



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

RECEIVED
ENVIRONMENTAL PROTECTION
DEC 10 1994
STATE DEPARTMENT

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-1050004-001
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> <table><tr><td><u>Ronald W. Tomlin</u> Signature</td><td><u>December 27, 1994</u> Date</td></tr></table>	<u>Ronald W. Tomlin</u> Signature	<u>December 27, 1994</u> Date
<u>Ronald W. Tomlin</u> Signature	<u>December 27, 1994</u> Date	

* Attach letter of authorization if not currently on file.

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
Signature

December 27, 1994
Date

(seal) *KS*

* 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.

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.)

<p>Not Applicable</p>

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: <div style="text-align: right;">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: 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	
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 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. 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: 1,478,688
6. Estimated Annual Activity Factor: Not applicable	
7. Maximum Percent Sulfur: 2.75	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 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.	

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.			

Emissions Unit Information Section 1 of 1

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			

Emissions Unit Information Section 1 of 1

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).			

Emissions Unit Information Section 1 of 1

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).		

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:			

Emissions Unit Information Section 1 of 1

Continuous Monitoring System Continuous Monitor 2 of 3

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.

Continuous Monitoring System Continuous Monitor 3 of 3

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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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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Orlando, FL 32801

Daniel Fernandez
Southwest Florida Water Management District
2379 Broad Street
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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.

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%

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 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
C.D. McIntosh, Jr. Power Plant - Unit No. 3
Case No. PA 74-06-SR

CONDITIONS OF CERTIFICATION

GENERAL

Table of Contents

	Page
1. Change in Discharge	1
2. Noncompliance Notification	1
3. Facilities Operation	1
4. Adverse Impact	2
5. Right of Entry	2
6. Revocation or Suspension	2
7. Civil and Criminal Liability	2
8. Property Rights	3
9. Severability	3
10. Pollutants	3
11. Review of Site Certification	3
12. Modification of Conditions	4

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
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
 Case No. PA 74-06-SR
CONDITIONS OF CERTIFICATION

SPECIAL

Table of Contents

	Page
I. Air	1
A. Emission Limitations	1
B. Air Monitoring Program	2
C. Stack Testing	2
D. Reporting	3
E. Coal Characteristics and Contracts	3
F. Coal Information	3
G. Reporting	4
<u>H. Fuels</u>	<u>4</u>
II. Water Discharges	4
A. Pretreatment Standards	4
1. Cooling Tower Blowdown	4
2. pH	<u>45</u>
3. Polychlorinated Biphenyl Compounds	<u>45</u>
4. Chemical Wastes and Boiler Blowdown	5
5. Sluice Pond Overflow	5
6. Flue Gas Desulfurization Sludge Pond Overflow	5
B. In-Plant Water Monitoring Program	5
III. Groundwater	5
A. General	<u>56</u>
B. Well Criteria	<u>56</u>
C. Groundwater Use Limitations	<u>56</u>
IV. Leachate	6
A. Compliance	6
B. Monitoring	6
C. Corrective Action	<u>67</u>
V. Control Measures During Construction	<u>67</u>
A. Stormwater Runoff	<u>67</u>
B. Sanitary Wastes	7
C. Environmental Control Program	<u>78</u>
VI. Solid Wastes	<u>78</u>
VII. Operation Safeguards	<u>78</u>
VIII. Solid Waste Utilization System	<u>78</u>
IX. Screening	<u>78</u>
X. Potable Water Supply System	<u>78</u>
XI. Transformer and Electric Switching Gear	<u>89</u>
XII. Toxic, Deleterious, or Hazardous Materials	<u>89</u>
XIII. Transmission Line	<u>89</u>
A. Construction	<u>89</u>
B. Maintenance	<u>910</u>

XIV. Construction in Waters of the State	<u>910</u>
XV. Cooling Water Treatment	<u>910</u>
XVI. Sanitary Waste Disposal	<u>910</u>

State of Florida Department of Environmental Protection 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 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. 2~~3~~ 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 1-7-2-08 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/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 8697 x 10¹³ 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 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 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)	148.9 <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 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 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_{PM}) 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

Table 5.6.2

<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 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	
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.	0.011101403	STD. DEV.	0.02271035	
V	2	V	2	
ta/2	2.92	ta/2	2.92	
C.I.	0.02274124	C.I.	0.04689124	
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	
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	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

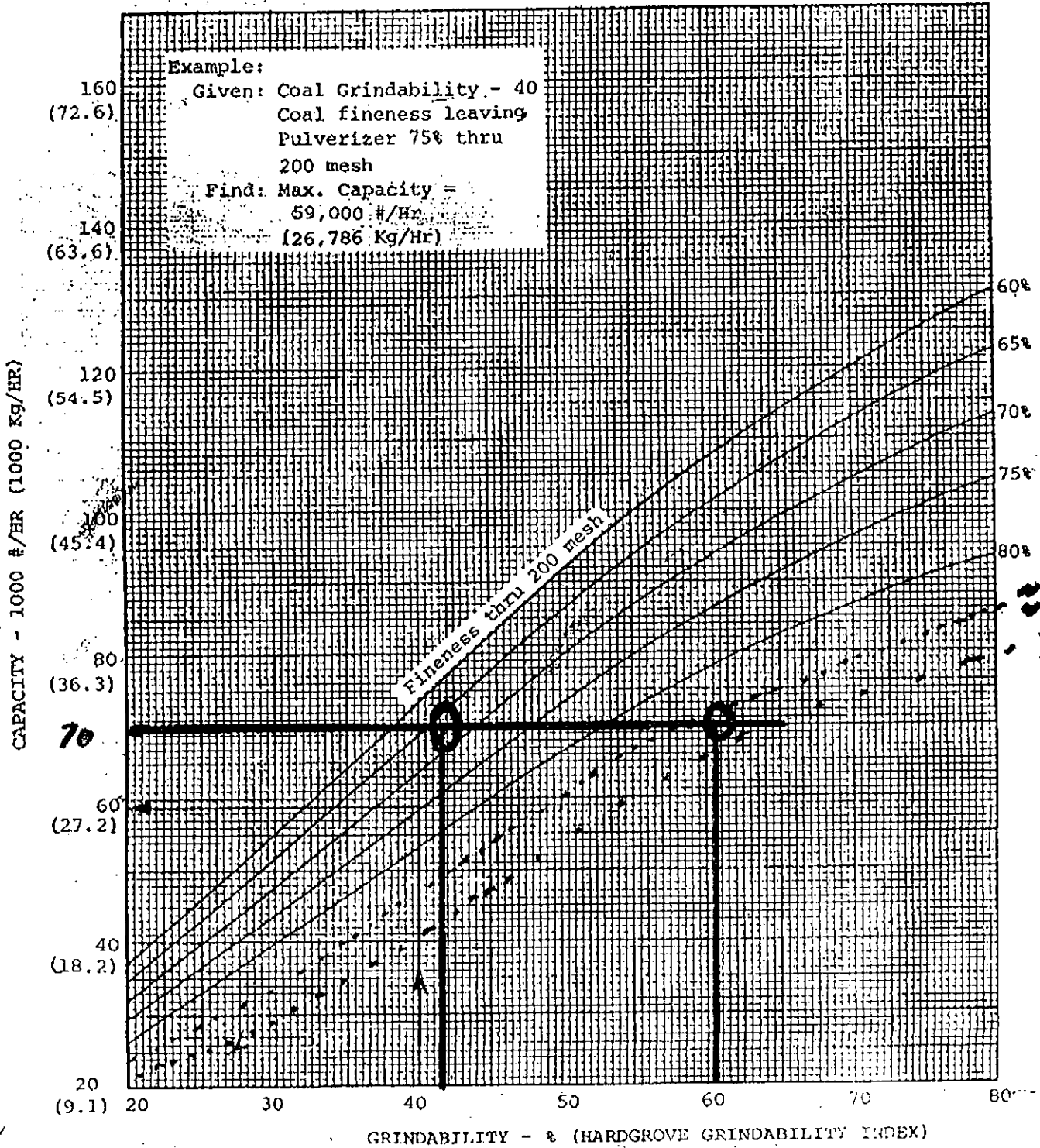
THE BABCOCK & WILCOX COMPANY
FOSSIL POWER GENERATION DIVISION

ATTACHMENT A

9PL (FPG)
GR211-(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)



INSERT B

ATTACHMENT B
PAGE 1

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 / Parrish</u>	RELEASED BY	<u>SEP</u>

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	<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>SKP</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

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 ***

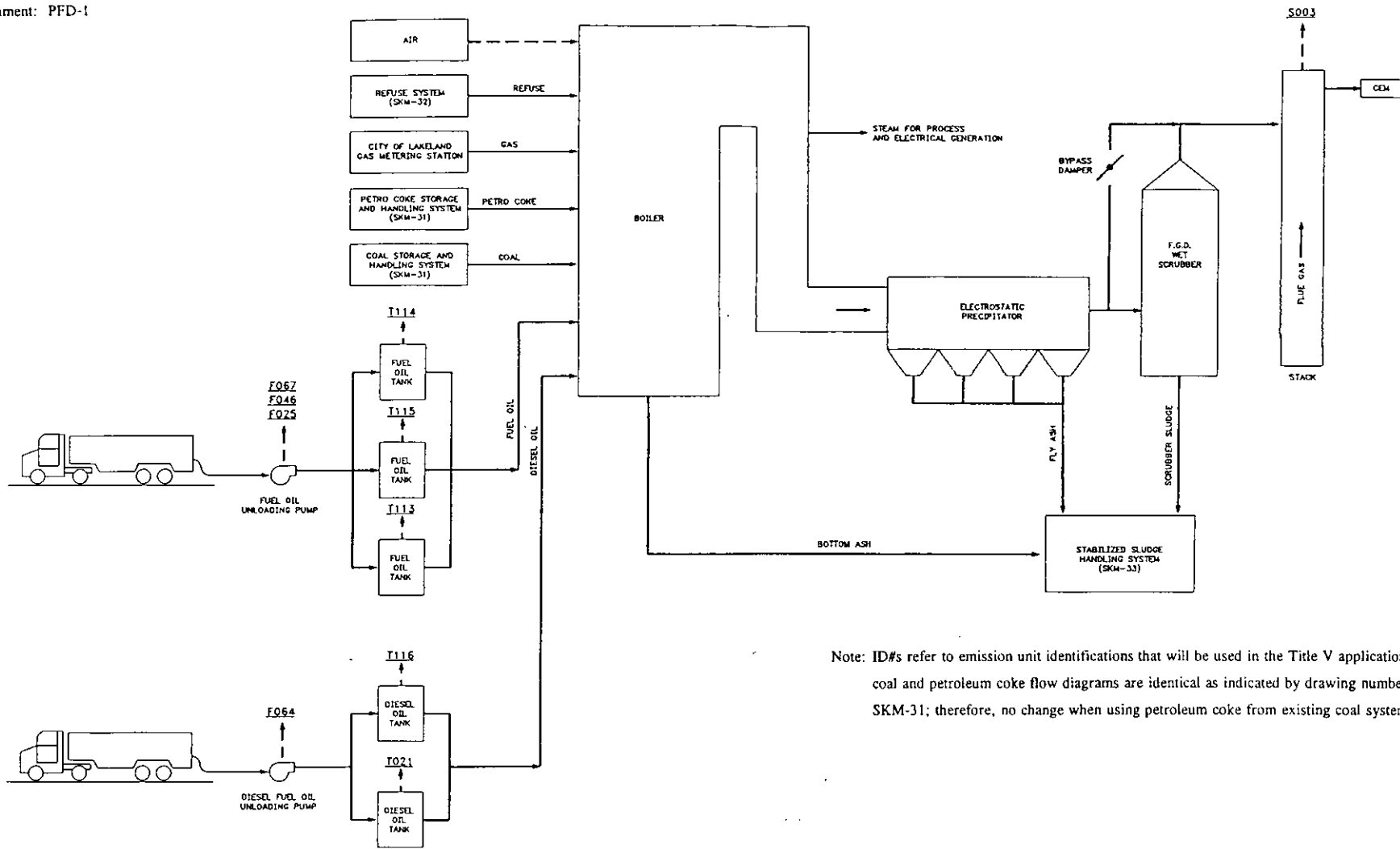
CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	11.44	1074.	0.

 ** 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.

0	MG	11-2-94		ISSUED FOR TITLE V PERMIT APPLICATION
1	MC	9-21-94		FOR APPROVAL
A	MG	X		FOR APPROVAL
REV. NO.	BY	DATE	APPR.	REVISION



LAKELAND
ELECTRIC
& WATER

DESCRIPTION	DIVISION	PRODUCTION ENGINEERING
McINTOSH POWER PLANT UNIT NO. 3 SIMPLIFIED FLOW DIAGRAM	ENGINEER	PATTERSON
	DRN. BY:	MCIEGER
	APPR. BY:	

DATE	9-19-94
------	---------

CAD	SCALE	NONE
PROJ. NO.	EWR-94-199	
DWG. NO.	SKM-27	REV. 0

SIZE B



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.

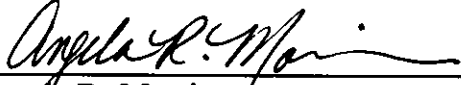
REQUEST FOR RELIEF

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



Angela R. Morrison
Fla. Bar No. 0855766
123 South Calhoun Street
P.O. Box 6526
Tallahassee, FL 32314
(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
3900 Commonwealth Boulevard, MS #48
Tallahassee, FL 32399

Richard T. Donelan, Jr., Esquire
Assistant General Counsel
Florida Department of Environmental Protection
2600 Blair Stone Road
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Michael Palecki
Division of Legal Services
Florida Public Service Commission
101 East Gaines Street
Tallahassee, FL 32301

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

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

Daniel Fernandez
Southwest Florida Water Management District
2379 Broad Street
Brooksville, FL 33512

David Jordan, Senior Attorney
Department of Community Affairs
2740 Centerview Drive
Tallahassee, FL 32399

County Administrator
Polk County, Florida
P.O. Box 60
Bartow, FL 33830

City of Lakeland, Florida
P.O. Box 38
Lakeland, FL 33802



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 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

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

Case No. PA 74-06-SR

CONDITIONS OF CERTIFICATION

GENERAL

Table of Contents

	Page
1. Change in Discharge	1
2. Noncompliance Notification	1
3. Facilities Operation	1
4. Adverse Impact	2
5. Right of Entry	2
6. Revocation or Suspension	2
7. Civil and Criminal Liability	2
8. Property Rights	3
9. Severability	3
10. Pollutants	3
11. Review of Site Certification	3
12. Modification of Conditions	4

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
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
 Case No. PA 74-06-SR
CONDITIONS OF CERTIFICATION

SPECIAL

Table of Contents

	Page
I. Air	1
A. Emission Limitations	1
B. Air Monitoring Program	2
C. Stack Testing	2
D. Reporting	3
E. Coal Characteristics and Contracts	3
F. Coal Information	3
G. Reporting	4
<u>H. Fuels</u>	<u>4</u>
II. Water Discharges	4
A. Pretreatment Standards	4
1. Cooling Tower Blowdown	4
2. pH	45
3. Polychlorinated Biphenyl Compounds	45
4. Chemical Wastes and Boiler Blowdown	5
5. Sluice Pond Overflow	5
6. Flue Gas Desulfurization Sludge Pond Overflow	5
B. In-Plant Water Monitoring Program	5
III. Groundwater	5
A. General	56
B. Well Criteria	56
C. Groundwater Use Limitations	56
IV. Leachate	6
A. Compliance	6
B. Monitoring	6
C. Corrective Action	67
V. Control Measures During Construction	67
A. Stormwater Runoff	67
B. Sanitary Wastes	7
C. Environmental Control Program	78
VI. Solid Wastes	78
VII. Operation Safeguards	78
VIII. Solid Waste Utilization System	78
IX. Screening	78
X. Potable Water Supply System	78
XI. Transformer and Electric Switching Gear	89
XII. Toxic, Deleterious, or Hazardous Materials	89
XIII. Transmission Line	89
A. Construction	89
B. Maintenance	<u>910</u>

XIV. Construction in Waters of the State
XV. Cooling Water Treatment
XVI. Sanitary Waste Disposal

910
910
910

State of Florida Department of Environmental Protection 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 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 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 waterwater 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-Bbls- <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. ~~Distriet-13~~ -----Alabama
2. ~~Distriet-9~~ -----West-Kentucky
3. ~~Distriet-8~~ -----East-Kentucky and parts of West-Virginia,
-----Tennessee and-Virginia
4. ~~Distriet-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-tens-of-coal-and-the-active-pile-will-store approximately-10,000-tens:

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 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 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 /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.

MCINTOSH PLANT SITE - DUST COLLECTORS

Table 5.6.2

<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.