 2 | 58.3333333 | Sb ^ 2 | 25 |
| Sp ^ 2 | 6.45497224 | | |
| t | 3.47850543 | | |
| t' | 2.132 | | |

significant difference - same as CFR Example

Note: CFR example has round-off which produces slightly different values.

INSERT A

FROM : T

(597) 396

9P1 (FPG)

6R211 (75)

7A3

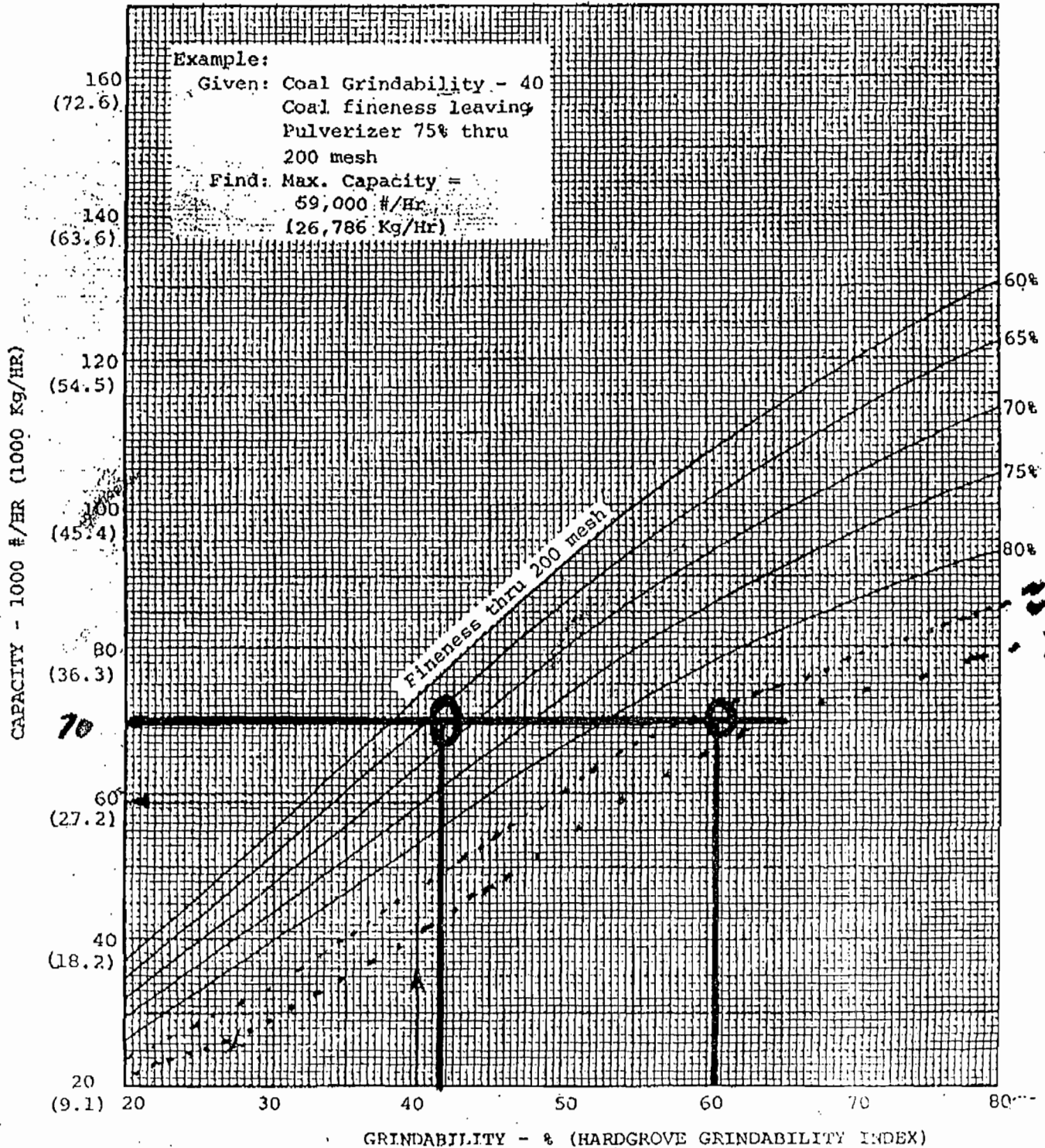
57/10-5-77

THE BABCOCK & WILCOX COMPANY
FOSSIL POWER GENERATION DIVISION

ATTACHMENT A

PULVERIZED FUEL SYSTEMS
TYPE MPS 75 PULVERIZER
OPERATING INSTRUCTIONS

FIG. 8 MPS-75 PULVERIZER EXPECTED PERFORMANCE
(NOT CORRECTED FOR MOISTURE)



INSERT B

COAL ANALYSIS

MCINTOSH POWER PLANT

| | | | |
|---------------|-------------------------|---------------|----------------|
| DATE ANALYZED | <u>2/17/94</u> | DATE SAMPLED | <u>2/15/94</u> |
| SAMPLE POINT | <u>C-3 Auto Sampler</u> | DATE RECEIVED | <u>2/16/94</u> |
| SAMPLE ID # | <u>112-94</u> | SAMPLED BY | <u>Gandy</u> |
| ANALYZED BY | <u>Landry / Parish</u> | RELEASED BY | <u>SEP</u> |

PROXIMATE ANALYSIS

| | AS RECEIVED | DRY BASIS | A-M FREE |
|--------------------|---------------|---------------|---------------|
| % MOISTURE (TOTAL) | <u>7.18</u> | | |
| % ASH | <u>7.34</u> | <u>7.90</u> | |
| % VOLATILE MATTER | <u>32.25</u> | <u>34.74</u> | <u>37.77</u> |
| % FIXED CARBON | <u>53.24</u> | <u>57.36</u> | <u>62.28</u> |
| BTU/LB | <u>12,962</u> | <u>13,965</u> | <u>15,163</u> |
| % SULFUR | <u>1.54</u> | <u>1.66</u> | <u>1.81</u> |

HARDGROVE GRINDABILITY INDEX 43

COAL ANALYSIS
McINTOSH POWER PLANT

| | | | |
|---------------|-------------------------|---------------|----------------|
| DATE ANALYZED | <u>2/14/94</u> | DATE SAMPLED | <u>2/9/94</u> |
| SAMPLE POINT | <u>C-3 Auto Sampler</u> | DATE RECEIVED | <u>2/10/94</u> |
| SAMPLE ID # | <u>107-94</u> | SAMPLED BY | <u>Unknown</u> |
| ANALYZED BY | <u>Steven Parrish</u> | RELEASED BY | <u>SKA</u> |

PROXIMATE ANALYSIS

| | AS RECEIVED | DRY BASIS | A-M FREE |
|--------------------|---------------|-------------------|-------------------|
| % MOISTURE (TOTAL) | <u>10.64</u> | <u> </u> | <u> </u> |
| % ASH | <u>11.37</u> | <u>12.66</u> | <u> </u> |
| % VOLATILE MATTER | <u>23.38</u> | <u>26.17</u> | <u>29.96</u> |
| % FIXED CARBON | <u>54.66</u> | <u>61.17</u> | <u>70.04</u> |
| BTU/LB | <u>11,698</u> | <u>13,091</u> | <u>14,989</u> |
| % SULFUR | <u>2.83</u> | <u>3.17</u> | <u>3.63</u> |

HARDGROVE GRINDABILITY INDEX 61



Commercial Testing & Engineering Co.

ATTACHMENT B
PAGE 3

January 18, 1994

1212 N. 39th Street
Suite 323
Tampa, Florida 33605
Tel: (813) 248-6566
Fax: (813) 247-2582

KOCH CARBON, INC.
P. O. Box 2219
Wichita, KS 67201

CERTIFICATE OF ANALYSIS

KIND OF SAMPLE: PETROLEUM COKE
SAMPLE TAKEN AT: TECO, BIG BEND TERMINAL, TAMPA, FLORIDA
SAMPLE TAKEN BY: CT&E, TAMPA FROM BARGE "WANDA WHEELOCK"
DATED SAMPLED: JANUARY 16, 1994
DATE RECEIVED: JANUARY 17, 1994.

ANALYSIS REPORT NO. 08-1680

| | <u>AS RECEIVED</u> | <u>DRY BASIS</u> |
|------------------------------|--------------------|------------------|
| Moisture | 10.35 % | xxxx |
| Ash | 0.28 % | 0.31 % |
| Volatile Matter | 9.11 % | 10.16 % |
| Fixed Carbon (by difference) | 80.26 % | 89.53 % |
| Sulfur | 4.46 % | 4.97 % |
| Gross Calorific Value | 13751 Btu/lb | 15339 Btu/lb |
| Moisture Ash Free Btu | | 15387 |

Hardgrove Grindability Index = 69

TRACE ELEMENTS P.P.M.

| | |
|-------------|------|
| Silicon, Si | 330 |
| Calcium, Ca | 155 |
| Iron, Fe | 130 |
| Nickle, Ni | 218 |
| Vanadium, V | 1090 |

SIZE ANALYSIS (Square Hole)

| | | |
|------------|------|--------|
| Over 3 | Inch | 3.79% |
| 3 x 2 | Inch | 5.69% |
| 2 x 1 | Inch | 16.63% |
| 1 x 1/2" | Inch | 15.53% |
| Under 1/2" | Inch | 58.36% |

COMMERCIAL TESTING & ENGINEERING CO.

Edward B. Linde
Edward B. Linde
Branch Manager

EBL/vl

ATTACHMENT 2 - MODELING ANALYSIS

Since emissions of carbon monoxide were statistically higher during one of the co-firing test conditions (i.e., Condition 3) than the coal only test (Condition 1), screening modeling was performed to determine if the impacts were above the modeling significant impact levels. The modeling was performed using EPA's Screen2 model. The results of the model run are attached. The maximum impacts compared to the significant impact levels are presented below:

| <u>Averaging Time</u> | <u>Impact ($\mu\text{g}/\text{m}^3$)</u> | <u>Significant Impact Level ($\mu\text{g}/\text{m}^3$)</u> |
|-----------------------|---|---|
| 1-hour | 39.9 | 500 |
| 8-hour | 27.9 | 2,000 |

The results clearly indicate that the impacts are less than the EPA/FDEP significant impact levels and the facility would not cause or contribute to a violation of the ambient air quality standards (CO) for CO.

For sulfuric acid mist, there are no applicable AAQS. Maximum impacts for the 8-hour averaging time were calculated as $8.01 \mu\text{g}/\text{m}^3$ which is less than the FDEP draft air reference concentrations for this averaging time (i.e., $10 \mu\text{g}/\text{m}^3$).

12/29/94

15:03:27

*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

City of Lakeland Co Impacts

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT
EMISSION RATE (G/S) = 40.8200
STACK HEIGHT (M) = 76.2000
STK INSIDE DIAM (M) = 5.4900
STK EXIT VELOCITY (M/S) = 25.1313
STK GAS EXIT TEMP (K) = 348.1500
AMBIENT AIR TEMP (K) = 293.0000
RECEPTOR HEIGHT (M) = 0.0000
URBAN/RURAL OPTION = RURAL
BUILDING HEIGHT (M) = 0.0000
MIN HORIZ BLDG DIM (M) = 0.0000
MAX HORIZ BLDG DIM (M) = 0.0000

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 1260536.0 (ACFM)

BUOY. FLUX = 294.156 M**4/S**3; MOM. FLUX = 4005.111 M**4/S**2.

*** FULL METEOROLOGY ***

*** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

| DIST (M) | CONC (UG/M**3) | STAB | U10M (M/S) | USTK (M/S) | MIX HT (M) | PLUME HT (M) | SIGMA Y (M) | SIGMA Z (M) | DWASH |
|-------------|-------------------|------|---------------|---------------|---------------|-----------------|----------------|----------------|-------|
| 100. | 0.4070E-07 | 5 | 1.0 | 2.0 | 10000.0 | 232.17 | 32.76 | 32.37 | NO |
| 200. | 0.5103E-02 | 5 | 1.0 | 2.0 | 10000.0 | 232.17 | 46.06 | 45.00 | NO |
| 300. | 0.6195E-02 | 5 | 1.0 | 2.0 | 10000.0 | 232.17 | 47.66 | 45.40 | NO |
| 400. | 0.7601E-02 | 5 | 1.0 | 2.0 | 10000.0 | 232.17 | 49.70 | 45.86 | NO |
| 500. | 0.5398 | 1 | 3.0 | 3.5 | 960.0 | 415.13 | 125.88 | 118.40 | NO |
| 600. | 6.792 | 1 | 3.0 | 3.5 | 960.0 | 415.13 | 146.86 | 166.16 | NO |
| 700. | 18.06 | 1 | 3.0 | 3.5 | 960.0 | 415.13 | 167.34 | 224.30 | NO |
| 800. | 25.08 | 1 | 3.0 | 3.5 | 960.0 | 415.13 | 187.39 | 292.97 | NO |
| 900. | 32.83 | 1 | 2.0 | 2.3 | 640.0 | 584.60 | 226.45 | 383.37 | NO |
| 1000. | 38.87 | 1 | 2.0 | 2.3 | 640.0 | 584.60 | 246.88 | 472.62 | NO |
| 1100. | 39.81 | 1 | 2.0 | 2.3 | 640.0 | 584.60 | 266.97 | 572.80 | NO |
| 1200. | 38.71 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 312.35 | 695.11 | NO |
| 1300. | 37.95 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 326.57 | 814.20 | NO |
| 1400. | 36.55 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 340.97 | 945.19 | NO |
| 1500. | 35.08 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 355.53 | 1087.98 | NO |
| 1600. | 33.69 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 370.22 | 1242.49 | NO |
| 1700. | 32.40 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 385.00 | 1408.72 | NO |
| 1800. | 31.19 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 399.86 | 1586.65 | NO |
| 1900. | 30.07 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 414.78 | 1776.31 | NO |
| 2000. | 29.02 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 429.73 | 1977.72 | NO |
| 2100. | 28.05 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 444.72 | 2190.91 | NO |
| 2200. | 27.13 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 459.73 | 2415.93 | NO |
| 2300. | 26.27 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 474.75 | 2652.81 | NO |
| 2400. | 25.47 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 489.77 | 2901.60 | NO |
| 2500. | 24.71 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 504.78 | 3162.34 | NO |
| 2600. | 24.00 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 519.79 | 3435.08 | NO |
| 2700. | 23.32 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 534.79 | 3719.86 | NO |
| 2800. | 22.69 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 549.77 | 4016.73 | NO |

| | | | | | | | | | |
|--------|-------|---|-----|-----|-------|--------|--------|---------|----|
| 2900. | 22.09 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 564.74 | 4325.73 | NO |
| 3000. | 21.52 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 579.68 | 4646.92 | NO |
| 3500. | 19.07 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 654.00 | 5000.00 | NO |
| 4000. | 18.70 | 2 | 2.0 | 2.3 | 640.0 | 584.60 | 546.95 | 520.86 | NO |
| 4500. | 18.47 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 616.06 | 601.24 | NO |
| 5000. | 17.83 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 670.07 | 667.65 | NO |
| 5500. | 16.91 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 723.73 | 735.33 | NO |
| 6000. | 15.93 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 777.02 | 804.10 | NO |
| 6500. | 14.99 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 829.93 | 873.79 | NO |
| 7000. | 14.12 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 882.45 | 944.30 | NO |
| 7500. | 13.34 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 934.59 | 1015.54 | NO |
| 8000. | 12.69 | 3 | 1.5 | 1.8 | 715.0 | 714.00 | 696.60 | 448.29 | NO |
| 8500. | 12.90 | 3 | 1.5 | 1.8 | 715.0 | 714.00 | 732.70 | 469.73 | NO |
| 9000. | 12.99 | 3 | 1.5 | 1.8 | 715.0 | 714.00 | 768.65 | 491.22 | NO |
| 9500. | 12.97 | 3 | 1.5 | 1.8 | 715.0 | 714.00 | 804.47 | 512.77 | NO |
| 10000. | 12.88 | 3 | 1.5 | 1.8 | 715.0 | 714.00 | 840.13 | 534.35 | NO |

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:
1074. 39.91 1 2.0 2.3 640.0 584.60 261.57 544.67 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** SUMMARY OF SCREEN MODEL RESULTS ***

| CALCULATION PROCEDURE | MAX CONC (UG/M**3) | DIST TO MAX (M) | TERRAIN HT (M) |
|--------------------------|-----------------------|--------------------|-------------------|
| SIMPLE TERRAIN | 39.91 | 1074. | 0. |

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

12/29/94
15:04:59

*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

City of Lakeland H2SO4 Mist Impacts

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT
EMISSION RATE (G/S) = 11.7000
STACK HEIGHT (M) = 76.2000
STK INSIDE DIAM (M) = 5.4900
STK EXIT VELOCITY (M/S) = 25.1313
STK GAS EXIT TEMP (K) = 348.1500
AMBIENT AIR TEMP (K) = 293.0000
RECEPTOR HEIGHT (M) = 0.0000
URBAN/RURAL OPTION = RURAL
BUILDING HEIGHT (M) = 0.0000
MIN HORIZ BLDG DIM (M) = 0.0000
MAX HORIZ BLDG DIM (M) = 0.0000

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 1260536.0 (ACFM)

BUOY. FLUX = 294.156 M**4/S**3; MOM. FLUX = 4005.111 M**4/S**2.

*** FULL METEOROLOGY ***

*** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

| DIST (M) | CONC (UG/M**3) | STAB | U10M (M/S) | USTK (M/S) | MIX HT (M) | PLUME HT (M) | SIGMA Y (M) | SIGMA Z (M) | DWASH |
|-------------|-------------------|------|---------------|---------------|---------------|-----------------|----------------|----------------|-------|
| 100. | 0.1167E-07 | 5 | 1.0 | 2.0 | 10000.0 | 232.17 | 32.76 | 32.37 | NO |
| 200. | 0.1463E-02 | 5 | 1.0 | 2.0 | 10000.0 | 232.17 | 46.06 | 45.00 | NO |
| 300. | 0.1776E-02 | 5 | 1.0 | 2.0 | 10000.0 | 232.17 | 47.66 | 45.40 | NO |
| 400. | 0.2179E-02 | 5 | 1.0 | 2.0 | 10000.0 | 232.17 | 49.70 | 45.86 | NO |
| 500. | 0.1547 | 1 | 3.0 | 3.5 | 960.0 | 415.13 | 125.88 | 118.40 | NO |
| 600. | 1.947 | 1 | 3.0 | 3.5 | 960.0 | 415.13 | 146.86 | 166.16 | NO |
| 700. | 5.176 | 1 | 3.0 | 3.5 | 960.0 | 415.13 | 167.34 | 224.30 | NO |
| 800. | 7.188 | 1 | 3.0 | 3.5 | 960.0 | 415.13 | 187.39 | 292.97 | NO |
| 900. | 9.409 | 1 | 2.0 | 2.3 | 640.0 | 584.60 | 226.45 | 383.37 | NO |
| 1000. | 11.14 | 1 | 2.0 | 2.3 | 640.0 | 584.60 | 246.88 | 472.62 | NO |
| 1100. | 11.41 | 1 | 2.0 | 2.3 | 640.0 | 584.60 | 266.97 | 572.80 | NO |
| 1200. | 11.10 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 312.35 | 695.11 | NO |
| 1300. | 10.88 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 326.57 | 814.20 | NO |
| 1400. | 10.48 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 340.97 | 945.19 | NO |
| 1500. | 10.05 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 355.53 | 1087.98 | NO |
| 1600. | 9.657 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 370.22 | 1242.49 | NO |
| 1700. | 9.286 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 385.00 | 1408.72 | NO |
| 1800. | 8.941 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 399.86 | 1586.65 | NO |
| 1900. | 8.619 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 414.78 | 1776.31 | NO |
| 2000. | 8.319 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 429.73 | 1977.72 | NO |
| 2100. | 8.039 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 444.72 | 2190.91 | NO |
| 2200. | 7.776 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 459.73 | 2415.93 | NO |
| 2300. | 7.531 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 474.75 | 2652.81 | NO |
| 2400. | 7.300 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 489.77 | 2901.60 | NO |
| 2500. | 7.082 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 504.78 | 3162.34 | NO |
| 2600. | 6.878 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 519.79 | 3435.08 | NO |
| 2700. | 6.685 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 534.79 | 3719.86 | NO |
| 2800. | 6.503 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 549.77 | 4016.73 | NO |

| | | | | | | | | | |
|--------|-------|---|-----|-----|-------|--------|--------|---------|----|
| 2900. | 6.331 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 564.74 | 4325.73 | NO |
| 3000. | 6.167 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 579.68 | 4646.92 | NO |
| 3500. | 5.466 | 1 | 1.5 | 1.7 | 755.1 | 754.06 | 654.00 | 5000.00 | NO |
| 4000. | 5.360 | 2 | 2.0 | 2.3 | 640.0 | 584.60 | 546.95 | 520.86 | NO |
| 4500. | 5.295 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 616.06 | 601.24 | NO |
| 5000. | 5.110 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 670.07 | 667.65 | NO |
| 5500. | 4.848 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 723.73 | 735.33 | NO |
| 6000. | 4.567 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 777.02 | 804.10 | NO |
| 6500. | 4.296 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 829.93 | 873.79 | NO |
| 7000. | 4.048 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 882.45 | 944.30 | NO |
| 7500. | 3.824 | 2 | 1.5 | 1.7 | 755.1 | 754.06 | 934.59 | 1015.54 | NO |
| 8000. | 3.638 | 3 | 1.5 | 1.8 | 715.0 | 714.00 | 696.60 | 448.29 | NO |
| 8500. | 3.698 | 3 | 1.5 | 1.8 | 715.0 | 714.00 | 732.70 | 469.73 | NO |
| 9000. | 3.722 | 3 | 1.5 | 1.8 | 715.0 | 714.00 | 768.65 | 491.22 | NO |
| 9500. | 3.718 | 3 | 1.5 | 1.8 | 715.0 | 714.00 | 804.47 | 512.77 | NO |
| 10000. | 3.691 | 3 | 1.5 | 1.8 | 715.0 | 714.00 | 840.13 | 534.35 | NO |

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:
 1074. 11.44 1 2.0 2.3 640.0 584.60 261.57 544.67 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

 *** SUMMARY OF SCREEN MODEL RESULTS ***

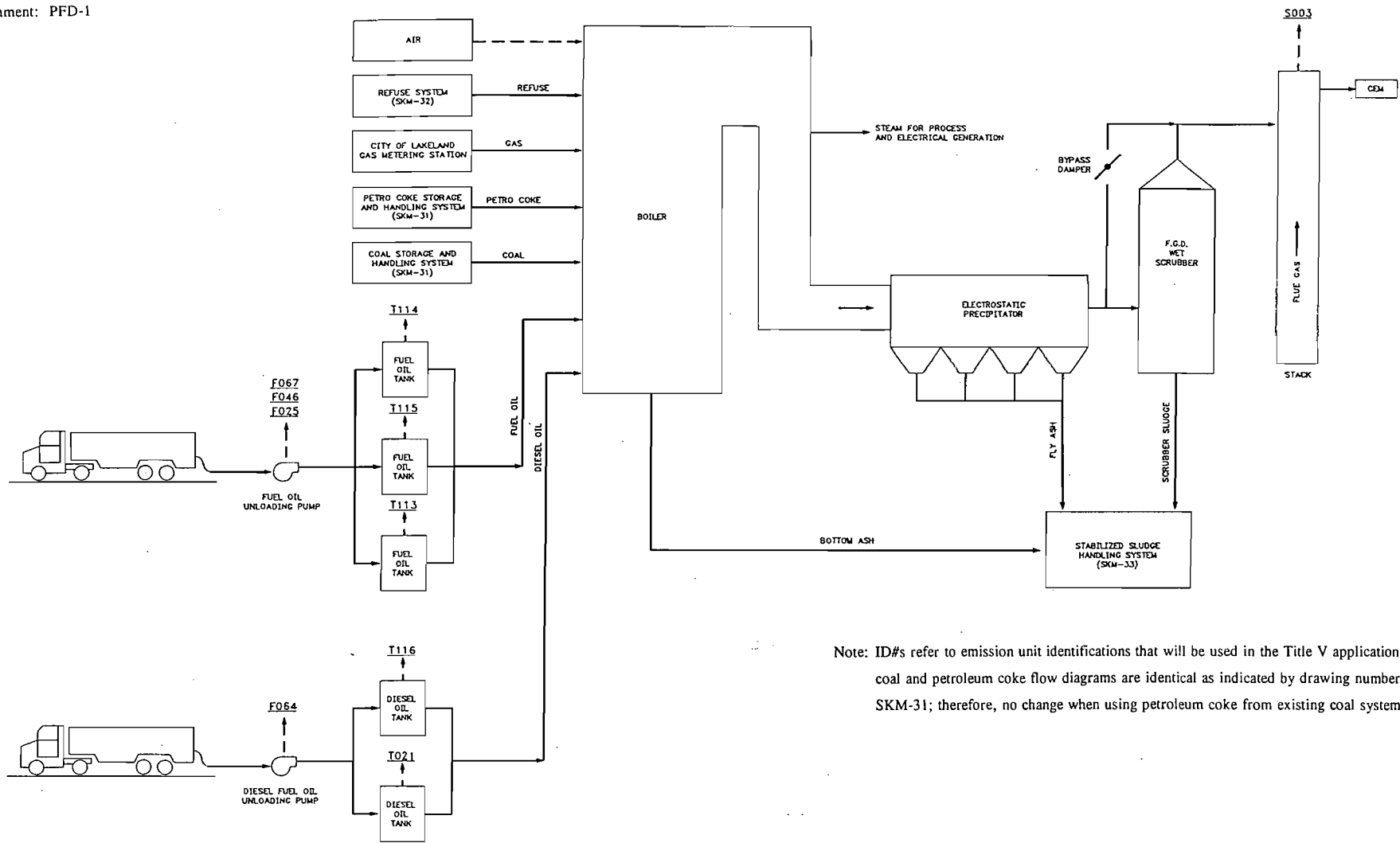
| CALCULATION PROCEDURE | MAX CONC (UG/M**3) | DIST TO MAX (M) | TERRAIN HT (M) |
|--------------------------|-----------------------|--------------------|-------------------|
| SIMPLE TERRAIN | 11.44 | 1074. | 0. |

 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

TYPICAL PETROLEUM COKE ANALYSISUNIT #3Petroleum Coke Quality: As Rec'd Basis

| | | |
|---|----------------|-----------------------|
| <u>Moisture</u> | <u>8.00%</u> | <u>12.00% Max</u> |
| <u>Ash</u> | <u>0.25%</u> | <u>1.00% Max</u> |
| <u>Volatile</u> | <u>10.00%</u> | <u>14.00% Max</u> |
| <u>Sulfur</u> | <u>4.75%</u> | <u>5.50% Max</u> |
| <u>Btu/lb</u> | <u>14,200</u> | <u>14,200 Penalty</u> |
| <u>Hardgrove Grindability Index</u> | <u>65</u> | <u>50 Min</u> |
| | <u>Typical</u> | <u>Maximum</u> |
| <u>Vanadium</u> | <u>950 ppm</u> | <u>1500 ppm</u> |
| <u>Iron</u> | <u>100 ppm</u> | <u>500 ppm</u> |
| <u>Silicon</u> | <u>50 ppm</u> | <u>250 ppm</u> |
| <u>Calcium</u> | <u>100 ppm</u> | <u>250 ppm</u> |
| <u>Nickel</u> | <u>250 ppm</u> | <u>500 ppm</u> |
| <u>Sizing</u> | <u>+3"</u> | <u>5%</u> |
| | <u>2x3"</u> | <u>5%</u> |
| | <u>1x2"</u> | <u>25%</u> |
| | <u>½x1"</u> | <u>20%</u> |
| | <u>-½"</u> | <u>45%</u> |

Attachment: PFD-1



Note: ID#s refer to emission unit identifications that will be used in the Title V application. The coal and petroleum coke flow diagrams are identical as indicated by drawing number, i.e., SKM-31; therefore, no change when using petroleum coke from existing coal system.

| | | | | |
|----------|----|---------|-------|---------------------------------------|
| B | MG | 11-2-94 | | ISSUED FOR TITLE V PERMIT APPLICATION |
| B | MG | 9-21-94 | | FOR APPROVAL |
| A | MG | X | | FOR APPROVAL |
| REV. NO. | BY | DATE | APPR. | REVISION |



LAKELAND
ELECTRIC
& WATER

| | | | | | | | | | | | |
|---|--|-----------|--|------------------------|--|-----------|--|------------|--|----------|--|
| DESCRIPTION | | DIVISION | | PRODUCTION ENGINEERING | | CAD | | SCALE | | NONE | |
| McINTOSH POWER PLANT UNIT NO. 3 SIMPLIFIED FLOW DIAGRAM | | ENGINEER | | PATERSON | | PROJ. NO. | | EWR-94-199 | | REV. | |
| | | DRN. BY: | | MCIEGER | | DATE | | 9-19-94 | | DWG. NO. | |
| | | APPR. BY: | | | | | | | | SKM-27 | |



December 7, 1994

Hamilton S. Oven, Jr., P.E.
Administrator, Power Plant Siting Section
Department of Environmental Protection
3900 Commonwealth Boulevard, MS #48
Tallahassee, FL 32399-3000

RE: City of Lakeland--C.D. McIntosh Power Plant, Unit No. 3
Proposed Agreement to Modify Site Certification--PA-74-06

Dear Mr. Oven:

The City of Lakeland ("Lakeland") hereby requests that its Site Certification for the above-referenced C.D. McIntosh Power Plant, Unit No. 3 be revised. As you may recall, the Certification Order for Unit No. 3 was issued in 1978 and subsequently revised in 1980, 1988, and 1993. Consistent with that Certification and the Conditions of Certification, Lakeland constructed a coal-, municipal refuse-, and oil-fired steam electric generation unit, which began operating in 1982. Based on a successful test burn of petroleum coke earlier this year, Lakeland is proposing revisions to its application to describe this alternative fuel and its characteristics. In addition, as a result of the final design of Unit No. 3, Lakeland has identified several needed clarifications and minor revisions to the Site Certification application. To update citations and to clearly authorize the burning of petroleum coke, Lakeland is also proposing amendments to the Conditions of Certification. A more detailed description of the proposed changes to the application and Conditions of Certification is included in Attachment 1.

In support of its request, Lakeland has prepared a "Proposed Agreement for Modification of Site Certification" (Attachment 2), which includes revised portions of the Site Certification application and suggested minor changes to the Conditions of Certification (which are attached to the Agreement as Exhibits 1 and 2, respectively). The Conditions of Certification, as proposed to be revised, are also included on the enclosed computer disk in WordPerfect 5.1 format. Another version of the revised application pages (showing additions with double underlining and deletions with strike throughs) is included as Attachment 3 to this request.

The Proposed Agreement for Modification of Site Certification is submitted to the Department of Environmental Protection pursuant to Rule 62-17.211, Florida Administrative Code, and Section 403.516(1)(b), Florida Statutes, which authorizes the Department to modify the Site Certification when no objection is raised by a party or substantially affected person. We have enclosed eleven copies of this request for the Department's use, and we are sending copies to all of the other parties to the original certification proceeding. Lakeland will inform the Department as to responses received from any of the parties as a result of this notice, and we would appreciate hearing from you if any of the parties notify the Department.

Hamilton S. Oven, Jr., P.E.
Department of Environmental Protection
December 7, 1994
Page 2

In addition to the Proposed Agreement for Modification of Site Certification, Lakeland is seeking a separate amendment to the Prevention of Significant Deterioration (PSD) permit for Unit No. 3, which was issued by the U.S. Environmental Protection Agency in December of 1978 (PSD-FL-08). A copy of the formal request for PSD permit revision will be sent to you once it has been prepared for submission to the Department's Bureau of Air Regulation.

Thank you for your consideration of the Proposed Agreement for Modification. A check in the amount of \$10,000 is enclosed as the fee for review of the requested modification. After you and other Department staff have had an opportunity to review the proposed revisions, please let me know within the next thirty days if you have any questions, need any additional information, or do not agree with the approach taken in this letter to revise the application through a formal modification.

Sincerely,



am/ Farzie Shelton
Environmental Coordinator
Department of Electric & Water Utilities

cc: Clair Fancy, DEP
Bill Thomas, DEP SW District
Mike Hickey, DEP SW District
Ken Kosky, KBN
Angela Morrison, HBGS

45467

**CITY OF LAKELAND
McIntosh Unit No. 3**

Description of Amendments to Site Certification Application

Section 3.2.1 Fuel Types

Earlier this year, the City of Lakeland conducted a successful test burn of petroleum coke blended with coal. In an effort to use the most cost-effective fuels while not increasing emissions above allowable limits, the City of Lakeland requests that the Department approve its revised application to allow petroleum coke to be burned when blended with coal. Because continuous emissions monitors are installed for sulfur dioxide, nitrogen oxides, and opacity, as required by the PSD permit (Condition No. 6) and NSPS (40 CFR § 60.45), Lakeland can ensure that the emission limits for these pollutants are not exceeded when coke is blended with coal (or coal and refuse) and burned in Unit No. 3. A 0 to 10 percent blended petroleum coke product will be used with medium to high sulfur coal and a 0 to 20 percent blended petroleum coke product will be used with low sulfur coal. Lakeland has clarified in the revised application what fuels and fuel blends may be burned and the conditions under which such fuels and blends may be burned. Specifically, Lakeland is requesting authorization to burn petroleum coke and has clarified that natural gas and/or low sulfur oil will be used for ignition and fuel stabilization of the unit. Because natural gas and low sulfur oil are "clean fuels," such fuels may be burned at any time.

Section 3.2.2 Fuel Quantities

Heat Input Rate--The heat input rate provided in the site certification application was 2.162×10^{13} mmBtu per year for coal, based on manufacturer's data. The heat input rate was not included in the conditions of certification. Recently, Lakeland has carefully reviewed the heat input capacity for McIntosh Unit No. 3 and has identified that the rate in the original site certification application is not reflective of the unit's actual operating capability. The appropriate maximum heat input rate is 2.8697×10^{13} Btu per year. The heat input rate now requested is *not* the result of a physical change in, or change in the method of operation of, McIntosh Unit No. 3. The new heat input rate represents a *corrected* rate that more accurately reflects the maximum heat input capacity of the unit. Further, the correction of the heat input rate to reflect maximum unit capacity will not result in an increase in "actual" (annual) emissions. The Department should therefore allow the correction to the maximum heat input rate in the application, without the need for a revision to the conditions of certification and without triggering a "modification" under the Department's new source review rules (Chapter 62-212, F.A.C.).

Fuel Flow Rates--Similar to the heat input rate issue, the fuel flow rates for McIntosh Unit No. 3 that were provided in the application need to be adjusted to reflect the actual maximum fuel flow rates experienced at Unit No. 3. These slightly higher fuel rates are needed to produce the same megawatt output of 364. As with the adjustment to the heat input rate, the

maximum fuel flow rates (hourly and annual) were not included in the conditions of certification, rather only in the application.

Section 3.2.3 Transportation

Lakeland has clarified several fuel transportation issues in the site certification application. Specifically, Lakeland has updated the application to indicate that the fuel trains include 90 rather than 70 one-hundred-ton bottom dump hopper cars per unit. The train unloading operations are more fully described in the application revisions.

Lakeland has also clarified that its coal supply is primarily from the area east of the Mississippi River, with a majority of the coal coming from Eastern Kentucky. Other sources of suitable quality may also be used. Petroleum coke will be obtained from a suitable source based on lowest evaluated delivered cost. It will be delivered by truck from a nearby port or by rail, directly from a supply source. If the petroleum coke is blended off-site, it will be delivered either by rail or truck from a blending facility. The blend will be carefully monitored and controlled to assure compliance with all regulated air pollutant emissions through continuous emission monitors (i.e., sulfur dioxide, nitrogen oxides, and opacity).

Natural gas will be supplied to the site by a high-pressure main tied in with Florida Gas Transmission several miles north of the McIntosh Plant.

Section 3.2.4 Storage

Lakeland is also clarifying its fuel storage operations. Coal is stored on a sealed surface with a complete run-off control system to collect rain water or dust control water. Coal is delivered from this storage area to the unit silos by a series of conveyors through several transfer points, which are more fully described in the revisions than in the original application. Petroleum coke will be stored in the coal storage area either as an unblended or blended product.

Oil is stored in on-site tanks within containment areas. These tanks are more fully described in this application than in the original application.

Refuse is not stored on site. All material received is processed and burned as quickly as possible. Lakeland has included clarification language regarding the storage of refuse in the application.

Section 3.2.5 Fuel Analysis

As a supplement to the application, Lakeland has provided a fuel analysis for petroleum coke.

Section 3.2.7 Coal Pile Run-Off

The application revisions clarify that coal pile runoff will be collected and transported to a surge pond before being pumped to the current settling pond for reuse. (See also Section 3.5.)

Section 3.4 Heat Dissipation System

The application is being revised to clarify that Lakeland has abandoned the Marsh Treatment System because the water now goes directly to Lakeland's public works system. In addition, the application revisions clarify that the mechanical draft cooling tower includes thirteen cells and is supplemented by a two-cell draft auxiliary tower.

Section 3.5 Changes in Chemical and Biocide Wastes

Lakeland also clarifies that the settling pond will be lined with bitumastic to prevent leaking and that collected runoff will be pumped from the north landfill surge pond to the final wastewater ponds for reuse on site.

Section 3.6.3 Flue Gas Desulfurization Scrubber Sludge

Sulfur Dioxide Removal Efficiency--Lakeland originally proposed a removal efficiency of 80 percent of the sulfur dioxide from the stack gases through installation of a limestone scrubber based on the expectation of utilizing "high sulfur" coal (sulfur content of greater than 3.0 percent). Any fuel (or combination of fuels) with a sulfur content of less than 3.1 percent sulfur should not require 80 percent removal efficiency since the 1.2 lb/mmBtu heat input limit could be achieved without the desulfurization unit being operated. The actual sulfur dioxide emissions will be much less than 1.2 lb/mmBtu even when the 80 percent removal rate is not achieved because the desulfurization unit will continue to operate even when lower sulfur coal (or coal/refuse/coke combinations) is burned. In other words, the resultant sulfur dioxide emissions when burning a non-high, lower sulfur fuel and operating the desulfurization unit will be less than the sulfur dioxide emissions would be if high sulfur (greater than 3.0 percent sulfur) were burned, even with the desulfurization unit operating at an 85 percent removal efficiency. Accordingly, Lakeland has revised its application to clarify that the 80 percent removal efficiency applies only when high sulfur coal (or blends) is burned. This same change is being made to Section 3.7.4, Sulfur Dioxide Compliance Method. In addition, Lakeland has clarified this section of the application to show that the sulfur dioxide limit of 1.2, rather than 0.8 applies when coal is burned in the unit, consistent with Section 3.7.

Section 3.7 Air Emissions

Compliance Standards--Lakeland has clarified in the application that the same limits that apply to coal and coal/refuse blends will apply to coke blends as well. As stated above,

Lakeland has also clarified that the 80 percent removal efficiency for sulfur dioxide applies only when high sulfur coal is burned.

Section 5.6

Lakeland has revised the application to describe an expansion to the present refuse processing plant tipping floor, with the addition of a relatively small building (approximately 100' by 70').

Section 5.6.2 Scrubber Sludge Disposal

Lakeland is clarifying in the application revisions that the stabilized sludge operation and various silos are equipped with dust control systems.

Description of Proposed Changes to Conditions of Certification

Citations

Citations throughout the Conditions of Certification have been updated with current chapter and rule numbers. Similarly, the state agencies' names have been corrected, where necessary, such as changing the Department of Environmental *Regulation* to the Department of Environmental *Protection*.

General Condition No. 1

Because the only certified unit is Unit No. 3., Lakeland suggests a revision to this condition to clarify that only *proposed* changes in discharges from Unit No. 3 and expansions of Unit No. 3's generating capacity would require a new or supplemental application. In addition, to clarify that only regulated air pollutant emissions must be identified, the word "regulated" is being added.

General Condition No. 2

Lakeland proposes to clarify that it must notify the Department in writing of a noncompliance situation within 72 working day hours. Because certain holiday weekends extend beyond 3 days, it would be appropriate for the notice requirements to correspond to working day hours.

General Condition No. 3

Because only Unit No. 3 is certified under the Site Certification, Lakeland proposes to clarify this condition to refer to Unit No. 3 rather than the entire "facility."

Special Condition No. I.B.5.

The unit number is being corrected to Unit No. 3 (rather than Unit No. 2).

Special Condition No. I.D.

Lakeland is requesting that this condition be changed to allow it to submit fuel usage and analysis data annually rather than quarterly.

Special Condition No. I.H.

The various fuels and fuel combinations that are specifically authorized to be burned have been listed in a proposed subsection H., including petroleum coke, which is being proposed in this request.

Special Condition Nos. II.A.1. and IV.A., B.

Because the artificial marsh is being phased out and is no longer used, Lakeland is requesting that references to it be deleted from the Conditions of Certification.

45467
12/6/94

**BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION AND
THE GOVERNOR AND CABINET OF THE STATE OF FLORIDA**

IN RE:)
)
McIntosh Unit No. 3, Modification) **Certification PA-74-06**
of Site Certification proposed by)
the City of Lakeland.)
_____)

PROPOSED AGREEMENT FOR MODIFICATION OF SITE CERTIFICATION

I.

The City of Lakeland ("Lakeland") hereby requests a modification of the Site Certification for C.D. McIntosh Power Plant Unit Number 3 ("McIntosh Unit No. 3") (PA-74-06) pursuant to Section 403.516(1)(b), Florida Statutes; Rule 62-17-211, Florida Administrative Code; and General Condition of Certification Number 12. Those provisions authorize the Department of Environmental Protection (Department) to modify the certification after public notice and opportunity for review by the public and by the parties to the original certification proceeding and upon no objection to the proposed modifications being raised.

This agreement for modification addresses several changes to the Site Certification application and to the Conditions of Certification. In support of the proposed modification, Lakeland states:

II.

On December 7, 1978, the Siting Board issued a final Certification to Lakeland pursuant to Chapter 403, Part II, Florida Statutes, authorizing the construction and operation of McIntosh Unit No. 3. The Site Certification was subsequently modified in 1980, 1988, and 1993. Subject to the provisions of the Certification Order and the associated Conditions of Certification,

Lakeland constructed a coal-, refuse-, and oil-fired steam electric generating unit, along with various associated support facilities, and began operating the unit in 1982. Based on a successful test burn of petroleum coke earlier this year, Lakeland has proposed several revisions to its Site Certification application to allow petroleum coke to be blended with other fuels and burned in McIntosh Unit No. 3. In addition, as a result of the final design of Unit No. 3 and its associated facilities, Lakeland has identified several needed clarifications and minor revisions to the Site Certification application and Conditions of Certification. The revised pages of the Site Certification application are attached hereto as Exhibit A and the Conditions of Certification as proposed to be revised are attached as Exhibit B.

Petroleum Coke

Specifically, Lakeland is proposing to burn petroleum coke when blended with other fuels in amounts up to 20 percent based on weight. At this rate of 20 percent or less, the permitted emission limits will not be exceeded, which will be confirmed through the use of continuous emission monitors for sulfur dioxide. A fuel analysis of petroleum coke is provided with the proposed application revisions. The application clarifies that the same air emission limits that apply to coal and coal/refuse blends will apply to petroleum coke blends as well. The Conditions of Certification have also been revised to authorize the use of petroleum coke, as shown in Exhibit B.

Application

The 80 percent sulfur dioxide removal efficiency achievable through the use of the desulfurization unit is based on high-sulfur coal, and this point is clarified in the revised application.

Lakeland has updated the application to indicate that the refuse processing plant tipping floor is being expanded to include a relatively small building. Lakeland has also clarified that the stabilized sludge operation and various silos are equipped with dust control systems.

Lakeland has also clarified that natural gas and/or low sulfur oil will be used for ignition and fuel stabilization of the unit, and that these fuels may be used at any time.

The application has been revised to reflect the actual maximum heat input achievable by the unit, as well as the actual fuel flow rates experienced. These higher rates are needed to produce the same megawatt output of 364.

Lakeland has also revised the application to clarify several fuel transportation and storage issues. Petroleum coke will be obtained from a suitable source, delivered by truck or rail, and stored in the coal storage area. Natural gas will be supplied to the site by pipeline.

The application clarifies that the coal pile runoff will be pumped from the north landfill surge pond to the final wastewater ponds for reuse on site. Lakeland also clarifies that the Marsh Treatment System is being abandoned because the water now goes directly to the public works system.

Conditions of Certification

The citations and agency names are being updated, and the certified site is being more clearly identified in certain conditions as Unit No. 3

The conditions are also being revised to clarify that Lakeland has 72 working day hours within which to provide written notice of noncompliance situations.

The conditions also reflect that fuel analysis and fuel quality data must be submitted annually. Further, as in the application, references to the artificial marsh are being deleted since this system is being phased out and is no longer used.

REQUEST FOR RELIEF

Accordingly, Lakeland requests that:

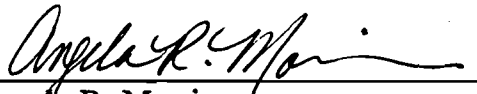
1. All parties to the original Certification agree to, or otherwise do not object to, this proposed Modification and the attached revised Site Certification application pages and revised Conditions of Certification attached hereto within forty-five (45) days of submittal of this proposed Agreement, as provided for in Section 403.516(1)(b), Florida Statutes.

2. Upon no objection being raised by the parties as provided above or by a substantially affected person within thirty (30) days of public notice of this proposed modification, the Department of Environmental Protection issue an order modifying the Site Certification, pursuant to Section 403.516(1)(b), Florida Statutes.

3. The Department of Environmental Protection grant such other relief as may be appropriate, including necessary additional conditions of certification proposed by agency parties and accepted by Lakeland.

Respectfully submitted this 7th day of December, 1994.

HOPPING BOYD GREEN & SAMS



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(904) 425-2258
Attorneys for the City of Lakeland

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing and attachment have been furnished to the following by U.S. mail, certified and return receipt requested, on this 7th day of December, 1994:

Hamilton S. Oven, Jr., P.E.
Administrator, Power Plant Siting Section
Department of Environmental Protection
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P.O. Box 2039
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ATTORNEY

45467
12/6/94

PROPOSED REVISIONS TO THE C.D. McINTOSH POWER PLANT - UNIT NO. 3
Recertification Application - June 1978, as Amended in 1987
(December 1994)

| <u>Section</u> | <u>Subject</u> | <u>Discard Old Pages</u> | <u>Insert New Pages</u> |
|----------------|---|------------------------------|-----------------------------|
| 3.2 | Fuels | 3.2-1 - 3.2-6 | 3.2-1 - 3.2-7 |
| 3.4 | Heat Dissipation System | 3.4-1 | 3.4-1 |
| 3.5 | Changes in Chemical & Biocide Wastes | 3.5-1 - 3.5-2 | 3.5-1 - 3.5-2 |
| 3.6 | Changes in Sanitary & Other Wastes | 3.6-2 | 3.6-2 - 3.6-2a |
| 3.7 | Air Emissions | 3.7-1 - 3.7-2 | 3.7-1 - 3.7-2 |
| 5.6 | Other Effects of Plant Operation | 5.6-1 -5.6-3 | 5.6-1 - 5.6-3 |

3.2 FUELS

3.2.1 FUEL TYPES

Unit #3 will have the capability of burning the types of fuels and fuel combinations described herein.

The primary fuel will be pulverized coal. The Unit has been designed to burn processed municipal solid waste, known as Refuse Derived Fuel or RDF, to supplement the pulverized coal.

The furnace design is such that RDF can supply up to 10% of the expected full load heat input to the Unit.

As an alternative fuel source, petroleum coke will be added as a supplement to the pulverized coal. The blend rate can range from 0% to 20% by weight, depending on the quality of the coal. A 0% to 10% blended product will be used with medium sulfur coal (2.5% sulfur) and a 0% to 20% blended product with low sulfur coal (1% sulfur).

As a backup to pulverized coal, Unit #3 has the capability to burn low sulfur oil (.77% sulfur) as a primary fuel. In which case, RDF can also be burned with the low sulfur oil at a rate of up to 10% of expected full load heat input to the Unit.

Ignition or fuel stabilization of this Unit will be provided primarily by natural gas and/or low sulfur oil. Neither fuel can

provide full load capability and only nominal loads can be achieved. They are primarily used for start-up and low load operation.

In summary, Unit #3 will have the capability of firing modes including (primary plus alternate fuels):

1. Pulverized coal only
2. Pulverized coal and RDF
3. Pulverized coal and petroleum coke
4. Pulverized coal, RDF, and petroleum coke
5. Low sulfur oil only
6. Low sulfur oil and RDF

It is possible for Unit #3 to operate under any of the above firing modes on a given day, but the primary operating modes will be 1 thru 4. Natural gas may be burned during startup or at any other time.

3.2.2 FUEL QUANTITIES

Unit #3 has a maximum annual heat input requirement of 2.8697×10^{13} BTU's based on 100% availability (365 days) at a 90% capacity factor. The predicted annual average heat input requirement is

2.72629 x 10¹³ BTU's based on a 95% availability (347 days) at a 90% capacity factor.

It is anticipated that the Unit will be operated in one of the four primary firing modes at all times (coal only, coal and RDF, coal and petroleum coke, or coal, RDF, and petroleum coke). Based on these modes, the approximate average annual fuel usage will be:

| <u>FUEL</u> | <u>QUANTITY</u> |
|----------------|-----------------------------|
| Coal | 864,550 tons (Typical Coal) |
| RDF | 75,000 tons |
| Petroleum Coke | 190,000 tons |

The maximum and average heat inputs and fuel flows for the primary firing modes as described in Section 3.2.1 are shown in Table 3.2.1.

3.2.3 TRANSPORTATION

COAL

Coal normally will be delivered to the Plant site in two continuously operating unit trains in ninety (90) cars of one hundred ton (nominal) bottom dump hopper cars per unit train.

The coal supply will be primarily from the area east of the Mississippi River. The majority of the coal will come from Eastern Kentucky, but may also be obtained from other sources of suitable quality.

The coal will normally be delivered to the Plant via single line rail haul, using CSX Transportation (CSXT). The unit train will reach the Plant site on a railroad spur line connecting the coal trestle with the CSXT track located one and one half miles east of the Plant. The coal will be unloaded using an elevated trestle approximately 1000 feet long. The bottom dump hopper cars will unload when they are given a signal through a third rail system as determined by an Operator.

PETROLEUM COKE

Petroleum coke will be obtained from a suitable source based on lowest evaluated delivered cost. Options to be evaluated include: purchasing a material blended with coal off site and delivered as a blended fuel ready for burning or purchasing a supply of petroleum coke to be delivered to the site and blended with the normal supply of coal.

The petroleum coke will be delivered to the Plant by truck from a nearby port or by rail, directly from a supply source. A blended fuel would be delivered either by rail or truck from a blending facility.

The blend will be carefully monitored and controlled to assure compliance with all regulated parameters at the stack exit with continuous emissions monitoring systems (i.e., sulfur dioxide, nitrogen oxide, and opacity). A blend of 90/10 (by weight) medium

sulfur (2.5%) coal with petroleum coke and a blend of 80/20 (by weight) low sulfur (1.0%) coal with petroleum coke has been tested and all environmental and operational parameters checked. The entire range of blends provide good operation and no adverse environmental impacts.

The fuel blend supplied to Unit #3 and the flexibility built into the flue gas desulfurization system (Scrubber) will be fully controlled, to ensure complete environmental compliance at all times.

REFUSE

Refuse collected from Lakeland and the surrounding area will be delivered to the refuse processing facility by the collection trucks.

OIL

Oil will be delivered to the Plant site by fuel oil trucks from the Port of Tampa.

NATURAL GAS

Natural gas is supplied to the site by a high pressure main tied in with Florida Gas Transmission several miles north of the Plant.

3.2.4 STORAGE

COAL

Coal will be stored on site in open piles for immediate use (active pile) and an emergency reserve storage of approximately sixty days will be maintained in sealed piles.

Coal will be stored on a sealed surface and will be provided with a complete run-off control system to collect rain water or dust control water. Fugitive emissions from coal piles will be minimized by a dust water separation system.

Coal will be delivered to Unit #3 silos by a series of conveyors thru several transfer points. These transfer points and the silos will be equipped for dust control.

OIL

Oil will be stored in on-site tanks within containment areas. Diesel oil tanks piping, and receiving areas all conform to regulations and rules of the Department governing petroleum products.

PETROLEUM COKE

Petroleum coke will be stored in the coal storage area either as a unblended or blended product.

REFUSE

Refuse will not be stored on site. All material received will be processed and burned as quickly as possible.

3.2.5 FUEL ANALYSIS

Typical fuel analysis for coal, petroleum coke, refuse, and oil are located in Tables 3.2.2, 3.2.3, 3.2.4, and 3.2.5 respectively.

3.2.6 PLANS FOR EMERGENCY SPILLS

As described in Section 3.2.4, no new oil tanks will be required, so existing fuel oil unloading areas will be utilized. Since these areas already comply with the U.S. Environmental Protection Agency's rule on the prevention of oil spills, no additional spill protection will be required.

3.2.7 COAL PILE RUN-OFF

The entire coal receiving and storage area is constructed on an impermeable base and is surrounded by a series of asphalt lined ditches to collect all rainfall run-off and dust control water. The collected water will be directed to a series of sumps and will be pumped to the north landfill sedimentation pond or to the ash settling ponds. The collected water will be recycled for reuse in Plant systems in an effort to minimize the consumptive use of water. The design of the storm water run-off system for the coal yard has been designed for a ten year, twenty-four hour storm event. More detailed information is given in Section 3.3.

Table 3.2.3

TYPICAL PETROLEUM COKE ANALYSISUNIT #3

Petroleum Coke Quality: As Rec'd Basis

| | | |
|---------------------------------|----------------|----------------|
| Moisture | 8.00% | 12.00% Max |
| Ash | 0.25% | 1.00% Max |
| Volatile | 10.00% | 14.00% Max |
| Sulfur | 4.75% | 5.50% Max |
| Btu/lb | 14,200 | 14,200 Penalty |
| Hardgrove Grindability Index | 65 | 50 Min |
| | <u>Typical</u> | <u>Maximum</u> |
| Vanadium | 950 ppm | 1500 ppm |
| Iron | 100 ppm | 500 ppm |
| Silicon | 50 ppm | 250 ppm |
| Calcium | 100 ppm | 250 ppm |
| Nickel | 250 ppm | 500 ppm |
| Sizing | +3" | 5% |
| | 2x3" | 5% |
| | 1x2" | 25% |
| | ½x1" | 20% |
| | -½" | 45% |

Revised 12-06-94

Table 3.2.1

FIRING MODES
FUEL FLOW RATES

| <u>MODE/LOAD</u> | <u>HOURLY FLOW RATES</u> |
|--|-------------------------------------|
| | 364 Mw |
| NO. 1 COAL ONLY (TONS/HR) | 159.6 |
| NO. 2 COAL/RDF: (10% RDF) | |
| COAL (TONS/HR) | 143.7 |
| RDF (TONS/HR) | 40.4 |
| NO. 3 OIL ONLY (BBL/HR) | 577.8 |
| NO. 4 OIL/RDF: (10% RDF) | |
| OIL (BBL/HR) | 520.0 |
| RDF (TONS/HR) | 40.4 |
| NO. 5 COAL/COKE (80/20) | 122.1 COAL 30.5 COKE |
| NO. 6 COAL/COKE/RDF (80/20 - 90%) (RDF - 10%) | 100.9 COAL 40.4 RDF 27.5 COKE |

Revised 12-06-94

Table 5.6.2

MCINTOSH PLANT SITE - DUST COLLECTORS

| EMISSION POINT | TYPE | LOCATION | EMISSION |
|-----------------------------------|---------|--------------------|----------|
| LIMESTONE SILO DUST COLLECTOR | EXHAUST | N OF SCRUBBER #32 | DUST |
| QUICKLIME SILO DUST COLLECTOR | EXHAUST | N OF CSI BLDG | DUST |
| SODA ASH SILO DUST COLLECTOR | EXHAUST | WWTP/ABOVE BLDG RO | DUST |
| QUICKLIME SILO DUST COLLECTOR | EXHAUST | WWTP/ABOVE BLDG RO | DUST |
| FLY ASH SILO DUST COLLECTOR | EXHAUST | E OF CSI BLDG | DUST |
| SHREDDER EXPLOSION VENT | VENT | REFUSE | DUST |
| KLEISLER FILTER | VENT | REFUSE | DUST |
| SILO 31 DUST COLL. EXHAUST/C4 | EXHAUST | TRIPPER HOUSE | DUST |
| SILO 32 DUST COLL. EXHAUST | EXHAUST | TRIPPER HOUSE | DUST |
| SILO 33 DUST COLL. EXHAUST/C5 | EXHAUST | TRIPPER HOUSE | DUST |
| SILO 34 DUST COLL. EXHAUST | EXHAUST | TRIPPER HOUSE | DUST |
| CRUSHER HOUSE DUST COLLECTOR | EXHAUST | COAL CRUSHER HOUSE | DUST |
| C2 COAL CONVEYOR DUST COLLECTOR | EXHAUST | C2 CONV. (BEGIN) | DUST |
| C3 REFUSE CONVEYOR DUST COLLECTOR | EXHAUST | REFUSE | DUST |
| C5 REFUSE CONVEYOR DUST COLLECTOR | EXHAUST | REFUSE | DUST |
| PUGMILL #31 DUST COLLECTOR | EXHAUST | CSI | DUST |
| PUGMILL #32 DUST COLLECTOR | EXHAUST | CSI | DUST |

Revised 12-06-94

Table 3.2.4

MCINTOSH PLANT SITE - PETROLEUM STORAGE

| EMISSION POINT | TYPE | LOCATION | SIZE (GALLON) | EMISSION |
|--------------------------------|------|-----------------------|------------------|----------|
| DIESEL TANK | VENT | E OF WATER TANK | 2,000 | VOC |
| GASOLINE TANK | VENT | S OF WELD BARN | 1,000 | VOC |
| DIESEL STORAGE TANK | VENT | TANK FARM | 101,346 | VOC |
| DIESEL TANK | VENT | S OF WELD BARN | 1,000 | VOC |
| DIESEL FUEL TANK (REFUSE AREA) | VENT | SE OF LARGE THICKENER | 1,000 | VOC |
| DIESEL FUEL (10,000 GAL) TANK | VENT | N OF PEO BLDG | 9,000 | VOC |
| HEAVY OIL TANK | VENT | TANK FARM | 4,057,200 | VOC |
| HEAVY OIL TANK | VENT | TANK FARM | 4,057,200 | VOC |
| HEAVY OIL TANK | VENT | TANK FARM | 4,057,200 | VOC |
| DIESEL STORAGE TANK | VENT | TANK FARM | 22,500 | VOC |

Revised 12-06-94

3.4 HEAT DISSIPATION SYSTEM

The Unit will use a thirteen-cell wet mechanical draft cooling tower supplemented by a two cell mechanical draft auxiliary tower, for dissipation of waste heat from the condenser and accessory equipment cooling water.

The tower will have a total circulating water flow of 144300 GPM with a design inlet water temperature of 114.7°F. The tower will be designed to dissipate 1636 MMBTUH with a 79°F inlet wet bulb air temperature.

Condenser cooling water will comprise 138300 GPM of the circulating water flow and 6000 GPM will be utilized to cool a secondary fluid for accessory equipment cooling.

Process wastewater and blowdown from the tower will be utilized as makeup for the SO₂ removal system (scrubber) on the boiler. Any excess blowdown will be transported to the new City of Lakeland's Public Works Sewage Plant Wetlands Treatment System located seven and one-half miles south of McIntosh Power Plant. The present on-site Marsh Treatment System will be phased out, because the new wetlands system has proven to be very effective. A new pipeline has been constructed to transport the blowdown from the tower to the Sewage Plant to be combined with its effluent going to the new Wetlands Treatment System.

3.5 CHANGES IN CHEMICAL AND BIOCIDES WASTES

The flow diagram shown in Figure 3.3.1 shows the major wastewater flow paths. The Figure shows that Unit No. 3 will not discharge waste streams to any water body. Waste streams will be reused to the extent practicable and that the remaining process wastewaters will be treated on site and pumped to the Sewage Plant Wetlands Treatment Systems (Wetlands system). Excess cooling tower blowdown will be transported also to the Sewage Plant Wetlands Treatment System.

Figure 3.3.1 shows that after the scrubber makeup water is taken from the cooling tower blowdown stream, approximately 500 GPM or 720,000 gallons per day, will be pumped to the Sewage Plant Wetlands Treatment System. The wastewater treatment scheme shown in Figure 3.3.1 is similar to that which was originally presented in the 250 MW application. One notable change in the system is the addition of bottom ash dewatering bins for separating bottom ash and sluice water in lieu of a 5-acre sluice pond. This change was made to facilitate the handling of bottom ash for the sludge stabilization process. The flow diagram shows a settling pond will be used as a backup system to the ash dewatering bin system, a storage area for sluice water makeup, and a holding area for the collection of runoff from the coal pile and coal handling area and water used in the dust suppression system.

The north landfill surge pond will help collect and contain the

coal pile runoff from the 12-acre coal storage area that is expected from the 10-year, 24-hour storm event. The 10-year, 24-hour storm event in the Lakeland area is 6.60 inches. The settling pond is lined with bitumastic to prevent leaking of the water to shallow groundwater. Collected runoff will be pumped from the north landfill surge pond to the final wastewater ponds for reuse on site.

Disposal of the cooling tower blowdown and process wastewaters will be to the back end of the sewage treatment plant of the City of Lakeland. Disposal of the solids from the process wastewater treatment plant will be to the plant stabilized sludge landfill.

5.6 OTHER EFFECTS OF PLANT OPERATION

5.6.1 ENERGY RECOVERY FROM SOLID WASTE

As discussed in the 250 MW Unit #3 application, processed municipal refuse will be used as a supplemental fuel supply to the Unit. The processing system will still consist of shredding, magnetic separation of ferrous materials and air classification prior to combustion in the boiler. However, with the 364 MW Unit #3, refuse will be burned with both coal and oil rather than just with coal as in the 250 MW Unit #3.

For calculation purposes, the amount of refuse that will be burned has been limited to what is collected within the city limits of Lakeland and from contiguous outlying areas. This will produce approximately 300 tons per day of raw refuse and 210 tons per day of combustible material to be used as a refuse derived fuel (RDF).

In addition to the use of the RDF, the Unit #3 architect engineers are currently studying the possibility of burning the sewage sludge from the Lakeland Sewage Treatment Plant. Sewage sludge has a heating value of 4000 to 7000 BTU/per pound and its use would eliminate another City of Lakeland disposal problem.

Another important aspect of the refuse burning capability of Unit #3 is that Polk County has been designated by the Florida Department of Environmental Protection to develop a county wide plan for resource recovery, and while the plan is in its beginning

stages, preliminary discussions with Polk County representatives
have indicated that the processing facility

at the McIntosh site and the Unit #3 RDF capability could be an integral part of the Polk County resource recovery plan.

Tests from the pilot RDF project in St. Louis at Union Electric's Merrimac Station have concluded that up to 20% of boiler heat requirements can be from RDF without noticeable boiler damage. Based on this assumption, Unit #3 could burn over 1000 tons per day of the County's refuse. In order to produce the 1000 tons per day of RDF, over 1450 tons per day, essentially all the raw refuse projected to go to landfills in 1983 would have to be processed.

The present refuse processing Plant tipping floor will be expanded to the north with an addition of a building approximately 100' x 70'.

5.6.2 SCRUBBER SLUDGE DISPOSAL

The 250 MW Unit #3 application indicated that at the time of submittal, four (4) methods of disposing of sulfur sludge were being considered. The methods under consideration were:

1. Stabilized landfill with load bearing capacity.
2. Returning the sludge to the limestone mine where the limestone for the SO₂ scrubber was taken.
3. Using the sludge as a reclamation fill for phosphate strip mines.
4. Permanent ponding of the sludge on site in clay lined ponds.

The "Conditions of Certification" for the 250 MW Unit #3 stipulated that "Flue as desulfurization sludge shall be stabilized prior to disposal in other than a lined pond or basin". In keeping with this stipulation, the 364 MW Unit #3 will combine all the sludges and ash generated by the Unit to form a stabilized fill material.

The stabilized sludge (pozzolanic) will be primarily used as a landfill material in the immediate area of the Plant site. However, once the Plant is in operation and actual samples of stabilized material are available, a study will be undertaken to determine the suitability and marketability of this material for use as a road and parking lot base coarse material, earthen embankments, impermeable liners for holding ponds and synthetic aggregate for concrete block and asphalt formulations.

The stabilized sludge operation will be located at the McIntosh Plant site. The operations will consist of blending the scrubber sludge, as well as other sludges generated in the operation of Unit #3 with fly ash, bottom ash and lime to form the stabilized pozzolanic material, prior to its use or disposal in the dedicated Plant site landfill. The stabilized pozzolanic sludge process provided by Conversion Systems, Inc. is located in a building next to the scrubber sludge thickener. This building, as well as the silos (fly ash, lime, etc.), is equipped with the proper dust control systems, as listed in Table 5.6.2.

All quantities of collected ash from the operation of Unit #3 will be used as an integral ingredient in the sludge stabilization process described in Sections 3.6.3 and 5.6.2.

3.6.3 FLUE GAS DESULFURIZATION SCRUBBER SLUDGE

Sulfur dioxide emissions in the flue gas from the coal, coal and petroleum coke, coal, RFD and petroleum coke, and coal and RFD firing modes will comply with the State and Federal new source performance standard of 1.2 lbs/mmBTU by using a limestone slurry flue gas scrubber with an 80% removal efficiency for high sulfur fuel (higher than 3.0% sulfur).

The end product of the SO₂ scrubber system will be a 50% solids sludge consisting of the following materials:

| <u>Constituent</u> | <u>% By Weight</u> |
|--------------------------------------|--------------------|
| CaCO ₃ | 33 |
| CaSO ₃ •2H ₂ O | 58 |
| CaSO ₄ •2H ₂ O | 9 |

The quality of sludge expected to be produced from Unit #3 is shown in Table 3.6.1.

In order to dispose of the annual amounts of sludge shown in Table 3.6.1 and the amounts of fly ash and bottom ash described in Section 3.6.2 in an acceptable manner, all sludge and ash quantities will be brought to an on-site stabilization process. In

this process, ash and scrubber sludge will be combined with lime and other aggregates to form a cementitious material suitable for use as landfill material, road base material, embankments and impermeable liners.

3.7 AIR EMISSIONS

3.7.1 AIR EMISSIONS COMPLIANCE STANDARDS

Unit #3 will be required to meet the State and Federal emission limits for Nitrous Oxide (NO_x), Sulfur Dioxide (SO₂), Particulate Matter (PM) and Opacity as listed in Rule 62-296.405, F.A.C. As discussed in Section 3.2, Unit #3 will be capable of burning four different fuels in six firing modes, which will require meeting various emission limits depending on the firing mode. The following are the emission limits for each firing mode:

| <u>FIRING MODE</u> | <u>SO₂ LB/MMBTU</u> | <u>NO_x LB/MMBTU</u> | <u>PM LB/MMBTU</u> | <u>OPACITY %</u> |
|-----------------------------|------------------------------------|------------------------------------|------------------------|----------------------|
| Coal Only | 1.2 | 0.7 | 0.1 | 20 |
| Coal/RDF | 1.2 | 0.7 | 0.1 | 20 |
| Coal/Petroleum Coke | 1.2 | 0.7 | 0.1 | 20 |
| Coal/Petroleum Coke /RDF | 1.2 | 0.7 | 0.1 | 20 |
| Oil Only | 0.8 | 0.3 | 0.1 | 20 |
| Oil/RDF | 0.8 | 0.3 | 0.1 | 20 |

Natural gas and/or low sulfur fuel oil may be burned during startup or at any other time.

3.7.2 NITROUS OXIDES (NO_x) COMPLIANCE METHOD

NO_x will be maintained within the established limits through either boiler, burner or a combination of boiler and burner design. Each of the boiler companies that are currently bidding on this project uses a different method, however each company guarantees that applicable NO_x emission limits will be met.

3.7.3 PARTICULATE (PM) COMPLIANCE METHOD

Particulate emissions will be maintained within the limit of 0.1 lb/mmBTU with a cold side precipitator with a minimum removal

efficiency of 99.5%.

Particulate compliance during the oil only firing mode will not require the use of the precipitator since the ash content of 0.77% sulfur oil results in PM emission levels of less than the emission standard.

A certain amount of particulate removal will also take place in the SO₂ limestone scrubbing system during the (1) coal, (2) coal and RDF, (3) coal and petroleum coke, and (4) coal, RDF and petroleum coke firing mode when use of the scrubber will be required. However, for the purpose of determining the PM emission rates for these modes, it was assumed that no removal would take place in the scrubber.

3.7.4 SULFUR DIOXIDE (SO₂) COMPLIANCE METHOD

As discussed above, compliance with SO₂ emission limits for the (1) coal, (2) coal and RDF, (3) coal and petroleum coke, and (4) coal, RDF and petroleum coke firing modes will be achieved with limestone slurry scrubbing system. The system used in the 364 MW size will have removal efficiency of 80% for high sulfur fuel and is the same as described in the 250 MW Unit #3 certification application. SO₂ emission limits due to the low amounts of sulfur in both the fuels.

3.7.5 EMISSIONS DISPERSION METHOD

As reported in the 250 MW application, flue gas exiting the boiler and pollution control equipment will be discharged from a 250 foot stack. Flue gas from the (1) coal, (2) coal and RDF, (3) coal and petroleum coke and (4) coal, RDF, and petroleum coke firing modes which require SO₂ scrubbing will be reheated to approximately 200°F and exit the stack at 170°F. Flue gas from the oil only

State of Florida Department of Environmental Regulation
City of Lakeland
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Case No. PA 74-06-SR
CONDITIONS OF CERTIFICATION

GENERAL

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Proposed to be Revised 12/06/94

State of Florida Department of Environmental Regulation
City of Lakeland
C.D. McIntosh, Jr. Power Plant - Unit No. 3
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CONDITIONS OF CERTIFICATION

GENERAL

1. Change in Discharge

All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any regulated pollutant not identified in the application, or any discharge more frequent than, or at a level in excess of that authorized herein, shall constitute a violation of the certification. Any anticipated proposed facility expansions, production increases, or process modifications which will result in new, different or increased discharges or expansion in steam generating capacity of Unit No. 3 will require a submission of a new or supplemental application pursuant to Chapter 403, Florida Statutes.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any limitation specified in this certification, the permittee shall notify the Southwest District Manager of the Department by telephone during the working day during which said noncompliance occurs and shall confirm this situation in writing within seventy-two (72) working-day hours of first becoming aware of such conditions, supplying the following information:

- a. A description and cause of noncompliance; and
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying event.

3. Facilities Unit No. 3 Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this certification. Such systems are not to be bypassed without prior department approval.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact resulting from noncompliance with any limitation specified in this certification, including but not limited to such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying event.

5. Right of Entry

The permittee shall allow the Secretary of the Florida Department of Environmental Protection Regulation and/or authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where an effluent source is located or in which records are required to be kept under the terms and conditions of this permit; and
- b. To have access to and copy all records required to be kept under the conditions of this certification; and
- c. To inspect and test any monitoring equipment or monitoring method required in this certification and to sample any discharge or pollutants, and
- d. To assess any damage to the environment or violation of ambient standards.

6. Revocation or Suspension

This certification may be suspended or revoked pursuant to Section 403.512, Florida Statutes, or for violations of any General or Special Condition.

7. Civil and Criminal Liability

This certification does not relieve the permittee from civil or criminal responsibility or liability for noncompliance with any conditions of this certification, applicable rules or regulations of the Department, or Chapter 403, Florida Statutes, or regulations thereunder.

Subject to Section 403.511, Florida Statutes, this certification shall not preclude the institution of any legal action or relieve the permittee from any responsibilities or penalties established pursuant to any other applicable State Statutes or regulations.

8. Property Rights

The issuance of this certification does not convey any property rights in either real or personal property tangible or intangible, nor any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. The applicant will obtain title, lease or right of use from the State of Florida, to any sovereign submerged lands occupied by plant, transmission line structures, or appurtenant facilities.

9. Severability

The provisions of this certification are severable, and if any provision of this certification, or the application of any provision of this certification to any circumstances, is held invalid, the application of such provision to other circumstances and the remainder of the certification shall not be affected thereby.

10. Definitions

The meaning of terms used herein shall be governed by the definitions contained in Chapter 403, Florida Statutes, and any regulation adopted pursuant thereto. In the event of any dispute over the meaning of a term used in these general or special conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statute or regulation or, in the alternative by the use of the commonly accepted meaning as determined by the Department.

11. Review of Site Certification

The certification shall be final unless revised, revoked or suspended pursuant to law. At least every five years from the date of issuance of this certification or any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control Act Amendments of 1972, for the plant units, the Department shall review all monitoring data that has been submitted to it during the preceding five-year period, for the purposes of determining the extent of the permittee's compliance with the conditions of this certification and the environmental impact of this facility unit. The Department shall submit the results of its review and recommendations to the permittee. Such review will be repeated at least every five years thereafter.

12. Modification of Conditions

The conditions of this certification may be modified in the following manner:

- a. The Board hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to monitoring or sampling.
- b. All other modifications shall be made in accordance with Section 403.516, F.S.

State of Florida Department of Environmental Protection Regulation
 City of Lakeland
 C.D. McIntosh, Jr. Power Plant Unit No. 3
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CONDITIONS OF CERTIFICATION

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City of Lakeland
Power Plant No. 3 - Unit No. 3
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CONDITIONS OF CERTIFICATION

SPECIAL

I. Air

The construction and operation of the Unit No. 3 at the McIntosh Plant shall be in accordance with all applicable provisions of the Chapters -17-2,-17-5,-and-17-7 62-210 - 62-297, Florida Administrative Code. The permittee shall comply with the following conditions of certification:

A. Emission Limitations

1. Stack emissions shall not exceed those specified in Chapter ~~17-2.04(6)(e)-1.~~ 62-296.405, FAC.
2. The permittee shall not burn a fuel oil containing more than an average of 0.7% sulfur unless it can be demonstrated that either, a) heat efficiency is such as to insure compliance with all applicable emission limitations, or b) that a flue gas desulfurization unit is installed that will insure compliance with applicable emission limitations.
3. The height of the boiler exhaust stack for Unit 3 shall be not less than 250 feet above grade. The height of stacks for future units shall be determined after review of supplemental applications.
4. Particulate emissions from the coal handling facilities:
 - a. The applicant shall not cause to be discharged into the atmosphere from any coal processing or conveying equipment, coal storage system, or coal transfer and loading system ~~processing coal~~, visible emissions which exceed 20 percent opacity.
 - b. The applicant must submit to the Department within five (5) working days after it becomes available, copies of technical data pertaining to the selected particulate emissions control for the coal handling facility. These data should include, but not be limited to, a copy of the formal bid from the successful bidder, guaranteed efficiency and emission rates, and major design parameters such as air/cloth ratio and flow rate. The Department may, upon review of these data, disapprove the use of such device if the Department determines the selected control device to be inadequate to meet the visible emission limit specified in 5 (a) above.

B. Air Monitoring Program

1. The permittee shall install and operate continuously monitoring devices for the Unit No. 3 boiler exhaust for sulfur dioxide, nitrogen dioxide and opacity. The monitoring devices shall meet the applicable requirements of 17-2-08 62-297.500, FAC.
2. The permittee shall operate the ambient monitoring device for sulfur dioxide in accordance with EPA reference methods in 40 CFR Part 53 and two ambient monitoring device for suspended particulates. New and existing monitoring devices shall be located as designated by the Department. The frequency of operation shall be every six days or as specified by the Department.
3. The permittee shall maintain a daily log of fuels used and copies of fuel analyses containing information on sulfur content, ash content and heating values to facilitate calculations of emissions.
4. The permittee shall provide sampling ports into the stack and shall provide access to the sampling ports, in accordance with Standard Sampling Techniques and Methods of Analysis for The Determination of Air Pollutants from Point Sources, July 1975.
5. The ambient monitoring program may be reviewed annually beginning two years after start-up of Unit No. 23 by the Department and the permittee.
6. Emission Control Systems:

Prior to operation of the source, the owner or operator shall submit to the Department a standardized plan or procedure that will allow the company to monitor emission control equipment efficiency and enable the company to return malfunctioning equipment to proper operation as expeditiously as possible.

C. Stack Testing:

1. Within 60 days after achieving the maximum capacity at which the facility will be operated, but no later than 180 days after initial startup, the owner or operator shall conduct performance tests for particulates and SO₂ and promptly furnish the Department a written report of the results of such performance tests.

2. Performance tests shall be conducted and data reduced in accordance with methods and procedures in accordance with Standard Sampling Techniques and Methods of the Determination on Air Pollutants from Point Sources, July 1975.
3. Performance tests shall be conducted under such conditions as the Department shall specify based on representative performance of the facility. The owner or operator shall make available to the Department such records as may be necessary to determine the conditions of the performance tests.
4. The owner or operator shall provide the Department with 30 days prior notice of the performance tests and afford the Department the opportunity to have an observer present.
5. Stack tests for particulates NO_x and SO₂ shall be performed annually in accordance with conditions 2, 3 and 4 above.

D. Reporting

1. Stack monitoring, ~~fuel usage and fuel analysis~~ data shall be reported to the Department on a quarterly basis in accordance with 40 CFR, Part 60, Section 60.7 and in accordance with 17-2-08 62-297.500(2), FAC. Fuel usage and fuel analysis data shall be reported to the Department on an annual basis.
2. Ambient air monitoring data shall be reported to the Department quarterly by the last day of the month following the quarterly reporting period utilizing the SAROAD or other format approved by the Department in writing.

E. Coal Characteristics and Contracts

Before approval can be granted by the Department for use of control devices, characteristics of the coal to be fired must be known. Therefore, before these approvals are granted, the applicant must submit to the Department copies of coal contracts which should include the expected sulfur content, ash content, and heat content of the coal to be fired. These data will be used by the Department in its evaluation of the adequacy of the control devices.

F. Coal Information

As an alternative to the submittal of contracts for purchase of coal under condition E above, the applicant may submit the following information:

1. The name of the coal supplier;
2. The sulfur content, ash content, and heat content of the coal as specified in the purchase contracts;
3. The location of the coal deposits covered by the contract (including mine name and seam);

4. The date by which the first delivery of coal will be made;
5. The duration of the contract; and
6. An opinion of counsel for the applicant that the contract(s) are legally binding and enforceable.

G. Reporting:

Beginning one month after certification the applicant shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of major pieces of equipment (including control equipment). All reports and information required to be submitted under this condition shall be submitted to Mr. Hamilton S. Oven, Jr., Administrator of Power Plant Siting, Department of Environmental Protection Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32301.

H. Fuels:

The following fuels may be burned:

Coal only

Oil only

Coal and up to 10% RFD (by heat input)

Oil and up to 10% RFD (by heat input)

Coal and up to 20% petroleum coke (by weight)

Coal and up to 20% petroleum coke (by weight) and 10% RFD (by heat input)

In addition, natural gas may be used during startup or at any other time.

II. Water Discharges

Discharges during construction and operation of the Unit No. 3 shall be in accordance with all applicable provisions of Chapter 62-302 17-3, Florida Administrative Code and 40 CFR 423, Effluent Guidelines and Standards for Steam Electric Power Generating Point Source Category. In addition, the permittee shall comply with the following conditions of certification:

A. Pretreatment Standards

Wastewater discharges from Unit No. 3 to the Lakeland wetlands treatment system shall comply with the effluent limitation guidelines contained in 40 CFR, ~~Part~~ § 423.12 and amendments. The specific standards applicable to the facilities as planned are:

1. Cooling Tower Blowdown

There shall be no detectable amounts of materials added for corrosion inhibition containing zinc and chromium in cooling tower blowdown discharged to the City of Lakeland wetland treatment system. ~~On an emergency basis the on site Marsh Treatment System may be used to treat cooling tower blowdown.~~

2. pH

The pH of all discharges shall be within the range of 6.0 to 9.0.

3. Polychlorinated Biphenyl Compounds

There shall be no release to the environment of polychlorinated biphenyl compounds.

4. Chemical Wastes and Boiler Blowdown

All low volume wastes (demineralizer regeneration, cooling tower basin cleaning wastes, floor drainage, sample drains and similar wastes), metal cleaning wastes (including preheater and fireside wash) and boiler blowdown shall be treated as required for pH adjustment and removal of chemical constituents. These wastewaters will be treated in an process wastewater treatment system capable of complying with 40 CFR, ~~Part~~ § 423.12 and discharged with the cooling tower blowdown via a return pipeline to the Lakeland wetlands treatment system. The remaining sludge shall be disposed of in the on site FGD stabilized sludge landfill.

5. Sluice Pond Overflow

Sluice pond overflow (coal pile runoff from less than 10-year, 24-hour rainfall and bottom and fly ash transport water) shall be treated if required to meet the requirements of 40 CFR § ~~Part~~ 423.12 and discharged with the cooling tower blowdown to the Lakeland wetlands treatment system.

6. Flue Gas Desulfurization Sludge Pond Overflow

The flue gas desulfurization sludge pond overflow shall be treated if required to meet the requirements of 40 CFR § ~~Part~~ 423.12 in a process waste system and discharged with the cooling tower blowdown to the Lakeland wetlands treatment system.

B. In-Plant Water Monitoring Program

A monitoring program shall be undertaken by the City of Lakeland on each effluent stream within the facility to determine compliance by Unit 3 with the applicable effluent guidelines of 40 CFR, Part 423.12 for those wastewaters discharged to the Lakeland wetlands treatment system. This monitoring program may be reviewed annually to determine the necessity for its continuance.

III. Groundwater

A. General

The use of groundwater shall be minimized to the greatest extent practicable.

B. Well Criteria

The well locations shall be approved by the Southwest Florida Water Management District. Design and construction of new wells shall be in accordance with the applicable rules of the Department of Environmental Protection Regulation and Southwest Florida Water Management District.

C. Groundwater Use Limitations

1. Groundwater used for makeup for the cooling tower for Unit No. 3 shall be limited to emergency use only, not to exceed 0.2166 million gallons per day on an average annual basis or 5.271 mgd on a maximum daily basis from 3 new wells.
2. Daily water use from the new wells shall be reported quarterly to the Southwest Florida Water Management District.

IV. Leachate

A. Compliance

Leachate from coal storage piles, settling and treatment ponds, ~~artificial-marsh,~~ ~~rapid-infiltration-beds,~~ secure land fills and flue gas desulfurization sludge ponds (FGD) shall not contaminate waters of the State (including both surface and groundwaters) in excess of the limitations of Chapters 62-302 and 62-520 17-3, FAC.

B. Monitoring

A monitoring well system shall be used to determine whether or not leachate from the treatment ponds, ~~artificial-marsh,~~ secure landfill, ash sluice ponds, and the flue gas desulfurization sludge ponds is reaching the groundwater.

1. Permittee shall collect background samples monthly commencing at least two months prior to construction of the wastewater treatment system sampling the following parameters: specific conductance, chlorides, sulfates, pH, zinc and iron.
2. The permittee shall annually monitor Arsenic, Barium, Cadmium, Lead, Mercury, Nitrates, Gross Alpha, Selenium and Silver beginning with commencement of construction of the wastewater treatment system.
3. The permittee shall monthly monitor specific conductance, chlorides, sulfates, pH, zinc and iron beginning with commencement of operation of the wastewater treatment system.

4. If any the monitoring parameters listed in paragraph 3 above exceed the average background levels by 35%, the permittee shall commence monthly monitoring on the parameters listed in paragraph 2 above.

5. A quarterly summary of the results of the monitoring shall be provided by the permittee to the Southwest District of the Department of Environmental Protection Regulation and to the Southwest Florida Water Management District.

6. The permittee shall keep a monthly record of the monitoring results and shall notify the Department's Southwest District Manager and the Southwest Florida Water Management District when said measurements reach 90% of the levels permitted in the water quality standards of Rule 62-520.420 17-3.101, F.A.C.

C. Corrective Action

When the leachate monitoring system indicates significant leakage to the groundwater in the shallow aquifer, the appropriate ponds (settling spray or sludge) shall be sealed, relocated or closed, or the operation of the affected pond shall be altered in such a manner as to assure the Department that no significant contamination of the groundwater will occur.

V. Control Measures During Construction

A. Stormwater Runoff

During construction and plant operation, necessary measures shall be used to settle, filter, treat or absorb silt containing or pollutant laden stormwater runoff to limit the suspended solids to 50 mg/l or less during rainfall periods not exceeding the 10-year, 24-hour rainfall, and to prevent an increase in turbidity to more than 50 Jackson Turbidity Units above background in waters of the State.

Control measures shall consist at the minimum, of filters, sediment traps, barriers, berms or vegetative planting. Exposed or disturbed soil shall be protected as soon as possible to minimize silt and sediment laden runoff. The pH shall be kept within the range of 6.0 to 8.5.

B. Sanitary Wastes

Disposal of sanitary wastes from construction toilet facilities shall be in accordance with applicable regulations of the Department and appropriate local health agency.

C. Environmental Control Program

An environmental control program shall be established under the supervision of a qualified person to assure that all construction activities conform to good environmental practices and the applicable conditions of certification.

The permittee shall notify the Department if unexpected harmful effects or evidence of irreversible environmental damage are detected during construction, shall immediately cease work and shall provide an analysis of the problem and a plan to eliminate or significantly reduce the harmful effects or damage, and to prevent reoccurrence.

VI. Solid Wastes

Solid Wastes resulting from construction or operation shall be disposed of in accordance with the applicable regulations of Chapter ~~17-7~~ 62-701, FAC.

Open burning in connection with land clearing shall be in accordance with Chapter ~~71-5~~ 62-256, FAC, no additional permits shall be required, but the Division of Forestry shall be notified. Open burning shall not occur if the Division of forestry has issued a ban on burning due to fire hazard conditions.

VII. Operation Safeguards

The overall design and layout of the facilities shall be such as to minimize hazards to humans and the environment. Security control measures shall be utilized to prevent exposure of the public to hazardous conditions.

VIII. Solid Waste Utilization System

The solid waste utilization facility shall be designed and operated in compliance with all applicable regulations of the Department, including but not limited to Chapter ~~71-7~~ 62-701, FAC.

IX. Screening

The permittee shall provide screening of the site through the use of aesthetically acceptable structures, vegetated earthen walls and/or existing or planted vegetation.

X. Potable Water Supply System

The potable water supply system shall be designed and operated in conformance with Chapter ~~17-22~~ 62-550, 62-551, 62-555, and 62-560, FAC. ~~Information as required in 17-22.05 shall be submitted to the Department prior to construction and operation. The operator of the potable water supply system shall be certified in accordance with Chapter 17-16, FAC.~~

XI. Transformer and Electric Switching Gear

The foundations for transformers, capacitors, and switching gear necessary for McIntosh Unit 3 to the existing distribution system shall be constructed of an impervious material and shall be constructed in such a manner to allow complete collection and recovery of any spills or leakage of oily, toxic, or hazardous substances.

XII. Toxic, Deleterious, or Hazardous Materials

The spill of any toxic, deleterious, or hazardous materials shall be reported in the manner specified by General Condition 2.

XIII. Transmission Line

Directly associated transmission lines shall be constructed and maintained in a manner to minimize environmental impacts in accordance with Chapter 403, F.S., and Chapter 2227F-6, FAC.

A. Construction

1. Filling and construction in waters of the State shall be minimized to the extent practicable. No such activities shall take place without obtaining lease or title from the Board of Trustees of the Internal Improvement Trust Fund Department of Natural Resources.
2. Placement of fill in wetland areas shall be minimized by spanning such areas with the maximum transmission lines span practicable. Such areas should be bridged by maintenance or access roads.
3. Construction and access roads should avoid wetlands and be located in surrounding uplands. Any fill required in wetlands for construction but not required for maintenance purposes shall be removed and the ground restored to its original contours after transmission line placement.
4. Keyhole fills from upland areas are preferable to a single road and should be oriented as nearly parallel to surface water flow lines as possible.
5. Sufficient culverts shall be placed through fill causeways to maintain sheet flow. The number and locations of such culverts will be determined in the field by consultation with DERP field inspectors.
6. Maintenance roads shall be planted with native species to prevent erosion and subsequent water quality degradation.
7. Construction activities should proceed as much as possible during the dry season.
8. Turbidity control measures, where needed, shall be employed to prevent violation of water quality standards.

9. Good environmental practices as described in Environmental Criteria for Electric Transmission Systems or published by the U.S. Department of Interior and the U.S. Department of Agriculture should be followed.
10. Any archaeological sites discovered during construction of the transmission line shall be disturbed as little as possible and such discovery shall be communicated to the Department of State, Division of Archive History and Records Management.

B. Maintenance

1. Vegetative removal for maintenance should be carried out in the following manner:

Vegetation within the right-of-way may be cut or removed no lower than the soil surface under the conductor, and for a distance up to 20 feet to either side of the outermost conductor, while maintaining the remainder of the project right-of-way by selectively clearing vegetation which has an expected mature height above 14 feet. Brazilian pepper, Australian pine and Melaleuca shall be eradicated throughout the wetland portion of the right-of-way.

2. Herbicides registered with the U.S. Environmental Protection Agency may be used for vegetation control within the transmission line easement without prior approval of the Department.

XIV. Construction in Waters of the State

No construction in waters of the State shall commence without obtaining lease or title from the Board of Trustees of the Internal Improvement Trust Fund Department of Natural Resources.

XV. Cooling Water Treatment

A study to determine the presence of pathogenic organisms in the sewage treatment plant effluent shall be performed to determine the degree of treatment required prior to use in cooling towers. A plan or study will be developed by the Department and the Department of Health & Rehabilitative Services. Based on the number of pathogenic organisms detected, the final degree of treatment and amount of chlorination to be required will be determined by the Department.

XVI. Sanitary Waste Disposal

Sanitary waste from operating plant facilities shall be disposed of in a septic tank system, as approved by the Health Department of Health & Rehabilitative Services, as long as the average daily flow does not exceed 2,000 gallons per day. If the sanitary waste exceeds 2000 gpd, a properly designed treatment system shall be constructed upon receipt of approval by the Department.

CITY OF LAKELAND
McINTOSH UNIT No. 3

Revised Site Certification Application

3.2 FUELS

3.2.1 FUEL TYPES

Unit #3 will have the capability of burning the types of fuels and fuel combinations described herein in the 250-MW application.

The primary fuel will be pulverized coal, and additionally the Unit has been designed to burn processed municipal solid waste, known as Refuse Derived Fuel or RDF, to supplement the pulverized coal. ~~The unit has been designed so that refuse can supply up to 10% of the necessary heat input for loads over the 50% of the design maximum capability (approximately 182 MW). However for the purposes of calculating the emission rates, flue gas volumes and flow rates, and for annual fuel consumption for this report, it was assumed that the unit would burn refuse at a constant rate of 26.25 tons per hour for 8 hours per day.~~

The furnace design is such that RDF can supply up to 10% of the expected full load heat input to the Unit.

As an alternative fuel source, petroleum coke will be added as a supplement to the pulverized coal. The blend rate can range from 0% to 20% by weight, depending on the quality of the coal. A 0% to 10% blended product will be used with medium sulfur coal (2.5% sulfur) and a 0% to 20% blended product with low sulfur coal (1%

sulfur).

As a backup to pulverized coal, Unit #3 will also have has the capability to burn low sulfur oil (.77% sulfur) as a principal primary fuel. ~~The unit will also have the capability to burn processed refuse with the oil:~~ In which case, RDF can also be burned with the low sulfur oil at a rate of up to 10% of expected full load heat input to the Unit. ~~Oil and the oil/refuse will be used during those periods when the use of coal is impossible due to precipitator or scrubber malfunction or disruption of the coal supply:---Possible disruptions could result from coal handling equipment failures, coal mine strikes, railroad strikes, etc.~~

Ignition or fuel stabilization of this Unit will be provided primarily by natural gas and/or low sulfur oil. Neither fuel can provide full load capability and only nominal loads can be achieved. They are primarily used for start-up and low load operation.

In summary, Unit #3 will have the capability of firing modes including (primary plus alternate fuels):

1. Pulverized coal only
2. Pulverized coal and processed-refuse RDF
3. Pulverized coal and petroleum coke
4. Pulverized coal, RDF, and petroleum coke
35. Low sulfur oil only
46. Low sulfur oil and processed-refuse RDF

It is entirely possible that ~~any or all~~ for Unit #3 to operate under any of the above firing modes could be utilized on a given day, however, during normal operation, firing modes 1 and 2 will be considered the primary but the primary operating modes will be 1 thru 4. Natural gas may be burned during startup or at any other time.

3.2.2 FUEL QUANTITIES

Unit #3 will ~~have an~~ has a maximum annual heat input requirement of 2.162×10^{13} BTU's based on ~~a 75% load factor and annual 100%~~ availability of 95% or 345 days (365 days) at a 90% capacity factor. The predicted annual average heat input requirement is

2.72629 x 10¹³ BTU's based on a 95% availability (347 days) at a 90% capacity factor.

It is anticipated that the coal-only-and-coal/refuse Unit will be operated in one of the four primary firing modes at all times (coal only, coal and RDF, coal and petroleum coke, or coal, RDF, and petroleum coke). ~~will-be-available-for-311-days-annually-with-the oil-and-oil-refuse-modes-accounting-for-the-remaining-availability.~~ Based on above-data, ~~-typical~~ these modes, the approximate average annual fuel uses-are: usage will be:

| <u>FUEL</u> | <u>QUANTITY</u> |
|---------------------------|---|
| Coal | 818,000 <u>864,550</u> tons <u>(Typical Coal)</u> |
| Refuse <u>RDF</u> | -72,450 <u>75,000</u> tons |
| Oil <u>Petroleum Coke</u> | 337,600-Bb1s: <u>190,000</u> tons |

~~The-expected-hourly-fuel-flow-requirements-at-both-maximum-load (364MW)-and-at-average-load-(272MW)-for-each-of~~ The maximum and average heat inputs and fuel flows for the primary firing modes as described in Section 3.2.1 are shown in Table 3.2.1.

3.2.3 TRANSPORTATION

COAL

Coal normally will be delivered to the plant site in two continuously operating unit trains in 70-one-hundred-ton ninety (90) cars of one hundred ton (nominal) bottom dump hopper cars per unit train. At this time a particular coal supplier has not been determined; - but - an - investigation - is - currently - in - progress - to determine - the - most - economical - sources - of - coal - the - transportation costs - involved - with - each - source. - - Presently, - four - potential - areas have - been - identified. - - They - are:

1. - - District - 13 - - - - - Alabama
2. - - District - 9 - - - - - West - Kentucky
3. - - District - 8 - - - - - East - Kentucky - and - parts - of - West - Virginia,
- - - - - Tennessee - and - Virginia
4. - - District - 3 - - - - - North - West - Virginia

Coals - - from - Alabama, - - East - Kentucky - - and - West - Kentucky - can - be transported - to - Lakeland - by - single - line - rail - haul - (L&N/SCL-RR) - and can - be - expected - to - have - the - lowest - unit - train - freight - rates. Northern - West - Virginia - (the - "Fairmont" - coal - field) - represents - a source - of - high - quality, - medium - to - high - sulfur - coal, - suitable - for use - in - the - proposed - Lakeland - unit, - and, - despite - a - two - line - rail haul - to - Lakeland - (Chessie - System/SCL-RR), - is - considered - potentially competitive - with - coals - from - other - areas. - - Although - West - Virginia District - 8 - coals - originating - on - the - N&W - RWY, - and - the - C&O - would likewise - involve - two - line - rail - hauls, - they - cannot - at - this - stage - of the - Coal - Supply - Study - be - ruled - out - as - non - competitive.

Unit-trains-from-any-of-the-above-mentioned-sources-will-reach-the
plant-site-on-a-railroad-spur-line-which-will-be-constructed-

from the coal unloading area to an existing Seaboard Coast Line tract located 1.5 miles due east of the plant site. The spur will cross Combee Road in a northwesterly direction to pass north of Fish Lake. The coal storage area, as shown on map 2.1.2, has been moved from the location shown in the 250-MW application to a site located northeast of the boiler. The spur line, as shown on map 2.1.1 will loop around Fish Lake with the coal unloading area being located due west of the lake.

The coal pile as shown on map 2.1.2, will be entirely located within the existing plant property and will not require the purchase of additional adjacent land.

Oil will be delivered into the plant site by fuel oil trucks from Port Tampa as is presently done for existing units.

Refuse collected in the Lakeland area will be delivered to the refuse processing area located on the plant site by collection and/or transfer trucks.

The coal supply will be primarily from the area east of the Mississippi River. The majority of the coal will come from Eastern Kentucky, but may also be obtained from other sources of suitable quality.

The coal will normally be delivered to the Plant via single line

rail haul, using CSX Transportation (CSXT). The unit train will reach the Plant site on a railroad spur line connecting the coal trestle with the CSXT track located one and one half miles east of the Plant. The coal will be unloaded using an elevated trestle approximately 1000 feet long. The bottom dump hopper cars will unload when they are given a signal through a third rail system as determined by an Operator.

PETROLEUM COKE

Petroleum coke will be obtained from a suitable source based on lowest evaluated delivered cost. Options to be evaluated include: purchasing a material blended with coal off site and delivered as a blended fuel ready for burning or purchasing a supply of petroleum coke to be delivered to the site and blended with the normal supply of coal.

The petroleum coke will be delivered to the Plant by truck from a nearby port or by rail, directly from a supply source. A blended fuel would be delivered either by rail or truck from a blending facility.

The blend will be carefully monitored and controlled to assure compliance with all regulated parameters at the stack exit with continuous emissions monitoring systems (i.e., sulfur dioxide, nitrogen oxide, and opacity). A blend of 90/10 (by weight) medium sulfur (2.5%) coal with petroleum coke and a blend of 80/20 (by

weight) low sulfur (1.0%) coal with petroleum coke has been tested and all environmental and operational parameters checked. The entire range of blends provide good operation and no adverse environmental impacts.

The fuel blend supplied to Unit #3 and the flexibility built into the flue gas desulfurization system (Scrubber) will be fully controlled, to ensure complete environmental compliance at all times.

REFUSE

Refuse collected from Lakeland and the surrounding area will be delivered to the refuse processing facility by the collection trucks.

OIL

Oil will be delivered to the Plant site by fuel oil trucks from the Port of Tampa.

NATURAL GAS

Natural gas is supplied to the site by a high pressure main tied in with Florida Gas Transmission several miles north of the Plant.

3.2.4 STORAGE

COAL

Coal will be stored on site in open piles for immediate use and an approximate-60-day-emergency-reserve-supply-(active pile) and an emergency reserve storage of approximately sixty days will be maintained in a sealed piles. The-emergency-reserve-pile-will require-approximately-20-acres-of-land-when-the-coal-is-compacted and-layered-to-a-height-of-20-feet.--The-reserve-pile-will-store approximately-185,000-tons-of-coal-and-the-active-pile-will-store approximately-10,000-tons.

Coal will be stored on a sealed surface and will be provided with a complete run-off control system to collect rain water or dust control water. Fugitive emissions from coal piles will be minimized by a dust water separation system.

Coal will be delivered to Unit #3 silos by a series of conveyors thru several transfer points. These transfer points and the silos will be equipped for dust control.

OIL

Oil will be stored in the ~~two (2)~~ existing 96,000-barrel low-sulfur oil tanks. -- Unlike the original 250-MW application, no additional fuel oil storage tanks will be constructed for the 364 MW unit. on-site tanks within containment areas. Diesel oil tanks, piping, and receiving areas all conform to regulations and rules of the Department governing petroleum products.

PETROLEUM COKE

Petroleum coke will be stored in the coal storage area either as a unblended or blended product.

REFUSE

Refuse will be received and not be stored in the same manner as described in the original 250-MW application on site. All material received will be processed and burned as quickly as possible.

3.2.5 FUEL ANALYSIS

Typical fuel analysis for coal, oil, and petroleum coke, refuse, and oil - that will be burned in Unit #3 are located in Tables 3.2.2, 3.2.3, 3.2.4, and 3.2.5 respectively.

3.2.6 PLANS FOR EMERGENCY SPILLS

As described the entire in Section 3.2.4, no new oil tanks will be required, so existing fuel oil unloading areas will be utilized. Since these areas already comply with the U.S. Environmental

Protection Agency's rule on the prevention of oil spills, no additional spill protection will be required.

3.2.7 COAL PILE RUN-OFF

~~As described in the original 250-MW application, the entire coal handling facility will be encircled by a trench system which will collect and direct coal pile run-off (up to and including the amount of run-off expected from the ten-year, 24 hour storm event.)~~ receiving and storage area is constructed on an impermeable base and is surrounded by a series of asphalt lined ditches to collect all rainfall run-off and dust control water. The collected water will be directed to a series of sumps and will be pumped to the north landfill sedimentation pond or to the ash settling ponds. The collected water will be recycled for reuse in Plant systems in an effort to minimize the consumptive use of water. The design of the storm water run-off system for the coal yard has been designed for a ten year, twenty-four hour storm event. Run-off quantities and diagrams are shown in more detail More detailed information is given in Section 3.3.

TYPICAL PETROLEUM COKE ANALYSIS

UNIT #3

Petroleum Coke Quality: As Rec'd Basis

| | | |
|---------------------------|----------------|-----------------------|
| <u>Moisture</u> | <u>8.00%</u> | <u>12.00% Max</u> |
| <u>Ash</u> | <u>0.25%</u> | <u>1.00% Max</u> |
| <u>Volatile</u> | <u>10.00%</u> | <u>14.00% Max</u> |
| <u>Sulfur</u> | <u>4.75%</u> | <u>5.50% Max</u> |
| <u>Btu/lb</u> | <u>14,200</u> | <u>14,200 Penalty</u> |
| <u>Hardgrove</u> | | |
| <u>Grindability Index</u> | <u>65</u> | <u>50 Min</u> |
| | <u>Typical</u> | <u>Maximum</u> |
| <u>Vanadium</u> | <u>950 ppm</u> | <u>1500 ppm</u> |
| <u>Iron</u> | <u>100 ppm</u> | <u>500 ppm</u> |
| <u>Silicon</u> | <u>50 ppm</u> | <u>250 ppm</u> |
| <u>Calcium</u> | <u>100 ppm</u> | <u>250 ppm</u> |
| <u>Nickel</u> | <u>250 ppm</u> | <u>500 ppm</u> |
| <u>Sizing</u> | <u>+3"</u> | <u>5%</u> |
| | <u>2x3"</u> | <u>5%</u> |
| | <u>1x2"</u> | <u>25%</u> |
| | <u>½x1"</u> | <u>20%</u> |
| | <u>-½"</u> | <u>45%</u> |

Table 3.2.1

FIRING MODES
FUEL FLOW RATES

| <u>MODE/LOAD</u> | <u>HOURLY FLOW RATES</u> |
|--|--|
| | 364 Mw |
| NO. 1 COAL ONLY (TONS/HR) | 140.9 <u>159.6</u> |
| NO. 2 COAL/REFUSERDF: (10% REFUSERDF) COAL (TONS/HR) REFUSERDF (TONS/HR) | 129.4 <u>143.7</u> 26.25 <u>40.4</u> |
| NO. 3 OIL ONLY (BBL/HR) | 531.1 <u>577.8</u> |
| NO. 4 OIL/REFUSERDF: (10% REFUSERDF) OIL (BBL/HR) REFUSERDF (TONS/HR) | 488.1 <u>520.0</u> 26.25 <u>40.4</u> |
| <u>NO. 5 COAL/COKE (80/20)</u> | <u>122.1 COAL</u> <u>30.5 COKE</u> |
| <u>NO. 6 COAL/COKE/RDF (80/20 - 90%)</u> <u>(RDF - 10%)</u> | <u>100.9 COAL</u> <u>40.4 RDF</u> <u>27.5 COKE</u> |

Table 3.2.4

MCINTOSH PLANT SITE - PETROLEUM STORAGE

| <u>EMISSION POINT</u> | <u>TYPE</u> | <u>TITLE V LOCATOR</u> | <u>LOCATION</u> | <u>SIZE (GALLON)</u> | <u>EMISSION</u> |
|---------------------------------------|-------------|----------------------------|------------------------------|--------------------------|-----------------|
| <u>DIESEL TANK</u> | <u>VENT</u> | <u>T009</u> | <u>E OF WATER TANK</u> | <u>2,000</u> | <u>VOC</u> |
| <u>GASOLINE TANK</u> | <u>VENT</u> | <u>T020</u> | <u>S OF WELD BARN</u> | <u>1,000</u> | <u>VOC</u> |
| <u>DIESEL STORAGE TANK</u> | <u>VENT</u> | <u>T021</u> | <u>TANK FARM</u> | <u>101,346</u> | <u>VOC</u> |
| <u>DIESEL TANK</u> | <u>VENT</u> | <u>T022</u> | <u>S OF WELD BARN</u> | <u>1,000</u> | <u>VOC</u> |
| <u>DIESEL FUEL TANK (REFUSE AREA)</u> | <u>VENT</u> | <u>T068</u> | <u>SE OF LARGE THICKENER</u> | <u>1,000</u> | <u>VOC</u> |
| <u>DIESEL FUEL (10,000 GAL) TANK</u> | <u>VENT</u> | <u>T109</u> | <u>N OF PEO BLDG</u> | <u>9,000</u> | <u>VOC</u> |
| <u>HEAVY OIL TANK</u> | <u>VENT</u> | <u>T113</u> | <u>TANK FARM</u> | <u>4,057,200</u> | <u>VOC</u> |
| <u>HEAVY OIL TANK</u> | <u>VENT</u> | <u>T114</u> | <u>TANK FARM</u> | <u>4,057,200</u> | <u>VOC</u> |
| <u>HEAVY OIL TANK</u> | <u>VENT</u> | <u>T115</u> | <u>TANK FARM</u> | <u>4,057,200</u> | <u>VOC</u> |
| <u>DIESEL STORAGE TANK</u> | <u>VENT</u> | <u>T116</u> | <u>TANK FARM</u> | <u>22,500</u> | <u>VOC</u> |

Table 5.6.2

3.4 HEAT DISSIPATION SYSTEM

The unit will use a thirteen-cell utilize-a wet mechanical draft cooling tower supplemented by a two cell mechanical draft auxiliary tower, for dissipation of waste heat from condenser and accessory equipment cooling water. ~~The-proposed-tower-location-is-shown-on~~ Map-2-1:2:

The tower will have a total circulating water flow of 144300 GPM with a design inlet water temperature of 114.7°F, ~~and a design outlet water temperature of 91°F.~~ The tower will be designed to dissipate 1636 MMBTUH with a 79°F inlet wet bulb air temperature.

Condenser cooling water will comprise 138300 GPM of the circulating water flow and 6000 GPM will be utilized to cool a secondary fluid for accessory equipment cooling.

Process wastewater and bBlowdown from the tower will be utilized as makeup for the SO₂ removal system (scrubber) on the boiler. Any excess blowdown will be transported to the new City of Lakeland's Public Works Sewage Plant Wetlands Treatment System located seven and one-half miles south of McIntosh Power Plant. The present on-site Marsh Treatment System will be ~~kept functional as a backup,~~ phased out, because the new wetlands system has proven to be very effective. A new pipeline will-be has been constructed to transport the blowdown from the tower to the Sewage Plant to be

combined with its effluent going to the Wetlands Treatment System.

Figure 3.4.1 (P. 3.4-2) shows all flows and temperatures in the circulating water system. Table 3.4.1 (P. 3.4-2) tabulates all quantities for maximum plant conditions.

3.5 CHANGES IN CHEMICAL AND BIOCIDES WASTES

The flow diagram shown in Figure 3.3.1 shows the major wastewater flow paths. The Figure shows that Unit No. 3 will not discharge waste streams to any water body. Waste streams will be reused to the extent practicable and that the remaining process wastewaters will be treated on site and pumped to disposal-facilities the Sewage Plant Wetlands Treatment System (Wetlands system). Excess cooling tower blowdown will be transported also to the Sewage Plant Wetlands Treatment System.

Figure 3.3.1 shows that after the scrubber makeup water is taken from the cooling tower blowdown stream, approximately 500 GPM or 720,000 gallons per day, will be pumped to the Sewage Plant Wetlands Treatment System. ~~The on-site Marsh Treatment System will be used as a backup. The City of Lakeland has instructed its consultant to investigate the possibility of reusing more of the process wastewater and cooling tower blowdown in other plant systems to further reduce the volume of wastewater that must be treated by the on-site facilities.~~ The wastewater treatment scheme shown in Figure 3.3.1 is similar to that which was originally presented in the 250 MW application. One notable change in the system is the addition of bottom ash dewatering bins for separating bottom ash and sluice water in lieu of a 5-acre sluice pond. This change was made to facilitate the handling of bottom ash for the sludge stabilization process. The flow diagram shows a settling

pond will be used as a backup system to the ash dewatering bin system, a storage area for sluice water makeup, and a holding area for the collection of runoff from the coal pile and coal handling area and water used

in the dust suppression system.

The north landfill surge pond will help ~~The settling pond will be sized to collect and contain all the coal pile runoff from the 12-acre coal storage area that is expected from the 10-year, 24-hour storm event. The 10-year, 24-hour storm event in the Lakeland area is 6.60 inches. so the pond will be sized to contain 2.151 million gallons of water, or 6.60 acre-feet, which would be expected from this event.~~ The settling pond is lined with bitumastic to prevent leaking of the water to shallow groundwater. Collected runoff will be pumped from the north landfill surge pond to the final wastewater ponds for reuse on site. ~~will be clay-lined to prevent leaking of the water to shallow groundwater supplies. As described in the original 250 MW application, all storage or holding areas shown in Figure 3.3.1 will be clay-lined.~~

Disposal of the cooling tower blowdown and process wastewaters will be to the back end of the sewage treatment plant of the City of Lakeland. Disposal of the solids from the process wastewater treatment plant will be to the plant stabilized sludge landfill.

All quantities of collected ash from the operation of Unit #3 will be used as an integral ingredient in the sludge stabilization process described in Sections 3.6.3 and 5.6.2.

3.6.3 FLUE GAS DESULFURIZATION SCRUBBER SLUDGE

As reported in Section 3.7, sulfur dioxide emissions in the flue gas from the coal, coal and petroleum coke, coal, RFD and petroleum coke, and coal/refuse and RFD firing modes will comply with the State and Federal new source performance standard of 0.80 1.2 lbs/mmBTU by using a limestone slurry flue gas scrubber with an 80% removal efficiency for high sulfur fuel (higher than 3.0% sulfur).

The end product of the SO₂ scrubber system will be a 50% solids sludge consisting of the following materials:

| <u>Constituent</u> | <u>% By Weight</u> |
|--------------------------------------|--------------------|
| CaCO ₃ | 33 |
| CaSO ₃ •2H ₂ O | 58 |
| CaSO ₄ •2H ₂ O | 9 |

The quality of sludge expected to be produced from Unit #3 is shown in Table 3.6.1.

In order to dispose of the annual amounts of sludge shown in Table 3.6.1 and the amounts of fly ash and bottom ash described in Section 3.6.2 in an acceptable manner, all sludge and ash quantities will be brought to an on-site stabilization process. In this process, ash and scrubber sludge will be combined with lime

and other aggregates to form a cementitious material suitable for use as landfill material, road base material, embankments and impermeable liners.

3.7 AIR EMISSIONS

3.7.1 AIR EMISSIONS COMPLIANCE STANDARDS

Unit #3 will be required to meet the State and Federal new source emission limits for Nitrous Oxide (NO_x), Sulfur Dioxide (SO₂), Total Suspended Particulate matter (TSP) and Opacity as listed in chapter 17-3 - (FAC) - and -40 - CFR - 60 Rule 62-296.405, F.A.C. As discussed in Section 3.2, Unit #3 will be capable of burning three four different fuels in four six firing modes, which will require meeting various emission limits depending on the firing mode. The following are the emission limits for each firing mode:

| <u>FIRING MODE</u> | <u>SO₂ LB/MMBTU</u> | <u>NO_x LB/MMBTU</u> | <u>TSP LB/MMBTU</u> | <u>OPACITY %</u> |
|---|------------------------------------|------------------------------------|-------------------------|----------------------|
| Coal Only | 1.2 | 0.7 | 0.1 | 20 |
| Coal/RefuseRDF | 1.2 | 0.7 | 0.1 | 20 |
| <u>Coal/Petroleum Coke</u> | <u>1.2</u> | <u>0.7</u> | <u>0.1</u> | <u>20</u> |
| <u>Coal/Petroleum Coke</u> <u>/RDF</u> | <u>1.2</u> | <u>0.7</u> | <u>0.1</u> | <u>20</u> |
| Oil Only | 0.8 | 0.3 | 0.1 | 20 |
| Oil/RefuseRDF | 0.8 | 0.3 | 0.1 | 20 |

Natural gas and/or low sulfur fuel oil may be burned during startup or at any other time.

3.7.2 NITROUS OXIDES (NO_x) COMPLIANCE METHOD

NO_x will be maintained within new-source-performance-standards (NSPS) the established limits through either boiler, burner or a combination of boiler and burner design. Each of the boiler companies that are currently bidding on this project uses a different method, however each company guarantees that applicable NO_x emission limits will be met.

3.7.3 PARTICULATE (TSP PM) COMPLIANCE METHOD

Particulate emissions resulting from the coal-only, coal/refuse and oil/refuse-firing-modes-will be maintained within the new-source performance-standard limit of 0.1 lb/mmBTU with a cold side

stack. Flue gas from the (1) coal, only-and-coal/refuse (2) coal and RFD, (3) coal and petroleum coke and (4) coal, RFD, and petroleum coke firing modes which require SO₂ scrubbing will be reheated to approximately 200°F and exit the stack at 170°F. Flue gas from the oil only

5.6 OTHER EFFECTS OF PLANT OPERATION

5.6.1 ENERGY RECOVERY FROM SOLID WASTE

As discussed in the 250 MW Unit #3 application, processed municipal refuse will be used as a supplemental fuel supply to the Unit. The processing system will still consist of shredding, magnetic separation of ferrous materials and air classification prior to combustion in the boiler. However, with the 364 MW Unit #3, refuse will be burned with both coal and oil rather than just with coal as in the 250 MW Unit #3.

For calculation purposes, the amount of refuse that will be burned has been limited to what is collected within the city limits of Lakeland and from contiguous outlying areas. This will produce approximately 300 tons per day of raw refuse and 210 tons per day of combustible material to be used as a refuse derived fuel (RDF).

In addition to the use of the RDF, the Unit #3 architect engineers are currently studying the possibility of burning the sewage sludge from the Lakeland Sewage Treatment Plant. Sewage sludge has a heating value of 4000 to 7000 BTU/per pound and its use would eliminate another City of Lakeland disposal problem.

Another important aspect of the refuse burning capability of Unit #3 is that Polk County has been designated by the Florida Department of Environmental Regulation Protection to develop a county wide plan for resource recovery, and while the plan is in

its beginning stages, preliminary discussions with Polk County representatives have indicated that the processing facility

at the McIntosh site and the Unit #3 RDF capability could be an integral part of the Polk County resource recovery plan.

Tests from the pilot RDF project in St. Louis at Union Electric's Merrimac Station have concluded that up to 20% of a boiler heat requirements can be from RDF without noticeable boiler damage. Based on this assumption, Unit #3 could burn over 1000 tons per day of the County's refuse. In order to produce the 1000 tons per day of RDF, over 1450 tons per day, essentially all the raw refuse projected to go to landfills in 1983 would have to be processed.

The present refuse processing Plant tipping floor will be expanded to the north with an addition of a building approximately 100' x 70'.

5.6.2 SCRUBBER SLUDGE DISPOSAL

The 250 MW Unit #3 application indicated that at the time of submittal, four (4) methods of disposing of sulfur sludge were being considered. The methods under consideration were:

1. Stabilized landfill with load bearing capacity.
2. Returning the sludge to the limestone mine where the limestone for the SO₂ scrubber was taken.
3. Using the sludge as a reclamation fill for phosphate strip mines.
4. Permanent ponding of the sludge on site in clay lined ponds.

The "Conditions of Certification" for the 250 MW Unit #3 stipulated that "Flue as desulfurization sludge shall be stabilized prior to disposal in other than a lined pond or basin". In keeping with this stipulation, the 364 MW Unit #3 will combine all the sludges and ash generated by the uUnit to form a stabilized fill material.

The stabilized sludge (pozzolanic) will be primarily used as a landfill material in the immediate area of the plant site. However, once the plant is in operation and actual samples of stabilized material are available, a study will be undertaken to determine the suitability and marketability of this material for use as a road and parking lot base coarse material, earthen embankments, impermeable liners for holding ponds and synthetic aggregate for concrete block and asphalt formulations.

The stabilized sludge operation will be located at the McIntosh Plant site. The operations will consist of blending the scrubber sludge, as well as other sludges generated in the operation of Unit #3 with fly ash, bottom ash and lime to form the stabilized pozzolanic material, prior to its use or disposal in the dedicated Plant site landfill. The stabilized pozzolanic sludge process provided by Conversion Systems, Inc. is located in a building next to the scrubber sludge thickener. This building, as well as the silos (fly ash, lime, etc.), is equipped with the proper dust control systems, as listed in Table 5.6.2.

MCINTOSH PLANT SITE - DUST COLLECTORS

| <u>EMISSION POINT</u> | <u>TYPE</u> | <u>LOCATION</u> | <u>EMISSION</u> |
|--|----------------|---------------------------|-----------------|
| <u>LIMESTONE SILO DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>N OF SCRUBBER #32</u> | <u>DUST</u> |
| <u>QUICKLIME SILO DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>N OF CSI BLDG</u> | <u>DUST</u> |
| <u>SODA ASH SILO DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>WWTP/ABOVE BLDG RO</u> | <u>DUST</u> |
| <u>QUICKLIME SILO DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>WWTP/ABOVE BLDG RO</u> | <u>DUST</u> |
| <u>FLY ASH SILO DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>E OF CSI BLDG</u> | <u>DUST</u> |
| <u>SHREDDER EXPLOSION VENT</u> | <u>VENT</u> | <u>REFUSE</u> | <u>DUST</u> |
| <u>KLEISLER FILTER</u> | <u>VENT</u> | <u>REFUSE</u> | <u>DUST</u> |
| <u>SILO 31 DUST COLL. EXHAUST/C4</u> | <u>EXHAUST</u> | <u>TRIPPER HOUSE</u> | <u>DUST</u> |
| <u>SILO 32 DUST COLL. EXHAUST</u> | <u>EXHAUST</u> | <u>TRIPPER HOUSE</u> | <u>DUST</u> |
| <u>SILO 33 DUST COLL. EXHAUST/C5</u> | <u>EXHAUST</u> | <u>TRIPPER HOUSE</u> | <u>DUST</u> |
| <u>SILO 34 DUST COLL. EXHAUST</u> | <u>EXHAUST</u> | <u>TRIPPER HOUSE</u> | <u>DUST</u> |
| <u>CRUSHER HOUSE DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>COAL CRUSHER HOUSE</u> | <u>DUST</u> |
| <u>C2 COAL CONVEYOR DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>C2 CONV. (BEGIN)</u> | <u>DUST</u> |
| <u>C3 REFUSE CONVEYOR DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>REFUSE</u> | <u>DUST</u> |
| <u>C5 REFUSE CONVEYOR DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>REFUSE</u> | <u>DUST</u> |
| <u>PUGMILL #31 DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>CSI</u> | <u>DUST</u> |
| <u>PUGMILL #32 DUST COLLECTOR</u> | <u>EXHAUST</u> | <u>CSI</u> | <u>DUST</u> |

Attachment AMO-1

Alternative Methods of Operation

Operation at various heat input rates

C.D. McIntosh Unit 3 may be operated up to 8760 hours per year at heat input rates from zero to 3640 MMBtu per hour.

Operation on various types of fuels

Unit No. 3 may use the following fuels:

- Coal only
- Oil only
- Coal and up to 10% refuse (based on heat input)
- Oil and up to 10% refuse (based on heat input)
- Coal and up to 20% petroleum coke (based on weight)
- Coal and up to 20% petroleum coke (based on weight) and 10% refuse (based on heat input)
- Natural gas may be fired during startup or at any other time, alone or with any other fuels or fuel combinations.

November 10, 1994

VIA HAND DELIVERY

Clair H. Fancy, Chief
Bureau of Air Regulation
Division of Air Resources Management
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399

RECEIVED
NOV 10 1994
Bureau of
Air Regulation

RE: C.D. McIntosh Power Plant, Unit No. 3
Co-firing of Petroleum Coke

Dear Clair:

In an effort to reduce fuel costs without sacrificing compliance with applicable environmental standards, the City of Lakeland ("Lakeland") plans to seek authorization to co-fire petroleum coke with other fuels in Unit 3 at the C.D. McIntosh Power Plant. To avoid any misunderstanding about applicable regulatory requirements, Lakeland requests confirmation that the planned use of petroleum coke does not trigger application of Prevention of Significant Deterioration ("PSD") review or the New Source Performance Standards ("NSPS") in 40 C.F.R. 60, Subpart Da.

By way of background, Unit 3 is 364 MW steam electric generating unit designed and currently permitted to fire multiple fuels, including coal, municipal refuse, and oil. Because petroleum coke is transported, handled, and burned in the same manner as coal, its use in Unit 3 requires no changes or additions to the unit itself or to ancillary facilities at the McIntosh Plant. Additionally, as indicated in Attachment "A," the results of a recent test burn demonstrate that, when 20% petroleum coke is blended with coal (or coal and refuse) and burned in Unit No. 3, emissions of all regulated pollutants are below applicable emission limits for the burning of coal and coal/refuse. Based upon those results, the City will soon request minor amendments to the PSD permit and site certification to specifically authorize the co-firing of low sulfur coal with up to 20% petroleum coke based upon the unit's total heat input.

PSD:

While recognizing that the supplemental use of petroleum coke may require minor amendments to the current PSD permit and site certification for Unit 3, Lakeland has concluded that PSD review is not applicable. DEP regulations require PSD review and, potentially, imposition of BACT emission limits for "modifications" at existing sources which result in

Clair H. Fancy, Chief
Bureau of Air Regulation
November 10, 1994
Page 2

significant net emissions increases. Rule 62-212.200(46), F.A.C., defines "modification" as "[a]ny *physical change in, change in the method of operation of, or addition to* a stationary source or facility which increases the actual emissions of any air pollutant regulated" under various DEP rules. Although PSD review often applies to fuel "conversions" or "switches," such projects almost invariably involve physical or operational changes necessary to accommodate use of the alternative fuel. However, the mere use of a new supplemental fuel, by itself, does not constitute a physical or operational change and, therefore, does not constitute a "modification" subject to PSD review.

In the attached PSD applicability determination for Detroit Edison's oil-fired Greenwood Unit 1 (Attachment "B"), for example, EPA concluded that PSD review applied to the facility as whole because the proposed addition of natural gas firing capacity required installation of new fuel delivery equipment. In other words, "the changes necessary to accommodate the firing of natural gas at the Greenwood Plant would, for PSD purposes, be considered a 'physical change' to the source." Recognizing that BACT requirements apply only to those emission units which undergo *both* a physical or operational change *and* a significant net increase, however, EPA concluded that BACT did not apply to Greenwood Unit 1 because it was able to fire natural gas without any physical or operational changes. In that regard, EPA specifically determined that, although the unit did require installation of gas canes, "by itself, the addition of gas canes to the burners is not a physical change or change in the method of operation in the unit and, consequently, would not subject the boiler to BACT review." (Emphasis in original). EPA Region IV expressed this same reasoning in the attached memorandum to the State of Florida regarding applicability of PSD and BACT review to coal conversions (Attachment "C").

In contrast to "fuel switches" which have triggered PSD review in the past, the use of petroleum coke in McIntosh Unit 3 involves no "physical or operational changes" whatsoever. Use of petroleum coke at the McIntosh Plant requires no additional fuel delivery, handling or storage facilities. Moreover, like Detroit Edison's Greenwood Unit 1, McIntosh Unit 3 can fire petroleum coke without any physical or operational changes to the boiler or burners. Accordingly, the proposed co-firing of petroleum coke triggers neither PSD review of the McIntosh Plant as a whole, nor the imposition of new BACT emission limits for Unit 3.

NSPS:

As indicated in Attachment "D," U.S. EPA has determined that the NSPS in 40 C.F.R. 60, Subpart Da, does not apply to McIntosh Unit 3 because Lakeland "commenced construction" prior to the effective date of September 18, 1978. Although Subpart Da applies to "modifications" at affected units commenced after September 18, 1978, much like DEP's PSD regulations, the NSPS rules define "modification" to include "any physical or operational change" to an existing facility which results in an increased emission rate. See 40 C.F.R. § 60.14(a) (1993). For the reasons stated above, the planned co-firing of petroleum coke in Unit

Clair H. Fancy, Chief
Bureau of Air Regulation
November 10, 1994
Page 3

3 does not involve a physical or operational change and, therefore, does not trigger application of Subpart Da.

Moreover, the proposed co-firing also would be exempt from Subpart Da under 40 C.F.R. § 60.14(e)(4), which provides that the following, by itself, is not considered a "modification":

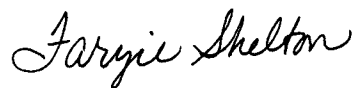
Use of an alternative fuel or raw material if, prior to the date any standard of this part becomes applicable to that source type, as provided by § 60.1, the existing facility was designed to accommodate that joint use. A facility shall be considered to be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as amended prior to the change.

As evidenced by the recent test burn, there is no question that co-firing of petroleum coke could be accomplished under the construction specifications for McIntosh Unit 3.

I have discussed these issues with Dennis Crumpler of EPA who generally agreed that the proposed co-firing of petroleum coke triggers neither PSD nor NSPS requirements. Moreover, Greg Worley of EPA indicated that while the decision was Florida's, EPA would likely adopt a state determination that these requirements do not apply. Accordingly, the City of Lakeland respectfully requests that the Department issue a written determination that PSD and NSPS requirements do not apply to the planned co-firing of petroleum coke in McIntosh Unit 3.

If you have any questions or need additional information, please contact me at 813-499-6603. Thank you for your consideration of this request.

Sincerely,



am/ Farzie Shelton

cc: Dennis Crumpler, EPA/OAQPS
Greg Worley, EPA/Region IV

Best Available Copy

PHONE NO. : 8134996688

Sep. 21 1994 02:26PM P22

: T

Lakeland Electric & Water Utilities
McIntosh Power Plant Unit No. 3
Stack tests results

| Mode of operation | Particulate lb/MMBtu | SO2 lb/MMBtu | Nox lb/MMBtu | CO lb/MMBtu | H2SO4/SO3 lb/MMBtu | Opacity % | Test date |
|---------------------------|----------------------|--------------|--------------|-------------|--------------------|-----------|-----------|
| #1 High Sulfur Coal (HSC) | 0.0481 | 1.0866 | 0.5391 | 0.0054 | 0.0240 | 11.46 | 2/8/94 |
| #2 10% Coke + (HSC) | 0.0459 | 1.1087 | 0.5466 | 0.0050 | 0.0213 | 10.42 | 2/9/94 |
| #3 20% Coke + (LSC) | 0.0141 | 0.8935 | 0.4126 | 0.0889 | 0.0255 | 0 | 2/15/94 |
| | | | | | | | |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

Solo 4.47

JAN 18 1990

Mr. Morton Sterling, Director
Environmental Protection
Detroit Edison Company
200 Second Avenue, 482 WCB
Detroit, Michigan 48226

Dear Mr. Sterling:

This is a followup to the October 19, 1989 meeting during which Detroit Edison further discussed its position that the addition of natural gas firing capacity to the Greenwood Unit I Power Plant should not be subject to a prevention of significant deterioration (PSD) review. At the meeting, you requested that Environmental Protection Agency (EPA) Headquarters review Region V's previous determination that the proposed fuel conversion was a "major modification" for PSD purposes.

As you are aware, in a letter dated December 20, 1988, EPA Region V concluded that the proposed conversion of the oil-fired Greenwood Unit to dual capacity for oil and gas firing would subject the plant to a PSD review for nitrogen oxides (NO_x). The Region's conclusion was based on a determination that 1) the source was not capable of firing natural gas prior to January 6, 1975 (and therefore was not covered by the PSD exemption for modifications under 40 CFR 52.21(b)(2)(iii)(e)(1)); and 2) there would be a significant net increase of NO_x resulting from the change. As you have requested, we have reevaluated this finding in light of the additional information submitted by Detroit Edison during the October 19 meeting.

The information presented by Detroit Edison indicates that the emissions unit at the source was initially designed and permitted to fire both oil and gas. However, there is no evidence to demonstrate that the source as a whole had, or at any time initiated construction on, the equipment necessary to deliver natural gas to the combustion unit. Without such equipment, it would not be possible for the source to utilize natural gas as an alternate fuel. Consequently, it is our view that the source was not capable of accommodating natural gas prior to January 6, 1975. Therefore, the changes necessary to accommodate the firing of natural gas at the Greenwood Plant would, for PSD purposes, be considered a "physical change" to the source.

As requested, we have also evaluated the net emissions change at the source that would result from the modification. It is Detroit Edison's position that the large decreases in "allowable" emissions of sulfur dioxide, particulate matter, and NO_x when burning natural gas rather than oil as a result of the modification, warrants special consideration. Specifically, Detroit Edison feels that the use of a cleaner fuel at the Greenwood Plant warrants a finding that there is no increase in actual emissions and accordingly no "major modification."

ATTACHMENT "B"

Under the PSD regulation, a "major modification" occurs when the physical or operational change at the source (in this case the installation of natural gas handling facilities and the firing of natural gas) would result in a significant net emissions increase for any regulated pollutant at the source. Whether the proposed use of natural gas at the Greenwood Plant would result in a "significant net emissions increase" depends on a comparison between the "actual emissions" before and after the physical or operational change. Where, as here, the source has not yet begun operations firing natural gas, "actual emissions" after the change to natural gas firing are deemed to be the source's "potential to emit" for that fuel [see 40 CFR 52.21(b)(21)(iv)]. Potential annual NO_x emissions when firing natural gas at the Greenwood Plant greatly exceed its current actual emissions. Therefore, as a result of the ability to fire natural gas after the change, the emissions of NO_x at the source would experience a "significant net emissions increase," within the meaning of the PSD regulations. The fact that current annual "allowable emissions" for the Greenwood Plant when firing oil may greatly exceed future allowable (or potential) emissions when firing natural gas is not relevant for PSD applicability purposes. See Puerto Rican Cement Co., Inc. v. EPA No.89-1070 (First Circuit) (slip op. October 31, 1989).

In summary, our review indicates that Region V correctly applied the PSD applicability criteria.

The PSD requirements include an air quality and additional impact analysis and the application of best available control technology (BACT). The BACT requirement applies to "each proposed emissions unit at which a net emissions increase would occur as a result of a physical change or change in the method of operation in the unit" [see 52.21(j)(3)]. Consequently, although the addition of gas firing would subject the source as a whole to a PSD review, the requirement to apply BACT is applicable only to those emissions units at the source which undergo both a physical or operational change and a significant net emissions increase. It appears that the only emissions unit at the Greenwood Plant affected by the proposal to fire gas would be the existing boiler. Historically, it has been EPA's policy that where the individual boiler being converted is capable of accommodating the alternate fuel, BACT would not apply.

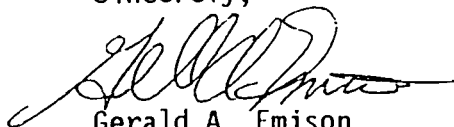
In this case, in addition to the physical changes at the source necessary to deliver natural gas to the existing boiler, a number of canes capable of burning natural gas would be installed in the existing burner assemblies. Modifications to the unit's overfired air duct are also planned. We also understand that there will be no changes in the present oil burning system, which will be retained.

Our review indicates that, by itself, the addition of gas canes to the burners is not a physical change or change in the method of operation in the unit and, consequently, would not subject the boiler to a BACT review. Therefore, if the sole change to the boiler is the addition of the canes, then, in this case, the only requirements necessary for a PSD permit are an air quality analysis, additional impacts analyses, and (if applicable) a Class I impact analysis--the application of BACT is not required. However,

the information submitted by Detroit Edison indicates that changes to the boiler's overfired air duct are also planned. At this time, without additional information on the nature and scope of the work to be done on the overfired air duct, we cannot determine whether these are physical or operational changes to the boiler that are necessary to make the boiler capable of accommodating natural gas. If the ducting work is necessary for this purpose, then a BACT analysis would likely be required.

In addition, it is unclear from the information submitted whether Detroit Edison plans to undertake further modifications to the boiler which would allow 100 percent load when firing natural gas. Currently, the unit as presently configured has the potential of achieving only 75 percent load when firing natural gas. To achieve a higher load, substantial modifications to the unit apparently would be required. These types of physical changes to the boiler likely would require a full PSD review, including a BACT analysis for the boiler. The BACT analysis would require that the source evaluate the use of all available additional air pollution controls for reducing NO_x emissions. The analysis would consider retrofit costs for add-on controls and the fact that gas is a relatively clean-burning fuel. Consequently, in this case, it is possible that the currently planned use of a low-NO_x burner design may be BACT for gas firing. However, such a conclusion would have to be demonstrated through the requisite BACT analysis. I have asked Region V to work with you should you need assistance in preparing the analysis.

Sincerely,



Gerald A. Emison
Director

Office of Air Quality Planning
and Standards

cc: J. Calcagni, EPA/AQMD
D. Kee, EPA/Region V
G. Foote, EPA/OGC



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

JUN 7 1983

44W-AH

Mr. Steve Smallwood, Chief
Bureau of Air Quality Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Smallwood:

This is to inform you of Region IV policy concerning applicability of coal conversions to EPA PSD regulations.

Fuel conversions, in general, are considered major modifications for purposes of PSD review providing emission increases are significant. However, Section 52.21(b)(2)(iii)(e) provides an exemption for certain fuel conversions from the major modification definition. Specifically, this section exempts a fuel conversion from PSD review if the source was capable of accommodating the alternate fuel before January 6, 1975 and such a change is not prohibited by any enforceable permit conditions.

The question then, is whether the source, i.e., the entire plant, was capable of accommodating coal before January 6, 1975. For purposes of converting one or more, but not all of the boilers, we interpret this provision as requiring that the plant be capable of receiving, transferring, and preparing coal, and then transferring coal and combusting coal in the units being converted, and disposing of the ash. It is not necessary for the plant to be capable of carrying out all those operations for every unit at the source, but only for those being converted. On the other hand, if the plant is capable of receiving coal and transferring and combusting it only in some other unit at the plant, but not the one being converted, the plant would not be deemed capable of accommodating coal for purposes of that project.

In order for a plant to be capable of accommodating coal, the company must show not only that the design (i.e., construction specifications) for the source contemplated the equipment, but also that the equipment actually was installed and still remains in existence. Otherwise, it cannot reasonably be concluded that the use of coal was "designed into the source." Thus, a source that had used coal at a particular unit at an earlier time, but later switched to another fuel, would be capable of accommodating coal as long as the coal handling equipment still existed. If coal handling equipment had been removed or was never installed, the source would not be coal accommodative. If a proposed conversion is not eligible for the exemption under 52.21(b)(2)(iii)(e), it is considered a major modification for the purposes of PSD review if the resulting net emission increases are significant. PSD applicability would be based on all emission increases from the conversion, including emission increases from the coal and ash handling and storage facilities as well as from the boilers, since all the increases are caused by the conversion to coal.

ATTACHMENT "C"

-2-

Once PSD applicability has been established, it is then necessary to undertake a BACT analysis as required under 52.21(j). That section, under paragraph 3, requires that a major modification apply "best available control technology for each pollutant subject to regulation under the Act for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit." This section clearly intends that technology review be assessed on an emissions unit rather than on a plant-wide basis.

In the situation where the individual boiler being converted is capable of firing coal with minimal physical changes (for example, change of burners only), BACT analysis would apply to the coal handling and storage equipment as well as any other necessary new equipment. BACT analysis would not apply to the boilers since individually they were designed to accommodate coal and therefore will not be undergoing a physical change or change in the method of operation.

In addition to the BACT analysis, requirements for a source impact analysis (52.21(k)), air quality analysis (52.21(m)), additional impact analyses (52.21(o)), and Class I analysis (52.21(p)) must be satisfied.

Once the source has satisfied these requirements and the notice and public comment provisions, permit approval may proceed.

Region IV is aware that guidance on this question has been somewhat vague, and possibly conflicting, in the past. Therefore, we do not intend for this policy to be applied retroactively where it was not adhered to. However, we do expect each Region IV state to immediately implement this policy for all future applicability determinations.

Sincerely yours,

James T. Wilburn, Chief
Air Management Branch
Air & Waste Management Division

cc: Ed Reich
Darryl Tyler

United States
Environmental Protection
Agency

345 Courtland Street NE
Atlanta GA 30308

Mississippi, North Carolina,
South Carolina, Tennessee,
Kentucky



MAR 02 1979

REF: 4RC

Mr. Stephen C. Watson
Assistant City Attorney
City of Lakeland
World Citrus Center
Lakeland, Florida 33802

Re: City of Lakeland McIntosh
Power Plant Unit 3

Dear Mr. Watson:

We have reviewed the materials previously submitted on whether Clean Air Act new source performance standards (NSPS) promulgated in the September 19, 1978, Federal Register, apply to the above. The materials disclose that Unit 3 is not subject to those NSPS. The basis for this conclusion is described in the attached memorandum.

If you have any questions on this, please call (telephone 404/881-2335).

Sincerely yours,

Sanford W. Harvey, Jr.
Sanford W. Harvey, Jr.
Regional Counsel

Enclosure

MAR 5 REC'D



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

SEP 12 1984

REF: 4AW-AM

Mr. Larry George
Florida Department of Environmental
Regulation
Bureau of Air Quality Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. George:

Per your request, please find enclosed a copy of the letter sent to Mr. Stephen C. Watson, Assistant City Attorney, City of Lakeland, regarding the non applicability of New Source Performance Standards (NSPS) Subpart Da to the Lakeland Utilities, McIntosh Unit No. 3.

If I can be of any further assistance, please feel free to contact me.

Sincerely yours,

Wayne

Wayne J. Aronson,
Team Leader
New Source Review

Enclosure

DER
SEP 17 1984
BAQM

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State of Florida Department of Environmental Regulation
City of Lakeland
C.D. McIntosh, Jr. Power Plant - Unit No. 3
Case No. PA 74-06-3K
CONDITIONS OF CERTIFICATION

GENERAL

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Appendix A

State of Florida Department of Environmental Regulation
City of Lakeland
C.D. McIntosh, Jr. Power Plant - Unit No. 3
Case No. PA 74-06-SR
CONDITIONS OF CERTIFICATION

GENERAL

1. Change in Discharge

All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any pollutant not identified in the application, or any discharge more frequent than, or at a level in excess of that authorized herein, shall constitute a violation of the certification. Any anticipated facility expansions, production increases, or process modifications which will result in new, different or increased discharges or expansion in steam generating capacity will require a submission of a new or supplemental application pursuant to Chapter 402, Florida Statutes.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any limitation specified in this certification, the permittee shall notify the Southwest District Manager of the Department by telephone during the working day during which said noncompliance occurs and shall confirm this situation in writing within seventy-two (72) hours of first becoming aware of such conditions, supplying the following information:

- a. A description and cause of noncompliance; and
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying event.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this certification. Such systems are not to be bypassed without prior department approval.

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4. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact resulting from noncompliance with any limitation specified in this certification, including but not limited to such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying event.

5. Right of Entry

The permittee shall allow the Secretary of the Florida Department of Environmental Regulation and/or authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where an effluent source is located or in which records are required to be kept under the terms and conditions of this permit; and
- b. To have access to and copy all records required to be kept under the conditions of this certification; and
- c. To inspect and test any monitoring equipment or monitoring method required in this certification and to sample any discharge or pollutants, and
- d. To assess any damage to the environment or violation of ambient standards.

6. Revocation or Suspension

This certification may be suspended or revoked pursuant to Section 403.512, Florida Statutes, or for violations of any General or Special Condition.

7. Civil and Criminal Liability

This certification does not relieve the permittee from civil or criminal responsibility or liability for noncompliance with any conditions of this certification, applicable rules or regulations of the Department, or Chapter 403, Florida Statutes, or regulations thereunder.

Subject to Section 403.511, Florida Statutes, this certification shall not preclude the institution of any legal action or relieve the permittee from any responsibilities or penalties established pursuant to any other applicable State Statutes or regulations.

8. Property Rights

The issuance of this certification does not convey any property rights in either real or personal property tangible or intangible, nor any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. The applicant will obtain title, lease or right of use from the State of Florida, to any sovereign submerged lands occupied by plant, transmission line structures, or appurtenant facilities.

9. Severability

The provisions of this certification are severable, and if any provision of this certification, or the application of any provision of this certification to any circumstances, is held invalid, the application of such provision to other circumstances and the remainder of the certification shall not be affected thereby.

10. Definitions

The meaning of terms used herein shall be governed by the definitions contained in Chapter 403, Florida Statutes, and any regulation adopted pursuant thereto. In the event of any dispute over the meaning of a term used in these general or special conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statute or regulation or, in the alternative by the use of the commonly accepted meaning as determined by the Department.

11. Review of Site Certification

The certification shall be final unless revised, revoked or suspended pursuant to law. At least every five years from the date of issuance of this certification or any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control Act Amendments of 1972, for the plant units, the Department shall review all monitoring data that has been submitted to it during the preceding five-year period, for the purposes of determining the extent of the permittee's compliance with the conditions of this certification and the environmental impact of this facility. The Department shall submit the results of its review and recommendations to the permittee. Such review will be repeated at least every five years thereafter.

12. Modification of Conditions

The conditions of this certification may be modified in the following manner:

- a. The Board hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to monitoring or sampling.
- b. All other modifications shall be made in accordance with Section 403.516, F.S.

State of Florida Department of Environmental Regulation
 City of Lakeland
 C. D. McIntosh, Jr. Power Plant Unit No. 3
 Case No. PA 74-06-SR
 CONDITIONS OF CERTIFICATION

SPECIAL

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State of Florida Department of Environmental Regulation
City of Lakeland
Power Plant No. 3 - Unit No. 3
Case No. PA 74-06
CONDITIONS OF CERTIFICATION

SPECIAL

I. Air

The construction and operation of the Unit No. 3 at the McIntosh Plant shall be in accordance with all applicable provisions of Chapters 17-2, 17-5, and 17-7, Florida Administrative Code. The permittee shall comply with the following conditions of certification:

A. Emission Limitations

1. Stack emissions shall not exceed those specified in Chapter 17-2.04(6)(e) 1., FAC.
2. The permittee shall not burn a fuel oil containing more than an average of 0.7% sulfur unless it can be demonstrated that either, a) heat efficiency is such as to insure compliance with all applicable emission limitations, or b) that a flue gas desulfurization unit is installed that will insure compliance with applicable emission limitations.
3. The height of the boiler exhaust stack for Unit 3 shall be not less than 250 feet above grade. The height of stacks for future units shall be determined after review of supplemental applications.
4. Particulate emissions from the coal handling facilities:
 - a. The applicant shall not cause to be discharged into the atmosphere from any coal processing or conveying equipment, coal storage system or coal transfer and loading system processing coal, visible emissions which exceed 20 percent opacity.
 - b. The applicant must submit to the Department within five (5) working days after it becomes available, copies of technical data pertaining to the selected particulate emissions control for the coal handling facility. These data should include, but not be limited to, a copy of the formal bid from the successful bidder, guaranteed efficiency and emission rates, and major design parameters such as air/cloth ratio and flow rate. The Department may, upon review of these data, disapprove the use of such device if the Department determines the selected control device to be inadequate to meet the visible emission limit specified in 5 (a) above.

B. Air Monitoring Program

1. The permittee shall install and operate continuously monitoring devices for the Unit No. 3 boiler exhaust for sulfur dioxide, nitrogen dioxide and opacity. The monitoring devices shall meet the applicable requirements of 17-2.08, FAC.
2. The permittee shall operate two ambient monitoring device for sulfur dioxide in accordance with EPA reference methods in 40 CFR, Part 53 and two ambient monitoring device for suspended particulates. New and existing monitoring devices shall be located as designated by the Department. The frequency of operation shall be every six days or as specified by the Department.
3. The permittee shall maintain a daily log of fuels used and copies of fuel analyses containing information on sulfur content, ash content and heating values to facilitate calculations of emissions.
4. The permittee shall provide sampling ports into the stack and shall provide access to the sampling ports, in accordance with Standard Sampling Techniques and Methods of Analysis for The Determination of Air Pollutants from Point Sources, July 1975.
5. The ambient monitoring program may be reviewed annually beginning two years after start-up of Unit No. 2 by the Department and the permittee.
6. Emission Control Systems:
Prior to operation of the source, the owner or operator shall submit to the Department a standardized plan or procedure that will allow the company to monitor emission control equipment efficiency and enable the company to return malfunctioning equipment to proper operation as expeditiously as possible.

C. Stack Testing:

1. Within 60 days after achieving the maximum capacity at which the facility will be operated, but no later than 180 days after initial startup, the owner or operator shall conduct performance tests for particulates and SO₂ and promptly furnish the Department a written report of the results of such performance tests.

2. Performance tests shall be conducted and data reduced in accordance with methods and procedures in accordance with Standard Sampling Techniques and Methods of the Determination on Air Pollutants from Point Sources, July 1975.
3. Performance tests shall be conducted under such conditions as the Department shall specify based on representative performance of the facility. The owner or operator shall make available to the Department such records as may be necessary to determine the conditions of the performance tests.
4. The owner or operator shall provide the Department with 30 days prior notice of the performance tests and afford the Department the opportunity to have an observer present.
5. Stack tests for particulates, NO_x and SO₂ shall be performed annually in accordance with conditions 2, 3 and 4 above.

D. Reporting

1. Stack monitoring, fuel usage and fuel analysis data shall be reported to the Department on a quarterly basis in accordance with 40 CFR, Part 60, Section 60.7 and in accordance with 17-2.08, FAC.
2. Ambient air monitoring data shall be reported to the Department quarterly by the last day of the month following the quarterly reporting period utilizing the SARDAD or other format approved by the Department in writing.

E. Coal Characteristics and Contracts

Before approval can be granted by the Department for use of control devices, characteristics of the coal to be fired must be known. Therefore, before these approvals are granted, the applicant must submit to the Department copies of coal contracts which should include the expected sulfur content, ash content, and heat content of the coal to be fired. These data will be used by the Department in its evaluation of the adequacy of the control devices.

F. Coal Information

As an alternative to the ^Esubmittal of contracts for purchase of coal under condition ~~A~~ above, the applicant may submit the following information:

1. The name of the coal supplier;
2. The sulfur content, ash content, and heat content of the coal as specified in the purchase contracts;
3. The location of the coal deposits covered by the contract (including mine name and seam);
4. The date by which the first delivery of coal will be made;

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5. The duration of the contract; and
6. An opinion of counsel for the applicant that the contract(s) are legally binding enforceable.

G. Reporting:

Beginning one month after certification the applicant shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of major pieces of equipment (including control equipment). All reports and information required to be submitted under this condition shall be submitted to Mr. Hamilton S. Owen, Jr., Administrator of Power Plant Siting, Department of Environmental Regulation, 2500 Blair Stone Road, Tallahassee, Florida 32301.

II. Water Discharges

Discharges during construction and operation of the Unit No. 3 shall be in accordance with all applicable provisions of Chapter 17-3, Florida Administrative Code and 40 CFR 423, Effluent Guidelines and Standards for Steam Electric Power Generating Point Source Category. In addition, the permittee shall comply with the following conditions of certification:

A. Pretreatment Standards

Wastewater discharged from Unit No. 3 to the Lakeland municipal sewerage system shall comply with the pretreatment standards for new sources as contained in 40 CFR, Part 423.16 and amendments. The specific standards applicable to the facilities as planned are:

1. Cooling Tower Blowdown

There shall be no detectable amounts of materials added for corrosion inhibition, including but not limited to zinc and chromium in cooling tower blowdown discharged to the sewer system.

2. pH

The pH of all discharges shall be within the range of 6.0 to 9.0.

3. Polychlorinated Biphenyl Compounds

There shall be no release to the environment of polychlorinated biphenyl compounds.

4. Chemical Wastes and Boiler Blowdown

All low volume wastes (demineralizer regeneration, cooling tower basin cleaning wastes, floor drainage, sump drains and similar wastes), metal cleaning wastes (including preheater and fireside wash) and boiler blowdown shall be treated as required for pH adjustment and removal of chemical constituents. These wastewaters will be discharged to an adequately sized and constructed spray evaporation basin.

5. Sluice Pond Overflow

Sluice pond overflow (coal pile runoff from less than 10-year, 24-hour rainfall and bottom and fly ash transport water) shall be treated as required (detention basin) and discharged to an adequately sized and constructed spray evaporation pond.

6. Flue Gas Desulfurization Sludge Pond Overflow

The flue gas desulfurization sludge pond overflow shall be discharged to an adequately sized and constructed spray evaporation pond.

B. In-Plant Water Monitoring Program

A monitoring program shall be undertaken by the City of Lakeland on the effluent streams within the facility to determine compliance by Unit 3 with the applicable pretreatment standards for those wastes discharged to the Lakeland municipal sewerage system.

III. Groundwater

A. General

The use of groundwater shall be minimized to the greatest extent practicable.

B. Well Criteria

The well locations shall be approved by the Southwest Florida Water Management District. Design and construction of new wells shall be in accordance with the applicable rules of the Department of Environmental Regulation and Southwest Florida Water Management District.

C. Groundwater Use Limitations

1. Groundwater used for makeup for the cooling tower for Unit No. 3 shall be limited to emergency use only, not to exceed 0.2166 million gallons per day on an average annual basis or 5.271 mgd on a maximum daily basis from 3 new wells.

2. Daily water use from the new wells shall be reported quarterly to the Southwest Florida Water Management District.

IV. Leachate

A. Compliance

Leachate from coal storage piles, settling and spray ponds and flue gas desulfurization sludge ponds (FGD) shall not contaminate waters of the State (including both surface and groundwaters) in excess of the limitations of Chapter 17-3, FAC.

B. Monitoring

A monitoring well system shall be used to determine whether or not leachate from the spray evaporation pond, as sludge ponds, and the flue gas desulfurization sludge ponds is reaching the groundwater. The permittee shall keep a monthly record of the monitoring results and shall notify the Central Subdistrict Office of the Department and the Southwest Florida Water Management District when said measurements become abnormal or excessive. A quarterly summary of the results of monitoring shall be provided to the Central Subdistrict Manager.

C. Corrective Action

When the leachate monitoring system indicates significant leakage to the groundwater in the shallow aquifer, the appropriate ponds (settling spray or sludge) shall be sealed, relocated or closed, or the operation of the affected pond shall be altered in such a manner as to assure the Department that no significant contamination of the groundwater will occur.

V. Control Measures During Construction

A. Stormwater Runoff

During construction and plant operation, necessary measures shall be used to settle, filter, treat or absorb silt containing or pollutant laden stormwater runoff to limit the suspended solids to 50 mg/l or less during rainfall periods not exceeding the 10-year, 24-hour rainfall, and to prevent an increase in turbidity to more than 50 Jackson Turbidity Units above background in waters of the State.

Control measures shall consist at the minimum, of filters, sediment traps, barriers, berms or vegetative planting. Exposed or disturbed soil shall be protected as soon as possible to minimize silt and sediment laden runoff. The pH shall be kept within the range of 6.0 to 8.5.

B. Sanitary Wastes

Disposal of sanitary wastes from construction toilet facilities shall be in accordance with applicable regulations of the Department and appropriate local health agency.

C. Environmental Control Program

An environmental control program shall be established under the supervision of a qualified person to assure that all construction activities conform to good environmental practices and the applicable conditions of certification.

The permittee shall notify the Department if unexpected harmful effects or evidence of irreversible environmental damage are detected during construction, shall immediately cease work and shall provide an analysis of the problem and a plan to eliminate or significantly reduce the harmful effects or damage, and to prevent reoccurrence.

VI. Solid Wastes

Solid Wastes resulting from construction or operation shall be disposed of in accordance with the applicable regulations of Chapter 17-7, FAC.

Open burning in connection with land clearing shall be in accordance with Chapter 17-5, FAC, no additional permits shall be required, but the Division of Forestry shall be notified. Open burning shall not occur if the Division of Forestry has issued a ban on burning due to fire hazard conditions.

VII. Operation Safeguards

The overall design and layout of the facilities shall be such as to minimize hazards to humans and the environment. Security control measures shall be utilized to prevent exposure of the public to hazardous conditions.

VIII. Solid Waste Utilization System

The solid waste utilization facility shall be designed and operated in compliance with all applicable regulations of the Department, including but not limited to Chapter 17-7, FAC.

IX. Screening

The permittee shall provide screening of the site through the use of aesthetically acceptable structures, vegetated earthen walls and/or existing or planted vegetation.

X. Potable Water Supply System

The potable water supply system shall be designed and operated in conformance with Chapter 17-22, FAC. Information as required in 17-22.05 shall be submitted to the Department prior to construction and operation. The operator of the potable water supply system shall be certified in accordance with Chapter 17-23, FAC.

Transformer and Electric Switching Gear

The foundations for transformers, capacitors, and switching gear necessary for McIntosh Unit 3 to the existing distribution system shall be constructed of an impervious material and shall be constructed in such a manner to allow complete collection and recovery of any spills or leakage of oily, toxic, or hazardous substances.

XII. Toxic, Deleterious, or Hazardous Materials

The spill of any toxic, deleterious, or hazardous materials shall be reported in the manner specified by General Condition 2.

XIII. Transmission Line

Directly associated transmission lines shall be constructed and maintained in a manner to minimize environmental impacts in accordance with Chapter 403, F.S., and Chapter 22F-6, FAC.

A. Construction

1. Filling and construction in waters of the State shall be minimized to the extent practicable. No such activities shall take place without obtaining lease or title from the Department of Natural Resources.
2. Placement of fill in wetland areas shall be minimized by spanning such areas with the maximum transmission lines span practicable. Such areas should be bridged by maintenance or access roads.
3. Construction and access roads should avoid wetlands and be located in surrounding uplands. Any fill required in wetlands for construction but not required for maintenance purposes shall be removed and the ground restored to its original contours after transmission line placement.
4. Keyhole fills from upland areas are preferable to a single road and should be oriented as nearly parallel to surface water flow lines as possible.
5. Sufficient culverts shall be placed through fill causeways to maintain sheet flow. The number and locations of such culverts will be determined in the field by consultation with DER field inspectors.

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6. Maintenance roads shall be planted with native species to prevent erosion and subsequent water quality degradation.
7. Construction activities should proceed as much as possible during the dry season.
8. Turbidity control measures, where needed, shall be employed to prevent violation of water quality standards.
9. Good environmental practices as described in Environmental Criteria for Electric Transmission Systems or published by the U.S. Department of Interior and the U.S. Department of Agriculture should be followed.
10. Any archaeological sites discovered during construction of the transmission line shall be disturbed as little as possible and such discovery shall be communicated to the Department of State, Division of Archive History and Records Management.

8. Maintenance

1. Vegetative removal for maintenance should be carried out in the following manner:

Vegetative clearing operations to be carried out within the corridor should follow the general standards for clearing rights-of-way for overhead transmission lines, thus preserving immature tree species along the peripheries of the right-of-way. These standards define the zone that shall be cleared of all tree growth as the area between structures 10 ft. to either side of the outside conductor. The remainder of the right-of-way from the cleared area to the right-of-way limit shall be screened. This translates to mean that only trees in excess of 10 ft. in height would be removed from the outer zone.

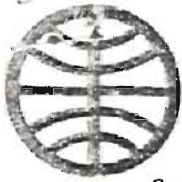
2. Herbicides shall not be used for vegetation control along the transmission line without prior approval of the Department.

XIV. Construction in Waters of the State

No construction in waters of the State shall commence without obtaining lease or title from the Department of Natural Resources.

XV. Cooling Water Treatment

A study to determine the presence of pathogenic organisms in the sewage treatment plant effluent shall be performed to determine the degree of treatment required prior to use in cooling towers. A plan or study will be developed by the Department and the Department of Health & Rehabilitative Services. Based on the number of pathogenic organisms detected, the final degree of treatment and amount of chlorination to be required will be determined by the Department.



City of Lakeland

WORLD CITRUS CENTER
LAKELAND, FLORIDA 33802

September 15, 1982

McIntosh Plant Construction Office
P.O. Box 3523
Lakeland, Florida 33802
(813) 688-2531

Department of Environmental Regulation
Southwest District
7601 Highway 301 North
Tampa, Fl. 33610-9544

DER

SEP 24 1982

BAQ

Attention: Mr. Dan Williams

Re: City of Lakeland, Unit No. 3 at C. D. McIntosh Power Plant

Dear Mr. Williams:

This letter is to notify your office that the actual start-up for the City of Lakeland's Unit No. 3 at C. D. McIntosh Power Plant was September 1, 1982.

We will be notifying your office when we expect to achieve the maximum capacity at which the unit will be operated. Performance tests will be conducted for this unit and you will be notified 30 days prior to the testing.

We are in the process of selecting a consultant firm to conduct the various tests required by the conditions of certification under the Power Plant Siting Act. Once the selection is made, we will notify your office to set up at your convenience a pre-performance meeting with our group and the selected firm that will be conducting the source tests.

Sincerely,

G. A. (Bill) Rodriguez
Environmental Coordinator
Dept. of Electric & Water Utilities

cc: Tommie A. Gibbs, EPA, Region IV
Steve Smallwood, DER, Tallahassee

GAR/lrs



NOTICE

Preliminary Determination concerning the Proposed Modification of a Power Plant (Addition of Unit 3 to the McIntosh Plant of the City of Lakeland, Department of Electric and Water Utilities).

The City of Lakeland has applied to the U.S. Environmental Protection Agency (EPA) to construct a 364 megawatt coal and municipal refuse fired steam-electric unit at its C. D. McIntosh, Jr. Power Plant. The proposed construction is subject to EPA regulations for the Prevention of Significant Deterioration (PSD), 40 CFR 52.21. EPA has made a Preliminary Determination that the construction can be approved with conditions.

The maximum degree of PSD increment consumption caused by the proposed construction is predicted to be as follows:

| | |
|--|-----|
| Particulate matter, annual increment: | 0 |
| Particulate Matter, 24 hour increment: | 5% |
| Sulfur Dioxide, annual increment: | 20% |
| Sulfur Dioxide, 24 hour increment: | 45% |
| Sulfur Dioxide, 3 hour increment: | 32% |

Any person may submit written comments to EPA and/or request a public hearing. To be considered, any comment or request for public hearing must be postmarked not later than 30 days from the date of this notice and submitted to:

Mr. Winston A. Smith
Chief, Air Programs Branch
U.S. Environmental Protection Agency
345 Courtland Street
Atlanta, Georgia 30308

A copy of all materials submitted by the applicant and a copy of the Preliminary Determination is available for inspection at the City Manager's Office at the City Hall in Lakeland.



City of Lakeland

WORLD CITRUS CENTER
LAKELAND, FLORIDA 33802

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WKP

January 9, 1979

William R. Phillips, General Counsel
U. S. EPA, Region IV
345 Courtland Street
Atlanta, Georgia 30308

Dear Mr. Phillips:

In re: City of Lakeland McIntosh Power Plant Unit 3
Non-Applicability of New NSPA

Pursuant to your request, I do herewith enclose two copies of schematic construction schedule revised as of May 10, 1978. This schedule had been developed by C. T. Main, the City's consulting engineer. I trust this answers any questions you have previously raised in our telephone conversation of several days ago.

Based upon your conversation with me, it is my understanding that you have made the determination on behalf of EPA that the McIntosh Power Plant Unit 3, i.e. 364 MW Unit No. 3, will be considered a pre-existing source, and therefore, not subject to the proposed New Source Performance Standards. If my understanding be in error, please advise. Let me add that I feel that your determination is fully in accordance with the proposed rule in that clearly the City of Lakeland had established contractual obligations well in advance of September 19, 1978. We are, however, gratified to learn of your determination in this regard.

Should you desire any further information whatsoever, please feel free to call upon me at any time. It has been a pleasure working with you on this issue and the City does appreciate the many courtesies you extended during this period of time.

Very truly yours,

Stephen C. Watson
Special Counsel

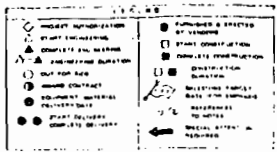
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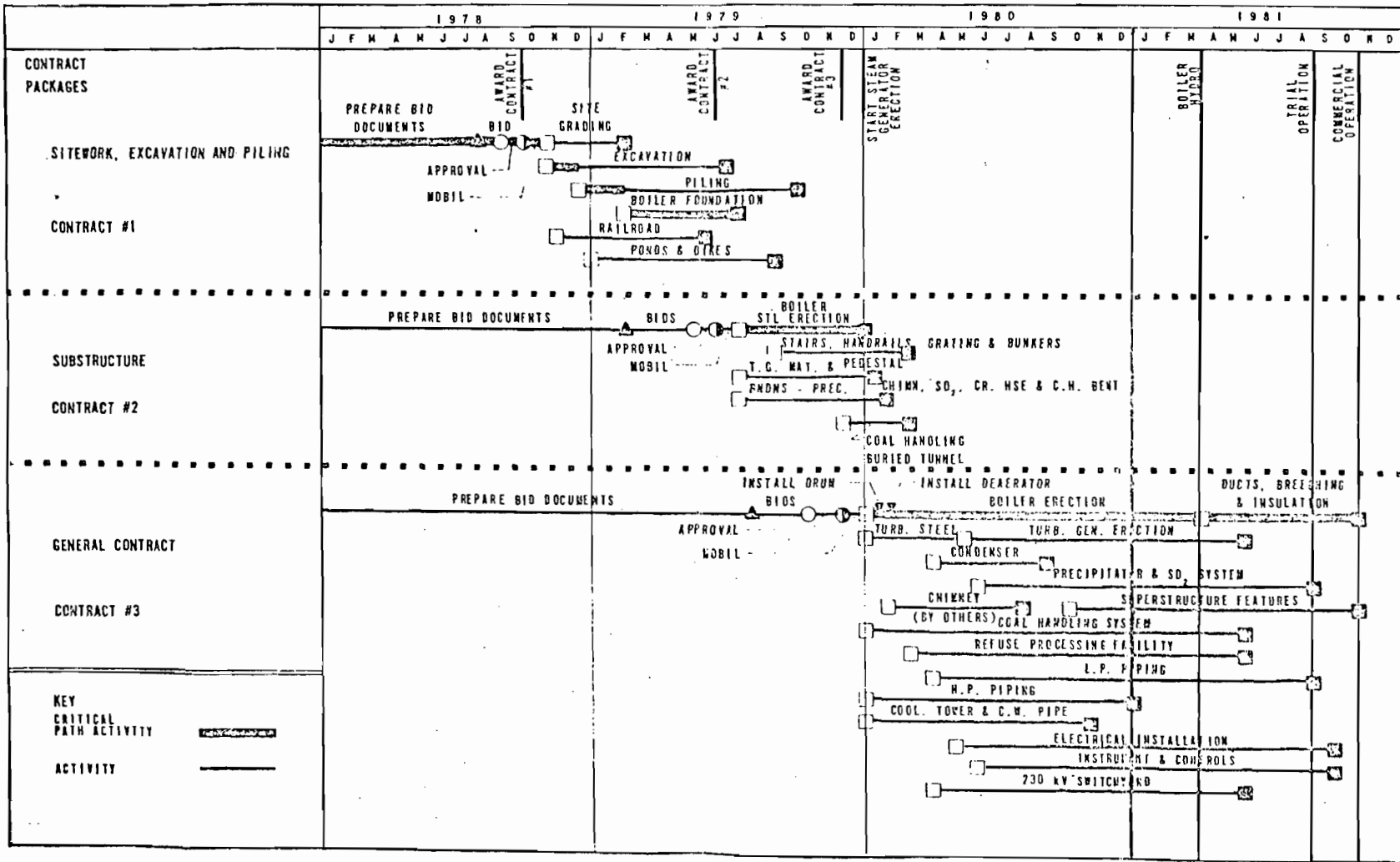
ALL-AMERICA CITY 1970



MAIN



CITY OF LAKELAND
 C. D. MCINTOSH POWER PLANT
 LEVEL 1 - CONSTRUCTION SCHEDULE
 364 MW UNIT NO. 3
 MAY 10, 1978



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MAR 02 1979

REF 4RC

Mr. Stephen C. Watson
Assistant City Attorney
City of Lakeland
World Citrus Center
Lakeland, Florida 33802

Re: City of Lakeland McIntosh
Power Plant Unit 3

Dear Mr. Watson:

We have reviewed the materials previously submitted on whether Clean Air Act new source performance standards (NSPS) promulgated in the September 19, 1978, Federal Register, apply to the above. The materials disclose that Unit 3 is not subject to those NSPS. The basis for this conclusion is described in the attached memorandum.

If you have any questions on this, please call (telephone 404/881-2335).

Sincerely yours,

Original Signed By

Sanford W. Harvey, Jr.
Regional Counsel

Enclosure

cc: Winston Smith
Brian Beals

WRPHILLIPS b7b 3/2/79 x2335

JAN 11 1979

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NSPS "New Source" Determination for City of
Lakeland McIntosh Power Plant Unit 3

Office of Regional Counsel

Brian L. Deals
Air Engineering Branch

FACTS:

You requested us to make a determination on whether McIntosh Unit 3 is a "new source" for purposes of the Clean Air Act §111 new source performance standards for electric utility boilers over 75 Mw capacity, which standards were proposed September 19, 1978. Factual materials reviewed in making this determination include: (1) a September 29, 1978, letter from Mike Opalinski of the City of Lakeland ("Lakeland"), with attachments; (2) a December 13, 1978, letter from Stephen C. Watson of Lakeland; (3) a December 20, 1978, letter from H. Kerner Smith of Babcock & Wilcox ("B&W"); and (4) a December 18, 1978, letter from Stephen C. Watson, with attachments. These materials evidence the following events.

Lakeland, in a joint venture with the Orlando Utilities Commission, intends to build a 364 Mw fossil fuel fired steam generator to be used primarily for power production, and to be designated "McIntosh Unit 3". On March 21, 1978, Lakeland signed a letter of intent with B&W to purchase the McIntosh Unit 3 boiler and associated SO₂ scrubber and electrostatic precipitator, for \$35 million. To cover the schedule of cancellation charges outlined in the letter of intent (among other reasons), Lakeland secured \$80 million in short term notes. Lakeland also entered into a letter of intent on April 17, 1978, for manufacture of a turbine for the boiler. Additional financing for the boiler and the turbine (as well as for extensions and improvements to the City water system) in the form of a bond issue for \$125 million was obtained on September 19, 1978.

QUESTION:

Is McIntosh Unit 3 subject to the NSPS for electric utility boilers, proposed September 19, 1978?

WRPhillips:bjb 1/9/79 x2335 CONCURRENCES

| | | | | | | | |
|---------|----------|---------|--|--|--|--|--|
| SYMBOL | 4RC | 4RC | | | | | |
| SURNAME | Phillips | Harvey | | | | | |
| DATE | 1/9/79 | 1/11/79 | | | | | |

ANSWER:

No.

DISCUSSION:

Section 111 of the Clean Air Act defines a "new source" as:

"...any stationary source, the construction or modification of which is commenced after the publication of...proposed regulations ... prescribing a standard of performance under this section which will be applicable to such source."

Since McIntosh Unit 3 will be a fossil-fuel boiler with a 364 MW capacity, its capacity is greater than the 75 MW minimum for coverage under the September 19 NSPS. The only remaining issue is whether construction "commenced" on McIntosh Unit 3 before September 19, 1978.

The regulations define "commenced" as meaning:

"that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification." (emphasis added) 40 C.F.R. §60.2(i) (1977)

Lakeland has sought to qualify under the "contractual obligation" ground of this definition.

The first element of this ground requires a showing that there is a contractual obligation for McIntosh Unit 3. The materials reviewed include a January 11, 1978, B&W "Proposal" to Lakeland, in response to an earlier request for bids on Lakeland Specification No. 3297-1-3200 and 7 addenda thereto. This Proposal included a boiler arrangement drawing, a boiler platform arrangement drawing, drawings on the boiler precipitator and SO₂ scrubber, a boiler performance summary sheet, and a schedule of shipping dates for the boiler and related apparatus. In response to this proposal, on March 21, 1978, Lakeland sent B&W a letter of intent to purchase

the boiler in accordance with the earlier Lakeland Specification and the B&W Proposal. The letter of intent also accepted the B&W price of \$35.55 million for the boiler and related apparatus. A schedule of cancellation charges was also specified in the letter of intent. Under that schedule, if Lakeland had cancelled its intent to purchase on September 19, 1978, cancellation charges would have been \$500,000.00. This is a significant amount showing that the letter of intent was not a contract terminable at little or no cost, thus indicating that it was a contractual obligation. See "Decision of the General Counsel on Matters of Law Pursuant to 40 C.F.R. §124.36(m), No. 46", at 19 (June 30, 1976). In reliance on this letter of intent, B&W started engineering work on the subject boiler on March 21, 1978. Final decisions on arrangement and design of the boiler, precipitator, and scrubber, were made by July 28, 1978. By September 1, the majority of the subcontracted components had been purchased by B&W. B&W considers itself presently bound, and bound since the March 21, 1978, letter of intent, to the shipment dates set forth in its Proposal. In light of the above-mentioned factors, we conclude that there was a "contractual obligation" for the McIntosh Unit 3 boiler as of the September 19 deadline.

The second element of the "contractual obligation" ground is that the contractual obligation be one to complete construction of the boiler within a reasonable time. Under the construction schedule set forth in the B&W Proposal, final shipment of the main structural steel and platform steel will occur in October, 1979; final shipment of the steam drum and pressure parts will occur in December, 1979; and final shipment of most of the other components by May, 1980. The December 20, 1978, letter from B&W (attached) states that the Company still considers itself bound to meet this schedule. We thus conclude that the contractual obligation was one to complete construction within a reasonable time.

The third and final element of the "contractual obligation" ground is that the contractual obligation provide for a continuous program of construction. The construction schedule contained in the Proposal, together with the December 20, 1978, letter from B&W describing work on the boiler since March 21, and stating that the Proposal schedule is still binding, together satisfy this element.

William R. Phillips
Assistant Regional Counsel

Enclosure



City of Lakeland

WORLD CITRUS CENTER
LAKELAND, FLORIDA 33802

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WKP

January 9, 1979

William R. Phillips, General Counsel
U. S. EPA, Region IV
345 Courtland Street
Atlanta, Georgia 30308

Dear Mr. Phillips:

In re: City of Lakeland McIntosh Power Plant Unit 3
Non-Applicability of New NSPA

Pursuant to your request, I do herewith enclose two copies of schematic construction schedule revised as of May 10, 1978. This schedule had been developed by C. T. Main, the City's consulting engineer. I trust this answers any questions you have previously raised in our telephone conversation of several days ago.

Based upon your conversation with me, it is my understanding that you have made the determination on behalf of EPA that the McIntosh Power Plant Unit 3, i.e. 364 MW Unit No. 3, will be considered a pre-existing source, and therefore, not subject to the proposed New Source Performance Standards. If my understanding be in error, please advise. Let me add that I feel that your determination is fully in accordance with the proposed rule in that clearly the City of Lakeland had established contractual obligations well in advance of September 19, 1978. We are, however, gratified to learn of your determination in this regard.

Should you desire any further information whatsoever, please feel free to call upon me at any time. It has been a pleasure working with you on this issue and the City does appreciate the many courtesies you extended during this period of time.

Very truly yours,

Stephen C. Watson
Special Counsel

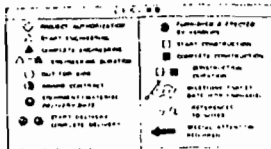
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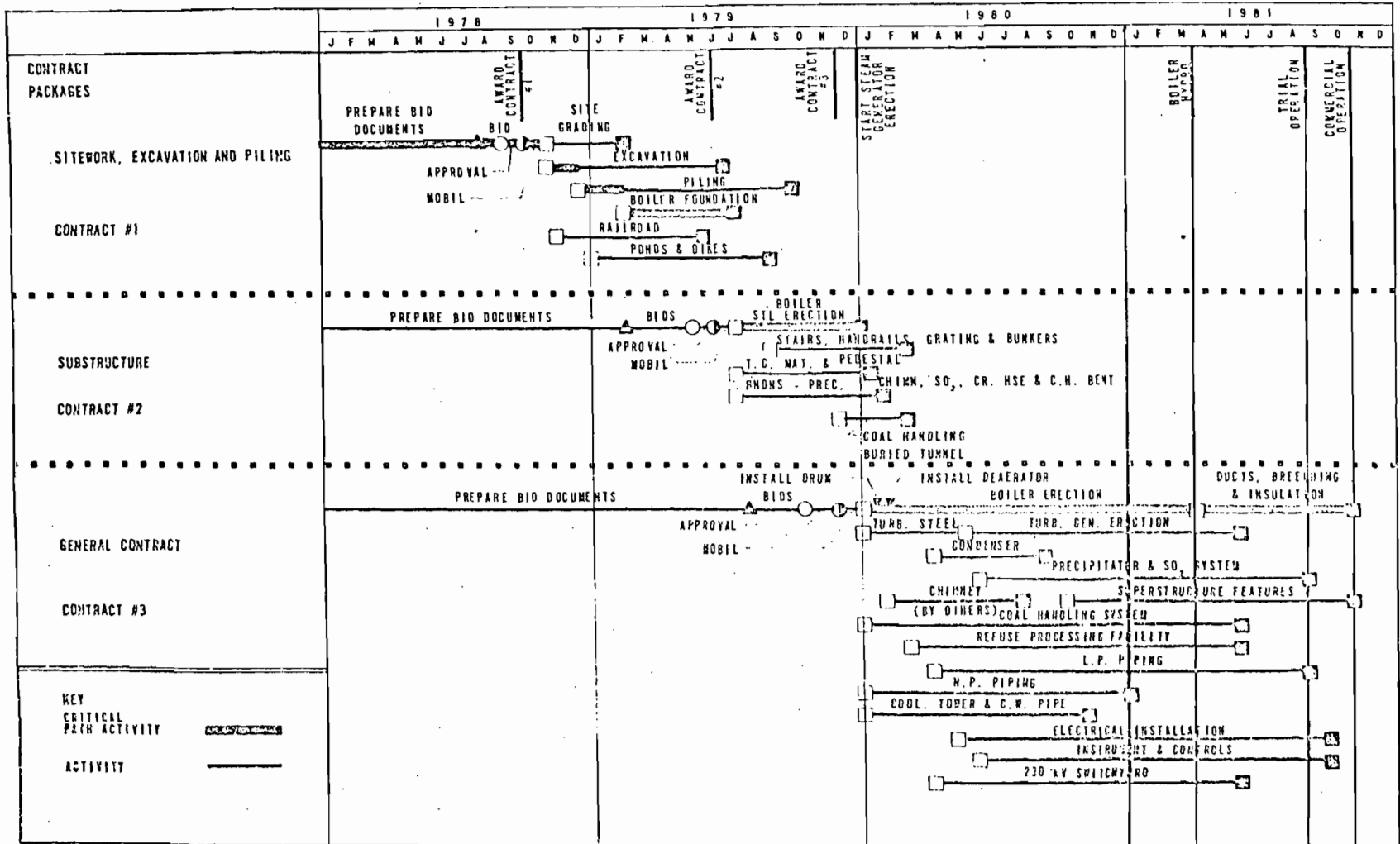
ALL-AMERICA CITY 1970



MAIN



CITY OF LAKE LAND
 C. D. MCINTOSH POWER PLANT
 LEVEL 1 - CONSTRUCTION SCHEDULE
 364 MW UNIT NO. 3
 MAY 10, 1978



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 ^{installed} ~~designed~~ to treat all exhaust gases and will operate at a minimum SO₂ removal efficiency of 85 percent whenever sulfur coal is burned.

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.

49155.02

Florida Department of
Environmental Protection

Memorandum

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



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 |

Ms. Farzie Shelton
December 11, 1995
Page Two

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.

Ms. Farzie Shelton
December 11, 1995
Page Three

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.

Ms. Farzie Shelton
December 11, 1995
Page Four

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.

Ms. Farzie Shelton
December 11, 1995
Page Five

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

Ms. Farzie Shelton
December 11, 1995
Page Six

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 _____.

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.

Clerk

Date

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

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:

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.

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.

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 12-29-94

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 0.1 lb/mmBtu heat input, regardless of the fuel burned. :

| <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 installed to treat all exhaust gases, and The desulfurization system will operate at a minimum SO₂ removal efficiency of 85 percent whenever high sulfur (3.3% sulfur) coal is burned.
- 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.

8. Fuels

The following fuels may be burned:

Coal only

Oil only

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

Oil and up to 10% refuse (based on heat input)

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

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

In addition, natural gas and low sulfur fuel oil (e.g., diesel) may be fired during startup or at any other time.

PSD = FL - 0008
McINTOSH # 3
LAKELAND

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

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 installed to treat all exhaust gases and will operate at a minimum SO₂ removal efficiency of 85 percent whenever coal is burned.
- 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

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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 flyash 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

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5

exceed 0.3 pound per million Btu heat input when firing oil or oil/refuse.

5. Stack Testing

4. 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).
5. 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.
6. Performance tests shall be conducted under such conditions as

Best Available Copy

1/1/68

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.

2. The owner or operator shall provide EPA 30 days prior notice of the performance test to afford the opportunity to have an observer present.
5. 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.

Best Available Copy

7

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 60.12. In addition, a continuous SO₂ monitor shall be installed prior to the flue gas desulfurization system for purposes of calculating SO₂ removal efficiencies.

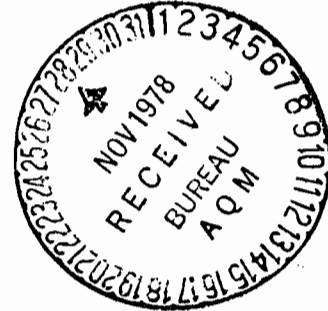
7. Excess Emission Reporting Requirements

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.



~~Walt Stames~~
~~Dickie Hartley~~
5,53.16

PSD- FL- 008



NOV 22 1978

REF: 4AH-AP

RECEIVED

NOV 27 1978

DEPT. OF
ENVIRONMENTAL REGULATION

Dr. J. P. Subramani, P.E., Chief
Bureau of Air Quality Management
Division of Environmental Programs
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Dr. Subramani:

Enclosed for your review and comment are the public notice and Preliminary PSD Determination for the City of Lakeland's proposed Unit 3 at its McIntosh Power Plant. The public notice is to appear in the Lakeland Ledger.

Please let us know if you have any comments on this determination.

Sincerely yours,

Winston A. Smith
Chief
Air Programs Branch

Enclosures

JS
11.29.

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

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

I Introduction

The City of Lakeland, Florida, has applied to the U.S. Environmental Protection Agency to construct a fossil fuel and municipal waste-fired steam generator at its C. D. McIntosh, Jr. Power Plant in Lakeland, Florida. The proposed construction is subject to review under 40 CFR 52.21, Regulations for the Prevention of Significant Deterioration (PSD). Under these regulations, a modification to a source of air pollution in any one of 28 specified categories which will increase the emission potential of that source by more than 100 tons per year of any pollutant, is subject to review for each of those pollutants. One of these categories is fossil fuel-fired steam electric plants of more than 250 million BTU per hour heat input, of which the McIntosh Plant is one.

Paragraph (r) of the PSD regulations requires, in part, that EPA issue a Preliminary Determination whether the source should be approved, approved with conditions, or disapproved. It is the decision of EPA that the source should be approved with conditions. The conditions are included to insure that the applicant complies with emission control techniques and emission limits which are a part of the application. The conditions of approval follow on the next page.

not exceed 1.2 pound per million Btu heat input derived from solid fossil fuel.

- B. A flue gas desulfurization system will be installed to treat all exhaust gases and will operate at a minimum SO₂ removal efficiency of 85 percent.
- C. The burning of oil as an emergency fuel 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 derived from liquid fossil fuel.

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 flyash 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 EPA 30 days prior notice of the performance test to afford the opportunity to have an observer present.
- E. 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.
- F. 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.

II Background

On February 8, 1978, the City of Lakeland submitted a letter and attachments to EPA to apply under the PSD regulations to construct a new unit (Unit 3) at the McIntosh Plant. On February 24, 1978, further information was submitted which completed the application. At that time, PSD applications were reviewed under proposed regulations issued on November 3, 1978. Notice was given by EPA that any PSD permit which was issued after March 1, 1978, would be reviewed under the promulgated regulations due to be issued on March 1. Significant delay was encountered in issuing the new regulations. On June 19, 1978, the new PSD regulations were promulgated. Any source subject to PSD which did not receive a PSD permit before March 1, 1978, was made subject to the new regulations. Thus, the construction of Unit 3 is subject to the new regulations.

III Review Requirements

The pollutants for which potential emissions are greater than 100 tons per year, and therefore subject to review, are particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and hydrocarbons. Review of control technology and ambient impacts is required. For sources applying after August 7, 1978, ambient monitoring is required.

Certain portions of the PSD review may not be required if the proposed modification is subject to EPA's interpretative ruling, or if the source is a nonprofit health or education institution, or if the source has previously received approval under PSD and is only relocating. None of these exemptions applies in this case.

Other exemptions can apply to control technology review and ambient impact review. For control technology review, if allowable emissions of any pollutant are less than 50 tons per year, 1000 pounds per day and 100 pounds per hour, or if a modification is made to an existing facility and the emissions are offset by reductions elsewhere, review may not be required. None of these exemptions applies to Unit 3.

For ambient impact review and monitoring requirements, other exemptions are provided for. In addition to the allowable emission threshold, there are exemptions for temporary sources and for sources whose net emissions, after considering decreases, do not increase. None of these exemptions apply to Unit 3.

The one exemption which does apply is for monitoring. Since a complete application was submitted before August 7, 1978, no preconstruction monitoring is required.

A. Control Technology Review

The applicant is required to install best available control technology (BACT) for each pollutant, taking into account energy, environmental and economic impacts and other costs. EPA concludes that the systems proposed by the applicant represent BACT for particulate, SO₂ and nitrogen oxides. There is currently no applicable technology for reduction of hydrocarbons and carbon monoxide beyond what is accomplished in the boiler.

1. Particulate

The applicant will install a high efficiency electrostatic precipitator (ESP) to control particulate emissions. Emission limits have been specified by EPA for each firing mode. EPA data gathered for the purpose of setting standards of performance for this source type indicate an emission limit of 0.1 lb/mm BTU is achievable. Since the applicant has proposed emission limits more stringent than this, the proposed limits are based on data submitted by the applicant. An analysis of the selected control device, to predict the adequacy in meeting the emission limits, is included as Appendix A to this determination.

Bag filters are to be used to control particulate emissions from fly ash handling. Opacity limitations are imposed to insure proper design and operation.

A combination of liquid spray and bag filter systems will be used to control particulate emissions from coal handling and limestone handling. Opacity limitations are imposed to insure proper design and operation.

2. Sulfur Dioxide

The applicant has proposed the installation of a limestone scrubber which will remove 85% of the sulfur dioxide from the stack gases. At the time the application was submitted, EPA was preparing a proposed revision to the New Source Performance Standards (40CFR60) for power plants. Part of this revision eventually included a requirement for removal of 85% of the SO₂ from the stack gas. This requirement is considered BACT, and is included as a condition of approval. An analysis of the selected control device, to predict the adequacy of the control device, is included in this review as Appendix B.

3. Nitrogen Oxides

At the time the application was submitted to EPA, the current New Source Performance Standard for nitrogen dioxides was 0.7 lb/mm BTU. EPA has proposed (on September 11, 1978) to revise this requirement to 0.6 lb/mm BTU. Although EPA believes 0.6 lb/mm BTU is achievable, the applicant would at this time incur significant time delays in the project if this requirement were imposed, since the boiler design would have to be changed. Therefore, EPA concludes that 0.7 lb/mm BTU, which was proposed by the applicant, represents BACT when costs are considered.

4. Applicability of NSPS

As of this date, EPA has proposed revisions to the New Source Performance Standards for Power Plants. 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. In general, the proposed standards are more stringent than the conditions of this approval, while the

current NSPS for power plants are less stringent than the conditions of this approval. Any future promulgation which applies to Unit 3 and is more stringent than any condition of approval will supercede the conditions of approval.

B. Impact Review

The PSD regulations require the following air quality impacts to be assessed by the applicant:

- 1) National Ambient Air Quality Standards (NAAQS)
- 2) PSD increments
- 3) Visibility, soils and vegetation
- 4) Impacts due to growth caused by proposed source

All these impacts were assessed by the applicant. Air quality modelling showed no violations of the NAAQS with all sources in the area of the McIntosh Plant in operation. Likewise, the PSD increment analysis showed no violations with Unit 3 operating at maximum load.

The percent consumption of the PSD increments caused by Unit 3 is presented in the following table:

| Increment | Pollutant | |
|-----------|-------------|-----|
| | Particulate | S02 |
| Annual | 0 | 20% |
| 24 hour | 5% | 45% |
| 3 hour | N/A | 32% |

Impacts on visibility, soils and vegetation and on air quality due to growth were judged to be minimal.

The closest Class I area is Chassahowitzka Wilderness Area, about 100 km from Lakeland. There will be no impact from the proposed Unit 3 on this area.

The closest area where NAAQS is violated is the City of Mulberry, about 20 km away. Although particulate readings violating NAAQS have been recorded here recently, it is not yet designated as nonattainment. In any case, the impact of particulate emissions in this area from Unit 3 will be below the levels EPA considers significant.

Appendix A

Precipitator Review

Review of the precipitator is conducted using the Deutsch-Anderson equation,

$$A = \frac{V \ln \left(\frac{1}{1-E} \right)}{W \times \frac{60}{30.48}}$$

where A = Collection area of ESP, ft²

E = Fractional removal of ash

W = Migration velocity of ash particles, cm/sec

V = Volumetric flow rate of flue gas, ACFM

The required efficiency is calculated using uncontrolled emission rates and emission rates required as a permit condition. Since the most difficult situation encountered by the precipitator will be when firing coal or coal and refuse, only these firing modes were investigated. Uncontrolled emission factors are calculated as follows:

Coal⁽¹⁾ lb/ton emitted = 17A, where

A = ash content of fuel, %

From the application, A = 15

so lb/ton = 17(15) = 255 lb/ton

Heat content, from application = 11,200 BTU/lb

$$255 \frac{\text{lb}}{\text{ton}} \times \frac{\text{ton}}{2000 \text{ lb}} \times \frac{\text{lb}}{11,200 \text{ BTU}} \times 10^6 =$$

11.4 lb/mm BTU uncontrolled

Solid waste⁽²⁾: lb/mmBTU = 6.7

Required efficiency for coal firing:

$$100 \times \frac{11.4 - .044}{11.4} = 99.6\%$$

Required efficiency for coal-waste firing:

$$.9(.996) + .1\left(\frac{6.7 - .05}{6.7}\right) = 99.6\%$$

Drift velocities:

For coal, a drift velocity of 12 cm/sec is commonly used for high sulfur coal. For coal and municipal refuse, a value of 4.0 cm/sec is reported as a conservative figure by EPA⁽²⁾. For 10% waste firing, the weighted drift velocity is 11.5 cm/sec.

$$\text{For coal firing, } A = \frac{(1,125,993) \left(\ln \frac{1}{1-.996} \right)}{12 \times \frac{60}{30.48}} =$$

$$263,192 \text{ ft}^2$$

for coal-waste firing,

$$A = \frac{(965,900) \left(\ln \frac{1}{1-.996} \right)}{11.5 \times \frac{60}{30.48}} =$$

$$235,587 \text{ ft}^2$$

The area of the selected precipitator is 701,730 ft². Therefore, the precipitator should easily meet the required emission limits.

References

- 1) Compilation of Air Pollutant Emission Factors, Third Edition,
U.S. EPA, August, 1977

- 2) Draft Standards Support and Environmental Impact Statement, An
Investigation of the Best Systems of Emission Reduction for
Fossil Fuel - Municipal Refuse Fired Steam Generator Units,
U.S. EPA, August, 1975

Appendix B

Scrubber Review

The selected scrubber is a wet limestone slurry spray tower enhanced by perforated trays and a venturi contactor. The removal efficiency was calculated by EPA from pilot plant data obtained at the TVA Shawnee Plant in Paducah, Kentucky, on a limestone spray tower.⁽¹⁾ Because of design improvements, the scrubber selected for Unit 3 may be superior in removal efficiency to the pilot plant at TVA. A design equation developed by EPA is as follows:

$$\text{Fractional Removal} = 1 - \exp \left\{ -9.8 \times 10^{-5} (L/G)^{0.92} v^{0.19} \right. \\ \left. \exp \left[\text{pHi} + 1.35 \times 10^{-4} (\text{Mg})_e - 1.7 \times 10^{-4} (\text{SO}_2)_i \right. \right. \\ \left. \left. + 1.45 \times 10^{-5} \text{Cl} \right] \right\},$$

where:

Cl = dissolved chloride concentration, ppm

L/G = liquid to gas ratio, gal/1000 cf

(Mg)_e = effective magnesium ion concentration

$$(\text{ppm Mg}^{++} - \text{ppmCl} / 2.92)$$

pHi = scrubber inlet liquor pH

(SO₂)_i = inlet gas SO₂ concentration, ppm

V = gas velocity in scrubber, ft/sec

For coal firing, which would be the worst case situation, these values are:

$C1 = 3000$ (conservative)

$L/G = 70$ (this discounts venturi portion)

$(Mg)_e = 0$

$pHi = 6.0$

$(SO_2)_i = 1953$

$V = 7.92$

Therefore, removal fraction is .888, or 88.8%.

This exceeds the requirement of 85%.

Reference

- 1) EPA Alkali Scrubbing Test Facility: Advanced Program, Third Progress Report, September, 1977, EPA-600/7-77-105.

Appendix C

Review of NO_x Control

The method for NO_x control is design of the coal burner to limit NO_x formation. The boiler manufacturer, Babcock and Wilcox, has supplied other boilers which meet the 0.7 lb/mm BTU limit using this burner design.

Is your RETURN ADDRESS completed on the reverse side?

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:
*Fergie Shelton, Ch. 6
 City of Lakeland
 501 E Lemon St
 Lakeland, FL 33801-5080*

4a. Article Number
Z 127 633 218

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

7. Date of Delivery
1108 12/12/95

5. Signature (Addressee)
[Signature]

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

6. Signature (Agent)

Thank you for using Return Receipt Service.

Z 127 633 218



Receipt for Certified Mail

No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

| | |
|---|-------------------------|
| Sent to | <i>Fergie Shelton</i> |
| Street and No. | <i>City of Lakeland</i> |
| PO, State and ZIP Code | <i>Lakeland, FL</i> |
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |
| Postmark or Date | <i>12-11-95</i> |
| <i>Unit # 3</i> | |
| <i>PSD-FI-008(B)</i> | |

PS Form 3800, March 1993

Is your RETURN ADDRESS completed on the reverse side?

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:
FARZIE Shelton E.C.
Dept. of Electric & Water Util.
City of Lakeland
501 E. Lemon St.
Lakeland, FL 33801-5050

4a. Article Number
2 127 632 565

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

7. Date of Delivery
11-6-95

5. Signature (Addressee)

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

Signature (Agent)
Bonnie Brewer

PS Form 3811, December 1991 *U.S. GPO: 1993-352-714

DOMESTIC RETURN RECEIPT

Thank you for using Return Receipt Service.

2 127 632 565



Receipt for Certified Mail

No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

| | |
|---|----------------|
| Sent to FARZIE Shelton | |
| Street and No. City of Lakeland | |
| P.O., State and ZIP Code Lakeland, FL | |
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |
| Postmark or Date | 11-3-95 |

PS Form 3800, March 1993

Is your RETURN ADDRESS completed on the reverse side?

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 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:
Garzie Shelton, Ch.E.
City of Lakeland
Dept. of Water & Electric Ut.
501 E. Lemon St.
Lakeland, FL 33801-5058

4a. Article Number
Z 392 979 039

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

7. Date of Delivery
9/14/95

5. Signature (Addressee)

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

6. Signature (Agent)
Bonnie Brenna

Thank you for using Return Receipt Service.

Z 392 979 039



Receipt for Certified Mail
 No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

PS Form 3800, March 1993

Sent to *Garzie Shelton*
 Street and No. *City of Lakeland*
 P.O., State and Zip Code *Lakeland FL*

| | |
|---|----|
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |

Postmark or Date:
PSD-FI-008 9-12-95
Petcoke #3

Is your RETURN ADDRESS completed on the reverse side?

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:
Garzie Shelton
City of Lakeland
Dept. of Water + Electric
501 E. Lemon St.
Lakeland, FL 33801-5000

4a. Article Number
Z 392 979 037

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

7. Date of Delivery
9-8-95

5. Signature (Addressee)
[Signature]

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

6. Signature (Agent)
D. Bernice Brennan

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

Thank you for using Return Receipt Service.

Z 392 979 037

Receipt for Certified Mail
 No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

PS Form 3800, March 1993

Send to: *Garzie Shelton*
 Street address: *City of Lakeland*
 City, State, ZIP Code: *Lakeland - FL*

| | |
|---|----|
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |

Postmark or Date: *PSD-FL-008 95-95*
Mechanical Unit # 3

AFFIDAVIT OF PUBLICATION

THE LEDGER Lakeland, Polk County, Florida

Case No.....

STATE OF FLORIDA)
COUNTY OF POLK)

Before the undersigned authority personally appeared Robert Lee, who on oath says that he is Classified Manager of The Ledger, a daily newspaper published in Polk County, Florida; that the attached copy of advertisement, being a

..Notice of Intent.....

in the matter of

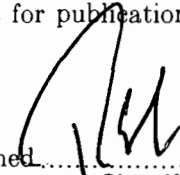
..PSD-FL-008A.....

in the

Court, was published in said newspaper in the issues of
August 2;

1995

Affiant further says that said The Ledger is a newspaper published at Lakeland, in said Polk County, Florida, and that the said newspaper has heretofore been continuously published in said Polk County, Florida, daily, and has been entered as second class matter at the post office in Lakeland, in said Polk County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Signed 
Classified Advertising Manager

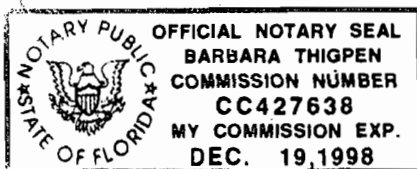
by Robert E. Lee who is personally known to me

Sworn to and subscribed before me this 2nd

day of August A.D. 19 95

(Seal) 
Notary Public

My Commission Expires BARBARA THIGPEN
City of
Lakeland



STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT PSD-FL-008A

The Department of Environmental Protection (Department) gives notice of its intent to issue or amend to Permit PSD-FL-008 to the City of Lakeland Department of Electric and Water Utilities (501 E. Lemon Street, Lakeland, Florida 33801) (City) to change certain Conditions of Approval related to sulfur dioxide (SO₂) and nitrogen oxides (NO_x) emission limits contained in the Final Determination dated December 27, 1978 applicable to the C.D. McIntosh Power Plant, Unit No. 3.

The minimum sulfur dioxide (SO₂) removal efficiency requirement when burning coal will be changed from 85 percent to:

0 1.2 lb/million Btu and 10 percent of the potential combustion concentration (90 percent reduction), or

0 35 percent of the potential combustion concentration (65 percent reduction), when emissions are less than 0.75 lb/million Btu.

The method for calculating SO₂ removal efficiency will be changed from continuous monitors before and after the scrubber to analysis of fuel together with continuous SO₂ monitoring after the scrubber.

The NO_x emission limit when firing coal or coal/refuse will be reduced from 0.7 lb/million Btu to 0.60 lb/million Btu.

Compliance with applicable NO_x and SO₂ limits will be demonstrated on a 30 day rolling average basis as well as by annual performance tests.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
Southwest District
8407 Laurel Fair Circle
Tampa, Florida 33619

Polk County ESD
330 W. Church Street
Barrow, Florida 33830

Any person may send written comments on the proposed action to Administrator, New Source Review, at the Department of Environmental Protection, Division of Air Resources Management, 2600 Blair Stone Road - Mail Station 5505, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such requests must be submitted within 30 days of this notice.

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Is your RETURN ADDRESS completed on the reverse side?

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:
Suzie Shelton, Ch.E.
City of Lakeland
Dept. of Water + Electric Util
501 E. Lemon St
Lakeland, FL 33801-5050

4a. Article Number.
2 392 979 053

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

7. Date of Delivery
NOV 18 1995 *07/14/95*

5. Signature (Addressee)
[Signature]

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

6. Signature (Agent)

Thank you for using Return Receipt Service.

2 392 979 053



Receipt for Certified Mail
 No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

PS Form 3800, March 1993

| | |
|---|-------------------------|
| Sent to | <i>Suzie Shelton</i> |
| Street Address | <i>City of Lakeland</i> |
| City, State and ZIP Code | <i>Lakeland, FL</i> |
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |
| Postmark or Date | <i>7-11-95</i> |
| | <i>PSD-FI-008</i> |
| | <i>Unit # 3</i> |

Is your RETURN ADDRESS completed on the reverse side?

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):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
 Jewell Harper, Chief
 Air Branch Program
 US-EPA-Region IV
 345 Courtland St, NE
 Atlanta, GA 30308
 Charles Davis

4a. Article Number
 Z 311 902 907

- 4b. Service Type
- | | |
|---|---|
| <input type="checkbox"/> Registered | <input type="checkbox"/> Insured |
| <input checked="" type="checkbox"/> Certified | <input type="checkbox"/> COD |
| <input type="checkbox"/> Express-Mail | <input type="checkbox"/> Return Receipt for Merchandise |

7. Date of Delivery

5. Signature (Addressee)

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

6. Signature (Agent) MAY 29 1995

Thank you for using Return Receipt Service.

Z 311 902 907



Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

PS Form 3800, March 1993

| | |
|---|--|
| Sent to | Jewell Harper |
| Street and No. | EPA |
| P.O., State and ZIP Code | Atlanta, GA |
| Postage | |
| Certified Fee | \$ |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |
| Postmark or Date | 5-19-95 City of Lakeland PO-F1-008 |

Is your RETURN ADDRESS completed on the reverse side?

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:
 Ms. Farzie Shelton, Ch. E.
 Env. Coordinator
 City of Lakeland
 Dept. of Elec. & Water Utilities
 501 East Lemon Street
 Lakeland, FL 33801-5050

4a. Article Number
 Z 311 902 910

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

7. Date of Delivery
 0108 24 05/08/95

5. Signature (Addressee)

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

6. Signature (Agent)

Thank you for using Return Receipt Service.

Z 311 902 910



Receipt for Certified Mail

No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

PS Form 3800, March 1993

| | |
|---|----|
| Sent to <i>Farzie Shelton</i> | |
| Street and No. <i>501 East Lemon Street</i> | |
| P.O., State and ZIP Code <i>Lakeland, FL 33801-5050</i> | |
| Postage | \$ |
| <i>/-</i> | |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |
| Postmark or Date <i>Mailed 5/5/95</i> | |

Is your RETURN ADDRESS completed on the reverse side?

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.

following services (for an extra fee):

- 1. Addressee's Address
- 2. Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
 Ms. Jewell Harper, Chief
 Air Branch Prog.
 U.S. EPA - Region IV
 345 Courtland St, NE
 Atlanta, GA 30305

4a. Article Number
 2 311 902 927

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

7. Date of Delivery

5. Signature (Addressee)
 Charles [Signature]

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

6. Signature (Sender)
 MAY 8 1995

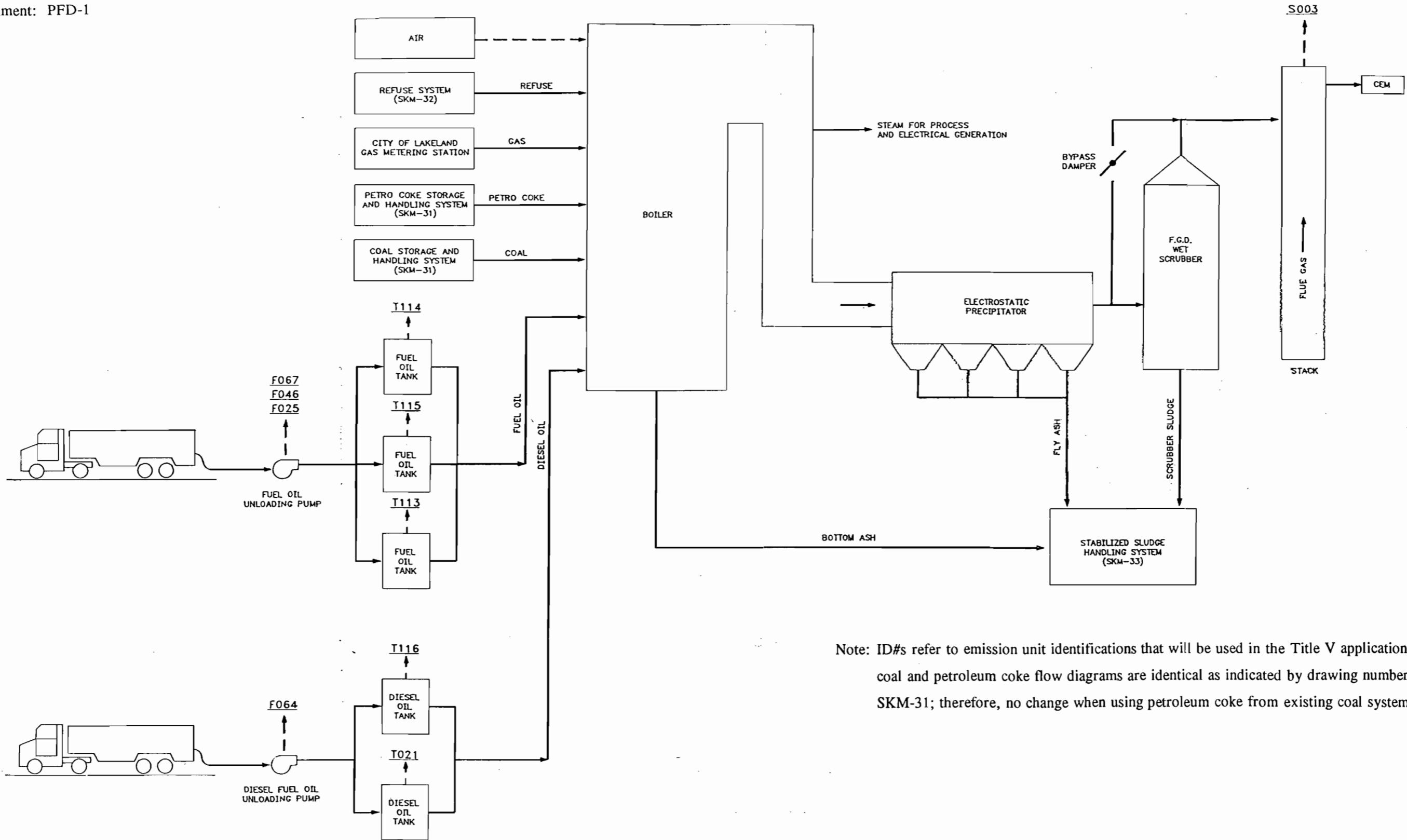
Thank you for using Return Receipt Service.

2 311 902 927


Receipt for Certified Mail
 No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse)

PS Form 3800, March 1993

| | |
|---|---------------------------------|
| Sent to Jewell Harper | |
| Street and No. EPA | |
| P.O., State and ZIP Code Atlanta, GA | |
| Postage | \$ |
| Certified Fee | |
| Special Delivery Fee | |
| Restricted Delivery Fee | |
| Return Receipt Showing to Whom & Date Delivered | |
| Return Receipt Showing to Whom, Date, and Addressee's Address | |
| TOTAL Postage & Fees | \$ |
| Postmark or Date | MAY 5-3-95 City of Courtland |



Note: ID#s refer to emission unit identifications that will be used in the Title V application. The coal and petroleum coke flow diagrams are identical as indicated by drawing number, i.e., SKM-31; therefore, no change when using petroleum coke from existing coal system.

| | | | | | | | | | | | | |
|----------|----|---------|-------|---------------------------------------|--|---|------|---------------------------------|--------------|----------------------|--|------------|
| Ø | MG | 11-2-94 | | ISSUED FOR TITLE V PERMIT APPLICATION |  LAKELAND ELECTRIC & WATER | DESCRIPTION | | DIVISION PRODUCTION ENGINEERING | | CAD | | SCALE NONE |
| B | MG | 9-21-94 | | FOR APPROVAL | | McINTOSH POWER PLANT UNIT NO. 3 SIMPLIFIED FLOW DIAGRAM | | ENGINEER PATTERSON | | PROJ. NO. EWR-94-199 | | |
| A | MG | X | | FOR APPROVAL | | | | DRN. BY: MGIEGER | DATE 9-19-94 | DWG. NO. SKM-27 | | REV. Ø |
| REV. NO. | BY | DATE | APPR. | REVISION | | APPR. BY: | DATE | | | | | |

SIZE B