LAKELAND ELECTRIC

Farzie Shelton, chE; REM

Manager of Environmental Affairs

September 24, 2001

Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399

RE: C.D. McIntosh, Jr. Power Plant, Unit No. 3
Request to Revise Permit No. PSD-FL-008
Use of Harvested Biomass as Fuel

Dear Mr. Fancy:

On July 8, 1999, in a letter accompanied with a permit application to the Department Lakeland Electric requested modification to the above referenced PSD permit to accommodate the use of harvested biomass as fuel. Since we are not actively pursuing utilization of biomass presently, therefore, we are writing to request the withdrawal of our PSD permit modification application. However, we reserve the right to submit a PSD permit modification application for this activity if Lakeland Electric decide to pursue the utilization of this fuel in the future.

If you should have a question, please do not hesitate to contact me.

Sincerely

Farzie Shelton

City of Lakeland ● Department of Electric Utilities

501 East Lemon Street ● Lakeland, Fl 33801-5050 ● (863) 834-6603 ● Fax (863) 834-8187 ● Message System 834-6592

farzie.shelton@lakelandgov.net

Florida Department of
Environmental Protection

Memorandum

Date: August 9, 2001

To: Bill Proses, P.E.
District Air Compliance Supervisor

Through: Gerald Kissel, P.E.
District Air Permitting Supervisor

From: Ann Quillian, P.E.
Air Permit Engineer

cc: Al Linero, P.E., P.E. Administrator, New Source Review

Subject: Lakeland Electric
C.D. McIntosh Power Plant, Unit #3 (E.U. No. 006)
Permit Nos. 1050004-003-AV (Title V Permit Revision Project No. 1050004-009-AV)
1050004-002-AC/PSD-FL-008(B)

Background

On May 4, 2001, the Department received a letter (see Attachment A) from Lakeland Electric regarding five years of annual testing for sulfuric acid mist (SAM) as related to Condition E.43 of the Revision to the Title V Operation Permit No. 1050004-003-AV (Title V Permit Revision Project File No. 1050004-009-AV) and Condition 9 of PSD-FL-008(B). Condition E.43 states:

> ***E.43.*** *The City shall maintain and submit to the Department on an annual basis for a period of five years from the date that the unit is initially co-fired with petroleum coke, information demonstration in accordance with 40 CFR 52.21(b)(33) and 40 CFR 52.21(b)(21)(v) that the operational changes did not result in emissions increases of carbon monoxide, nitrogen oxides, or sulfuric acid mist.*
> *[PSD-FL-008(B)]*

The federal requirements referenced in Condition E.43 are as follows

40 CFR 52.21(b)(21)(v):

> *For an electric utility steam generating unit (other than a new unit or the replacement of an existing unit) actual emissions of the unit following the physical or operational change shall equal the representative actual annual emissions of the unit, provided the source owner or operator maintains and submits to the Administrator on an annual basis for a period of 5 years from the date the unit resumes regular operation, information demonstrating that the physical or operational change did not result in an emissions increase....*

40 CFR 52.21(b)(33):

> *Representative actual annual emissions means the average rate, in tons per year, at which the source is projected to emit a pollutant for the two year period after a physical change or change in the method of operation of a unit, (or a different consecutive two year period within 10 years after that change, where the Administrator determines that such period is more representative of normal source operations), considering the effect any such change will have on increasing or decreasing the hourly emissions rate and on projected capacity utilization.....*

Findings

Review of the test reports from 1996 until 2001 indicates that tests for the purpose of meeting this requirement were conducted as follows:

Testing for Compliance with Condition E.43 (Title V Permit) and Condition 9 (PSD-FL-008(B)):

	1996	1997 *	1998	1999	2000	2001
Sulfuric Acid Mist (SAM)	X	X	X	X		X
Carbon Monoxide (CO)	X	X				
Nitrogen Oxides (NO_x)	X	X				

*Two tests were performed in 1997. One was in February and the other in September, 1997.

In the above table, you will note that Lakeland has not performed testing for Carbon Monoxide (CO) nor Nitrogen Oxides (NO_x) to meet the requirement in Condition E.43 (Title V Permit) or Condition 9 (PSD-FL-008(B)), since 1997. No testing was performed in the year 2000. However according to the permittee and the permittee's consultant, Lakeland did not burn enough pet-coke to perform an emission test in the year 2000.

On February 28, 2001, the Department received a copy of a correspondence from Ken Kosky, Golder Associates to Farzie Shelton, Lakeland Electric (see Attachment B). In this correspondence, Mr. Kosky makes the conclusion that no significant increase in emissions has occurred with the burning of pet-coke. However, Mr. Kosky bases his conclusions using tests from 1996 and 1997 as well as AP-42 emission factors. He extrapolated the 1996 and 1997 emission test results to the year 2000, based on the lower amount of pet-coke combusted.

Conclusions

1. Lakeland Electric did not fully meet the requirements of Condition E.43 of the Title V Permit nor Condition 9, PSD-FL-008(B) to demonstrate that no significant increase in emissions of CO, NO_x, or SAM would occur as a result of burning pet-coke.

    a. Information provided by Ken Kosky, Golder Associates through Lakeland Electric does not fully meet the requirement to demonstrate that the operational changes did not result in emissions increases. The data presented in the test reports of 1996 and 1997 are too variable to make a conclusion, which Ken Kosky mentions in his June 29, 2001 fax to Ann Quillian, FDEP (see Attachment C). However, Mr. Kosky uses this information to extrapolate to the year 2000 to reach his conclusion that no significant emissions increase had occurred.
    b. According to the sulfuric acid mist (SAM) test results (1996 - 2001), it appears that SAM emissions increased as a result of burning pet-coke.

2. Lakeland Electric failed to test this emission unit for CO and NO_x for the purpose of meeting this requirement, since1997.

Note: This staff assessment is preliminary and is designed to assist in the review of the information provided prior to final agency action. The comments provided herein are not the final position of the Department and may be subject to revision pursuant to additional information and further review.

LAKELAND ELECTRIC

Farzie Shelton, chE; REM

Manager of Environmental Affairs

ATTACHMENT A

April 30, 2001

Mr. William C. Thomas P.E.
Administrator
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

RE: C.D. McIntosh Power Plant
Permit No. 1050004-009-AV
Unit #3 – E.U. 006

Dear Bill:

In accordance with the above referenced Title V permit condition E.43, Unit Number 3 shall be tested for sulfuric acid mist (SAM) annually for a period of five years. Our last test, performed in January of 2001, completed the five years of testing requirement for SAM. All test reports, annually, and certifications were submitted to your office for the Department's review.

Therefore, we are writing to notify you of the completion of this five-year testing obligation and that Unit #3 will forgo any future testing for SAM unless the Department notifies us otherwise.

Thank you for your consideration in this matter. Please feel free to contact me should you have any questions.

Sincerely,

Farzie Shelton

Cc Mr. Clair Fancy P.E
Chief of the Bureau of Air Management
Division of Air Resources Management

City of Lakeland ● Department of Electric Utilities

501 East Lemon Street ● Lakeland, Fl 33801-5050 ● (863) 834-6603 ● Fax (863) 603-5670 ● Message System 834-6592

farzie.shelton@lakelandgov.net

Farzie Shelton, chE; REM

Manager of Environmental Affairs

ATTACHMENT B

D.E.P.

FEB 28 2001

Southwest District Tampa

February 27, 2001

Mr. William C. Thomas P.E.
Administrator
Department of Environmental Protection
3804 Coconut Palm Drive
Tampa Fl 33619

Re: C. D. McIntosh Jr. Power Plant
Unit No. 3 PSD-FL-008 (B) Condition 9 and Title V Permit No.: 105004-009-AV – E.U. ID No. 006 Condition E.43

Dear Mr. Thomas:

In compliance with the above referenced permits, we are submitting for your review the stack testing result conducted by the Catalyst Air Management, Inc. on February 9, 2001. Additionally, we are enclosing a letter signed and sealed by Mr. Ken Kosky P.E. of Golder Associates analyzing the data and demonstrating that the utilization of petroleum coke for this unit does not increase the emission of CO, NOX, and sulfuric acid mist (SAM). Also enclosed you will find a certification by Mr. Roger D. Haar (City Manager) our Responsible Official.

If you should have any questions, please do not hesitate to contact me.

Sincerely

Farzie Shelton

Enc.

City of Lakeland ● Department of Electric

501 East Lemon Street ● Lakeland, Fl 33801-5050 ● (863) 834-6603 ● Fax (863) 834-5670 ● Message System 834-6592
farzie.shelton@lakelandgov.net

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603

Golder Associates

D.E.P.

FEB 28 2001 0037548

Southwest District Tampa

February 26, 2001

Lakeland Electric – Power Supply
City of Lakeland
501 East Lemon Street
Lakeland, Florida 33801

Attention: Ms. Farzie Shelton, Manager Environmental Affairs

RE: C. D. MCINTOSH, JR. POWER PLANT – UNIT 3
PSD-FL-008(B) CONDITION 9 AND TITLE V PERMIT 1050004-009-AV
CONDITION E. 43

Dear Farzie:

This correspondence and certification address the requirements of Condition 9 of PSD-FL-008(B) and Condition E. 43. of Title V Permit 1050004-009-AV regarding co-firing of Petroleum Coke with Coal. The conditions state: "The City shall maintain and submit to the Department on an annual basis for a period of 5 years from the date the unit is initially co-fired with petroleum coke, information demonstration in accordance with 40 CFR 52.21(b)(33) and 40 CFR 52.21(b)(21)(v) that the operational changes did not result in emission increases of carbon monoxide (CO), nitrogen oxides (NO_x), or sulfuric acid mist (SAM)."

During 2000, the City reported 6,575.4 tons of petroleum coke co-fired with coal. This represents 32,876.8 tons of a mixture of 20-percent petroleum coke with 80-percent coal. The total reported amount of coal burned in 2000 was 967,248.9 tons. The amount of petroleum coke fired in 2000 was about 0.7 percent of the total coal fired in 2000, and the co-fired mixture at 20-percent petroleum coke was about 3.4 percent of the total coal fired in 2000. Given the small amount of petroleum coke co-fired with coal, testing could not be performed. Therefore, the evaluation of Conditions 9 and E.43 will be based on a conservative calculation from previous test data. These test data were based on co-firing 20-percent petroleum coke with coal.

The previous CO test data determined an emission rate of 0.26 lb/ton when co-firing petroleum coke with coal and 0.12 lb/mmBtu when firing coal. This represents a difference in emission rates of 0.14 lb/mmBtu. When firing 32,876.8 tons of 20-percent petroleum coke with coal the emissions for co-firing are 4.3 tons, while the emissions for coal are 2.0 tons. While the difference is a calculated increase of 2.3 tons, this is much less than the PSD significant emission rate of 100 tons as provided in Rule 62-212.400 and 40 CFR 52.21. It should be noted that the AP-42 emission factors for coal firing alone is 0.5 lb/ton, which is higher than either the co-firing or coal only tests.

The previous test data for NO_x determined an emission rate of 11.6 lb/ton when co-firing petroleum coke with coal and 12.8 lb/mmBtu when firing coal. This represents a difference in emission rates of 1.2 lb/mmBtu. When firing 32,876.8 tons of 20-percent petroleum coke with coal the emissions for co-firing are 190.6 tons, while the emissions for coal are 209.8 tons. The difference is a decrease of 19.2 tons. Therefore, no increase occurred in emissions of NO_x.

The previous test data for SAM determined an emission rate of 0.475 lb/ton when co-firing petroleum coke with coal and 0.355 lb/mmBtu when firing coal. This represents a difference in emission rates of 0.12 lb/mmBtu. When firing 32,876.8 tons of 20-percent petroleum coke with coal the emissions for co-firing are 7.8 tons while the emissions for coal are 5.8 tons. While the difference is a calculated increase of 2 tons, this is much less than the PSD significant emission rate of 100 tons as provided in Rule 62-212.400 and 40 CFR 52.21. Similar to the results for CO, the AP-42 emission factors for SAM when firing only is about 0.55 lb/ton, which is higher than either the co-firing or coal only tests.

The amount of petroleum coke co-fired with coal did not result in a significant net increase emissions as required by Conditions 9 and E.43 of the PSD and Title V permits, respectively.

Please call me at (352) 336-5600 if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Kennard F. Kosky, P.E.
Principal
Florida Professional Engineer No. 14996

SEAL

KFK/jkw/jkw

P:\Projects\2000\0037\0037548a Lakeland\04 McIntosh\L022601.doc

Fax

Best Available Copy

ATTACHMENT C

To: Ann Quillian, P.E. Fax Number: (813) 744-6458

Company: FDEP-Southwest District Date: June 29, 2001

From: Kennard F. Kosky, P.E. E-mail: kkosky@golder.com

Project No: 9837510-0500 Voice Mail: (352)336-5600

RE: Lakeland Electric McIntosh Unit 3

Total Pages (including cover): 1 Hard copy to follow x

MESSAGE

Ann: This is the information requested in your fax dated June 11, 2001. The "previous test data" referenced in my February 26, 2001 letter was data taken in 1996 and 1997. During these years testing was conducted for both coal only and co-firing petroleum coke (PC) with coal. During the most recent year (i.e., 2000) that petroleum coke was co-fired the timeframe was too short to schedule and obtain valid tests. As a result I had to rely on the previously available test data. The most current test data I had was for 1996 and 1997 and was as follows:

Fuel	Year	Fuel Input (tons/hr)	CO (lb/hr)	NOx (lb/hr)	H2SO4 (lb/hr)
Coal	1996	136.49	7.30	1,812	59.87
PC/Coal	1996	133.91	18.9	1,571	70.53
Coal	1997	128.41	24.38	1,572	34.81
PC/Coal	1997	128.86	48.77	1,477	54.64

These data were used to calculate the lb/ton emission factor noted in my correspondence. Please note that I had a typo in labeling some of the emission factors as lb/MMBtu when they should have been lb/ton. Due to the small amount of petroleum coke used in 2000 it would not be possible to exceed the PSD significant emission rates using only the lb/ton emission factors. In previous determinations made for 1996 and 1997, EPA emission factors were also used, since the individual tests for both CO and sulfuric acid mist considerable variability. The emission factors used were based on AP-42 and only used to determine coal only emissions.

I did not have a copy of the complete test reports but I will get copies of the relevant information and send. Please call if you have any questions.

Regards, Ken Kosky

cc: Farzie Shelton, Lakeland Electric

Golder Associates
6241 NW 23rd St., Suite 500
Gainesville, FL 32653
U.S.A.
Telephone: (352) 336-5600
Fax: (352) 336-6603

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Offices in Australia, Canada, Finland, Germany, Hong Kong, Hungary, Indonesia, Italy, South America, Sweden, United Kingdom, United States

Permit #:1050004-006-AC PATS: Issue:29-JAN-1999 Expire:29-JAN-2004

Project #/Name	Owner/Company	Type/Sub	Receive
001/AMENDMENTS TO PERMIT PSD-	LAKELAND ELECTRIC	AC /M1	08-DEC-1994
002/PETROLEUM COKE AS FUEL RE	LAKELAND ELECTRIC	AC /M1	19-OCT-1995
003/MCINTOSH POWER PLANT	LAKELAND ELECTRIC	AV /00	14-JUN-1996
004/MCINTOSH POWER PLANT FACI	LAKELAND ELECTRIC	AC /1A	08-DEC-1997
005/MCINTOSH POWER PLANT EARL	LAKELAND ELECTRIC	AV /02	31-AUG-1998
006/CITY OF LAKELAND-MCINTOSH	**LAKELAND ELECTRIC**	**AC /M2**	**27-JAN-1999**
007/CITY OF LAKELAND - UNIT #	LAKELAND ELECTRIC	AC /M1	09-JUL-1999
008/CITY OF LAKELAND - UNIT 5	LAKELAND ELECTRIC	AC /M1	21-SEP-1999
009/C.D. MCINTOSH POWER PLANT	LAKELAND ELECTRIC	AV /02	24-APR-2000
010/C.D. MCINTOSH, JR.,UNIT N	LAKELAND ELECTRIC	AC /M1	29-JUL-2000
/STEAM GENERATOR	LAKELAND ELECTRIC	AO /2A	23-NOV-1988
/PEAKING UNIT #3, FUEL OIL	LAKELAND ELECTRIC	AO /2B	15-DEC-1988
/PEAKING UNIT #1, FUEL OIL	LAKELAND ELECTRIC	AO /2B	15-DEC-1988
/STEAM GENERATOR	LAKELAND ELECTRIC	AO /2A	20-DEC-1989

Press [NXTBLK] for summary information.
Count: 14 v <Replace>

Detail | Events | Facility | perMitted EU | Help | eXit

Permitting Application

Permit #:**1050003-007-AC** PATS: Issue:**30-MAY-2000** Expire:**30-MAY-2005**

Project #/Name	Owner/Company	Type/Sub	Receive
001/CUSTOM FUEL MONITOR/ISO/L	LAKELAND ELECTRIC	AC /M1	27-JUN-1995
002/LARSEN 8 REV'S	LAKELAND ELECTRIC	AO /MM	23-OCT-1995
003/REVISE TEST DATES - UNITS	LAKELAND ELECTRIC	AO /MM	18-MAR-1996
004/LARSEN POWER STATION	LAKELAND ELECTRIC	AV /00	14-JUN-1996
005/LAKELAND ELECTRIC/WATER U	LAKELAND ELECTRIC	AC /M1	20-MAR-1997
006/LAKELAND/LARSEN ADMIN COR	LAKELAND ELECTRIC	AV /03	26-OCT-1999
007/LAKELAND-LARSEN MEMORIAL	**LAKELAND ELECTRIC**	**AC /M1**	**25-FEB-2000**
008/LAKELAND/LARSEN ADMIN COR	LAKELAND ELECTRIC	AV /03	16-MAR-2000
/LARSEN MEMORIAL UNIT 5	LAKELAND ELECTRIC	AO /99	01-FEB-1985
/STEAM GENERATOR NO. 7	LAKELAND ELECTRIC	AO /99	04-APR-1985
/LARSON MEMORIAL POWER PLA	LAKELAND ELECTRIC	AO /99	04-APR-1985
/LARSEN PLANT--GAS TURBINE	LAKELAND ELECTRIC	AO /00	07-JUN-1988
/LARSON MEMORIAL POWER PLA	LAKELAND ELECTRIC	AO /2A	05-FEB-1990
/LARSON MEMORIAL POWER PLA	LAKELAND ELECTRIC	AO /2A	05-FEB-1990

Press [NXTBLK] for summary information.

Count: 14 v <Replace>

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

May 26, 2000

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Farzie Shelton, Manager
Environmental Licensing and Planning
Lakeland Electric and Water Utilities Department
501 East Lemon Street
Lakeland, Florida 33801-5079

Re: DEP File No. 1050004-007-AC (PSD-FL-008C)
C.D McIntosh Jr. Power Plant, Unit 3
Use of Harvested Biomass as Fuel

Dear Ms. Shelton:

This letter is to advise you that the 90-day permit processing clock remains stopped in accordance with your letter dated November 9, 1999 and our letter to you dated November 30.

The November 30 letter included a Preliminary Draft PSD permit modification, for the referenced project at the C. D. McIntosh, Jr Power Plant located at 3030 East Lake Parker Drive, Lakeland, Polk County. We request final resolution of the issues by July 31 so we may proceed to take an official action (such as actually issuing an Intent).

If you have any questions regarding this matter, please call Teresa Heron at 850/921-9529.

Sincerely,

5/26

A.. A. Linero, P.E. Administrator
New Source Review Section

AAL/al

Enclosures

Cc: Ron Tomlin, City of Lakeland
Buck Oven, DEP PPSO

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Jarzie Shelton, Mgr.
Lakeland Electric & Water Utilities
501 E. Lemon St.
Lakeland, Fl 33801-5079

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* B. Date of Delivery
Bonnie Brew MAY 30

C. Signature
X Bonnie Brew ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
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☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)* Z 341 355 299

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

Z 341 355 299

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Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	5-26-00

1050004-007-AC
PSO-FI-008C

PS Form **3800**, April 1995

RECEIVED
MAR 30 2000
BUREAU OF AIR REGULATION

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN RE: CITY OF LAKELAND
C.D. McINTOSH, JR. POWER PLANT
UNIT NUMBERS 3 & 5
APPLICATION NO. PA74-06SR-G

OGC CASE NO. 99-1996

/

NOTICE OF RECEIPT OF PROPOSED MODIFICATION
OF POWER PLANT CERTIFICATION

The Florida Department of Environmental Protection ("Department") hereby gives notice that it has received a request to issue a modification of Power Plant Conditions of Certification issued pursuant to the Florida Electrical Power Plant Siting Act, Section 403.501 *et seq.*, Florida Statutes, concerning the above referenced facility.

The Department is reviewing the requested modifications of the conditions of certification to conform the conditions of certification for Unit 5 to the December 9, 1999 amendment to PSD-FL-245C. In addition, the Department is reviewing Lakeland's request to allow the use of biomass as fuel and their request to modify existing Condition of Certification XVI concerning evaluation of reuse water used in the Unit No. 3 cooling tower, based upon recent improvements to the City's domestic waste plants that supply reuse water for that unit.

By a Certification Order dated December 7, 1978, the Governor and Cabinet, sitting as the Siting Board, granted certification to co-applicants the City of Lakeland and the Orlando Utilities Commission for the construction and operation of a 364 megawatt coal, refuse and oil fired unit known as the C.D. McIntosh, Jr. Power Plant, Unit 3, including directly associated electrical transmission lines and other directly associated facilities, located in Polk County, Florida. The conditions of certification were modified on September 23, 1980, August 15, 1988 and August 10, 1993. On February 14, 1996, the conditions of certification were modified to allow the use of an alternative fuel, petroleum coke, in Unit 3. The conditions of certification were modified again on July 9, 1998.

The Department and other agencies are currently reviewing the requested modification of certification.

A copy of the proposed modification may be obtained by contacting Hamilton S. Oven, P.E., Administrator, Siting Coordination Office, Department of Environmental Protection 2600 Blair Stone Road, M.S. 48, Tallahassee, Florida 32399-2400 or by calling (850) 487-0472.

CERTIFICATE OF SERVICE

I CERTIFY that a true and correct copy of the foregoing Notice of Receipt of Proposed Modification of Power Plant Certification was sent by interagency delivery* or U.S. mail to:

Mark Carpanini, Esquire
Office of County Attorney
Post Office Box 9005
Bartow, Florida 33831-9005

Frank Anderson, Esquire
Assistant General Counsel
Southwest Florida Water
Management District
2379 Broad Street
Brooksville, Florida 34609-6899

* Andrew S. Grayson, Esquire
Assistant General Counsel
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

* James V. Antista, General Counsel
Fish and Wildlife Conservation
Commission
620 South Meridian Street
Tallahassee, Florida 32399-1600

Thomas B. Tart, Esquire
Orlando Utilities Commission
500 South Orange Street
Orlando, Florida 32801

* Sheauching Yu, Esquire
Assistant General Counsel
Department of Transportation
Haydon Burns Building
605 Suwannee Street, M.S. 58
Tallahassee, Florida 32399-0450

* Robert V. Elias, Esquire
Florida Public Service Commission
Gerald Gunter Building
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Andrew R. Reilly, Esquire
East Lake Parker Residents
95 South 10th Street
Post Office Box 2039
Haines City, Florida 33845-2039

Douglas Roberts, Esquire
Angela Morrison, Esquire
Hopping Green Sams & Smith
Post Office Box 6526
Tallahassee, Florida 32314

Norman White, Esquire
Central Florida Regional Planning Council
555 East Church Street
Bartow, Florida 33830

on this 30th day of March 2000.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

SCOTT A. GOORLAND
Senior Assistant General Counsel
Florida Bar No. 0066834

Douglas Building, MS 35
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000
Telephone: (850) 488-9314

Department of Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

November 30, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Farzie Shelton, Manager
Environmental Licensing and Planning
Lakeland Electric and Water Utilities Department
501 East Lemon Street
Lakeland, Florida 33801-5079

Re: DEP File No. 1050004-007-AC (PSD-FL-008C)
C.D McIntosh Jr. Power Plant, Unit 3
Use of Harvested Biomass as Fuel

Dear Ms. Shelton:

Enclosed is one copy of the Preliminary Draft PSD permit modification, for the referenced project at the C. D. McIntosh, Jr Power Plant located at 3030 East Lake Parker Drive, Lakeland, Polk County. This does not constitute an Intent to Issue PSD Construction Permit. However a draft Intent and a draft Public Notice are also included.

We previously advised that we could not provide an advance copy of the package for your review and comment prior to issuance of a formal Intent. The reason was that the 90-day permitting clock would continue to run during that period and could cause a default. Additionally, we had a temporary computer problem.

The City voluntarily waived the 90-day permitting. This allows us to provide you with the attached draft package that you may review at your convenience while the clock is stopped. As discussed in your letter, the City and the Department will use the time to resolve any outstanding matters. Please advise if and when you wish to have the clock restarted and we will promptly issue a formal Intent.

If you have any questions regarding this matter, please call me at 850/921-9523.

Sincerely,

11/30

A.. A. Linero, P.E. Administrator
New Source Review Section

AAL/al

Enclosures

Cc: Ron Tomlin, City of Lakeland
Buck Oven, DEP PPSO

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

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

Consult postmaster for fee.

3. Article Addressed to:
Ms. Darzie Shelton
Lakeland Electric & Water
501 E. Lemon St.
Lakeland, Fl
33801-5079

4a. Article Number
Z 031 392 026

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

7. Date of Delivery
12-1-99

5. Received By: *(Print Name)*

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

6. Signature: *(Addressee or Agent)*
X Bonnie Bern

PS Form **3811**, December 1994 102595-98-B-0229 Domestic Return Receipt

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Thank you for using Return Receipt Service.

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US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*.

Sent to Darzie Shelton	
Street & Number Lakeland Electric	
Post Office, State, & ZIP Code CO McIntosh Unit	
Postage	$ 3
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 11-29-99	

PS Form **3800**, April 1995

105004-007-AC
PSD-FL-008(C)

Month xx, year

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ronald W. Tomlin
Assistant Managing Director
Lakeland Electric and Water Utilities Department
501 East Lemon Street
Lakeland, Florida 33801-5079

Re: DEP File No. 1050004-007-AC (PSD-FL-008C)
C.D McIntosh Jr. Power Plant, Unit 3
Use of Harvested Biomass as Fuel

Dear Mr. Tomlin:

Enclosed is one copy of the Draft PSD permit modification, for the referenced project at the C. D. McIntosh, Jr Power Plant located at 3030 East Lake Parker Drive, Lakeland, Polk County. The Department's Intent to Issue Air Construction Permit and the "PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT MODIFICATION" are also included.

The "Public Notice of Intent to Issue PSD Permit Modification" must be published one time only as soon as possible in a newspaper of general circulation in the area affected, pursuant to the requirements of Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any other questions, please call Mr. Linero at 850/921-9523.

Sincerely,

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

CHF/aal

Enclosures

In the Matter of an
Application for Permit by:

Mr. Ronald W. Tomlin, Assistant Managing Director
City of Lakeland Electric & Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5079

DEP File No. 1050004-007AC
DRAFT Permit No.: PSD-FL-008C
C.D. McIntosh, Jr. Power Plant, Unit No. 3
Polk County

/

INTENT TO ISSUE PSD PERMIT MODIFICATION

The Department of Environmental Protection (Department) gives notice of its intent to issue a PSD PERMIT MODIFICATION (copy of DRAFT Permit Modification attached) for the proposed project, detailed in the application specified above, for the reasons stated below.

The applicant, City of Lakeland Electric & Water Utilities, applied on July 9, 1999 to the Department for a PSD permit modification to allow the use of harvested biomass as fuel in Unit 3 at the C.D. McIntosh, Jr. Power Plant, located at 3030 East Lake Parker Drive, Lakeland, Polk County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that a PSD PERMIT MODIFICATION under the provisions for the Prevention of Significant Deterioration (PSD) of Air Quality is required for the proposed work.

The Department intends to issue this PSD PERMIT MODIFICATION based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106 (7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue PSD PERMIT MODIFICATION". The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the Permit Modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed action for a period of 30 (thirty) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT MODIFICATION." Any written comments should be provided to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed Permit Modification and require, if applicable, another Public Notice.

The Department will issue the Permit Modification with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to reguiation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE PSD PERMIT MODIFICATION (including the PUBLIC NOTICE and the DRAFT Modification Permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on _____ to the person(s) listed:

Ronald W. Tomlin, City of Lakeland *
Farzie Shelton, City of Lakeland
Gregg Worley, EPA
John Bunyak, NPS
Bill Thomas, SWD
Buck Oven, DEP
Iris Hill, Polk County
Ken Kosky, Golder Associates

Clerk Stamp

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

_____ _____
(Clerk) (Date)

PUBLIC NOTICE OF INTENT TO ISSUE PSD PERMIT MODIFICATION

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 1050004-007AC (PSD-FL-008C)

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

The Department of Environmental Protection (Department) gives notice of its intent to issue a Permit Modification to the City of Lakeland Electric & Water Utilities Department. The Modification to the Permit for the Prevention of Significant Deterioration of Air Quality (PSD Permit) will allow certain materials as described below to be co-fired as fuel in McIntosh Unit 3. A determination of Best Available Control Technology (BACT) was not required pursuant to the PSD rules at 40CFR52.21 or 62-212.400, F.A.C. The applicant's name and address are The City of Lakeland Electric and Water Utilities Department, 501 East Lemon Street, Lakeland, Florida 33801-5079.

McIntosh Unit 3 is a coal-fired electrical steam generating unit. The City is already allowed to co-fire up to 10 percent refuse. The City proposes to include biomass within the allotment for the 10 percent refuse. The biomass is proposed to include all forms of vegetative matter including but not limited to wood wastes, agricultural crops or crop waste material and specially planted or harvested energy crops. The City proposes to permit this change as a pollution control project (exempt from the PSD rules) due to expected reductions in sulfur dioxide, particulate matter, and nitrogen oxides and possible increases in carbon monoxide. The Department proposes to allow only certain wood waste and those crops specifically planted and harvested for energy recovery. Agricultural or crop waste material is too broad and not within the scope of the refuse that the City is allowed to burn in accordance with its existing permits and Site Certification.

To avoid triggering PSD, the City must report future actual representative annual emissions of carbon monoxide to the Department and demonstrate that these did not increase significantly due to the project. The Department did not determine that burning of biomass is a pollution control project (PCP) and thus exempt from PSD. The primary reason for burning biomass has not (yet) been shown to be for the purposes of reducing emissions. Furthermore modeling of CO has not (yet) been performed to satisfy the requirements of a PCP. If these demonstrations are made prior to issuance of the final permit, the Department may exempt the project from PSD on that basis.

The Department will issue the Final Permit Modification with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of

the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

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

Florida Department of
Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida, 32301
Telephone: (850)488-1344
Fax: (850)922-6979

Florida Department of
Environmental Protection
Southwest District Office
3804 Coconut Drive
Tampa, Florida 33619-8218
Telephone: (813)744-6100
Fax: (813)744-6084

City of Lakeland Electric
and Water Utilities
Attention: Ms. Farzie Shelton
501 East Lemon Street
Lakeland, Florida 33801-5079
Telephone: (941)499-6603
Fax: (941)603-6335

The complete project file includes the Draft Permit Modification, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 904/488-1344, for additional information.

Month, xx 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Ronald W. Tomlin
Assistant Manager Director
Lakeland Electric & Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5079

Re: DEP File No. 1050004-007-AC (PSD-FL-008C)
McIntosh Unit No. 3, Harvested Biomass
City of Lakeland Department of Electric Utilities (Lakeland)

Dear Mr. Tomlin:

The Department has reviewed Lakeland's July 8, 1999 letter requesting a revision to the PSD permit for McIntosh Unit 3. The request is to clarify that specially planted and harvested energy crops as well as agricultural and wood wastes may be used as a fuel for Unit 3 under its present authorization to burn up to 10 percent refuse.

The Department does not believe that the mentioned materials constitute refuse. However, the Department concludes that by employing good combustion practices, certain materials can be co-fired without triggering PSD Review. Permit PSD-FL-008 is hereby revised as follows:

CONDITION 8

The following fuels may be burned:

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

CONDITION 9

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

The City shall maintain and submit to the Department on an annual basis for a period of five years from the date the unit is initially co-fired with wood waste or vegetative crops specifically planted and harvested for energy recovery, information demonstrating in accordance with 40 CFR 52.21 (b)(33) and 40 CFR 52.21 (b)(21)(v) that the operational changes did not result in emissions increases of carbon monoxide.

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permit modification is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

_____
Howard L. Rhodes, Director
Division of Air Resources
Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this permit modification was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on _____ to the person(s) listed:

Ronald W. Tomlin *
Farzie Shelton *
Gregg Worley, EPA
John Bunyak, NPS
Bill Thomas, DEP SWD
Buck Oven, DEP PPSO
Iris Hill, Polk County
Ken Kosky, P.E., Golder Associates

Clerk Stamp

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

_____ _____
(Clerk) (Date)

Preliminary Determination

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

Electric Utility Steam Generating Unit
Solid and Liquid Fuel - Fired Boiler
364 MW

Permit No. PSD-FL-008(C)

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

Month xx, year

A. Applicant

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

B. Source

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

C. Request

On July 9, 1999, the City of Lakeland (City) submitted a request (Attachment 1) for a modification to Permit PSD-FL-008 originally issued by the United States Environmental Protection Agency (EPA) on December 27, 1978 and subsequently revised by the Department on September 5 and December 11, 1995. The permit and request are applicable to the City's C.D. McIntosh Power Plant Unit No. 3 (Unit 3) in Lakeland, Florida.

Initially the City requested that the Department "clarify that vegetative crops specifically planted and harvested for energy recovery can be burned along with other forms of biomass such as agricultural and wood wastes to supplement the refuse/refuse derived fuel already authorized for this unit." The request provided emission factors for burning "biomass" to suggest that emissions of particulate matter (PM), sulfur dioxide (SO_2), and nitrogen oxides (NO_X) are likely to decrease under the proposed operation.

On August 5, the Department requested information regarding effects on carbon monoxide (CO) emission factors and specific language for possible incorporation into the permit modification. Additional information was received on August 20. The City specifically proposed that Condition 1.H. of the most recent version of the permit be modified as indicated:

CONDITION 8

The following fuels may be burned:

- Coal only
- Low sulfur fuel oil only ($\leq$ 0.5 percent by weight)
- Coal and up to 10 percent refuse (based on heat input)
- Low sulfur fuel oil and up to 10 percent refuse (based on heat input) <u>including biomass; biomass shall include all forms of vegetative matter including but not limited to wood wastes, agricultural crops or crop waste material and specially planted or harvested energy crops. Biomass shall not include any material derived from sewage sludge</u>

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

D. Justification

Because CO emissions increase while PM, SO_2, and NO_X emissions decrease, the City believes the project can be considered a "Pollution Control Project" as described in Rule 62-212(2)(a)2., F.A.C. In its letter of August 19, the City provides as a further rationale the recent Presidential Executive Order for Developing and Promoting Biobased Products and Bioenergy. According to the Release, "It is the policy of this Administration, therefore, to develop a comprehensive national strategy, including research development, and private sector incentives, to stimulate the creation and early adoption of technologies needed to make biobased products and bioenergy cost-competitive in large national and international markets."

E. Rule Applicability

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

Presuming that the coalyard and the steam units comprise a single facility, an increase in coalyard throughput would result in emissions increases of at least nitrogen oxides (NO_X), sulfur dioxide (SO_2), and particulate matter (PM/PM_{10}). There could also be increases in carbon monoxide (CO) and sulfuric acid mist (SAM).

The change in the coalyard throughput limit is a relaxation of a federally enforceable limitation on the capacity of the facility and is therefore a modification. As such, the PSD requirements in Rule 62-212.400, F.A.C. may apply as described in Rule 62-212.400(2)(g), F.A.C. Modifications to Major Facilities are those that result in a significant net emissions increase as described in Rule 62-212.400(2)(d)4.a(ii) and 62-212.400(2), F.A.C.

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

The City believes the project is actually exempt from PSD review as a Pollution Control Project. A pollution control project (PCP) is defined at 40CFR52.21(b)(32) as:

> ***Any activity or project*** *undertaken at an existing electric steam generating unit* ***for purposes of reducing emissions from such unit****. Such activities and projects are limited to:*
>
> *(I) The* ***installation of*** *conventional or innovative pollution control technology, including but not limited to* ***advanced flue gas desulfurization****, sorbent injection for* ***sulfur dioxide control and nitrogen oxides*** *control and electrostatic precipitators;*
>
> *(2)* ***An activity or project to accommodate switching to a fuel which is less polluting*** *than the fuel in use prior to the activity or project, including,* ***but not limited to*** *natural gas or coal reburning, or the co-firing of natural gas and other fuel* ***for the purpose of controlling emissions****;*
>
> *(3) A permanent clean coal technology demonstration project conducted under title II, Section 101(d) of the Further Continuing Appropriations Act of 1985.....; or*
>
> *(4) A permanent clean coal technology demonstration project that constitutes a repowering project.*

The above definition is not specifically listed in the State Rules in Chapter 62, F.A.C. However it is obvious that it is the intent of the State to abide by the Federal definition. Furthermore, McIntosh Unit 3 was certified in accordance with 403.501-519, F.S. EPA Rules are also applicable to certified projects. Per Rule 62-212.400(2)(a)2., F.A.C., Pollution Control Project Exemption:

A pollution control project that is being added, replaced, or used at an existing *electric utility steam generating unit and that meets the requirements of* ***40CFR52.21(b)(2)(iii)(h) shall not be subject*** *to the preconstruction requirements of this rule.*

According to **40CFR52.21(b)(2)(iii)(h)**, one of the exemptions from review for PSD is:

> *The addition, replacement or use of a* ***pollution control project*** *at an existing electric utility steam generating unit,* ***unless the Administrator determines such*** *addition, replacement, or use* ***renders the unit less environmentally beneficial****, or except (1) When the Administrator has reason to believe that the pollution control project would result in a significant net increase in representative actual annual emissions of any criteria pollutant over levels used for that source in the most recent air quality impact analysis in the area conducted for the purpose of title I if any, and (2) The* ***Administrator determines the increase will cause or contribute to a violation of any national ambient air quality standard or PSD increment****, or visibility limitation.*

A fuel switch is not actually included in the definition of PCP nor is it listed as an activity in support of a PCP. However, it is not excluded. Furthermore, according to the EPA rule analysis at FR Vol. 57, No. 140, Pages 32320-32321:

"Thus EPA is today adopting revisions to its PSD and nonattainment regulations for the addition, replacement or use at an electric steam generating unit of any system or device whose ***primary function is the reduction of pollutants*** *(including the switching to a less-polluting fuel* ***where the primary purpose of the switch is the reduction of air pollutants).***"

The proposed project by the City is not a fuel switch as it is obvious that only small amounts of the proposed fuel will be used. The City does not propose to switch its primary fuel which is coal. The project is more like *the co-firing of natural gas and other fuel* ***for the purpose of controlling emissions***. If it is established that the primary purpose of co-firing biomass is to reduce emissions, then it can be evaluated for qualification as a PCP. Even if there is an increase in a PSD pollutant associated with the project, it is not necessarily precluded from consideration as a PCP. Per the EPA analysis:

"Several commentors pointed out that a pollution control project that reduces one pollutant should not be allowed to increase emissions of another pollutant if that increase will cause or exacerbate a different pollution problem..... Although ***a pollution control project could theoretically cause a small collateral increase in some emissions, it will substantially reduce emissions of other pollutants.*** *In recognition of this,* ***the rule provides for a case-by-case assessment*** *of the pollution control project's net emissions and overall impact on the environment."*

Therefore, the criteria which the Department must follow are clear. The collateral increase in any PSD pollutant should be small and the decrease in one or more PSD pollutants should be substantial. The increases in any pollutant should not cause or contribute to violation of an ambient air quality standard or PSD increment.

At this time, the Department does not have suffient information to conclude that the primary purpose of the co-firing is to reduce emissions, although the concept is promoted by the Department of Energy and other agencies as renewable energy and as a way to reduce greenhouse gas emissions. The Department does not yet have information regarding the impacts of possibly increased CO emissions on ambient air quality.

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

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

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

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

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

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

F. Evaluation of Application

The Department disagrees that that vegetative crops specifically planted and harvested for energy recovery fit within the definition of refuse/refuse derived fuel. The reasons are obvious. Also biomass is a vague term that can be construed to mean many things including sewage sludge and for which the emissions are not necessarily represented by the emission factors supplied by the City for this project. Similarly, agricultural waste is also too vague. The original refuse that the City intended to burn is better characterized as municipal solid waste rather than the expanded definition that the Department is requested to clarify.

There is sufficient information to conclude that co-firing of the vegetative energy crops and wood waste will reduce sulfur dioxide. Reductions are possible in nitrogen oxides and particulate emissions, although much depends on the combustion practices employed at Unit 3. Emissions of carbon monoxide are more likely to increase, but it is possible that the City can employ combustion practices to control CO.

G. Revised PSD Permit

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

CONDITION 8

The following fuels may be burned:

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

CONDITION 9

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

The City shall maintain and submit to the Department on an annual basis for a period of five years from the date the unit is initially co-fired with wood waste or vegetative crops specifically planted and harvested for energy recovery, information demonstrating in accordance with 40 CFR 52.21 (b)(33) and 40 CFR 52.21 (b)(21)(v) that the operational changes did not result in emissions increases of carbon monoxide.

H. Conclusion

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

LAKELAND ELECTRIC

Farzie Shelton, chE; REM

Environmental Affairs Manager of Licensing & Permitting

November 9, 1999

Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399

RE: C.D. McIntosh, Jr. Power Plant, Unit No. 3
Request to Revise Permit No. PSD-FL-008
Use of Harvested Biomass as Fuel

Dear Mr. Fancy:

The City of Lakeland Department of Electric Utilities (Lakeland) understands that the Department of Environmental Protection (Department), due to unforeseen computer problems, has been unable to process the above referenced application in a timely manner. Therefore, Lakeland, as requested by the Department, is hereby writing to waive the requirement of the 90 days permitting clock.

With this letter, Lakeland hopes that its waiver would aid the Department to overcome the time restriction imposed on issuing the draft modified PSD permit for its Unit No. 3.

As always, Lakeland looks forward to working with you and your staff in finding a suitable solution to its permitting request. If you have any questions or need any further information to complete your review, please call me at 863-834-6603.

Sincerely,

Farzie Shelton

cc: A. A. Linero, DEP
Buck Oven, DEP-Siting Coordination
Ronald Tomlin, Lakeland
Ken Kosky, Golder
Angela Morrison, HGSS

BIOENERGY

TECHNOLOGIES · POLICIES · MARKETS

Project Update: Salix Consortium

Daniel Peck/PIX05084

Willows such as these planted by the State University of New York will soon be providing clean, renewable energy from utility power plants throughout the Northeast region.

Energy crops for electricity production are becoming a reality. Led by Niagara Mohawk Power Corporation, the Salix Consortium, formed in 1994, is an association of twenty corporations and industrial, government agency, farming, and research organizations supporting commercial development of willows for generating electricity. These fast-growing trees, developed through genetic engineering specifically for maximizing growth and pest resistance, are grown for utilities across the Northeast region for cofiring with coal in existing power plants.

Long-Term Goals

The Salix Consortium's objectives are twofold. First, it aims to establish willows as a commercial biomass energy crop in the Northeast and upper Midwest regions. To do this, it will attempt to develop a reliable market for willow at a cost of less than $2 per million Btu by 2001. Second, it will demonstrate and quantify the environmental and economic benefits of cofiring willow with coal in existing electric power plants. Several power companies have already announced tentative plans for participation. New York State Electric and Gas Company's (NYSEG) Greenidge Station may cofire 5,000 tons of willows per year grown on 400 acres near the plant. NYSEG is already cofiring wood obtained from other (i.e., non-willow) sources at the Greenidge Station since the winter of 1997. (In summer 1998, AES Corporation of Arlington, Virginia, won a bid to acquire Greenidge Station and five other NYSEG power plants; subject to approval of several governmental agencies, completion of the sale is expected in early 1999.) Further north on the shores of Lake Erie, Niagara Mohawk will cofire willow grown on 400 acres near its 600-MW Dunkirk Station. For cofiring with coal, the

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energy input from biomass is expected to between 10% and 20% of the total.
In addition to these plans, Salix Consortium will plant willow at additional trial sites at various locations throughout the Northeast to lay the basis for eventual scale-up to commercial operation.

Recent Accomplishments

During 1998, Salix participants made a number of advances, including:

- Planted 105 acres of willow near the Dunkirk Station and an additional 34 acres in four areas of central New York
- Completed preliminary design for retrofitting the Dunkirk Station and fuel supply plan
- Installed biomass cofiring systems retrofit and conducted test burns of willow at NY SEG's Greenidge Station
- Produced more than 850,000 willow cuttings at State University New York at Syracuse-College of Environmental Science and Forestry (SUNY-ESF) and Saratoga Tree Nursery
- Modified and tested a willow planter (Cornell University) on 17 acres.

Near-Term Plans

Work will continue in 1999, including:

- Plant additional 200 acres of willow near the Dunkirk Station scheduled for the spring of 1999; harvesting is scheduled for the winters of 2001 and 2002
- Test the cofiring retrofit of Dunkirk Station
- Study environmental benefits, avian biodiversity, root dynamics, soil sustainability, and productivity of willow plantings at SUNY-ESF
- Analyze ash samples from cofiring at the Greenidge, Dunkirk, and Seward stations at GPU, Inc., and test the ash for suitability for use in Portland cement.

Project Participants

Antares Group, Inc.

Burlington Electric Department

Cornell University

Electric Power Research Institute

FORECON, Inc.

GPU, Inc. (formerly General Public Utilities)

Montreal Botanical Gardens

National Renewable Energy Laboratory

New York State Electric & Gas Company

New York State Energy Research and Development Authority

Niagara Mohawk Power Corporation

Oak Ridge National Laboratory

Ontario Hydro

South Central New York Resource Conservation and Development

State University of New York at Syracuse

U.S. Department of Agriculture

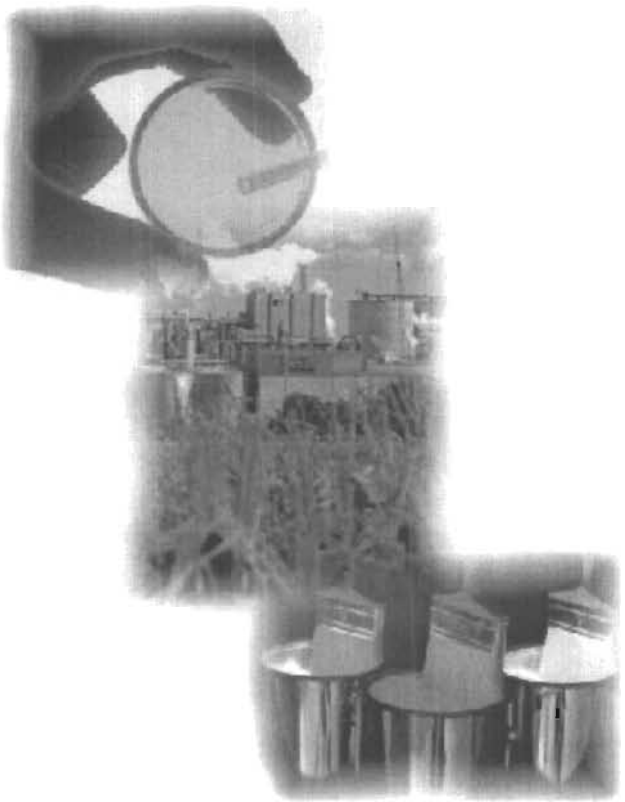
U.S. Department of Energy

University of Toronto

BIOENERGY

TECHNOLOGIES · MARKETS · POLICIES

Plant/Crop-based Renewables Resources



Background

The U.S. Department of Energy (DOE) through its Office of Industrial Technologies (OIT) supports industries in their efforts to increase energy efficiency, reduce waste and increase productivity. The goal of OIT is to accelerate the development and use of advanced energy efficient, renewable, and pollution prevention technologies that benefit the industry, the environment, and U.S. energy security. The core of OIT is its Industries of the Future program which focuses on basic materials and processing industries such as the Agriculture Industry.

Goals

- Achieve 10 percent of basic chemical buidling blocks from plant-derived renewable sources (a 5-fold increase from the level today).
- Establish environmentally sensitive manufacturing platforms for renewable plant-based products.
- Build partnerships among industry, growers, academia, and government to develop commercial applications.

Accomplishments

- A strategic vision, "Plant/Crop-Based Renewable Resources 2020," for using crops, trees, and agricultural wastes to manufacture industrial chemicals and a huge range of everyday consumer goods was developed by the U.S. agricultural, forestry and chemical communities.
- Industry has identified the significant barriers that exist in the overall system for conversion of renewable resources into industrial chemicals and everyday consumer goods.

Benefits

- Expand/open new markets to farmers and increase their sales/profits.
- Lessen reliance on imported fossil fuels/ improve energy efficiency of products.
- Reduce carbon emissions.

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- Establish alternative pathways of making similar or superior products that consumers demand.
- Revitalize the economy in rural regions by co-locating facilities/farm gate.
- Reduce waste generated in the production of chemicals and products.
- Create new opportunities for recycling.

Future Activities

Research and development is being solicited in the high priority areas identified in industry's technology roadmap. Selected high-priority research needs from the technology roadmap include:

Plant Science—Develop understanding of gene regulation and control of plant metabolic pathways, and functional genomics to improve gene manipulation.

Production—Improve production methods (higher plant productivity, more desirable plant components) for an adequate supply of plants for industrial use.

Processing—Improve methods of product separation and develop new, more effective catalysts for creating chemicals and other products from plants rather than hydrocarbons.

Utilization—Develop understanding of the relationships between the structure and functionality of different plant constituents (e.g., proteins, starch) and sound infrastructure and distribution systems to ensure adequate raw materials supply.

Partners in Success

AIChE, Center for Waste Reduction Technology
Agriculture Research Institute
American Soybean Association
Archer Daniels Midland Company
CA Institute of Food and Ag Research
Center for Crops Utilization Research
Corn Refiners Association
Genencor International, Inc.
Grain Processing Corporation
Institute for Physical Research and Technology
National Association of State Energy Offices
National Association of Wheat Growers
National Corn Growers Association
New Uses Council, Inc.
U.S. Department of Agriculture

BIOENERGY

TECHNOLOGIES · MARKETS · POLICIES

Biomass Cofiring - A Renewable Alternative for U tilities

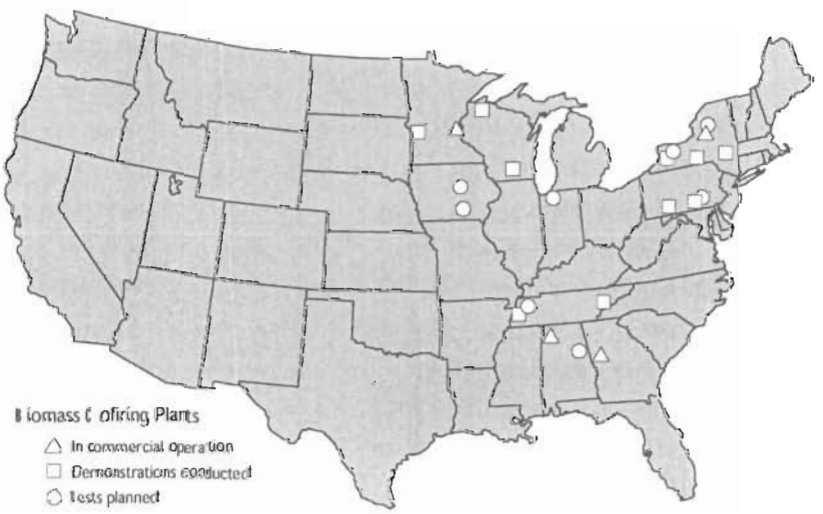
and trials have shown that effective substitutions of biomass energy can be made up to about 15 percent of the total energy input with little more than burner and feed intake system modifications to existing stations. In addition to CO_2 emission benefits, biomass in general contains significantly less sulfur than coal, so there is an SO_2 benefit as well. Early test results also suggest that there is a NO_x reduction potential of up to 30 percent with woody biomass.

Background

Biomass cofiring refers to the practice of introducing biomass as a partial substitute fuel in high efficiency coal boilers. This is the nearest term low-cost option for the efficient conversion of biomass to electricity. Cofiring has been practiced, tested, or evaluated for a variety of boiler technologies. After "tuning" the boiler's combustion output, there is little or no loss in total efficiency, implying that the biomass combustion efficiency to electricity would be close to the 33-37 percent range. Since large-scale coal power boilers represent 310 GW of generating capacity, there is a substantial opportunity for power generation using biomass cofiring. Extensive demonstrations

E conomic Req uirements

The economics of cofiring are highly site-specific and depend on power plant layout and type and availability of low-cost biomass fuels. A typical cofire installation includes modification to the fuel-handling and storage system to accomodate biomass. Costs can increase significantly if facilities for wood



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drying or size reduction are required, or if a separate feed to the boiler is required. For pulverized-coal boilers, retrofit costs range from $150 to $300 per kilowatt (kW) of biomass generation. The lowest cost opportunities are with cyclone boilers, for which costs may be as low as $50 per kW.

The more important cost factor, however, is fuel supply. Costs for biomass fuels depend on a number of factors such as climate, proximity to population centers, and the presence of industries that handle and dispose of wood. Usually the cost of biomass fuels must be equal to or less than the cost of coal (per MBtu) for cofiring to be economically successful. Some utilities reduce fuel costs by cofiring with biomass; the Tennessee Valley Authority, for example, estimates that it will save $1.5 million per year in fuel costs by using cofiring at its Colbert plant.

Technical Challenges

Several technical questions having to do with fuel feed, boiler chemistry, and ash deposition and disposal have been defined and are approaching resolution. Losses in boiler efficiency due to cofiring are small and are usually due to higher moisture content in the biomass fuels. A consensus is emerging that cofiring is feasible at the majority of coal-fired power plants. However, many power companies sell fly ash for use in making cement; currently the standard set by the American Society for Testing and Materials requires that only "coal ash" be used in the mixture. Until this standard is changed, cofiring biomass may hinder plant managers from selling ash for use in cement. Several utilities are currently working with the U.S. Department of Energy (DOE) to resolve this issue.

Partners in Success

Alliant Power

Auburn University

CharitonValley RC& D

Cornell

EPRI

General Public Utilities

New York Gas

New York State Gas and Electric

Niagara Mohawk Power Corporation

NIPSCO

NY SERDA

Southern Companies

Southern Research Institute

SUNY

Tennessee Valley Authority

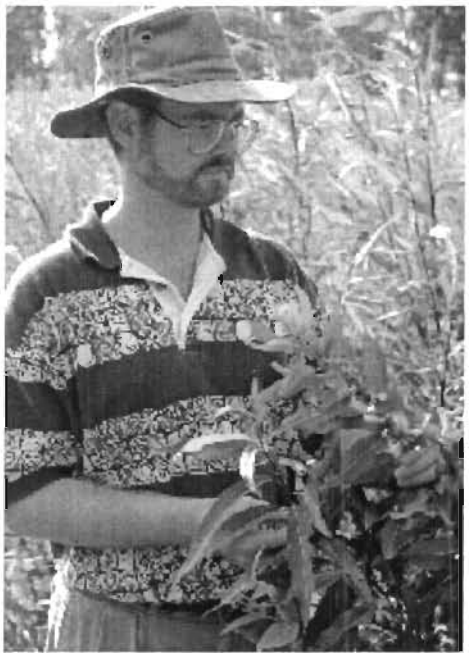
University of Toronto

U.S. Department of Agriculture

BIOENERGY

TECHNOLOGIES · MARKETS · POLICIES

Biomass Power for Rural Development



Background

Using biomass to generate heat or to drive steam engines is nothing new. Historical methods of burning wood, field residues, or waste were not environmentally sound because they emitted polluting carbons and volatile organic compounds into the air. Today, scientists and engineers are developing several new methods to cleanly and efficiently convert biomass to electricity.

Accomplishments

Coproducts from the Heartland: In Southern Minnesota, alfalfa markets weren't strong enough to justify hauling the crop off the farm—until now. A partnership of the Minnesota Valley Alfalfa Producers cooperative, ENRON Capital and Trade, Carbona, Great River Energy, Westinghouse Electric Corporation, the University of Minnesota and DOE are about to get that alfalfa moving. When they build a planned biomass gasification and power generation facility in Granite Falls, between 50,000 and 75,000 homes and farms will be served with electricity, and companion products like high-protein feed pellets will be produced. These coproducts will bring new revenues to local farmers. The farmers will get more local control and stability in their business, and there will be beneficial side effects, like an economic cushion against the devastating effects of rain damage to crops.

Switchgrass Binds Prairie: Underutilized, marginal land will be put to work through a public/private partnership to grow switchgrass for energy generation in Iowa. Currently, switchgrass is grown to reduce soil erosion or for feed. By cofiring the switchgrass in existing coal boilers, this native crop can generate about 36 megawatts of electrical power, enough to light some 40,000 homes.

Fourteen organizations, representing a broad cross section of business, community, utility and governmental interests, will work with hundreds of farmers and landowners to develop a biomass power system that will reduce acid rain. The partners plan a 4,000-acre demonstration project that will help farmers achieve a sustainable income as a lasting alternative to traditional Federal farm subsidies. In addition, increased use of homegrown renewable energy will keep more energy dollars in Iowa, concentrating the benefits.

Farmed Trees Grow Energy: In Upper Minnesota, 1,870 acres of hybrid poplar have been established on Conservation Reserve Program land by a consortium led by the WesMin Resource conservation and Development District. These four-year-old trees are being managed and studied extensively by scientists to learn how to grow dedicated crops for future energy uses.

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Farmers Dedicate Crops to Energy in New York:
The first dedicated crop for energy production in the United States is growing near Syracuse, New York. Under the care of the Salix Consortium, with 25 university, association, corporate utility and government partners, willow trees are grown on land set aside by 26 farmers and landowners. These trees produce a crop every three years that can be efficiently harvested using existing machinery. Several power plants will participate in this project, cofiring the harvested feedstock with other fuels to produce electricity and reduce emissions. Projections indicate that willow crops like this one could be competitive with coal for producing energy without government subsidies.

Benefits

The U.S. Departments of Energy and Agriculture are partnering to further the development of electricity generation systems that use biomass instead of fossil fuels.

Using biomass, such as energy crops, processing waste, and agricultural residues for energy production is beneficial to the nation, and especially to rural areas. The national benefits include lower acid rain-producing emissions, reductions in greenhouse gas emissions, and less dependence on fossil fuels. Rural benefits start with new sources of income for farmers, more jobs, and economic development, all achieved while preserving the high quality of life, local control, and lack of pollution that help make rural America a good place to live.

When economic development happens without harming the environment or jeopardizing our children's future well-being, we call it sustainable development. In the four projects established throughout the nation to demonstrate and validate biomass power production, we hope to embody the principles of sustainable development at its best.

Partners in Success

Iowa
- Chariton Valley RC& D
- Alliant Power
- Local Farmers/Landowners
- Iowa Farm Bureau
- Iowa State University
- Iowa Department of Natural Resources
- Iowa Division of Soil Conservation
- R.W. Beck
- NBB/CES
- Soil and Water Conservation Districts
- U.S. Department of Agriculture

Minnesota
- Minnesota Valley Alfalfa Producers
- Enron Capital and Trade
- Carbona Corporation
- Kvaerner Pulping
- Siemens Westinghouse
- Great River Energy
- City of Granite Falls
- University of Minnesota
- U.S. Department of Agriculture

New York
- Niagara Mohawk/SUNY
- Cornell
- New York State Gas and Electric
- New York Gas
- U.S. Department of Agriculture
- NY SERDA
- EPRI

From Final Determination

DEPARTMENT'S RESPONSE:

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

FROM:

The following fuels may be burned:

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

TO:

The following fuels may be burned:

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

CONDITION 9.

CITY'S COMMENTS:

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

DRAFT

Condition 8 (new)

The following fuels may be burned:

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

Condition 9 (new)

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

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

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

_____

Howard L. Rhodes, Director
Division Air Resources Management

LAKELAND ELECTRIC

Farzie Shelton, chE; REM

Environmental Affairs Manager of Licensing & Permitting

September 20, 1999

Stephen McKeough
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399

RE: C.D. McIntosh, Jr. Power Plant, Unit No. 3
Participation in the Partnership for Ecosystem Protection

Dear Steve:

The City of Lakeland Department of Electric Utilities (Lakeland) requests enrolment of its C.D. McIntosh Power Plant in the Department's Participation in the Partnership for Ecosystem Protection (PEP) programs. Accordingly, Lakeland has requested the Department for revision to its Prevention of Significant Deterioration (PSD) and Site Certification permits for this unit.

Upon receipt of these modified permits, Lakeland anticipates 1-2 years before it can utilize biomass in Unit No. 3. Nevertheless, presently Lakeland utilizes 3 percent of this unit's heat input by burning Refuse Derived Fuel (RDF) which in itself reduces the emission from burning coal. However, future use of biomass and RDF together will significantly reduce emissions of particulate matter, sulfur dioxide, and nitrogen oxides.

With this letter, Lakeland is submitting a completed Progress Verification form certified by Mr. Ronald W. Tomlin Assistant Managing Director. If you should have any questions, please do not hesitate to contact me.

Sincerely,

Farzie Shelton

Attachment

Progress Verification
Partnership Year: 1999
Extension Requested: Yes _____ No __X__

Facility Name and Location

1. Facility Owner/Company Name (Name of corporation, agency, or individual owner):
   Lakeland Electric
2. Facility Name (For example, store name or number):
   C. D. McIntosh Power Plant
3. Facility Location:
   Street Address: **3030 East Lake Parker Drive**
   City: **Lakeland** County: **Polk** Zip Code: 33805-9513

Owner/operator

4. Name & Title of Owner/Operator:
   Ronald W. Tomlin P.E.
   Assistant Managing Director
5. Owner/Operator Mailing Address:
   Organization/Firm: **Lakeland Electric**
   Street Address: **501 East Lemon Street**
   City: **Lakeland** County: **Polk** Zip Code: 33801-5079
6. Owner/Operator Telephone Number(s):
   Telephone: (863) 834-8474 Fax: (863) 834- 6373

Facility Contact (If different from Owner/Operator)

7. Name and Title of Facility Contact (For example, department/section manager):
   Farzie Shelton
   Manager of Environmental Licensing & Permitting
8. Facility Contact Address: **501 East Lemon Street**
   Street Address:
   City: **Lakeland** County: **Polk** Zip Code: 33801-5079
9. Facility Contact Telephone Number(s):
   Telephone: (863) 834-6603 Fax: (863) 603-6335

Regulatory Information

1. Air Permit Number(s) (AIRS): **1050004-005-AV**
2. Hazardous Waste Generator Identification Number: **FLD000648063**
3. Resource Conservation & Recovery Act (RCRA)Identification Number:
4. Water Permit Number(s) **200047.04(SWFWMD); FL0026301**

Ecosystem Protection Program/Project Progress Verification Information

1. Name of PEP Project: **Biomass/RDF**

2. Results: (Description of results realized; use additional pages if necessary)

The City of Lakeland Department of Electric Utilities (Lakeland) is proposing to utilize energy crops as well as agricultural and wood wastes as a fuel for Unit 3. McIntosh Unit 3 is currently authorized to burn refuse/refuse-derived (RDF) fuel in quantities up to 10 percent of the total heat input. However, only 3 percent of the total heat input is presently used by utilization of RDF and Lakeland intends to use the remaining 7 percent heat input by utilizing biomass as fuel.

The use of biomass as a fuel for the generation of electricity is currently favored by the U.S. Department of Energy (DOE) as well as the U.S. Environmental Protection Agency (EPA). Both DOE and EPA favor biomass as fuel because it is a renewable source of energy that generally has lower emissions of particulate matter, sulfur dioxide, and nitrogen oxides dioxide (as well as other parameters) than fossil fuels (please refer to table 1 and 2 attached).

Utilization of biomass and RDF in the Unit No. 3 McIntosh Power Plant will displace equivalent amount of mmBtu per year generated by coal. As emission of particulate, sulfur dioxide, and nitrogen oxides when burning biomass and RDF is far less than emission from burning coal. This project should qualify for Partnership for Ecosystem Protection. The reduction in emissions of PM, SO_2 , and NO_x is depicted in table 3 (attached). Although the biomass project will not be implemented for one to two years, presently reduction in emission of PM, SO_2 , and NO_x is realized by using RDF.

3. Emissions Reductions: (Total emissions reductions per pollutant in tons per year)

	Pollutant	Tons per Year
Pollutant No. 1:	PM	151.33
Pollutant No. 2:	SO_2	696.28
Pollutant No. 3:	NO_x	420.29
Pollutant No. 4:		
Pollutant No. 5:		
Pollutant No. 6:		

4. Documentation: (May be separate document attached as an integral part of this form)

Certification

I, **Ronald W. Tomlin**, hereby certify that:

1. I am the designated owner/operator for the facility described herein;
2. That, as such, I am authorized to sign this Annual Progress Verification Form;
3. That the environmental benefits claimed for the facility as a direct result of its PEP Implementation Plan activities are true, accurate and verifiable.

Ronald W. Tomlin
Designated Owner/Operator

Date signed: 9-20-99

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Table 1. Example of Uncontrolled Emission Factors for Patriculate Matter (PM) Sulfur Dioxide (SO_2) and Nitrogen Oxides (NO_x)

Fuel	Emission Factor (lb/ton)			Reference
	PM	SO_2	NO_x	
Biomass[a]	8.8	0.1	1.5	AP-42 Section 1.6
Refuse Derived Fuel	69.6	3.9	5.02	AP-42 Section 2.1
Coal	80	38	12	AP-42 Section 1.1

[a] assumed to be similar to wood waste for purposes of comparison.

Table 2. Example of Uncontrolled Emission Factors for Patriculate Matter (PM) Sulfur Dioxide (SO_2) and Nitrogen Oxides (NO_x)

	Emission Factor (lb/mmBtu)				Reference
Fuel	PM	SO_2	NO_x	CO	
Biomass[a]	0.98	0.01	0.17	1.51	AP-42 Section 1.6 - Wood Fired; Stoker
				0.16	AP-42 Section 1.6 - Fluidized Bed Combustor
Refuse Derived Fuel	6.33	0.35	0.46	0.17	AP-42 Section 2.1
Coal	3.64	1.73	0.55	0.02	AP-42 Section 1.1 - NSPS for NO_x

[a] assumed to be similar to wood waste for purposes of comparison.

Heat Content (BTU/lb)

Biomass	4,500	Table 1.6-1
Refuse Derived Fue	5,500	Table 2.1-8
Coal	11,000	Nominal Btu Content

Calculation: lb/mmBtu = lb/ton x ton/2,000lb fuel x lb fuel/Btu x 10^6/mm

Table 3. Emission Calculation

Fuel	PM ton/yr	SO_2 ton/yr	Nox ton/yr
Biomass	98.40	3.01	170.70
Refuse Derived Fuel (RDF)	272.40	45.19	197.95
Coal	522.14	744.48	788.95
Total Reduction	151.33	696.28	420.29

Assumptions:

1. Total heat input of biomass = 7% of the 3650 mmBtu
2. Total heat input of RDF = 3% of the 3650 mmBtu
3. Amount of coal displaced = 10% of the 3650 mmBtu
4. Tonnage per year is based on 8760 hours
5. Allow 90% removal of PM for precipitators
6. Allow 70% removal of SO_2 for scrubbers

LAKELAND ELECTRIC

Farzie Shelton, chE; REM

Environmental Affairs Manager of Licensing & Permitting

RECEIVED

AUG 23 1999

BUREAU OF AIR REGULATION

August 19, 1999

Mr. A.A. Linero, P.E., Administrator
New Source Review Section
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399

RE: C.D. McIntosh, Jr. Power Plant, Unit No. 3
DEP File No. 1050004-007-AC (PSD-FL-008)
Use of Harvested Biomass as Fuel

Dear Al:

This correspondence presents information requested in your letter dated August 5, 1999 regarding our request for the use of biomass as a fuel in McIntosh Unit 3. The information is presented according to your request.

- **Question/Comment**: Please submit the emissions comparisons on a lb/million Btu heat input or on a lb/MW generated basis. **Information**: Table 2 (attached) presents the emission factors in pounds per million Btu (lb/mmBtu). In the case of McIntosh Unit 3, these fuels are used in the same boiler with refuse/biomass making up only a small amount (10 percent or less) of the heat input. Since using refuse/biomass would not change the overall efficiency of Unit 3 boiler, the lb/MW would be identical to lb/ton as provided previously (i.e, Table 1 in the July 8, 1999 letter request). Please note that these are uncontrolled values with the exception of NO_x for coal. Since McIntosh Unit 3 is an NSPS unit, a controlled emission factor was used. This shows that the controlled emission factor for coal is higher than for either refuse or biomass. For PM and SO_2, the lower uncontrolled emission rate for biomass would lower emissions to the electrostatic precipitator and flue gas desulfurization system. On a lb/mmBtu basis, the emission of PM, SO_2 and NO_x are all less for what is considered "biomass", compared to either refuse derived fuel or coal. As a result, the use of biomass with lower PM, SO_2 and NO_x emissions than either refuse or coal, as well as lower potentially toxic air pollutants (e.g., metals), can be considered as a "pollution control project" under Rule 62-212.400(2)(a)2. F.A.C.

- **Question/Comment**: Include carbon monoxide. It appears that the material assumed has relatively high CO emission characteristics based on our inspection of AP-42. **Information**: Table 2 includes CO emission factors in lb/mmBtu. In lb/ton, the CO emission factors are 1.4 to 13.6 for biomass (represented by wood waste), 1.92 for RDF and 0.5 for coal. A range of CO emission factors was shown for biomass, since CO emissions are highly dependent upon the type of combustion process. As shown in Table 2, the CO emission factor for biomass can envelope those for RDF depending upon the combustion process. When biomass is fired in McIntosh Unit 3, the same process used to burn refuse would be used. This includes the shredding of any biomass material prior to combustion. After shredding, metals and heavy material are taken out of the refuse. The shredded biomass material, which would not contain metals, would be placed along with refuse in a common fuel storage bin prior to injection into the boiler. Biomass would be combusted along with refuse, which contains similar biomass type material (e.g., tree trimmings). Thus, there is little difference in refuse-derived fuel burned in McIntosh Unit 3 and any biomass that would be used in the future. There would also be no difference in CO emissions from the burning either refuse or biomass when they are fired with coal. Moreover, McIntosh Unit 3 is a pulverized coal-fired unit that would not exceed 10

percent of heat input of refuse or biomass. As a result, the combustion process and resultant CO emissions would be dominated by the pulverized coal combustion process. The small amount of refuse and biomass has little overall effect on CO emissions. In addition, as noted above, the project can be considered as a "pollution control project" under the Department's rules and emissions of CO can be considered relatively unimportant compared to PM, SO_2 and NO_x.

- **Question/Comment**: This action would not be to clarify that harvested energy crops may be used as fuel. We agree that refuse is permitted. **Information**: The City requests that biomass be included within the definition of refuse/refuse derived fuel that is currently authorized for McIntosh Unit 3. Such material currently is and would be handled in the same manner as general refuse and be substantially similar in fuel properties as RDF with generally lower uncontrolled emission rates.

- **Question/Comment**: Introduction of the term "biomass" for refuse can be problematical. Biomass, for example, can also mean sewage sludge. Please recommend the precise language that you want to be introduced into the permit and make it as narrow as possible. **Information**: The request would be to include biomass within the definition of refuse/refuse derived fuel as a footnote to new condition 8 of PSD-FL-008(B) issued December 11, 1995 and condition I. H. of the modified condition of certification: refuse[a] ; [a] including biomass; biomass shall include all forms of vegetative matter including but not limited to wood wastes, agricultural crops or crop waste material and specially planted or harvested energy crops. Biomass shall not include any material derived from sewage sludge.

Our request to utilize biomass is quite timely given the recent Presidential Executive Order. On August 12, 1999 the President of the United States issued an Executive Order for Developing and Promoting Biobased Products and Bioenergy. Please find attached a copy of the news release. Thank you for your attention to this request. If you have any questions or need any further information to complete your review, please call me at 941-834-6603.

Sincerely,

Farzie Shelton

Enclosures

cc: Teresa Heron, DEP-BAR
Buck Oven, DEP-Siting Coordination
Steve Palmer, DEP-Siting Coordination
Elsa Bishop
Ronald Tomlin, Lakeland
Ken Kosky, Golder
Angela Morrison, HGSS

EPA
NPS
File

Table 2. Example of Uncontrolled Emission Factors for Patriculate Matter (PM) Sulfur Dioxide (SO_2) and Nitrogen Oxides (NO_x)

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Coal	80	38	12	AP-42 Section 1.1

[a] assumed to be similar to wood waste for purposes of comparison.

Shelton, Farzie

From: Shelton, Farzie
Sent: Friday, August 13, 1999 10:21 AM
To: 'linero_a@dep.state.fl.us'; 'bishop_e@dep.state.fl.us'
Cc: Tomlin, Ron
Subject: Biomass/Renewable Energy

Al:

I thought you would be interested to read the following. This should help us in support of our application. you would hear from me soon in reply to your inquiries in respect of biomass emission.

Farzie

Clinton Creates Federal Council to Study Energy from Waste Products
Nancy Mathis , Houston Chronicle (August 13, 1999) Aug. 13--

WASHINGTON--Hoping to bolster the development of clean and renewable energy, President Clinton ordered federal agencies Thursday to begin a coordinated effort to accelerate the development of fuels from plant and agricultural wastes.

Clinton, appearing before a panel of experts at the Department of Agriculture, hailed biomass -- trees and crops that are converted into fuels and electricity -- as the energy alternative for the 21st century. He equated the work being done today in the biomass field to the work by William Meriam Burton, the Standard Oil chemist who launched the petrochemical industry at the last turn of the century.

"And on the verge of the 21st century, we may be nearing a similar breakthrough, a technological fix that can help us to meet our economic challenges, maintain our security, sustain our prosperity and ease the threat of global warming. Science will be the key to our progress," Clinton said.

The president signed an executive order that established a permanent council consisting of the heads of the Energy and Agriculture departments, the Environmental Protection Agency, the National Science Foundation and other agencies. The council will develop a research program that will be presented annually as part of the federal budget. Clinton wants to triple the use of biomass energy, which currently represents 3 percent of the fuel being used, by 2010.

The White House action also provided a backdrop for Vice President Al Gore, who spent the day campaigning in Iowa and talking about the same technologies.

Carol Browner, the EPA administrator, said biomass products also can be used to create ink, paints and packing material that will decay after disposal and further reduce pollution.

"Quite simply, biomass is to the next century what petroleum was to this century," Browner said. "It is the next generation of fuels and chemicals." She said that corn-based ethanol alone can in 20 years replace 348 million barrels of imported oil. She said a new biomass industry could provide thousands of jobs and generate new income for farmers.

Dan Reicher, a Department of Energy deputy in charge of energy efficiency and renewable resources, said the use of biomass products has been increasing at the rate of 2 percent a year since 1990. He said the growth, however, is currently too slow to meet concerns about dependence on imported energy, air quality and climate change.

"Through a strong industry-government partnership, greatly fostered by today's executive order, we'll accelerate the uses of waste agriculture products like cornstalks or rice straw or sugar cane byproducts or a whole host of other waste to make clean-burning ethanol for our cars," Reicher said. He said companies already are developing several

plants, including one in Louisiana that will convert sugar cane waste into ethanol.

"The long-term technical and economic objective is to make a ton of biomass a viable market competitor to a barrel of imported oil," Reicher said. "In the next century, bio-refineries will crack renewable carbon just like we do fossil carbon today." -----

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August 12, 1999
EXECUTIVE ORDER

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release August 12, 1999

EXECUTIVE ORDER

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DEVELOPING AND PROMOTING BIOBASED PRODUCTS AND BIOENERGY

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the Federal Advisory Committee Act, as amended (5 U.S.C. App.), and in order to stimulate the creation and early adoption of technologies needed to make biobased products and bioenergy cost-competitive in large national and international markets, it is hereby ordered as follows:

Section 1. Policy. Current biobased product and bioenergy technology has the potential to make renewable farm and forestry resources major sources of affordable electricity, fuel, chemicals, pharmaceuticals, and other materials. Technical advances in these areas can create an expanding array of exciting new business and employment opportunities for farmers, foresters, ranchers, and other businesses in rural America. These technologies can create new markets for farm and forest waste products, new economic opportunities for underused land, and new value-added business opportunities. They also have the potential to reduce our Nation's dependence on foreign oil, improve air quality, water quality, and flood control, decrease erosion, and help minimize net production of greenhouse gases. It is the policy of this Administration, therefore, to develop a comprehensive national strategy, including research, develop-ment, and private sector incentives, to stimulate the creation and early adoption of technologies needed to make biobased products and bioenergy cost-competitive in large national and international markets.

Sec. 2. Establishment of the Interagency Council on Biobased Products and Bioenergy. (a) There is established the Interagency Council on Biobased Products and Bioenergy (the "Council"). The Council shall be composed of the Secretaries of Agriculture, Commerce, Energy, and the Interior, the Administrator of the Environmental Protection Agency, the Director of the Office of Management and Budget, the Assistant to the President for Science and Technology, the Director of the National Science Foundation, the Federal Environmental Executive, and the heads of other relevant agencies as may be determined by the Co-Chairs of the Council. Members may serve on the Council through designees. Designees shall be senior officials who report directly to the agency head (Assistant Secretary or equivalent).

(b) The Secretary of Agriculture and the Secretary of Energy shall serve as Co-Chairs of the Council.

(c) The Council shall prepare annually a strategic plan for the President outlining overall national goals in the development and use of biobased products and bioenergy in an environmentally sound manner and how these goals can best be achieved through Federal programs and integrated planning. The goals shall include promoting national economic growth with specific attention to rural economic interests, energy security, and environmental sustainability and protection. These stra-tegic plans shall be compatible with the national goal of

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producing safe and affordable supplies of food, feed, and fiber in a way that is sustainable and protects the environment, and shall include measurable objectives. Specifically, these strategic plans shall cover the following areas:

(1) biobased products, including commercial and industrial chemicals, pharmaceuticals, products with large carbon sequestering capacity, and other materials; and

(2) biomass used in the production of energy (electricity; liquid, solid, and gaseous fuels; and heat).

(d) To ensure that the United States takes full advantage of the potential economic and environmental benefits of bio-energy, these strategic plans shall be based on analyses of:
(1) the economic impacts of expanded biomass production and use; and (2) the impacts on national environmental objectives, including reducing greenhouse gas emissions. Specifically, these plans shall include:

(1) a description of priorities for research, development, demonstration, and other investments in biobased products and bioenergy;

(2) a coordinated Federal program of research, building on the research budgets of each participating agency; and

(3) proposals for using existing agency authorities to encourage the adoption and use of biobased products and bioenergy and recommended legislation for modifying these authorities or creating new authorities if needed.

(e) The first annual strategic plan shall be submitted to the President within 8 months from the date of this order.

(f) The Council shall coordinate its activities with actions called for in all relevant Executive orders and shall not be in conflict with proposals advocated by other Executive orders.

Sec. 3. Establishment of Advisory Committee on Biobased Products and Bioenergy. (a) The Secretary of Energy shall establish an "Advisory Committee on Biobased Products and Bioenergy" ("Committee"), under the Federal Advisory Committee Act, as amended (5 U.S.C. App.), to provide information and advice for consideration by the Council. The Secretary of Energy shall, in consultation with other members of the Council, appoint up to 20 members of the advisory committee representing stakeholders including representatives from the farm, forestry, chemical manufacturing and other businesses, energy companies, electric utilities, environmental organizations, conservation organizations, the university research community, and other critical sectors. The Secretary of Energy shall designate Co-Chairs from among the members of the Committee.

(b) Among other things, the Committee shall provide the Council with an independent assessment of:

(1) the goals established by the Federal agencies for developing and promoting biobased products and bioenergy;

(2) the balance of proposed research and development activities;

(3) the effectiveness of programs designed to encourage adoption and use of biobased products and bioenergy; and

(4) the environmental and economic consequences of biobased products and bioenergy use.

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Sec. 4. Administration of the Advisory Committee. (a) To the extent permitted by law and subject to the availability of appropriations, the Department of Energy shall serve as the secretariat for, and provide the financial and administrative support to, the Committee.

(b) The heads of agencies shall, to the extent permitted by law, provide to the Committee such information as it may reasonably require for the purpose of carrying out its functions.

(c) The Committee Co-Chairs may, from time to time, invite experts to submit information to the Committee and may form subcommittees or working groups within the Committee to review specific issues.

Sec. 5. Duties of the Departments of Agriculture and Energy. The Secretaries of the Departments of Agriculture and Energy, to the extent permitted by law and subject to the availability of appropriations, shall each establish a working group on biobased products and biobased activities in their respective Departments. Consistent with the Federal biobased products and bioenergy strategic plans described in sections 2(c) and (d) of this order, the working groups shall:

(1) provide strategic planning and policy advice on the Department's research, development, and commercialization of biobased products and bioenergy; and

(2) identify research activities and demonstration projects to address new opportunities in the areas of biomass production, biobased product and bioenergy production, and related fundamental research.

The chair of each Department's working group shall be a senior official who reports directly to the agency head. If the Secretary of Agriculture or Energy serves on the Interagency Council on Biobased Products and Bioenergy through a designee, the designee should be the chair of the Department's working group.

Sec. 6. Establishment of a National Biobased Products and Bioenergy Coordination Office. Within 120 days of this order, the Secretaries of Agriculture and Energy shall establish a joint National Biobased Products and Bioenergy Coordination Office ("Office") to ensure effective day-to-day coordination of actions designed to implement the strategic plans and guidance provided by the Council and respond to recommendations made by the Committee. All agencies represented on the Council, or that have capabilities and missions related to the work of the Council, shall be invited to participate in the operation of the Office. The Office shall:

(a) serve as an executive secretariat and support the work of the Council, as determined by the Council, including the coordination of

multi-agency, integrated research, development, and demonstration ("RD&D") activities;

(b) use advanced communication and computational tools to facilitate research coordination and collaborative research by participating Federal and nonfederal research facilities and to perform activities in support of RD&D on biobased product and bioenergy development, including strategic planning, program analysis and evaluation, communications networking, information and data dissemination and technology transfer, and collabora-tive team building for RD&D projects; and

(c) facilitate use of new information technologies for rapid dissemination of information on biobased products and

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bioenergy to and among farm operators; agribusiness, chemical, forest products, energy, and other business sectors; the university community; and public interest groups that could benefit from timely and reliable information.

Sec. 7. Definitions. For the purposes of this order:

(a) The term "biomass" means any organic matter that is available on a renewable or recurring basis (excluding old-growth timber), including dedicated energy crops and trees, agricultural food and feed crop residues, aquatic plants, wood and wood residues, animal wastes, and other waste materials.

(b) The term "biobased product," as defined in Executive Order 13101, means a commercial or industrial product (other than food or feed) that utilizes biological products or renewable domestic agricultural (plant, animal, and marine) or forestry materials.

(c) The term "bioenergy" means biomass used in the production of energy (electricity; liquid, solid, and gaseous fuels; and heat).

(d) The term "old growth timber" means timber of a forest from the late successional stage of forest development. The forest contains live and dead trees of various sizes, species, composition, and age class structure. The age and structure of old growth varies significantly by forest type and from one biogeoclimatic zone to another.

Sec. 8. Judicial Review. This order does not create any enforceable rights against the Unites States, its agencies, its officers, or any person.

WILLIAM J. CLINTON

THE WHITE HOUSE,
August 12, 1999.

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

August 5, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Farzie Shelton, Manager
Environmental Licensing & Permitting
Lakeland Electric & Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5079

Re: DEP File No. 1050004-007-AC (PSD-FL-008)
McIntosh Unit No. 3, Harvested Biomass

Dear Ms. Shelton:

We received your application on July 9, 1999 regarding the proposed plan to plant and harvest energy crops. We enjoyed meeting with you and your consultant regarding this issue. We fully appreciate the purpose of the project. Before acting on it we will need responses to the following questions and comments:

- Please resubmit the emissions comparisons on a lb/million Btu heat input basis or a lb/MW generated basis.
- Include carbon monoxide. It appears that the material assumed has relatively high CO emissions characteristics based on our inspection of AP-42.
- This action would not be to clarify that harvested energy crops may be used as fuel. We agree that refuse is permitted.
- Introduction of the term "biomass" for refuse can be problematical. Biomass, for example, can also mean sewage sludge. Please recommend the precise language that you want to be introduced into the permit and make it as narrow as possible.

We agree with the objectives of the program and request that you provide a bit more information about it, such as DOE and EPA information that you appear to have reviewed as well as the full scope of the City's plan. In the meantime, we will send the request to EPA so that they can review the request. They issued the original PSD permit, although we revised it a few years ago to expand the fuel slate and adjust the Best Available Control Technology determination.

If you have any questions regarding this matter, please contact me at 850/921-9523.

Sincerely,

8/5

A. A. Linero, P.E. Administrator
New Source Review Section

AAL/aal

cc: Gregg Worley, EPA
John Bunyak, NPS
Buck Oven, PPSO
Ken Kosky, P.E. Golder Associates

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

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

Consult postmaster for fee.

3. Article Addressed to:
Farzie Shelton
Lakeland Electric & Water
501 E. Lemon St.
Lakeland, Fl 33801-5079

4a. Article Number
Z 333 618 121

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

7. Date of Delivery
8-9-99

5. Received By: *(Print Name)*

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

6. Signature: *(Addressee or Agent)*
X Bonnie Bell

PS Form **3811**, December 1994 102595-98-B-0229 Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

Z 333 618 121

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Farzie Shelton	
Street & Number Lakeland Electric	
Post Office, State, & ZIP Code Lakeland Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 1050004-007-AC PSO-Fl-008	8-6-99

PS Form **3800**, April 1995

LAKELAND ELECTRIC

Farzie Shelton, chE; REM

Environmental Affairs Manager of Licensing & Permitting

July 23, 1999

RECEIVED

JUL 26 1999

BUREAU OF AIR REGULATION

Mr. Hamilton S. Oven
Administrator
Office of Siting Coordination
Florida Department of Environmental Protection
2600 Blair Stone Road, MS 48
Tallahassee, FL 32399

Re: Lakeland Electric; McIntosh Unit No.3 – PA 74-06

Request to Modify Conditions of Certification

Dear Mr. Oven:

On June 14, 1999, the City of Lakeland, Department of Electric Utilities (Lakeland) filed its Application for Site Certification for the McIntosh Unit. No. 5 Steam Cycle Project. As part of that application, Lakeland proposed modifications of the separate conditions of certification for the existing McIntosh Unit. No. 3. Pursuant to our recent discussions, Lakeland agrees with your suggestion that these changes to Unit No. 3 be processed as a separate modification of certification, pursuant to section 403.516, Florida Statutes. The handling of the Unit No. 3 changes as a separate modification from the Unit No.5 certification would allow a more timely and expeditious review of those changes and avoid unnecessarily confusing issues between the two projects. Accordingly, Lakeland is writing to request that the proposed modifications to the McIntosh Unit No.3 certification be addressed as a separate modification of certification under Section 403.516, Florida Statutes.

Specifically, in the McIntosh Unit No.5 site certification application, (pages 1-4 to 1-6, attached), Lakeland identified two modifications to the certification for McIntosh Unit No. 3. First, Lakeland requested that existing Condition of Certification XVI concerning evaluation of reuse water used in the Unit No. 3 cooling tower be modified based upon recent improvements to the City's domestic waste water plants that supply reuse water for that unit. Second, Lakeland requested that the Site Certification for Unit No. 3 be modified to authorize the use of harvested biomass in that unit. McIntosh Unit 3, as you may recall, is currently authorized to burn refuse/refuse-derived fuel in quantities up to 10 percent of the total heat input, which includes some forms of biomass such as yard trimmings, tree trimmings, etc. The use of purposely cultivated or other forms of biomass as a fuel in Unit 3 would be identical to the use of yard trimmings from both combustion and air emission perspectives. Whether the biomass is a yard waste or a specially planted and harvested crop should not prejudice its use as an authorized fuel for Unit 3. Lakeland is therefore requesting a Site Certification modification reflecting that the use of other forms of biomass is also authorized.

Lakeland has separately requested the same authorization; use of harvested biomass in Unit 3, for its Prevention of Significant Deterioration (PSD) Permit No. PSD-FL-008. Based on Site Certification General Condition 12.b. and Rule 62-17.211(4), F.A.C., Lakeland understands that the PSD permit revision will act as an automatic modification of the Conditions of Certification. Lakeland therefore requests that all modifications for Unit 3's Site Certification be combined to simplify the process and avoid any unnecessary duplication of effort.

Lakeland understands that previously submitted fees for modification of the Site Certification are sufficient to cover the costs associated with this request and that there is no cost for the conforming modification. If this is not the case, please let me know.

Mr. Hamilton S. Oven
Administrator
Office of Siting Coordination
Florida Department of Environmental Protection

July 23, 1999

Your suggestion is appreciated and Lakeland looks forward to working with you and the staff of the various participating agencies in the review of this request. Should you have any questions, please do not hesitate to contact me.

Sincerely,

Farzie Shelton

cc: Steven Palmer, FDEP Siting Office
Scott Goorland, FDEP Office of General Counsel
All Parties to Site Certification PA74-06-SR, McIntosh Unit No. 3

Enc.

of the Westinghouse 501G to a combined cycle unit will result in one of the most efficient units operating in the state of Florida and will add 120 MW of new generating capacity without increasing fuel costs or air emissions.

1.5 BENEFITS OF THE PROJECT

With the conversion to combined cycle, Lakeland will realize several benefits, including:

- A 120 MW increase in generation with no additional fuel requirements;
- The combined cycle unit that will meet the emission standards specified in the existing permit (9 ppm NO_x by May 2002);
- The Project site is located on previously cleared industrial land, therefore yielding an increase in power capacity with no new impacts;
- The Unit No. 5 combined cycle will be one of the most efficient units in the state of Florida; and will meet the forecasted energy requirements for the service territory.

1.6 PSC APPROVAL

A petition for need was filed with the Public Service Commission on January 6, 1999. The PSC approved the City's request at a hearing on April 1, 1999 and issued its affirmative determination of need for the Project on May 10, 1999 (attached in Appendix 10.4.3). In its order determining need, the PSC found that the combined cycle conversion Project is the most cost effective alternative for Lakeland both to meet its need for reliability of its electrical system and to meet the established environmental permitting requirements. Conversion of Unit 5 to combined cycle operation will expand Lakeland's natural gas-fired generating capacity to 76 percent of the City's total electrical generating capacity. Use of oil as a backup fuel will reduce the risk that may occur with a shortage of natural gas or spikes in the price of natural gas. No energy conservation measures exist that would affect the need for the Plant.

By this application, Lakeland is requesting the following:

- That the Siting Board issue an order approving the construction and operation of McIntosh Unit 5 as a combined cycle unit, by conversion of the existing simple cycle CT, pursuant to Section 403.509, F.S.;
- That the existing conditions of certification be modified, pursuant to Section 403.516, F.S., to delete Condition of Certification XV for McIntosh Unit 3, concerning evaluation of the reuse water used in the Unit 3 cooling tower, because Lakeland has recently improved the domestic wastewater treatment plants that supply reuse water to Unit 3 and Rule 62-610 F.A.C. does not require such studies for existing cooling towers; or new cooling towers with a 300 ft. property boundary setback utilizing secondary treated reuse water; and
- That the existing conditions of certification for McIntosh Unit 3 be modified, pursuant to Section 403.516, F.S., to clarify that the use of refuse as a fuel in that Unit includes the use of biomass delivered to Unit 3.

Lakeland requests that the conditions of certification for McIntosh Unit 3 be modified to authorize the use of "biomass" as a fuel to supplement refuse/refuse-derived fuel, which may constitute no more than 10 percent of the total heat input for the unit. Currently refuse/refuse-derived fuel up to 10 percent of the total heat input is authorized under the certification for Unit 3, and refuse/refuse-derived fuel includes yard wastes (e.g., tree trimmings, yard clippings, etc.). The type of biomass that Lakeland requests approval to use as a fuel in Unit 3 is virtually identical to yard wastes but may not be considered a refuse/refuse-derived fuel since it could include energy crops (plants specifically planted and harvested for energy recovery) as well as agricultural and wood wastes. The use of "biomass" as a fuel is known as a "renewable" energy form and is currently being promoted by the United States Department of Energy (DOE). In fact, Lakeland plans to participate in DOE's financial incentive program entitled "The Renewable Energy Production Incentive" that is part of the Federal Energy Policy Act of 1992. This DOE program promotes increases in the generation and utilization of electricity from

renewable energy sources, such as biomass, and provides financial incentive payments to qualifying facilities.

The use of biomass as a fuel for energy production is favored not only by DOE as an alternate fuel source but also by EPA because of the reductions in sulfur dioxide emissions which cause acid deposition and because of the low carbon content which reduces greenhouse gas emissions that may lead to global warming. The use of biomass in Unit 3 would displace the use of coal, which has much higher carbon and sulfur contents. While Unit 3 is authorized to utilize refuse/refuse-derived fuel in quantities up to 10 percent of the total heat input rate and the biomass would be part of this 10 percent, historically lower quantities of refuse/refuse-derived fuels have been utilized in McIntosh Unit 3 and those quantities are not anticipated to decrease as a result of the use of biomass. Rather, the quantity of refuse/refuse-derived fuel used is expected to remain constant, allowing the use of biomass to displace the use of coal.

Because air emissions are not expected to increase as a result of combusting biomass in Unit 3, no additional air quality analyses have been performed, and Lakeland requests that the Conditions of Certification be revised to reflect biomass as an alternative fuel for Unit 3. A separate request to revise the Prevention of Significant Deterioration (PSD) permit for Lakeland's McIntosh Unit 3 will be submitted.

LAKELAND ELECTRIC

Farzie Shelton, chE; REM

Environmental Affairs Manager of Licensing & Permitting

July 8, 1999

Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399

1050004-007-AC
PSD-FL-008(b)

RE: C.D. McIntosh, Jr. Power Plant, Unit No. 3
Request to Revise Permit No. PSD-FL-008
Use of Harvested Biomass as Fuel

Dear Mr. Fancy:

The City of Lakeland Department of Electric Utilities (Lakeland) requests revision to the above-referenced Prevention of Significant Deterioration (PSD) permit for the C.D. McIntosh, Jr. Power Plant Unit No. 3. This revision will clarify that specially planted and harvested energy crops as well as agricultural and wood wastes may be used as a fuel for Unit 3. Lakeland has separately requested that the Conditions of Certification for Unit 3 also be revised to make this clarification.

McIntosh Unit 3, as you may recall, is currently authorized to burn refuse/refuse-derived fuel in quantities up to 10 percent of the total heat input. Presently Unit 3 is permitted and authorized to utilize, as fuel, some forms of biomass such as yard trimmings, tree trimmings, etc. The use of purposely cultivated or other forms of biomass as a fuel in Unit 3 would be identical to the use of yard trimmings from both combustion and air emission perspectives. Therefore, Lakeland is requesting an administrative clarification in both the PSD permit and Site Certification that the use of other forms of biomass is also authorized. Whether the biomass is a yard waste or a specially planted and harvested crop should not prejudice its use as an authorized fuel for Unit 3.

As you are well aware, the use of biomass as a fuel for the generation of electricity is currently favored by the U.S. Department of Energy (DOE) as well as the U.S. Environmental Protection Agency (EPA). Both DOE and EPA favor biomass as fuel because it is a renewable source of energy that generally has lower emissions of sulfur dioxide, nitrogen oxides, particulate matter, and carbon dioxide (as well as other parameters) than fossil fuels. While the use of non-waste biomass should not constitute a physical or operational change for Unit 3 since some biomass is currently being utilized, no emissions increase would result and therefore a modification is not triggered. As shown in the attached summary by Ken Kosky of Golder and Associates, biomass has lower uncontrolled emissions than other forms of refuse/refuse derived fuel, coal, petroleum coke, or fuel oil (all fuels authorized to be used in Unit 3).

July 8, 1999

Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Protection

Lakeland simply requests that the PSD permit conditions and Site Certification clarify that "biomass," regardless of its origin, is an authorized fuel as part of "refuse/refuse-derived fuel" (in quantities not to exceed 10 percent of the total heat input).

Thank you for your attention to this request. If you have any questions or need any further information to complete your review, please call me at 941-834-6603.

Sincerely,

Farzie Shelton, ChE

Enclosures

cc: A. A. Linero, DEP-BAR
Buck Oven, DEP-Siting Coordination
Steve Palmer, DEP-Siting Coordination
Ronald Tomlin, Lakeland
Ken Kosky, Golder
Angela Morrison, HGSS

City of Lakeland ● Department of Electric

501 East Lemon Street ● Lakeland, Fl 33801-5050 ● (941) 499-6603 ● Fax (941) 603-6335 ● Message System 499-6592

CITY OF LAKELAND – MCINTOSH UNIT 3 (PSD-FL-008)
AUTHORIZATION FOR BIOMASS
(July 7, 1999)

The City of Lakeland Department of Electric Utilities (Lakeland) is requesting revision to the PSD permit and Conditions of Certification for the C.D. McIntosh, Jr. Power Plant Unit No. 3. Specifically, this revision is to clarify that vegetative crops specifically planted and harvested for energy recovery can be burned along with other forms of biomass such as agricultural and wood wastes to supplement the refuse/refuse derived fuel already authorized for this unit.

Lakeland is currently authorized to use and typically uses at least some forms of biomass as a "refuse/refuse-derived fuel." The total amount of refuse/refuse derived fuel including all forms of biomass would not exceed the amounts currently authorized (10 percent of the total heat input). From emissions, process input, and applicable requirement perspectives, Lakeland's request to use other types of biomass as a fuel is consistent with this current authorization. There will be no change in any applicable requirement for the facility nor will actual or potential emissions increase.

The amount of refuse/refuse derived fuel identified in the Site Certification Application for Unit 3 was based on 4,500 Btu/lb. This is identical to the average expected heat content of energy crops and very similar to wood waste identified in Section 1.6 of AP-42. Moreover, these forms of biomass would be expected to have lower uncontrolled emissions than other types of either refuse/refuse derived fuel or coal based on information available in AP-24. A comparison of uncontrolled emission factors is presented in Table 1.

GOLDER ASSOCIATES INC.

Kennard F. Kosky
Principal
Professional Engineer Registration No. 14996
July 7, 1999

KFK/jkk

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Table 1. Example of Uncontrolled Emission Factors for Patriculate Matter (PM), Sulfur Dioxide (SO_2), and Nitrogen Oxides (NO_x)

Fuel	Emission Factor (lb/ton)			Reference
	PM	SO_2	NO_x	
Biomass[a]	8.8	0.1	1.5	AP-42 Section 1.6
Refuse-Derived Fuel	69.6	3.9	5.02	AP-42 Section 2.1
Coal	80	38	12	AP-42 Section 1.1

[a]Assumed to be similar to wood waste for purposes of comparison.

LAKELAND ELECTRIC

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

ph: (941) 499-6600
FAX: (941) 603-6335

TELECOPY REQUEST COVER PAGE

Please deliver the following page(s) to:

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Telecopier Number (850) 922-6979

From: FARZIN SHEIKHOLESLAMI Telefax Number (FAX) (941) 603-6335

Date: 7/8/99 Time: 3:10 AM (PM)

Number of Pages (Including Cover Page): 6

For more information or problem assistance, please call your city contact or (941) 499-6600.

Al:
As per your request, attached is the important pages from our 1998 stack testing results in accordance with the requirements of 40 CFR 52.21(b)(21)(v), (b)(33), and 40 CFR 52.21(b)(33). Please let me know if you need any more info.

Farzi

501 E. Lemon St. ✦ Lakeland, Florida 33801
Phone: 941.499.6300 ✦ Fax: 941.499.6344

City of Lakeland McIntosh Unit 3
PSD-FL-008(B); PA 74-06
Co-Firing of Coal and Petroleum Coke
Emissions of Sulfuric Acid Mist
Compliance Certification

This certification addresses the requirements of Specific Condition 9 of the Prevention of Significant Deterioration (PSD) regarding the increase of emissions when co-firing petroleum coke and coal. As required by Specific Condition 9, information must be submitted to demonstrate that operational changes did not result in emissions increases of Sulfuric Acid Mist (H_2SO_4). In accordance with 40 CFR 52.21 (b)(21)(v) and (b) (33) and 40 CFR 52.21 (b) (33), for an electric steam generating unit the emissions resulting from increased utilization due to electric demand is not included in calculating any emissions increase. Since McIntosh Unit 3 is a base load unit and its operation is not affected by co-firing petroleum coke and coal, the appropriate comparison is the emissions rates when co-firing petroleum coke with coal and firing coal only.

The results of tests conducted in December 1998 to determine H_2SO_4 emissions are summarized in Table 1. The procedure used to evaluate all the H_2SO_4 data was that provided in 40 CFR Part 60 Appendix C for determining an emission change under EPA regulations. The upper and lower confidence intervals are determined using Student's "t" test, which is commonly used to compare the means of small sample sizes. This procedure can account for operational variability associated with emission rates and provide a statistical comparison for determining whether differences between mean values exist at a specified confidence level.

Table 1 also presents the average (mean), standard deviation and the upper and lower 95 percent confidence interval of the mean values. The statistical evaluation was conducted for both mass emissions in pounds per hour (lb/hr) and concentration in parts per million (ppm). The statistical evaluation shows that the confidence internals overlap and that there is no statistically significance difference between the means of the coal only tests and the tests conducted while co-firing petroleum coke and coal. This suggests no statistically significant difference in annual emissions when co-firing coal and petroleum coke.

Kennard F. Kosky, P.E.
Principal
Florida Professional Engineer License No. 14996
July 7, 1999

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Table 1. Statistical Evaluation of Sulfuric Acid Mist Emissions (lb/hr and ppm) for City of Lakeland McIntosh Unit 3 When Firing Coal and Co-Firing Coal and Petroleum Coke

	Coal (lb/hr)	Coal/Petroleum Coke (lb/hr)	Coal (ppm)	Coal/Petroleum Coke (ppm)
Test Run 1	34.30	23.60	2.70	2.00
Test Run 2	20.14	32.59	1.70	2.70
Test Run 3	24.90	29.50	2.00	2.30
Average	26.45	28.56	2.13	2.33
Standard Deviation	7.21	4.57	0.51	0.35
Upper Confidence Interval[a]	38.59	36.26	3.00	2.93
Lower Confidence Interval[a]	14.30	20.86	1.27	1.74
Are Means Statistically Different?	No	No	No	No

[a]Based on 40 CFR Appendix C using "Student T" Distribution

Confidence Interval = Average +/- T x Standard Deviation/$(N)^{1/2}$

where: T = the value of the "T" distribution at 95% and N-1 degrees of freedom: 2.92

1.0 Introduction

Catalyst Air management, Inc. (Catalyst) was contracted by the City of Lakeland to perform the annual compliance testing for sulfuric acid mist emissions at C.D. McIntosh Power Plant Unit 3, in Lakeland, FL.

The sampling program was conducted December 15 and 16, 1998. The testing was performed by Messers. Mike Taylor and Steve Webb of Catalyst, with the assistance of personnel assigned by the City of Lakeland. Mr. John Guisseppi of Lakelend coordinated plant operation during the testing.

2.0 Summary of Test Results

A summary of test results developed by this source sampling program are presented in Tables 1 and 2. The summary tables are presented as follows:

TABLE 1
Summary of Sulfuric Acid Mist Emissions
C.D. McIntosh Power Plant
Unit 3

Fuel	Acid Mist (ppm)	Acid Mist (gr/dscf)	Acid Mist (lb/hr)
Coal	2.1	4.41E-07	26.45
Coal/Pet Coke	2.4	4.90E-07	28.56

3.0 Results of Testing

The individual test run results are shown in Tables 2 and 3, and are tabulated in Appendix 1.

4.0 Description Of Combustion Units

McIntosh Unit 3 is a steam generating utility boiler. The unit is permitted to burn natural gas, No. 6 residual fuel oil, bituminous coal, and co-fired with refuse derived fuel (RDF) and petroleum coke at a maximum heat input rate of 3,640 MMBtu/hr. The rated generation capacity of the turbine/generator is approximately 364 MW gross. The flue gas from the unit is passed through an electrostatic precipitator and wet scrubber for control of particulate and SO_2 emissions. Low Nox burners are used to control NOx emissions. The flue gas is exhausted into the Unit 3 stack.

TABLE 2
Isokinetic Summary - Coal

Client: **City of Lakeland**
Plant: **McIntosh Unit 3**
Location: **Stack**

Run Number:	1-Coal	2-Coal	3-Coal
Date:	12/15/98	12/15/98	12/15/98
Run Time: Start	10:36	12:26	14:11
End	11:56	13:37	15:23
DN - Nozzle Diameter:	0.191	0.191	0.191
Pbar - Barometric Pressure:	29.99	29.99	29.99
TT - Sampling Time:	60	60	60
VM - Meter Volume:	45.512	42.502	42.59
TM - Avg. Meter Temp(F):	66	68	69
PM - Avg. Delta H (in. of H2O):	1.602	1.423	1.496
Y - Meter Calibration Factor:	1.01	1.01	1.01
VMSTD - Std. Gas Volume (SCF):	46.393	43.123	43.143
Vlc - Volume Water Collected:	102	93	88
%M - Percent Moisture:	9.4	9.2	8.8
Bws - Mole Fraction, Dry:	0.09	0.09	0.09
%CO2 - Carbon Dioxide, Dry:	11.6	11.6	11.6
%O2 - Oxygen, Dry:	7.7	7.7	7.7
MD - Dry Molecular Weight:	30.16	30.16	30.16
MS - Wet Molecular Weight:	29.02	29.04	29.10
A - Stack Area, SQ.FT:	271.84	271.84	271.84
PS - Static Press. (in. of H2O):	30.03	30.03	30.04
TS - Stack Temp. (F):	153	160	159
CP - Pitot Coefficient:	0.84	0.84	0.84
VS - Stack Gas Velocity (AFPS):	79.6	77.0	78.4
QS - Stack Gas Volume (DSCFM):	1,016,982	974,469	998,444
QA - Stack Gas Volume (ACFM):	1,298,882	1,255,544	1,278,971
%I - Isokinetic Ratio:	103.9	100.8	98.4
H2SO4/SO3			
PPM - Emission Concentration:	2.7	1.7	2.0
Gr/DSCF - Emission Concentration:	5.62E-07	3.44E-07	4.16E-07
LBS/HR - Emission Rate:	34.30	20.14	24.90

Average PPM	**2.1**
Average Gr/DSCF	**4.41E-07**
Average LBS/HR	**26.45**

TABLE 3
Isokinetic Summary - Coal/Petroleum Coke

Client: **City of Lakeland**
Plant: **McIntosh Unit 3**
Location: **Stack**

Run Number:	1-Pet Coke	2-Pet Coke	3-Pet Coke
Date:	12/16/98	12/16/98	12/16/98
Run Time: Start	14:10	16:00	20:58
End	15:21	17:11	22:08
DN - Nozzle Diameter:	0.181	0.181	0.181
Pbar - Barometric Pressure:	29.98	29.98	29.98
TT - Sampling Time:	60	60	60
VM - Meter Volume:	37.292	38.393	39.587
TM - Avg. Meter Temp(F):	65	67	63
PM - Avg. Delta H (in. of H2O):	1.331	1.398	1.556
Y - Meter Calibration Factor:	1.02	1.02	1.02
VMSTD - Std. Gas Volume (SCF):	38.457	39.441	41.011
Vlc - Volume Water Collected:	73	80	88
%M - Percent Moisture:	8.2	8.7	9.2
Bws - Mole Fraction, Dry:	0.08	0.09	0.09
%CO2 - Carbon Dioxide, Dry:	11.1	11.1	11.1
%O2 - Oxygen, Dry:	8.1	8.1	8.1
MD - Dry Molecular Weight:	30.10	30.10	30.10
MS - Wet Molecular Weight:	29.11	29.04	28.99
A - Stack Area, SQ.FT:	271.84	271.84	271.84
PS - Static Press. (in. of H2O):	30.02	30.02	30.02
TS - Stack Temp. (F):	173	175	169
CP - Pitot Coefficient:	0.84	0.84	0.84
VS - Stack Gas Velocity (AFPS):	75.6	77.2	80.8
QS - Stack Gas Volume (DSCFM):	946,748	960,030	1,008,490
QA - Stack Gas Volume (ACFM):	1,232,342	1,259,682	1,317,676
%I - Isokinetic Ratio:	103.1	104.2	103.2
H2SO4/SO3			
PPM - Emission Concentration:	2.0	2.7	2.3
Gr/DSCF - Emission Concentration:	4.15E-07	5.66E-07	4.88E-07
LBS/HR - Emission Rate:	23.60	32.59	29.50

Average PPM	**2.4**
Average Gr/DSCF	**4.90E-07**
Average LBS/HR	**28.56**

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Jarzie Shelton, Mgr.
Lakeland Electric & Water Utilities
501 E. Lemon St.
Lakeland, FL
33801-5079

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* B. Date of Delivery
Bonnie Brett MAY 30

C. Signature
X Bonnie Brett ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)* Z 341 355 299

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

Z 341 355 299

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Jarzie Shelton
Street & Number Lakeland Electric
Post Office, State, & ZIP Code Lakeland FL

Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	5-26-00

PS Form **3800**, April 1995

1050004-007-AC
PSD-FL-008C

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SENDER:
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- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
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- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

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

Consult postmaster for fee.

3. Article Addressed to:
Ms. Darzie Shelton
Lakeland Electric & Water
501 E. Lemon St.
Lakeland, Fl
33801-5079

4a. Article Number
Z 031 392 026

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

7. Date of Delivery
12-1-94

5. Received By: *(Print Name)*

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

6. Signature: *(Addressee or Agent)*
X Bonnie Bern

Thank you for using Return Receipt Service.

PS Form **3811,** December 1994 102595-98-B-0229 Domestic Return Receipt

Z 031 392 026

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	Darzie Shelton
Street & Number	Lakeland Electric
Post Office, State, & ZIP Code	C/O McIntosh
Postage	Unit $ 3
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	11-29-94

105004-007-AC
PSD-FL-008(C)

PS Form **3800,** April 1995

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
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- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

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

Consult postmaster for fee.

3. Article Addressed to:
Farzie Shelton
Lakeland Electric & Water
501 E. Lemon St.
Lakeland, Fl 33801-5079

4a. Article Number
Z 333 618 121

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

7. Date of Delivery
8-9-99

5. Received By: *(Print Name)*

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

6. Signature: *(Addressee or Agent)*
X Bonnie Bleu

PS Form **3811**, December 1994 102595-98-B-0229 Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

Z 333 618 121

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Farzie Shelton	
Street & Number Lakeland Electric	
Post Office, State, & ZIP Code Lakeland Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 1050004-007-AC PSO-FL-008	8-6-99

PS Form **3800**, April 1995