Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

September 8, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Carlos Rionda, Authorized Representative
Osceola Power Limited Partnership
P.O. Box 606
Pahokee, Florida 33476

Re: DRAFT Permit Modification No. 0990331-006-AC (PSD-FL-197E)
74 Megawatt Cogeneration Facility

Dear Mr. Rionda

Enclosed is one copy of the Draft Air Construction Permit Modification for the cogeneration facility located at U.S. Highway 98 and Hatton Highway in Pahokee, Palm Beach County. The Department's Intent to Issue Air Construction Permit Modification and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION" are also included.

The "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION" must be published within 30 (thirty) days of receipt of this letter. 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 modification.

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 contact Mr. Linero at 850/488-1344.

Sincerely,

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

CHF/aal

Enclosures

In the Matter of an
Application for Permit Modification by:

Osceola Power Limited Partnership
Post Office Box 606
Pahokee, Florida 33476

DRAFT Permit Modification No. 0990331-006-AC
Draft PSD Permit No. PSD-FL-197E
Osceola Cogeneration Facility
Palm Beach County

INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification (copy of DRAFT Permit modification attached) for the proposed project, as detailed in the application specified above and attached Technical Review and Preliminary determination, for the reasons stated below.

The applicant, Osceola Power Limited Partnership, applied on August 7, 1997 to the Department for an air construction permit modification for its cogeneration facility located at U.S. Highway 98 and Hatton Highway, Pahokee, Palm Beach, County. The request is to revise permitted emission limits for two biomass and coal-fired boilers to reflect achievable emissions based on actual operations.

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 an air construction permit modification, including a review for the Prevention of Significant Deterioration and a determination of Best Available Control Technology for the control of nitrogen oxides, is required to revise the permitted emission limits as proposed.

The Department intends to issue this air construction 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 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION". The notice shall be published one time only within 30 (thirty) days in the legal advertisement section of a newspaper of general circulation in the area affected. 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. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-1344; Fax 850/ 922-6979) 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 modification pursuant to Rule 62-103.150 (6), F.A.C.

The Department will issue the FINAL Permit Modification, in accordance with the conditions of the enclosed DRAFT Permit Modification 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 and requests for public meetings concerning the proposed DRAFT Permit Modification issuance action for a period of 30 (thirty) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION." Written comments [and requests for public meetings] 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 this DRAFT Permit Modification, the Department shall issue a Revised DRAFT 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. Mediation is not available for this action.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 850/488-9730, fax: 850/487-4938. Petitions 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. A petitioner must 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 28-5.207 of the Florida Administrative Code.

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

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 of intent. 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.

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 regulation 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 AIR CONSTRUCTION PERMIT MODIFICATION (including the PUBLIC NOTICE, and DRAFT permit modification) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 9-9-97 to the person(s) listed:

Mr. Carlos Rionda, Osceola Power L.P. *
Mr. Daniel Thompson, Berger Davis & Singerman *
Mr. Brian Beals, EPA
Mr. John Bunyak, NPS
Mr. David Buff, P.E., Golder Associates
Mr. David Knowles, SD
Mr. James Stormer, PBCPHU

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) 9-9-97 (Date)

P 265 659 451

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

Sent to Carlos Rionda	
Street & Number Osceola Power	
Post Office, State, & ZIP Code Pahokee 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 9-9-97 0990331-006-AC PSD-FL-197E	

PS Form **3800**, April 1995

Is your **RETURN ADDRESS** completed on the reverse side?

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:
Mr. Carlos Rionda, AR
Osceola Power, LP
P O Box 666
Pahokee, Fl
33476

4a. Article Number
P 265 659 451

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

7. Date of Delivery
9-11-97

5. Received By: *(Print Name)*

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

6. Signature: *(Addressee or Agent)*
X Anthony McPhee

PS Form **3811**, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

NOTICE TO BE PUBLISHED
IN THE NEWSPAPER

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit Modification No. 0990331-006-AC, PSD-FL-197E

Osceola Cogeneration Facility
Palm Beach County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Osceola Power Limited Partnership, for increases in emissions from the cogeneration facility located at U.S. Highway 98 and Hatton Highway in Pahokee, Palm Beach County. A Best Available Control Technology (BACT) determination was required for nitrogen oxides pursuant to Rules 62-212.400 and 410, F.A.C., Prevention of Significant Deterioration (PSD). The facility consists of two multiple fuel boilers which produce steam for use by the adjacent Osceola Farms sugar mill and up to 74 megawatts of electricity. The applicant's name and address are: Osceola Power Limited Partnership, Post Office Box 606, Pahokee, Florida 33476.

The permit is to revise allowable limits for lead (Pb), sulfur dioxide (SO_2), nitrogen oxides (NO_X) and mercury (Hg) when burning woodwaste; revise carbon monoxide (CO) and NO_X while burning fuel oil; and revise the averaging time for CO for all fuels. Annual emissions will increase only for Pb and NO_X, but only the NO_X increase is significant with respect to PSD.

Emissions of NO_X will increase by approximately 100 tons per year (TPY). Control is accomplished by injection of urea into the furnace through Selective Non-Catalytic Reduction (SNCR). The proposed emission limit is 0.14 pounds of NO_X per million Btu of heat input (lb/MMBtu) when burning woodwaste or fuel oil and is among the lowest in the country for multiple fuel boilers. The new limit will also reduce ammonia emissions (slip), improve electrostatic precipitator efficiency, and reduce plume opacity.

An air quality impact analysis was conducted. The maximum impact is below the significant impact level of 1 microgram per cubic meter ($\mu g/m^3$). Emissions from the facility will consume PSD increment but will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The maximum predicted PSD Class II NO_X increment consumed by this project will be 0.4 percent of the allowable increment of 25 $\mu g/m^3$ for all projects in the area The project has an insignificant impact on the Everglades Class I area for the NO_X annual averaging time.

The Department will issue the FINAL Permit Modification, in accordance with the conditions of the DRAFT Permit Modification 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 and requests for public meetings concerning the proposed DRAFT Permit Modification issuance action for a period of 30 (thirty) days from the date of publication of this Notice. Written comments and requests for public meetings 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 this DRAFT Permit Modification, the Department shall issue a Revised DRAFT Permit Modification and require, if applicable, another Public Notice.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

The Department will issue FINAL Permit Modification with the conditions of the DRAFT Permit Modification 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. Mediation is not available for this action.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 850/488-9370, fax: 850/487-4938. Petitions 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. A petitioner must 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 28-5.207 of the Florida Administrative Code.

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

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 of intent. 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:

Dept .of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida, 32301 Telephone: 850/488-1344 Fax: 850/922-6979	Dept. of Environmental Protection South District Office 2295 Victoria Avenue, Suite 364 Fort Myers, Florida 33901 Telephone: 813/332-6975 Fax: 813/332-6969	Palm Beach County Public Health Unit 901 Evernia Street Post Office Box 29 West Palm Beach, Florida 33401 Telephone: 561/355-3070 Fax: 561/355-2442

The complete project file includes the Draft Permit Modification, the application, 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 850/488-1344, for additional information.

TECHNICAL EVALUATION

AND

PRELIMINARY DETERMINATION

OSCEOLA POWER LIMITED PARTNERSHIP

74 MW Cogeneration Facility
Pahokee, Florida
Palm Beach County

Air Construction Permit No. 0990331-006-AC
PSD-FL-197E
[Modifies AC50-269980]

Boilers A and B

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

September 8, 1997

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. APPLICATION INFORMATION

1.1 Applicant Name and Address

Osceola Power Limited Partnership
Post Office Box 606
Pahokee, FL 33476

Authorized Representative: Mr. Carlos Rionda, General Manager

1.2 Reviewing and Process Schedule

08-07-97: Meeting with Osceola Power
08-07-97: Date of Receipt of Application
09-08-97: Issuance of Intent

2. FACILITY INFORMATION

2.1 Facility Location

Osceola Power Limited Partnership cogeneration facility is located off U.S. Highway 98 at Hatton Highway, East of Pahokee, Palm Beach County, next to the Osceola Farms sugar mill. This site is approximately 120 kilometers north of the Everglades National Park, a Class I PSD Area. The UTM coordinates of this facility are Zone 17; 544.2 km E; 2968.0 km N.

2.2 Standard Industrial Classification Code (SIC)

Major Group No.	49	Electric Generation
Industry No.	4911	External Combustion Boiler - Electric Generation

2.3 Facility Category

This 74 megawatt electric cogeneration facility is allowed to burn biomass (bagasse and wood waste material), No. 2 fuel oil, and low sulfur coal in two Zurn spreader-stoker boilers. It includes fuel and ash handling equipment and steam turbines. Steam generated by the units is used at the nearby sugar mill while electricity is sold offsite.

Osceola Power is classified as a major or Title V source of air pollution because emissions of several regulated air pollutants, including particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) exceed 100 TPY.

This industry is included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for various criteria pollutants, the facility is also a major facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD). Per Table 62-212.400-2, modifications at the facility resulting in emissions increases greater than 40 TPY of NO_X or SO_2 require review per the PSD rules and a determination for Best Available Control Technology (BACT) per Rule 62-212.410, F.A.C.

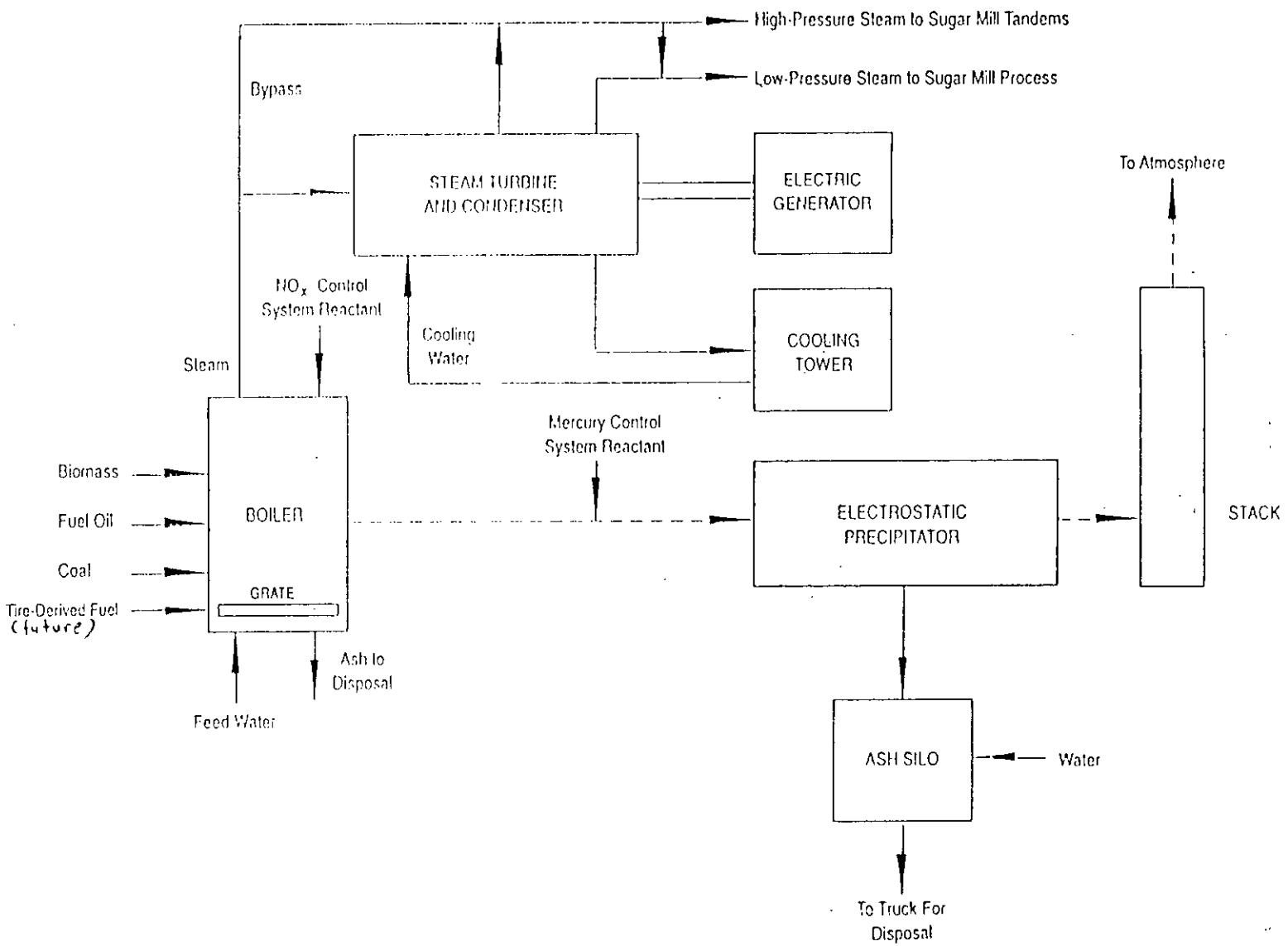

Figure 1
Simplified Flow Diagram for Osceola Power Cogeneration Facility

Golder Associates

3. PROCESS DESCRIPTION

The source is a 74 MWe (gross) capacity biomass/coal-fired cogeneration facility consisting of two steam boilers and one steam turbine and associated equipment. Each boiler is capable of producing an average of 506,000 lbs/hr steam. During the sugar processing season, the cogeneration facility is to provide steam to the existing Osceola Farms sugar mill by burning primarily bagasse, which is the cellulose fiber coproduct resulting from the sugar cane grinding process, while also generating electricity. During the off-season, the cogeneration facility will burn primarily wood waste to generate electricity. The facility is also permitted to burn low sulfur coal and low sulfur fuel oil.

The maximum heat input to each of the two boilers is 760 million Btu per hour (MMBtu/hr) when firing biomass, 600 MMBtu/hr when firing No. 2 fuel oil, and 530 MMBtu/hr when firing low sulfur coal. Maximum annual heat input to the entire facility is limited to 8.208×10^{12} Btu/yr. Maximum annual coal burning will be limited to 14,883 tons per year (TPY), which is approximately 4.4 percent of the total maximum annual heat input to the facility.

Air pollution control equipment serving each boiler consists of an electrostatic precipitator (ESP) to control particulate matter (PM), including heavy metal emissions, a selective non-catalytic reduction (SNCR) system for the control of NO_x emissions, and a carbon injection system for mercury (Hg) control. A simplified process flow diagram of the cogeneration facility is presented in Figure 1.

4. PROJECT DESCRIPTION

This permit addresses the following emissions units:

EMISSION UNIT NO.	SYSTEM	EMISSION UNIT DESCRIPTION
001	Power	Boiler A and associated equipment
002	Power	Boiler B and associated equipment

No physical modifications are related to the proposed project. The modification relates to revisions of conditions in the original air construction permit issued in September, 1993. The project primarily consists of an operational change related to the amount of urea used to control NO_X emissions.

The requested modifications consist of revisions to the allowable limits for lead (Pb), SO_2, NO_X, and Hg when burning waste wood; revision of CO and NO_X limits when burning fuel oil and coal: and revision of the averaging time for the CO limits for all fuels.

The requested changes in the permit limits will not increase permitted annual emissions of PSD regulated pollutants, except for NO_x and small increases in the annual emissions of lead. Emission increases for Pb are below the significant emission level of 0.6 TPY per Table 62-212.400-2, F.A.C. and do not require PSD or nonattainment new source review. However, PSD review is required for NO_X since emissions will increase by more than 40 TPY.

5. RULE APPLICABILITY

The two boilers are subject to federal new source performance standards (NSPS) for electric utility boilers (40 CFR 60, Subpart Da), incorporated by reference in Rule 62-204.800, F.A.C. Because the facility will burn yard waste potentially originating from residential sources, the boilers are also subject to a reporting and record keeping requirements of under 40 CFR 60, Subparts Ea and Cb, incorporated by reference in Rule 62-204.800, F.A.C. The existing permits limit combustion of municipal solid waste (MSW), including yard waste, to 30 percent (weight basis) on a calendar quarter basis. Therefore no provisions of Subparts Ea and Cb will apply to the facility other than the record keeping and reporting requirements.

The proposed project is subject to permitting, preconstruction review, emissions limits and compliance requirements under the provisions of Chapter 403, Florida Statutes, and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.).

This facility is located in Palm Beach County, an area designated as attainment or maintenance for all criteria pollutants in accordance with Rule 62-204.360, F.A.C. The proposed project is subject to review under Rule 62-212.400., F.A.C., Prevention of Significant Deterioration (PSD), because the potential emission increases for NO_x exceed the significance emission rates given in Chapter 62-212, Table 62-212.400-2, F.A.C. PSD review includes a determination air quality impacts and a determination of Best Available Control Technology (BACT).

The emission units affected by this permit modification shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein) and, specifically, the following Chapters and Rules:

Chapter 62-4	Permits.
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.260	Prevention of Significant Deterioration Increments
Rule 62-204.360	Designation of Prevention of Significant Deterioration Areas
Rule 62-204.800	Federal Regulations Adopted by Reference
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions
Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-212.400	Prevention of Significant Deterioration
Rule 62-213	Operation Permits for Major Sources of Air Pollution
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-296.510	RACT for Major NOx/VOC Emitting Sources
Rule 62-297.310	General Test Requirements
Rule 62-297.401	Compliance Test Methods
Rule 62-297.520	EPA Continuous Monitor Performance Specifications

6. SOURCE IMPACT ANALYSIS

6.1 Emission Limitations

The proposed Osceola Power modification will increase allowable annual emissions of the following PSD pollutants (Table 212.400-2, F.A.C.): nitrogen oxides and lead. Emissions limits for individual fuels and averaging times are being revised for SO_2, CO and mercury; however, annual emissions remain unchanged. The permitted and requested allowable emissions for this modification are summarized in the following table.

6.2 Emission Summary

Emissions From Boilers A and B (total)

Pollutant	Current Allowable (tons/yr)	Requested Allowable (tons/yr)	Net Increase (tons/yr)	PSD Significant Level (tons/yr)
SO_2	339.0	339.0	0	40
NOx	477.1	626.9	149.8	40
CO	1,436.4	1,436.4	0	100
Mercury	0.0168	0.0168	0	0.1
Lead	0.011	0.27	0.26	0.60

6.3 Control Technology Review

The Osceola Power facility has modern emissions controls consisting of ESP's for particulate and heavy metals, SNCR for NO_X, and carbon injection for mercury control. Because the facility will not emit significantly more SO_2 than the sugar mill boilers it will replace, no control equipment was required except for relatively low sulfur limits for in the fuels burned.

The only pollutant of concern with respect to the present permitting action is NO_X, emissions of which will increase by 149 TPY. Osceola Power's request is to revise their NO_X limit from 0.12 pounds per million Btu (lb/MMBtu) to 0.15 lb/MMBtu while burning oil, or biomass (bagasse and wood waste) and from 0.15 to 0.17 while burning coal or, eventually, tire-derived fuel (TDF). Biomass fired in the boilers has low nitrogen content, typically less than 0.5 percent (dry basis). As a result, fuel NO_X is low from biomass-fired boilers. Thermal NO_X is the primary emission from such boilers. In general, biomass-fired boilers emit less NO_X than fossil fuel-fired boilers.

Osceola Power utilizes a urea-based selective non-catalytic reduction (SNCR) system which can control NO_x emissions while firing biomass to 0.12 lb/MMBtu. This level of control is more stringent than any Best Available Control Technology (BACT) determination made by the Department at similar facilities in the state. The lowest emission rate pursuant to BACT was determined for Wheelabrator Auburndale and is equal to 0.14 lb/MMBtu.

According to the applicant, operating at 0.12 lb/MMBtu requires injection of urea well in excess of operational ranges typically encountered for this technology. According to the company, this has exacerbated problems related with premature superheater tube failure, excessive opacity, inefficient ESP particulate collection efficiency, and ammonia emissions (slip).

Further details are presented in the draft BACT determination issued concurrently with this review. The Department believes that a NO_X limit equal to 0.14 lb/MMBtu is more appropriate. Emissions increases of NO_X will, therefore, be less than 100 TPY.

6.4 Air Quality Analysis

6.4.1 Introduction

The proposed project will increase emissions of NO_X in excess of PSD significant amounts. The air quality impact analyses required by the PSD regulations for this pollutant includes:

- An analysis of existing air quality;
- A significant impact analysis;
- A PSD increment analysis;
- An Ambient Air Quality Standards (AAQS) analysis; and
- An analysis of impacts on soils, vegetation, visibility,and growth-related impacts.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The significant impact, PSD increment, and AAQS analyses depend on air quality dispersion modeling carried out in accordance with EPA guidelines.

Based on the required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or significantly contribute to a violation of any AAQS or PSD increment. However, the following EPA-directed stack height language is included: "In approving this permit, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators." A discussion of the required analyses follows.

6.4.2 Analysis of Existing Air Quality and Determination of Background Concentrations

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review unless otherwise exempted or satisfied. This monitoring requirement may be satisfied by using previously existing representative monitoring data, if available. An exemption to the monitoring requirement may be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific de minimus concentration. In addition, if an acceptable monitoring method for the specific pollutant has not been established by EPA, monitoring may not be required.

If preconstruction ambient monitoring is exempted, determination of background concentrations for PSD significant pollutants with established AAQS may still be necessary for use in any required AAQS analysis. These concentrations may be established from the required preconstruction ambient air quality monitoring analysis or from previously existing representative

monitoring data. These background ambient air quality concentrations are added to pollutant impacts predicted by modeling and represent the air quality impacts of sources not included in the modeling.

The table below shows that NO_2 impacts due to the proposed project are predicted to be less than the de minimus levels; therefore, preconstruction ambient air quality monitoring is not required for this pollutant.

Maximum Project Air Quality Impacts for Comparison to the De Minimus Ambient Levels

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m^3)	Impact Greater Than De Minimus?	De Minimus Level (ug/m^3)
NO_2	Annual	0.1	NO	14

6.4.3 Models and Meteorological Data Used in Significant Impact, PSD Increment and AAQS Analyses

The EPA-approved Industrial Source Complex Short-Term (ISCST3) dispersion model was used to evaluate the pollutant emissions from the proposed project and other existing major facilities. The model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, area, and volume sources. The model incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition. The ISCST3 model allows for the separation of sources, building wake downwash, and various other input and output features. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options in each modeling scenario. Direction-specific downwash parameters were used for all sources for which downwash was considered. The stacks associated with this project all satisfy the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) station at West Palm Beach, Florida. The 5-year period of meteorological data was from 1987 through 1991. This NWS station was selected for use in the study because it is the closest primary weather station to the study area and is most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling.

Since five years of data were used in ISCST3, the highest-second-high (HSH) short-term predicted concentrations were compared with the appropriate AAQS or PSD increments. For the annual averages, the highest predicted yearly average was compared with the standards. For determining the project's significant impact area in the vicinity of the facility and if there are significant impacts from the project on any PSD Class I area, both the highest short-term predicted concentrations and the highest predicted yearly averages were compared to their respective significant impact levels.

6.4.4 Significant Impact Analysis

Initially, the applicant conducted modeling using only the proposed project's increase in emissions. Receptors were placed within 6 km of the facility, which is located in a PSD Class II area, and in the Everglades National Park (ENP) which is a PSD Class I area located approximately 120 km to the south of the project at its closest point. For each pollutant subject to PSD and also subject to PSD increment and/or AAQS analyses, this modeling compared maximum predicted impacts due to the project with PSD significant impact levels to determine whether significant impacts due to the project were predicted in the vicinity of the facility or in the ENP. The tables below show the results of this modeling. The radius of significant impact, if any, for each pollutant and applicable pollutant averaging time is also shown in the tables below.

Maximum Project Air Quality Impacts for Comparison to the PSD Class II Significant Impact Levels in the Vicinity of the Facility

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	Significant Impact Level (ug/m^3)	Significant Impact?	Radius of Significant Impact (km)
NO_X	Annual	0.1	1	No	0.0

Maximum Project Air Quality Impacts in the ENP for Comparison to the PSD Class I Significant Impact Levels

Pollutant	Averaging Time	Max. Predicted Impact at Class I Area (ug/m^3)	NPS Significant Impact Level (ug/m^3)	Significant Impact?
NO_2	Annual	0.0013	0.03	No

As shown in the tables the maximum predicted air quality impacts due to NO_x emissions from the proposed project are less than the significant impact levels in the vicinity of the facility. The maximum predicted air quality impacts in the Class I area due to NO_x emissions are also less than the significant impact level for the annual averaging time. Therefore, the applicant was not required to perform further NO_2 modeling in the vicinity of the facility or in the Class I area.

6.5 Additional Impacts Analysis

6.5.1 Impacts On Soils, Vegetation, And Wildlife

The maximum ground-level concentrations predicted to occur for NO_x as a result of the proposed project are below significant impact levels, and therefore will not significantly contribute to ambient air quality. As such, this project is not expected to have a harmful impact on soils and vegetation in the PSD Class II area. An air quality related values (AQRV) analysis was done by the applicant for the Class I area. No significant impacts on this area are expected.

6.5.2 Impact On Visibility

Visual Impact Screening and Analysis (VISCREEN), the EPA-approved Level I visibility computer model, was used to estimate the impact of the proposed project's increased NO_x emissions on visibility in the ENP. The results indicate that the maximum visibility impacts do not exceed the screening criteria inside or outside this area. As a result, there is no significant impact on visibility predicted for this Class I area. In addition a regional haze analysis was done. This analysis predicted no adverse impacts upon regional haze.

Locally, there will be an improvement in plume opacity. This is because less urea will be injected in the future and less excess ammonia will be available to contribute to particulate formation from species such as ammonium bisulfate and ammonium chloride.

6.5.3 Growth-Related Air Quality Impacts

There will be no growth-related impacts because no physical or operational modifications will occur and production will not change as a result of this permit action.

6.5.4 Air Toxics Air Quality Impacts

The maximum predicted impacts of regulated and non-regulated toxic air pollutants that are proposed to be emitted by the project are all less than the Department's draft annual Ambient Reference Concentrations (ARC).

7. CONCLUSION

Based on the foregoing technical evaluation of the application and additional information submitted by Osceola Power, the Department has made a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations provided the Department's BACT is implemented.

Permit Reviewer: A. A. Linero, P.E.

DRAFT

October xx, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Carlos Rionda, General Manager
Osceola Power Limited Partnership
Post Office Box 606
Pahokee, Florida 33476

Re: Permit Modification No. 0990331-006-AC (PSD-FL-197C)
74 Megawatt Cogeneration Facility

Dear Mr. Rionda:

The Department has reviewed your application dated August 6, 1997 to modify the original construction permit for the Osceola Cogeneration Facility. The application is to revise emission limits for carbon monoxide (CO), lead (Pb), mercury (Hg), sulfur dioxide (SO_2), and nitrogen oxides (NO_X). An evaluation for the Prevention of Significant Deterioration (PSD) was performed and a Best Available Control Technology determination was conducted for NO_X. Construction permit No. AC50-269980 (PSD-FL-197B) is hereby modified as follows:

SPECIFIC CONDITION NO. 15.

The combined use of coal and oil shall be less than 25 percent of the total heat input to ~~this cogeneration facility~~ each boiler on a calendar quarter basis. The consumption of low sulfur coal shall not exceed ~~5.4 percent of the total heat input to each boiler unit in any calendar quarter. The plant shall not burn more than 18,221~~ 14,883 tons ~~of coal~~ during any 12-month period (12-month rolling average).

SPECIFIC CONDITION NO. 16.

The permittee shall maintain a daily log of the amounts and types of fuels used. The amount, heating value, beryllium content (coal only), sulfur content, and equivalent SO_2 emission rate (in lb/MMBtu) of each fuel oil and coal delivery shall be kept in a log for at least two years. For each calendar month, the calculated SO_2, mercury, and lead emissions and 12-month rolling average shall be determined (in tons) and kept in a log.

SPECIFIC CONDITION NO. 19.

Visible emissions from any cogeneration boiler shall not exceed 20 percent opacity, 6-minute average, except up to 27 percent opacity is allowed for up to 6 minutes in any one hour period. Based on a maximum heat input to each boiler of 760 MMBtu/hr for biomass fuels, 600 MMBtu/hr for No. 2 fuel oil, and 530 MMBtu/hr for coal, stack emissions shall not exceed any limit shown in the following table:

DRAFT

Pollutant	EMISSION LIMIT (per boiler) [d] Biomass (lb/MMBtu)	Biomass (lb/hr)	No. 2 Oil (lb/MMBtu)	No. 2 Oil (lb/hr)	Bit. Coal (lb/MMBtu)	Bit. Coal (lb/hr)	Total [e] Two Boilers (TPY)
Particulate (TSP)	0.03	22.8	0.03	18.0	0.03	15.9	123.1
Particulate (PM_{10})	0.03	22.8	0.03	18.0	0.03	15.9	123.1
Sulfur Dioxide							
3-hour average	---	---	---	---	1.2	636.0	---
24-hour average	0.10	76.0	0.05	30.0	1.2	636.0	---
Annual average	~~0.02 a~~				1.2 a	---	339.0 f
(Bagasse)	0.02 a b	---	---	---			
(Woodwaste)	0.05 a c						
Nitrogen Oxides							
Annual average	~~0.12~~ 0.14	~~88.2~~ 103 a	~~0.12~~ 0.14 a	~~72.0~~ 84.0 a	0.15 a	79.5 a	~~477.1~~ 577
Carbon Monoxide							
~~8~~24-hr average	0.35	266.0	~~0.2~~ 0.35	~~120~~ 210.0	~~0.2~~ 0.35	~~106.0~~ 185.5	1,436.4
Volatile Organic	0.06 b	45.6 b	0.03	18.0	0.03	15.9	219.2
Compounds	0.04 c	30.4 c					
Lead	~~2.7 x 10 -6 b~~	~~0.002~~	8.9 x 10 -7	0.0005	5.1 x 10 -6	0.0027	~~0.011~~ 0.27 f
(Bagasse)	2.7 x 10 -6 b	0.002					
(Wood Waste)	1.6 x 10 -4 c	0.12					
Mercury	~~5.7 x 10 -6 b~~	~~0.0043 b~~	2.4 x 10 -6	0.0014	8.4 x 10 -6	0.0045	0.0168 f
	3.5 x 10 -6 b	0.0027 b					
	~~0.29 x 10 -6c~~	0.00022 c					
	4.0 x 10 -6 c	0.0030 c					
Beryllium	---	---	3.5 x 10 -7	0.0002	5.9 x 10 -6	0.0031	0.0013
Fluorides	---	---	6.3 x 10 -6	0.004	0.024	12.7	5.25
Sulfuric Acid Mist	0.005	3.72	0.0025	1.5	0.010	5.3	6.0

[a] Compliance based on 30-day rolling average, per 40 CFR 60, Subpart Da.

[b] Emission limit for bagasse. Subject to revision after testing pursuant to Specific Conditions Nos. 23 and 24.

[c] Emission limit for woodwaste. Subject to revision after testing pursuant to Specific Conditions Nos. 23 and 24.

[d] The emission limit shall be prorated when more than one type of fuel is burned in a boiler.

[e] Limit heat input from No. 2 fuel to less than 25% of total heat input on a calendar quarter basis and coal to ~~18,221~~ 14,883 tons during any 12-month period. Combined heat input of coal and oil shall be less than 25% of the total heat input on a calendar quarter basis.

[f] Compliance based on a 12-month rolling average.

The permittee shall comply with the excess emissions rule contained in Rule 62-296.210, F.A.C. In addition, the permittee is allowed excess emissions during startup conditions, provided such excess emissions do not exceed a duration of four hours, and such emissions in excess of two hours do not exceed six (6) times per year.

DRAFT

SPECIFIC CONDITION NO. 21 STACK TESTING.

a. Within 60 calendar days after achieving the maximum capacity at which each unit will be operated, but no later than 180 operating days after initial startup, the permittee shall conduct emission compliance tests for all air pollutants listed in Specific Condition No. 19 (including visible emissions). Tests shall be conducted during normal operations (i.e., within 10 percent of the permitted heat input). The permittee shall furnish the Department a written report of the results of such performance tests within 45 days of completion of the tests. The emission compliance tests will be conducted in accordance with the provisions of 40 CFR 60.46a.

b. Compliance with emission limitations for each fuel stated in Specific Condition No. 20 above shall be demonstrated using EPA Methods, as contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources), continuous emissions monitoring data, or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants), or any other method as approved by the Department, in accordance with F.A.C. Rule 17-297.620. A test protocol shall be submitted for approval to the Bureau of Air Regulation at least 90 days prior to testing.

EPA Method*	For Determination of
1	Selection of sample site and velocity traverses.
2	Stack gas flow rate when converting concentrations to or from mass emission limits.
3 or 3A	Gas analysis when needed for calculation of molecular weight or percent O_2.
4	Moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.
5	Particulate matter concentration and mass emissions.
201 or 201A	PM_{10} emissions.
6, 6C, or 19	Sulfur dioxide emissions from stationary sources.
7 or 7E	Nitrogen oxide emissions from stationary sources.
8 (modified)	Sulfuric acid mist. **
9	Visible emission determination of opacity. - At least three one hour runs to be conducted simultaneously with particulate testing. - At least one truck unloading into the mercury reactant storage silo (from start to finish).
10	Carbon monoxide emissions from stationary sources.
12	Determination of inorganic lead emissions from stationary sources.
13A or 13B	Fluoride emissions from stationary sources.
18 or 25	Volatile organic compounds concentration.
101A	Determination of particulate and gaseous mercury emissions.
104	Determination of beryllium emissions from stationary sources.
108	Determination of particulate and gaseous arsenic emissions.
EMTIC Test Method CTM-012.WPF	Chromium and copper emissions.

* Other approved EPA test methods may be substituted for the listed method unless the Department has adopted a specific test method for the air pollutant.

** Test for sulfuric acid mist only required when coal or tire derived fuel blends are burned at the facility.

DRAFT

A copy of this permit modification shall be filed with the referenced permit and shall become part of the permit. Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; 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 of Appeal must be filed within 30 (thirty) days from the date this Notice 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 NOTICE OF FINAL PERMIT MODIFICATION (including the FINAL 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:

Mr. Carlos Rionda, Osceola Power L.P. *
Mr. David Buff, Golder Associates
Mr. Brian Beals, EPA
Mr. John Bunyak, NPS
Mr. David Knowles, SD
Mr. J. Koerner, PBCPHU

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

_____ _____
(Clerk) (Date)

Cogeneration Facility
Osceola Power L.P.
PSD-FL-197C and 0990331-006-AC
Pahokee, Palm Beach County

DRAFT

BACKGROUND

The applicant, Osceola Power L.P., constructed and began operating a 74 megawatt cogeneration facility in 1995. The facility consists of two identical spreader stoker boilers and associated equipment. The facility is permitted to burn primarily biomass (woodwaste and bagasse), with No. 2 fuel oil and coal used as supplemental fuels. Emission control equipment consists of an electrostatic precipitator (ESP) for particulate and heavy metals control, a selective non-catalytic reduction (SNCR) system for nitrogen oxides (NO_X)control, and an activated carbon injection system for mercury (Hg) control.

Ultimately the facility will provide the steam presently provided by the existing boilers at the adjacent Osceola Farms sugar mill. The boilers at that mill are scheduled for permanent shutdown by January 1, 1999.

A Best Available Control Technology (BACT) determination for NO_X control was not required at the time the permit was issued for the new boilers because potential emissions were estimated to be less than recent actual emissions from the boilers destined for shutdown. Very low NO_X emissions limits were set to avoid triggering New Source review for this pollutant. Osceola Power L.P. has met these limits but has encountered problems which may have been exacerbated by injection of excessive urea when trying to meet those limits. Among the problems are: relatively high plume opacity aggravated by formation of ammonium particulate species; increased deterioration of superheater tubes; and lower ESP particulate collection efficiency.

Osceola Power is requesting that the NO_X limits for the facility be relaxed. This results in a Significant Emission Increase (greater than 40 tons per year) in a PSD criteria pollutant at a Major Facility per Table 62-212.400-2. Relaxation of these limits will subject the facility to the PSD regulations, which requires a BACT determination pursuant to Rule 62-212.410, F.A.C. A project description, process description, and rule applicability are included in the Technical Evaluation and Preliminary Determination.

Following is the BACT determination proposed by the applicant:

BACT DETERMINATION REQUESTED BY THE APPLICANT:

POLLUTANT	PRESENT PERMITTED LIMIT lb/MMBtu heat input	PROPOSED BACT LIMIT lb/MMBtu heat input
Nitrogen Oxides:		
Biomass	0.12	0.15 lb/MMBtu
No. 2 Fuel Oil	0.12	0.15 lb/MMBtu
Coal	0.15	0.17 lb/MMBtu

The proposed increase in the emissions limits will result in an annual increase of approximately 150 tons per year (TPY) of NO_X. Osceola Power L.P. proposes to use the existing SNCR system to achieve the revised limits. The revised limits will be met by decreasing the ratio of urea injected into the furnace to NO_X present in the combustion gases. The applicant expects an amelioration of the present problems as a result of lowering use of urea.

DATE OF RECEIPT OF A BACT APPLICATION:

August 7, 1997

REVIEW GROUP MEMBERS:

A. A. Linero, New Source Review Section.

BACT DETERMINATION PROCEDURE:

In accordance with Chapter 62-212, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

- Any Environmental Protection Agency determination of BACT pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 - Standards of Performance for New Stationary Sources or 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants.
- All scientific, engineering, and technical material and other information available to the Department.
- The emission limiting standards or BACT determination of any other state.
- The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is technically or economically unfeasible for the emission unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The air pollutant emissions from this facility can be grouped into categories based upon the control equipment and techniques that are available to control emissions from these emission units. Using this approach, the emissions can be classified as follows:

- **Combustion Products** (e.g., SO_2, NO_X, PM). Controlled generally by good combustion of clean fuels or removal in add-on control equipment.
- **Products of Incomplete Combustion** (e.g., CO, VOC). Control is largely achieved by proper combustion techniques.

- **Other fuel contaminants** (fluorides, lead, mercury)

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Control of "non-regulated" air pollutants is considered in determining a BACT limit on a "regulated" pollutant (i.e., PM, SO_2, H_2SO_4, fluorides, etc.) if a reduction in "non-regulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

BACT POLLUTANT ANALYSIS

NITROGEN OXIDES (NO_X)

Oxides of nitrogen (NO_X) are generated during fuel combustion by oxidation of chemically bound nitrogen in the fuel (fuel NO_X) and by thermal fixation of nitrogen in the combustion air (thermal NO_X). As flame temperature increases, the amount of thermally generated NO_X increases. Fuel type affects the quantity and type of NO_X generated. Generally, biomass is low in nitrogen. Due to lower heating value and higher moisture, biomass causes lower flame temperatures and generates less thermal NO_X than oil or coal, which have higher fuel nitrogen content, and exhibit higher flame temperatures.

A review of EPA BACT/LAER Clearinghouse (BACT Clearinghouse) information indicates that NO_X emissions at many facilities burning primarily biomass are minimized by process control and good combustion practices, while several facilities employ the add-on technology of SNCR.

The applicant has proposed SNCR for control of NO_X emissions. SNCR involves the injection of either aqueous ammonia or urea into the boiler. The Osceola Power facility currently uses the NO_X OUT process whereby a urea-based reagent is injected into the flue gas. The urea selectively reduces the NO_X to nitrogen, carbon dioxide, and water. Generally, some unreacted urea in the flue gas results in emissions of ammonia (termed ammonia slip).

The applicant's proposed technology of SNCR is compared below with previous determinations documented by the BACT Clearinghouse.

BACT Clearinghouse Determinations

Determination:	Least Stringent	Most Stringent	Applicant Proposal
Year	1995	1992	1997
Limit (lb/MMBtu):	0.30	0.15	0.15

Based on information contained in the BACT/RACT/LAER Clearinghouse EPA database, all BACT determinations issued within the past 5 years for NO_X emissions from wood-fired boilers were reviewed. Most determinations were based on SNCR technology. A few determinations have been based on combustion control and boiler design and operation. Of the BACT determinations requiring SNCR, only a few have NO_X limits of less than 0.15 lb/MMBtu. A discussion of each of these is provided below:

- Multitrade LP - 0.1 lb/MMBtu; is a peaking boiler, not base load unit, and therefore is not directly comparable to Osceola.

- SAI Energy - 0.023 lb/MMBtu; is a fluidized bed unit, therefore not directly comparable to Osceola; also, was never constructed.
- Scott Paper - 43 ppm - Limit could not be met by Scott Paper; plan on raising to 86 ppm (similar to 0.15 lb/MMBtu).

BACT DETERMINATION RATIONALE:

According to the applicant and information from the BACT/LAER Clearinghouse, the range of NO_X BACT emission limits from recently-built wood-fired-boilers is 0.15 to 0.3 lb/MMBtu. This is consistent with determinations made by the Department for AES/Seminole Kraft and Wheelabrator Ridge of 0.29 and 0.14 lb/MMbtu respectively. Osceola Power has actually demonstrated that it can meet a limit of 0.12 lb/MMBtu while burning wood waste and bagasse, but has experienced operational problems including increased superheater tube failures, lower particulate removal efficiency, higher plume opacity, and disproportionately high ammonia emissions (slip). Ammonia is not a regulated air pollutant, but adds to the nitrogen load to the environment.

Identical units at Okeelanta Power are limited to 0.15 lb/MMBtu but experience less problems than those at Osceola Power. The most obvious difference in the operation at Osceola and Okeelanta is the amount of urea injected to accomplish NO_X removal.

Based on comparisons between Osceola and Okeelanta, the applicant has estimated the marginal cost of NO_X removal between 0.12 and 0.15 lb/MMBtu to be $25,600/ton. However the Department does not include costs related to lost production. Recalculation results in an estimate of approximately $13,000/ton which appears to be well in excess of typical cost effectiveness criteria used by the Department

The limit previously established at Osceola when burning coal is 0.15 lb/MMBtu. The company has requested that this limit be raised to 0.17 lb/MMbtu, which is equal to that at Okeelanta.. The use of coal is limited to 4.4 percent of fuel use and neither Osceola nor Okeelanta has yet established any history of NO_X emissions or operational problems when firing or co-firing coal. At present there is no established limit for NO_X emissions when firing or co-firing tire-derived fuel (TDF). The applicant requested a limit when firing TDF of 0.17 lb/MMBtu.

The determination at Wheelabrator of 0.14 lb/MMBtu was made for the case when a fuel blend of 40 percent tires and 60 percent wood was fired. It is noted that Osceola Power agreed initially to a lower limit of 0.12 lb/MMBtu to avoid increases in NO_X emissions compared to the operation of certain existing boilers at Osceola Farms which are destined for permanent shutdown. This allowed the project to avoid being subjected to Non-Attainment Area New Source Review (NAANSR) and implementation of the Lowest Achievable Emissions Rate (LAER) irrespective of cost.

The area has since been redesignated as a maintenance area with respect to ozone. Therefore projects involving the ozone pre-cursors, VOCs and NO_X can be reviewed in accordance with PSD/BACT procedures instead of NAANSR/LAER procedures. The Department is reluctant to relax limits which were set to either comply with or "net out" of NAANSR. However, it appears that the impacts on ambient NO_X and ozone concentrations are negligible in this case. The energy, economic, and environmental impacts of the control method are apparently exacerbated by operating at the extreme limits of NO_X removal.

Selective Catalytic Reduction (SCR) may be a feasible control option for this type of unit. The technology is similar to SNCR, but involves injection of ammonia at a much lower temperature downstream of the furnace and in the presence of a catalyst, such as vanadium pentoxide. SCR has been demonstrated at coal-fired plants and could resolve concerns about the superheater tubes. However it would be costly and could add more factors to the problems experienced at the facility. The Department did not find any examples of SCR application to units fired primarily with woodwaste.

The air dispersion modeling analysis and the additional impact analysis presented by the applicant demonstrates that the increase in NO_X emissions will have insignificant effect upon ambient air concentrations in the area, and no adverse impact is predicted upon soils, vegetation or visibility in the area. Locally, there will be some improvement in visibility because of the reduction in ammonia salt emissions. Lower ammonia and ammonia salt emissions reduces the nitrogen load into the environment.

The maximum predicted annual average NO_X impact due to the proposed modification is 0.10 $\mu g/m^3$. The maximum impact upon the Everglades National Park PSD Class I area is 0.0013 $\mu g/m^3$, annual average. These impacts are well below specified significant impact levels of 1.0 $\mu g/m^3$ for the facility area, and 0.025 $\mu g/m^3$ for the Class I area.

BACT DETERMINATION BY DEP:

In consideration of all the facts and previous BACT determinations by the Department, the BACT determination for this proposed project is as follows:

A limit of 0.14 lb NO_X/MMBtu when firing wood waste, bagasse, or oil will be set. The justification is that it is equal to the most stringent demonstrated limit at a similar facility burning similar fuel. Although the cost effectiveness appears high, the Department believes that eventually optimization of operational and maintenance practices may reduce the problems and costs attributed to the control method without necessarily requiring further reductions in NO_X emission limits.

A BACT determination will not be set at this time for coal or TDF. This will be done when these fuels are burned or tested in the future. This will allow time for correction of the problems so that the effect of the control method can be separated from other practices at the facility. An example is the relocation of induced draft fans from upstream of the ESP to downstream of the ESP. In this case, the particulate control technique actually helped to remedy the problem of premature deterioration of the fans.

NO_X DETERMINATION

The BACT emission levels established by the Department are as follows:

POLLUTANT	PRESENT PERMITTED LIMIT lb/MMBtu heat input	DEPARTMENT BACT LIMIT lb/MMBtu heat input
Nitrogen Oxides:		
Biomass	0.12	0.14 lb/MMBtu
No. 2 Fuel Oil	0.12	0.14 lb/MMBtu
Coal	0.15	n/a
Tire-Derived Fuel	n/a	n/a

COMPLIANCE

Compliance for NO_X will be determined by annual stack tests utilizing EPA Method 7 or 7E, and by the continuous NO_X monitors installed on each boiler. Compliance with the limit of 0.14 lb/MMBtu shall be on a 30-day rolling average.

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

A. A. Linero, P.E., Administrator, New Source Review Section
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DRAFT

Recommended By:

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

Date:

Approved By:

Howard L. Rhodes, Director
Division of Air Resources Management

Date:

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

P.E. Certification Statement

Permittee:

DEP File No. 0990331-006-AC (PSD-FL-197C)

Osceola Power L.P.
Cogeneration Facility
Pahokee, Palm Beach County

Project type:

Modification of Air Construction Permit for 74 Megawatt cogeneration facility. BACT determination for nitrogen oxides emissions increase of 100 TPY while firing bagasse and woodwaste. Revision of other emission limits below PSD-significance levels.

I HEREBY CERTIFY *that the engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).*

A.A. Linero, P.E. — Date
Registration Number: 26032

Department of Environmental Protection
Bureau of Air Regulation
New Source Review Section
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Phone (850) 488-1344
Fax (850) 922-6979

aaj 9/8

Memorandum

Florida Department of
Environmental Protection

TO: Clair Fancy

FROM: A. A. Linero 9/8

DATE: September 8, 1997

SUBJECT: Osceola Power L.P. Cogeneration Facility
NO_X PSD/BACT Determination

Attached is the public notice package for modification of Osceola Power's permit to account for various revisions in pollutant emission rates. Only the revisions of the lead and NO_X limits result in increases in allowable annual emissions. Some adjustments were foreseen when the units were originally permitted. Specific Conditions 23 and 24 recognize that likelihood.

Osceola Power requested relaxation of its permitted NO_X limit from 0.12 to 0.15 lb/MMBtu while burning biomass and oil. Our most recent BACT determination for a similar facility was 0.14 lb/MMBtu for Wheelabrator Ridge in Auburndale using a similar Selective Non-Catalytic Reduction system. This value was selected as BACT for Osceola and they have concurred with our determination. NO_X emissions will increase by 100 TPY as a result of this modification. We are deferring any changes in NO_X BACT emissions limits when firing coal or TDF until these fuels are actually fired or tested.

Osceola Power believes the relaxation of the NO_X limit will help ameliorate problems they associate with excess use of urea. These include accelerated deterioration of superheater tubes, lower ESP particulate collection efficiency, and formation of particulate ammonium species which contribute to relatively high opacity. The lower urea use will also reduce the ammonia slip and nitrogen load to the environment.

I recommend you approval of this Intent to Issue.

Attachments

AAL/aal