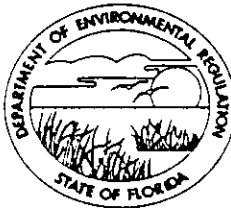


SWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301



BOB GRAHAM
GOVERNOR

Victoria J. Tschinkel
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

November 12, 1981

Alexander L. Fanjul
Vice President
Osceola Farms Company
P. O. Box 679
Pahokee, Florida 33476

Dear Mr. Fanjul:

Enclosed is Permit Number AC 50-43777, dated November 12, 1981
to Osceola Farms Company
issued pursuant to Section 403, Florida Statutes.

Acceptance of the permit constitutes notice and agreement that the Department will periodically review this permit for compliance, including site inspections where applicable, and may initiate enforcement actions for violation of the conditions and requirements thereof.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management

cc: Michael Martin
Mirza Baig
Frank Kleeman
Mercer Fearington

PS Form 3811, Jan. 1978

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

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2. ARTICLE ADDRESSED TO:
Alexander L. Farijul
Osceola Farms Company
P.O. Box 679
Pahokee, Florida 33476

3. ARTICLE DESCRIPTION:
REGISTERED NO. CERTIFIED NO. INSURED NO.
P167682480
(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent
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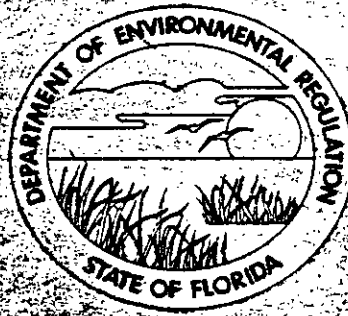
4. DATE OF DELIVERY
11-16-81

5. ADDRESS (Complete only if requested)

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**STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL REGULATION**

**CONSTRUCTION
PERMIT**

NO. AC 50-43777

Osceola Farms Company

DATE OF ISSUANCE

Nov. 12, 1981

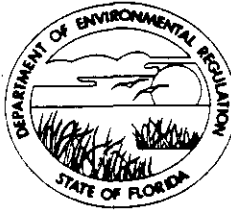
Terry Cole

DATE OF EXPIRATION

April 15, 1982

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

Permit/Certification No.
AC 50-43777

APPLICANT: Osceola Farms Company (OFC)
P. O. Box 679
Pahokee, Florida 33476

COUNTY: Palm Beach

PROJECT: Boiler No. 6

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2 and 17-4, Florida Administrative Code. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents, and specifications attached hereto and made a part hereof and specifically described as follows:

For the construction of a 150,000 pounds of steam per hour bagasse fuel (No. 6 oil supplementary fuel) fired boiler equipped with an impingement scrubber to be located at Osceola Farms Company's existing plant that is approximately 6 miles northeast of Pahokee, Palm Beach County, Florida. The UTM coordinates of the proposed plant are 2,968.0 km North and 544.2 km East.

Construction shall be in accordance with the attached permit application plans, documents and drawings except as otherwise noted on pages 3 and 4, Specific Conditions.

Attachments:

1. Application to Construct Air Pollution Sources, DER Form 17-1.122(16), received on June 2, 1981.
2. DER's incompleteness letter to OFC, dated July 2, 1981.
3. OFC's response to DER, dated August 10, 1981.
4. BACT and LAER determinations, dated August 10 and 17, 1981.
5. OFC's response to DER on maximum operation days, dated Sept. 14, 1981.

Permit No: AC 50-43777
Applicant: Osceola Farms Company

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions", and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed on notice that the department will review this permit periodically and may initiate court action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.
2. This permit is valid only for the specific processes and operations indicated in the attached drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit shall constitute grounds for revocation and enforcement action by the department.
3. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information: (a) a description of and cause of non-compliance; and (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.
4. As provided in subsection 403.087(6), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
5. This permit is required to be posted in a conspicuous location at the work site or source during the entire period of construction or operation.
6. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Section 403.111, F.S.
7. In the case of an operation permit, permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or department rules.
8. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant, or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, except where specifically authorized by an order from the department granting a variance or exception from department rules or state statutes.
9. This permit is not transferable. Upon sale or legal transfer of the property or facility covered by this permit, the permittee shall notify the department within thirty (30) days. The new owner must apply for a permit transfer within thirty (30) days. The permittee shall be liable for any non-compliance of the permitted source until the transferee applies for and receives a transfer of permit.
10. The permittee, by acceptance of this permit, specifically agrees to allow access to permitted source at reasonable times by department personnel presenting credentials for the purposes of inspection and testing to determine compliance with this permit and department rules.
11. This permit does not indicate a waiver of or approval of any other department permit that may be required for other aspects of the total project.
12. This permit conveys no title to land or water, nor constitutes state recognition or acknowledgement of title, and does not constitute authority for the reclamation of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.
13. This permit also constitutes:
 - ☒ Determination of Best Available Control Technology (BACT)
 - ☒ Determination of Prevention of Significant Deterioration (PSD)
 - ☐ Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)

PERMIT NO.: AC 50-43777
APPLICANT: Osceola Farms Company

SPECIFIC CONDITIONS:

- ✓1. The proposed boiler shall be constructed in accordance with the capacities and specifications stated in the application and additional information supplied by the applicant, including an increase to 90 feet for the proposed boiler stack height.
- ✓2. The proposed boiler's maximum emission rates shall not exceed the emission limits listed below.

<u>Pollutant</u>	<u>Maximum Allowable Emissions</u>	
	<u>lb/hr</u>	<u>ton/yr</u>
PM	44.3	81.1
SO ₂	150.9	311.5
CO ₂	73.3	151.4
VOC	73.3	151.4
NO _x	50.3	103.8

Visible Emissions: 30% opacity except for 40% no more than two minutes per hour.

3. OFC shall meter daily oil consumption by existing units and proposed unit No. 6, separately. The total quantity of fuel oil consumed on a daily basis by unit 6 shall be replaced by the addition to the system of an equal or greater amount of 1.0 percent or less sulfur fuel oil within 72 hours (excluding weekends). Sulfur content of the fuel oil purchased for existing units 2, 4, and 5 shall not exceed 2.4 percent. Records shall be retained for two years. Operating permits for units 2, 4, and 5 shall be amended to reflect burning of the blended oil. The total fuel oil consumption for all existing and proposed boilers shall not exceed 10,000 gallons on a daily basis.
4. Emissions of VOC and CO shall be maintained at the lowest possible level through good combustion control. A flue gas oxygen or CO₂ monitor shall be installed.
- ✓5. The boiler shall not be operated more than 172 days per year during the season from October to March.
- ✓6. Compliance with the emission limits required in condition No. 2 shall be determined by performance tests while the boiler is at or close to full operating capacity. The performance tests shall be conducted in accordance with EPA reference methods (40 CFR 60, Appendix A) and the provisions of 40 CFR 60.8 and 40 CFR 60.46. EPA reference method 25 shall be used to determine VOC emissions. The boiler efficiency will be established during compliance tests.

PERMIT NO.: AC 50-43777

APPLICANT: Osceola Farms Company

- ✓ 7. Visible emissions from the bagasse handling system shall not exceed 10 percent opacity over any 6-minute period as measured by EPA reference method 9.
- ✓ 8. The scrubber shall be equipped with a manometer or equivalent instrument to measure the total pressure drop of the flue gas stream across the scrubber, with pressure gauges to measure the water pressure at the spray nozzles, with a flow meter or equivalent device (weir) to measure the quantity of water circulating through the scrubber. The pH of scrubber water at the scrubber inlet and outlet shall be measured. Data from these instruments shall be recorded each shift (every 8 hours) and available for regulatory agencies inspection for two years.
- ✓ 9. The stack sampling configuration of the proposed boiler shall comply with the minimum of 2D downstream and 0.5D upstream distances to the sampling ports required to use reference method 2.
- ✓ 10. The quantity of 99.9 tons per year of VOC emissions is hereby assigned to the boiler from the new source allowance balance for Palm Beach County pursuant to 17-2.17(7)(a) and (d). At such time as the LAER determination for this boiler is revised, based on data acquired under Specific Condition #6, any VOC emission allowance not required shall revert to Palm Beach County available new source allowance.
- ✓ 11. Boiler No. 1 shall be put in a normal standby condition, while all of the other boilers are in operation. Boiler No. 1 can be operated to produce steam when one of the other boilers is not operating.
- ✓ 12. Before construction permit is issued for the new boiler, the operating permit of boiler #1 shall be revised to reflect that 41.0 tons per year VOC emissions are assigned to boiler #6 as emission offsets. The assignment shall be effective as soon as operating permit is issued to boiler #6.

Expiration Date: April 15, 1982

Issued this 12 day of Nov., 1981

_____ Pages Attached.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Terry Cole
Signature

PAGE 4 OF 4

Final Determination

Osceola Farms Company
Power Boiler No. 6
Palm Beach County, Florida

Permit Numbers
State: AC 50-43777
Federal: PSD-FL-080

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting
October 28, 1981

THE POST

Published Daily and Sunday
West Palm Beach, Palm Beach County, Florida

PROOF OF PUBLICATION

STATE OF FLORIDA

COUNTY OF PALM BEACH

Before the undersigned authority personally appeared Don K. Creamer.....
who on oath says that he is Class. Adv. Mgr...... of The Post, a daily and Sunday
newspaper published at West Palm Beach in Palm Beach County, Florida; that the attached
copy of advertising, being a Notice.....
in the matter of Proposed Modification.....
in the Court, was published in said newspaper in the
issues of September 26, 1981.....

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

Sworn to and subscribed before me this 28 day of September, A.D. 1981

Barbara M. McLeod
Barbara M. McLeod
NOTARY PUBLIC STATE OF FLORIDA AT LARGE
A/C O. C. H. FANCY, TALLAHASSEE, FLA. 32301
A/C O. C. H. FANCY, TALLAHASSEE, FLA. 32301
A/C O. C. H. FANCY, TALLAHASSEE, FLA. 32301

NO. 678951

Public Notice

A modification to an existing air pollution source is being proposed by Osceola Farms Company near the city of Bryant, Palm Beach County, Florida. The proposed modification is the construction of a bagasse/fuel oil fired boiler with 150,000 pounds of steam per hour capacity. The modification will increase emissions of air pollutants, in tons per year, by the following amounts:

PM	SO ₂	NO _x	CO	VOC
27.8	181.9	57.7	79.6	79.6

The proposed modification has been reviewed by the Florida Department of Environmental Regulation under Chapter 403, Florida Statutes, and Federal regulation 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The Department has made a preliminary determination that the construction can be approved provided certain conditions are met. A summary of the basis for the determination and the application for State and Federal permits submitted by Osceola Farms Company are available for public review at the following offices:

Municipal Library
530 South Main Street
Belle Glade, Florida 33430
South Florida District
Dept. of Environmental Regulation
2269 Bay Street
Fort Myers, Florida 33901
Health and Rehabilitative Services
Palm Beach County Health Department
West Palm Beach, Florida 33402
Bureau of Air Quality Management
Dept. of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

The maximum percentages of allowable PSD increments consumed by the proposed modification will be as follows:

Annual	24-Hour	3-Hour
PM 15	51	NA
SO ₂ 55	85	81

Any person may submit written comments regarding the proposed modification. All comments, postmarked not later than 30 days from the date of this notice, will be considered in making a final determination regarding approval for construction of this source. Those comments will be made available for public review on request. Furthermore, a public hearing can be requested by any person. Such request should be submitted within 15 days of the date of this notice. Letters should be addressed to:

Mr. C. H. Fancy
Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

PUBLISH: September 26, 1981

Response to Public Comment
Osceola Farms Company
(AC 50-42476) (PSD-FL-077)

Comments were received from Alexander L. Fanjul, Vice President and Manager of the applicant, Osceola Farms Company (OFC). Mr. Fanjul requested revision of some specific conditions of the Preliminary Determination. The significant portion of his comments and DFR's responses are as follows:

Comment 1

Mr. Fanjul requested that specific conditions limiting the proposed boiler operation to 137 days apply only to the 1981-1982 crop season.

Response

The request has been accepted by DFR. Specific conditions No. 2, 5 and 12 will be revised to reflect operation of the proposed boiler for up to 172 days. OFC modeled PM, SO₂, and NO_x emissions from the proposed boiler for this time period. All of the calculations in the Preliminary Determination and the draft permit were based on 137 actual maximum operating days.

The revisions in operating days will result in the following changes to values contained in the Preliminary Determination.

(1) In Table I, the potential net annual increase in emissions (tons per year) from the OFC mill will change to 34.9 for PM, 228.4 for SO₂, 72.4 for NO_x, and 99.9 for CO and VOC.

(2) On page 21, the predicted SO₂ increment consumption will change to 421 ug/m³ for the 3-hour averaging time and 92 ug/m³ for the 24-hour averaging time. SO₂ increment consumption will not exceed allowable increments.

(3) On page 22, the predicted maximum ground-level concentrations for SO₂ will change to 1,063 ug/m³ and 242 ug/m³ for the 3-hour and 24-hour averaging times, respectively. The predicted maximum ground-level concentrations for the 24-hour TSP averaging time will change to 150 ug/m³; this value includes a background concentration of 43 ug/m³. These values are all below both the NAAQS and FFAOS.

Page Two

Comment 2

OFC requested deletion of the requirement that the boiler efficiency of the new unit be determined and used to establish the heat input during the compliance test. Because the variability of bagasse and associated handling problems, DER and the sugar industry had previously agreed to establish 55% as the assumed efficiency of all boilers for the purpose of carrying out heat input calculations and for compliance testing.

Response

OFC's request has been accepted by DER with the understanding that information pertinent to boiler performance and efficiency established during acceptance testing will be submitted to DER for information.

Comment 3

OFC objected to condition No. 7 which restricts visible emissions from the bagasse handling system to 5% opacity, and proposed 10% opacity for visible emission control.

Response

OFC's proposal has been accepted by DER.

Comment 4

SCGC requested to measure total fuel oil consumption to Boilers 2, 4 and 5 instead of metering the fuel oil consumption for each boiler, separately.

Response

The request has been accepted by DER. This will provide data to determine compliance with the purchase requirements for 1% sulfur fuel.

Comment 5

OFC preferred to purchase different quality of fuel oil and blend the oils in the storage tank instead of buying just one kind of fuel oil for all the boilers.

Response

This request has been accepted in view of the single storage tank and fuel feed system at the facility. Specific condition 3 has been rewritten to replace original conditions No. 3, 8, 9 and 13.

Page Three

Comment 6

OFC requested that boiler No. 1 should be put in a normal standby condition instead of cold standby position, because cold standby boiler will take much more time to start up.

Response

The request has been accepted by DER.

Conclusion

These comments received from OFC have been considered in the development of the Department's Final Determination. In addition, BAQM staff, in accord with specific requirements contained in the Technical Evaluation and Preliminary Determination, modified specific condition No. 1 to require a 90 foot stack height on Boiler No. 6. This specific condition more accurately reflects the contents and intent of the Technical Evaluation and Preliminary Determination.

Technical Evaluation
and
Preliminary Determination

Osceola Farms Company
Power Boiler No. 6
Palm Beach County, Florida

Permit Numbers
State: AC 50-43777
Federal: PSD-FL-080

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting
September 25, 1981

Public Notice

A modification to an existing air pollution source is being proposed by Osceola Farms Company near the city of Bryant, Palm Beach County, Florida. The proposed modification is the construction of a bagasse/fuel oil fired boiler with 150,000 pounds of steam per hour capacity. The modification will increase emissions of air pollutants, in tons per year, by the following amounts.

<u>PM</u>	<u>SO₂</u>	<u>NO_x</u>	<u>CO</u>	<u>VOC</u>
27.8	181.9	57.7	79.6	79.6

The proposed modification has been reviewed by the Florida Department of Environmental Regulation under Chapter 403, Florida Statutes, and, Federal regulation 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The Department has made a preliminary determination that the construction can be approved provided certain conditions are met. A summary of the basis for the determination and the application for State and Federal permits submitted by Osceola Farms Company are available for public review at the following offices:

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West Palm Beach, Florida 33402

South Florida District
Dept. of Environmental Regulation
2269 Bay Street
Fort Myers, Florida 33901

Bureau of Air Quality Management
Dept. of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

The maximum percentages of allowable PSD increments consumed by the proposed modification will be as follows:

	<u>Annual</u>	<u>24-Hour</u>	<u>3-Hour</u>
PM	16	51	NA
SO ₂	55	85	81

Any person may submit written comments regarding the proposed modification. All comments, postmarked not later than 30 days from the date of this notice, will be considered in making a final determination regarding approval for construction of this source. Those comments will be made available for public review on request. Furthermore, a public hearing can be requested by any person. Such request should be submitted within 15 days of the date of this notice. Letters should be addressed to:

Mr. C. H. Fancy
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

RULES OF THE ADMINISTRATIVE COMMISSION
MODEL RULES OF PROCEDURE
CHAPTER 28-5
DECISIONS DETERMINING SUBSTANTIAL INTERESTS

28-5.15 Requests for Formal and Informal Proceedings

- (1) Requests for proceedings shall be made by petition to the agency involved. Each petition shall be printed typewritten or otherwise duplicated in legible form on white paper of standard legal size. Unless printed, the impression shall be on one side of the paper only and lines shall be double spaced and indented.
- (2) All petitions filed under these rules should contain:
 - (a) The name and address of each agency affected and each agency's file or identification number, if known;
 - (b) The name and address of the petitioner or petitioners;
 - (c) All disputed issues of material fact. If there are none, the petition must so indicate;
 - (d) A concise statement of the ultimate facts alleged, and the rules, regulations and constitutional provisions which entitle the petitioner to relief;
 - (e) A statement summarizing any informal action taken to resolve the issues, and the results of that action;
 - (f) A demand for the relief to which the petitioner deems himself entitled; and
 - (g) Such other information which the petitioner contends is material.

Technical Evaluation
and
Preliminary Determination

Contents

<u>Section</u>	<u>Page</u>
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II. Project and Process Descriptions	3
III. Emissions and Controls	5
IV. Rule Applicability	8
V. Control Technology Review	11
VI. Air Quality Impact Analysis	14
VII. Conclusions	24
VIII. Attachments	25

I. APPLICANT AND LOCATION

Osceola Farms Company

P.O. Box 679

Pahokee, Florida 33476

The proposed modification will occur at Osceola Farms Company's (OFC) existing plant site located northeast of Pahokee, Palm Beach County, Florida. The UTM coordiantes are 544.2 Km East and 2968.0 Km North.

II. PROJECT AND PROCESS DESCRIPTIONS

A. Project Description

Osceola Farms Company plans to construct a new boiler (No. 6) that will have a maximum capacity of 150,000 lb/hr steam produced from 295 MMBTU/hr heat input. The boiler will be capable of burning bagasse and fuel oil.

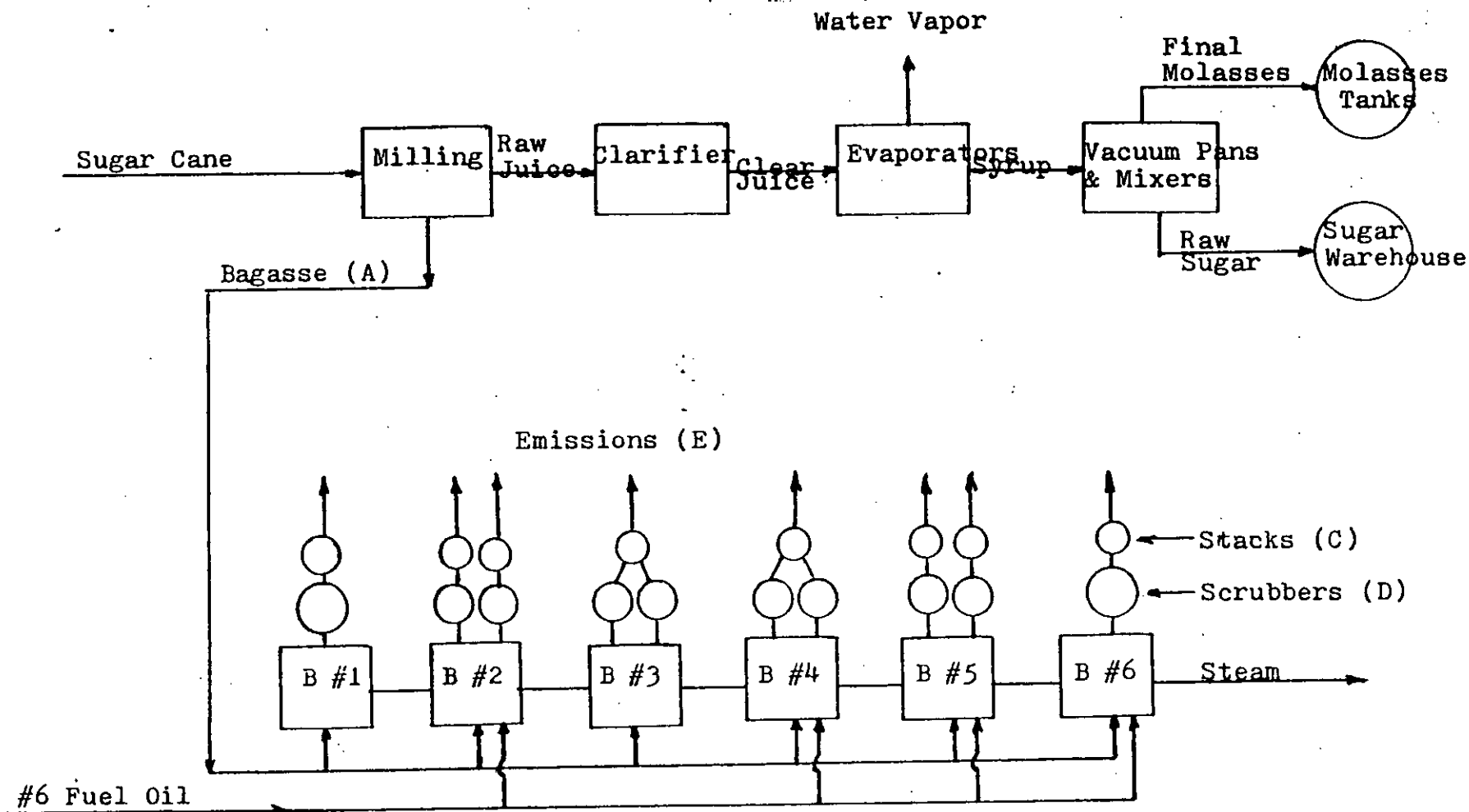
Currently, there are five boilers at the existing site. The total steam generating capacity is 463,800 lb/hr, while the five boilers are operating at rate capacity. Boilers 2, 4, and 5 are capable of burning bagasse and fuel oil; Boilers 1 and 3 are exclusively bagasse burning.

While adding a new boiler at the existing site, the company proposes to put Boiler 1 in a cold standby position. That means Boiler 1 can be operated if the proposed boiler #6 is not in operating condition. The modification will increase the total steam production at the site from 463,800 lb/hr to 567,000 lb/hr. Additional steam will come from both bagasse and fuel oil consumption.

B. Process Description

During the crop season, harvested cane is crushed and juice is extracted in the processing mill. Then the raw juice goes through a series of process units, which include clarifiers, evaporators, and vacuum pans, to produce two products - sugar and molasses. A process flow diagram, Figure 1, is attached. It illustrates not only the processes required to produce sugar and molasses from sugar cane but also the different fuel usages for each boiler.

Figure 1



OSCEOLA FARMS CO. PAHOKEE, FLA.

SCALE:

APPROVED BY:

DRAWN BY

DATE: 5-25-81

REVISED

PROCESS FLOW DIAGRAM

Kleeman Engineering, Inc. Ft. Lauderdale

DRAWING NUMBER

III. EMISSIONS AND CONTROLS

The proposed boiler will be capable of burning bagasse and fuel oil. The fuel usage will vary depending on bagasse availability. Therefore, the emission rate for each pollutant in the flue gas will be variable. For actual annual emissions calculations, the fuel oil usage is assumed to be 104 gallons per hour for Boilers 2, 4, 5 and 6. The assumption is based on actual fuel oil usage of 10,000 gal/day.

The applicant proposes to use a Joy Manufacturing Company's Type D Turbulaire Scrubber as the emission control equipment for the proposed boiler. The applicant claims that the scrubber has 93.9% removing efficiency for particulate matter under the 6" w.c. pressure drop across the scrubber.

FDER has made a BACT determination to limit particulate matter (PM) emissions to 0.15 and 0.10 lb/MMBTU heat input while burning bagasse and fuel oil respectively, and to control SO₂ emissions by limiting maximum sulfur content in fuel oil to 1.0 percent.

Osceola Farms Company presently has only a single fuel oil storage tank and distribution system. Boilers 2, 4, and 5 are permitted to use 2.4% sulfur fuel oil. Analysis of fuel consumption figures from existing boilers with the additional projected consumption of Boiler 6 at 1.0% sulfur shows that the required blend for single tank operation will be 2.0 sulfur oil.

FDER feels that any alternative would require the company to install additional tankage and fuel handling equipment, an

unnecessary and unproductive expense. Therefore, while analysis has been done on the basis of 1.0% sulfur content for the additional oil consumption, the permit limits for stack emissions have been set on the basis of 2.0% sulfur to provide a means of direct compliance verification by stack test or fuel oil analysis.

FDER's intent is that overall compliance for the facility will require the use of 2.0% sulfur fuel oil throughout the facility. The Bureau of Air Quality Management recommends that Osceola Farms Company apply for modifications to existing operating permits to reflect this situation.

The maximum emissions of the various pollutants will not occur during the same fuel burning condition. Generally, burning more bagasse in the boiler will cause higher particulate emissions than burning more fuel oil. But fuel oil burning should emit more SO_2 and NO_x than would be emitted from burning bagasse.

Based on the 104 gallons of 2.0% sulfur fuel oil usage for each of Boilers 2, 4, 5, and 6, the actual emissions are listed in Table I for each boiler. SO_2 emissions in the table were calculated with 10% SO_2 system loss and 0.2% sulfur content in dry bagasse.

Table I

Maximum Annual Emissions of Criteria Pollutants

Boiler	Steam Production Rate (lb/hr)	Heat Input (10 ⁶ btu/hr)	Average Bagasse Consumption (dry tons/hr)	Average Fuel Oil Consumption (gal/hr)	Annual Emissions (tons/yr)				
					PM	SO ₂	NO _x	CO	VOC
1	46,800	89.6	5.6	0	36.8	66.1	24.6	41.0	41.0
2	125,000	241	13.5	104	88.8	212.9	69.5	98.3	98.3
3	67,000	127	8.0	0	52.2	94.7	35.0	58.1	58.1
4	100,000	193	10.5	104	68.6	68.6	56.4	76.7	76.7
5	125,000	241	13.5	104	58.7	212.9	69.5	98.3	98.3
6	150,000	292	16.5	104	64.6	248.1	82.7	120.6	120.6
Total 1 through 5					305.1	764.2	255.0	372.4	372.4
Total 2 through 6					332.9	946.1	312.7	452.0	452.0
Potential increase					27.8	181.9	57.7	79.6	79.6

Calculations based on following conditions:

- (1) PM emission limits: 0.25 lb/MMBTU for Boilers 1,2,3,4; 0.2 lb/MMBTU for Boiler 5; 0.15 lb/MMBTU for Boiler 6.
- (2) SO₂: 0.2% sulfur in dry bagasse, 2.0% sulfur in fuel oil, and 10% SO₂ system loss.
- (3) NO_x: 2.67 lb/ton dry bagasse and 60 lb/10³ gal fuel oil.
- (4) VOC and CO: 2 lb/ton wet bagasse.
- (5) 137 days per year as maximum operation time.
- (6) 55% and 80% used for bagasse and fuel oil burning efficiencies.

IV. RULE APPLICABILITY

A. State Rule

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code (FAC).

Based on the application, responses from the applicant, and the BACT determination, FDER has recalculated the emissions for each pollutant from the new boiler, while burning 16.5 tons per hour bagasse and 104 gallons per hour fuel oil. The average sulfur content of 2.0% in the fuel oil has been used for calculations. Calculated emissions are as follows:

<u>Pollutant</u>	<u>Emission without Control</u>		<u>Actual Emissions</u>	
	<u>lb/hr</u>	<u>ton/yr</u>	<u>lb/hr</u>	<u>ton/yr</u>
PM	640.6	1053	44.3*	64.6
SO ₂	167.7	276.3	150.9	248.1
NO _x	50.3	82.7	50.3	82.7
CO	73.3	120.6	73.3	120.6
VOC	73.3	120.6	73.3	120.6

*This figure is based on 100% bagasse burning, the worst condition for PM emissions.

The proposed project location is in the Palm Beach County ozone (VOC) nonattainment area. The actual VOC emissions of the proposed boiler, which are listed above, will be 120.6 ton/yr. This is greater than the 50 ton/yr cutoff level listed in Table II of 17-2.17(3), FAC. Therefore, LAER, emission offsets and statewide compliance are required pursuant to 17-2.17(5), FAC. The company

proposes to retire boiler #1, therefore, 41 tons per year VOC emissions from the boiler can be used as emission offsets. VOC emissions from proposed boiler #6 will be over this 41 tons per year VOC emissions by 79.6 tons per year. In accordance with the LAER determination for this boiler and 17-2.17(5)(b), it is necessary to allocate 79.6 tons per year of VOC new source allowance from the current amount available in Palm Beach County. Recognizing the present uncertainty in VOC emission factors as discussed in the LAER determination, certain conditions will be imposed.

Since Palm Beach County's initial new source allowance through 1981 is 970 tons per year (17-2.17(7)(d)) and 418.7 ton/yr has been assigned to date, the allocation of the additional 79.6 tons will leave a balance of 471.7 tons which should have no foreseeable limitations on county growth in the near term before emission factors can be established and reflected in the LAER determination. At such time as emission factors are established, the anticipated balance over and above any required by 17-2.17 will revert to new source allowance and be available for future growth.

The proposed project is a major emitting facility for PM and SO₂ as defined in Chapter 17-2, because PM and SO₂ emissions (before control) exceed 250 tons per year. The project is subject to the provisions of Subsection 17-2.05(6) Table II, Emission Limiting Standards, and Subsection 17-2.04(6), Prevention of Significant Deterioration (PSD) which requires an air quality impact analysis and the use of Best Available Control Technology (BACT).

B. Federal Rule

The proposed source is subject to federal PSD review because it is a major modification. The net increases for pollutant emissions and significant emission rate, in tons per year, are as follows:

<u>Pollutant</u>	<u>Actual Emission Increase</u>	<u>Significant Emission Rate</u>
PM	27.8	25
SO ₂	181.9	40
NO _x	57.7	40
CO	79.6	100
VOC	79.6	40

The net increases for PM, SO₂, and NO_x emissions are above significant levels. Therefore, these pollutants are subject to an air quality impact and BACT analysis under 40 CFR 52.21(i). VOC emissions, which are also above the significant emission rate, are not subject to federal PSD review or a BACT analysis because the proposed site is in the ozone nonattainment area. VOC emissions are only subject to review under the State's nonattainment rule, 17-2.17, FAC.

V. CONTROL TECHNOLOGY REVIEW

The BACT determination proposed by the Department is attached. A discussion of the determination follows.

A. Particulate Matter (PM)

The applicant has proposed to use an impingement scrubber with 94 percent efficiency and to meet an emission rate of 0.20 lb PM/MMBTU heat input as BACT. This type scrubber has been standard in the sugar cane industry in Florida. FDER believes better control systems, such as multicyclone plus scrubber or bag filters, are available for control of particulate matter emissions from bagasse boilers. Cost and maintenance of these alternatives would be higher than the impingement scrubber proposed and, at the present time, it is not clear whether sufficient improvement in performance would be gained to offset the additional cost. FDER believes that a well designed impingement scrubber and related control system, with adequate pressure drop across the scrubber and optimum amount of make up water to the scrubber, can reduce the PM emission rate to less than 0.15 lb/MMBTU heat input when the boiler is burning bagasse.

B. Sulfur Dioxide (SO₂)

Sulfur dioxide is created in the boiler when sulfur-containing fuels are burned. The sulfur content of bagasse is reported to be 0.2 percent on a dry basis. No feasible method exists to reduce the sulfur content in bagasse. Sulfur content in the fuel oil varies. The applicant has proposed, and FDER has accepted, the use of oil with a maximum of 1.0% sulfur content as BACT for sulfur dioxide emissions for this boiler.

SO₂ emissions could be reduced by installation of a flue gas desulfurization (FGD) system. However, FDER does not believe an FGD system is justified for this seasonal industry. Use of low sulfur fuel oil as BACT is more cost effective.

C. Nitrogen Oxides (NO_x) and Ozone (VOC)

The operating practice of the proposed boiler requires the use of 45 percent excess air to burn bagasse. High excess air for combustion encourages the formation of NO_x but reduces the emissions of VOC and CO. As the plant site is classified nonattainment for ozone, FDER believes good boiler operation practice should minimize VOC emissions. To limit the NO_x and VOC emissions as required by BACT and LAER, the applicant shall install an oxygen or carbon dioxide monitor in the boiler's duct, calibrate it, and set alarms in it as described in the attached article entitled "Use of Flue Gas Oxygen Meter as BACT for Combustion Controls".

D. Maximum Allowable Emissions

The maximum allowable emissions are based on two different conditions: (1) 100% bagasse burning for PM emissions, (2) bagasse and fuel oil burning for all other Pollutant emissions. Table II summarizes the maximum allowable emissions for each pollutant.

Table II
Maximum Allowable Emissions

<u>Pollutant</u>	<u>lb/MMBTU</u>	<u>lb/hr</u>
PM	0.15	44.3
SO ₂	0.51	150.9
NO _x	0.17	50.3
VOC	0.25	73.3
CO	0.25	73.3

Opacity: 30% except for 40% no more than 2 minutes per hour.

VI. AIR QUALITY IMPACT ANALYSIS

A. Summary

The State PSD review for PM and SO₂ requires an air quality impact analysis which includes a PSD increment analysis and a Florida Ambient Air Quality Standards (FAAQS) analysis. The State PSD and FAAQS analyses depend on air quality modeling carried out in accordance with FDER-approved methods.

The air quality impact analysis required under federal PSD review for PM, SO₂, and NO_x includes:

- o An analysis of existing air quality;
- o A PSD increment analysis (for PM and SO₂ only);
- o A National Ambient Air Quality Standards (NAAQS) analysis; and,
- o An analysis of impact on soils, vegetation and visibility and growth-related air quality impacts.

The analysis of existing air quality may require preconstruction monitoring; the PSD and NAAQS analyses depend on air quality modeling carried out in accordance with EPA-approved methods. Federal PSD review also requires a good engineering practice (GEP) stack height evaluation.

Based on these required State and federal air quality impact analyses, FDER has reasonable assurance that the OFC modification, as described in this permit and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any State or federal PSD increment or ambient air quality standard. A discussion of the required analyses follows.

B. Discussion

1. Modeling Methodology

OFC's consultant and FDER used the Single-Source (CRSTER) and Industrial Source Complex (ISC) models in the State and federal air quality impact analyses. These models were used to determine the maximum predicted annual concentrations and to identify the absolute worst-case short-term meteorological conditions which would affect emissions from OFC after the proposed modification is completed. They were also used to identify days on which meteorological conditions produced worst-case short-term OFC impacts in the vicinity of the mill with interacting sources located directly upwind.

The maximum short-term impacts due to emissions from the OFC mill and all major interacting sources were analyzed using a refined grid spacing of 0.1 to 0.2 kilometers between receptors and only the days on which worst-case meteorological conditions occurred.

The maximum predicted annual concentrations are based upon maximum predicted 184-day* average concentrations. During the rest of the year, the plant is inoperative. Thus the true maximum annual average will be some fraction of these modeled 184-day averages.

Since worst-case impacts for each pollutant subject to analysis occur under different fuel burning conditions, modeling and analysis for each of these pollutants was performed using the appropriate worst-case fuel mix. Permit conditions will limit the total amount of plant-wide fuel oil consumption during any 24-hour period.

The surface meteorological data used in the models were National Weather Service data collected at West Palm Beach, Florida during the period 1970-74. Upper air meteorological data used in the models were collected during the same time period at Miami, Florida.

*OFC's consultant used 184 days as the length of the crop season and annual mill operation time. Actually, OFC's mill operates for only 137 days annually.

Final stack parameters and emission rates used in evaluating the proposed OEC modification are contained in Tables III and IV.

Table III

Stack Parameters for Osceola Farms Company Mill -- Baseline Case

Emissions Unit	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature (k)	Emission Rate (g/sec)	
					SO ₂	PM
Boiler #1	22.00	1.52	8.98	342.00	5.07	3.38
Boiler #2	22.00	1.52	14.22	342.00	16.32	7.52
Boiler #3	22.00	1.98	11.23	342.00	7.26	4.03
Boiler #4	22.00	1.83	13.35	342.00	13.61	6.01
Boiler #5	22.00	1.52	12.02	342.00	16.32	6.01

Table IV

Stack Parameters for Osceola Farms Company Mill -- Projected Case

Emissions Unit	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature (k)	Emission Rate (g/sec)		
					SO ₂	PM	NO _x
Boiler #2	22.00	1.52	14.22	342.00	16.32	7.52	5.33
Boiler #3	22.00	1.98	11.23	342.00	7.26	4.03	2.68
Boiler #4	22.00	1.83	13.35	342.00	13.61	6.01	4.32
Boiler #5	22.00	1.52	12.02	342.00	16.32	6.01	5.33
Boiler #6	27.43	2.16	14.41	342.00	19.01	5.58	6.34

2. Analysis of Existing Air Quality

In order to evaluate existing air quality in the area of a proposed project, FDER may require a period of continuous preconstruction monitoring for any pollutant subject to federal PSD review.

For this project, FDER required the submittal of preconstruction monitoring data for total suspended particulate matter (TSP). Three years of data collected from Palm Beach County Health Department TSP monitors PB-16 and PB-19 were used. TSP monitor PB-16 is located 24 kilometers to the southeast of the OFC mill, and monitor PB-19 is located approximately 21 kilometers to the southwest of the mill. Data from these monitors meet all FDER and EPA quality assurance requirements. Data from both of these monitors were used in order to more accurately reflect the impact of cane field burning on air quality in the vicinity of OFC. FDER has assumed that the average of the annual geometric means from the two monitors best represents the existing air quality or background value for all averaging times. This value is 43 ug/m^3 .

There are no FDER or EPA approved SO_2 and NO_2 monitors within 25 kilometers of the OFC mill. Since the mill is located in a remote area with respect to emissions of these pollutants from non-specified sources, background values of 0 ug/m^3 for SO_2 and 20 ug/m^3 for NO_2 were assumed by FDER in lieu of requiring preconstruction monitoring. FDER assumed a background value of 0 ug/m^3 for SO_2 since all sources of SO_2 which would interact with emissions from the OFC mill are accounted for in the modeling. FDER assumed no contribution to the background value from natural and distant non-specified sources because of the prevailing subtropical easterly winds and the lack of space heating requirements in the area. These background values are also used for all averaging

times and are consistent with EPA monitoring guidelines applicable to projects submitting complete applications prior to June 8, 1981.

3. PSD Increment Analysis

Both the State and federal PSD increment analyses pertain to PM and SO₂ for which maximum allowable increases (increments) are defined. The proposed OFC modification will be located in an area where the Class II increments apply. The nearest Class I area is more than 100 kilometers away from the proposed site.

The predicted maximum TSP and SO₂ increment consumption is the same in both the State and federal PSD increment analyses. In addition to boiler No. 6, increment consumption is affected by the construction of boiler No. 5 in 1978 and by the placing of boiler No. 1 on cold stand-by when boiler No. 6 becomes operational.

As shown in the following table, modeling results predict that the maximum TSP and SO₂ increment consumption will not exceed allowable increments. The highest, second-highest short-term predicted concentrations are given in the table since five years of meteorological data were used in the modeling.

Maximum Increment Consumption

(ug/m³)

State and Federal

<u>Pollutant</u>		<u>Averaging Time</u>		
		<u>3-hour</u>	<u>24-hour</u>	<u>Annual</u>
SO ₂ : Maximum OFC Impact		415	77	11
SO ₂ : Allowable Class II Increment		512	91	20
PM: Maximum OFC Impact		NA	19	3
PM: Allowable Class II Increment		NA	37	19

There are other increment consuming sources within a 50 kilometer radius of OFC. Even though these sources consume increment in the area around the OFC mill, this consumption is very small. The combined impacts of these sources and OFC in the interacting directions are less than the maximum increment consumed by OFC only.

The nearest Class I area is Everglades National Park which is 125 kilometers away from OFC. At this distance, it can be assumed that no Class I increment will be consumed as a result of emissions from OFC.

4. Ambient Air Quality Standards Analysis

Both State and federal PSD regulations require the permit applicant to demonstrate that, given existing air quality in an area, a proposed emissions increase subject to PSD review will not cause or contribute to any violation of ambient air quality standards. For the proposed project at OFC, an ambient air quality standards analysis is required for PM, SO₂, and NO_x.

As shown in the following table, modeling results predict that maximum ground-level concentrations for each of these pollutants will be below both the FAAQS and NAAQS. The highest, second highest short-term predicted values are given in this table since five years of meteorological data were used in the modeling.

<u>Pollutant</u>	<u>Averaging Time</u>	<u>Projected Air Quality* (ug/m³)</u>	<u>NAAQS (ug/m³)</u>	<u>FAAQS (ug/m³)</u>
SO ₂	annual	30	80	60
	24-hour	237	365	260
	3-hour	1036	1300	1300
TSP	annual	55	75	60
	24-hour	133	150	150
NO ₂	annual	29	100	100

*Includes background concentration of 43 ug/m³ for annual and 24-hour TSP and 20 ug/m³ for NO₂.

Modeling was also performed to evaluate the impacts of interactions of emissions from other sources with those from the OFC plant. Maximum contributions from surrounding sources are very small compared to maximum ground-level concentrations from the OFC plant. These interactions are predicted to cause lower impacts on air quality in the vicinity of the mill than the maximum impacts of OFC's emissions alone.

5. Analysis of Impact on Soils, Vegetation and Visibility and Growth-Related Air Quality Impacts

The maximum impact of the proposed modification, as demonstrated through the air quality analysis, will be below the national secondary air quality standards for TSP and SO₂. These standards were established to protect public welfare related values. Also, the maximum impact of the proposed modification on NO₂ concentrations will be insignificant. Therefore, no adverse effects on soils, vegetation and visibility is expected.

There will be no increase in the number of employees at this site due to the project. Therefore, no secondary residential, commercial or industrial growth which will adversely affect air quality in the area is expected.

6. Good Engineering Practice Stack Height Evaluation

The stack height (90 feet) proposed for boiler No. 6 is less than the good engineering practice stack height of 150 feet, but it is greater than 1.5 times the building height of the tallest building of influence. The proposed stack height will be sufficient to ensure that PM and SO₂ emissions from this stack will not result in excessive ground-level concentrations as a result of aerodynamic effects of nearby structures.

VII. CONCLUSIONS

FDER proposes a preliminary determination of approval with conditions for the construction of the proposed boiler by Osceola Farms Company. The determination is made on the basis of information contained in the application and in the additional information dated August 10, 1981, supplied by the applicant.

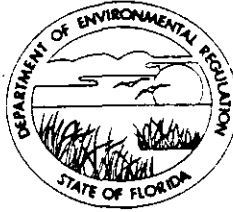
The general and specific conditions are listed in the attached draft state permit (AC 50-43777) and federal permit (PSD-FL-080).

VIII. ATTACHMENTS

1. Proposed State Permit
2. Proposed Federal Permit
3. BACT and LAER Determination
4. Application to Construct Air Pollution Sources, DER Form 17-1.222(16), received on June 2, 1981
5. DER's incompleteness letter to OFC, dated July 2, 1981
6. OFC's response to DER, dated August 10, 1981 ← EPA don't have
7. OFC's response to DER on maximum operation days, dated Sept. 14, 1981.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301



BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY

Permit/Certification No..
AC 50-43777

APPLICANT: Osceola Farms Company (OFC)
P. O. Box 679
Pahokee, Florida 33476

COUNTY: Palm Beach

PROJECT: Boiler No. 6

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2 and 17-4, Florida Administrative Code. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents, and specifications attached hereto and made a part hereof and specifically described as follows:

For the construction of a 150,000 pounds of steam per hour bagasse fuel (No. 6 oil supplementary fuel) fired boiler equipped with an impingement scrubber to be located at Osceola Farms Company's existing plant that is approximately 6 miles northeast of Pahokee, Palm Beach County, Florida. The UTM coordinates of the proposed plant are 2,968.0 km North and 544.2 km East.

Construction shall be in accordance with the attached permit application plans, documents and drawings except as otherwise noted on pages 3 and 4, Specific Conditions.

Attachments:

1. Application to Construct Air Pollution Sources, DER Form 17-1.122(16), received on June 2, 1981.
2. DER's incompleteness letter to OFC, dated July 2, 1981.
3. OFC's response to DER, dated August 10, 1981.
4. BACT and LAER determinations, dated August 10 and 17, 1981.
5. OFC's response to DER on maximum operation days, dated Sept. 14, 1981.

Permit No: AC 50-43777
Applicant: Osceola Farms Company

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions", and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed on notice that the department will review this permit periodically and may initiate court action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.
2. This permit is valid only for the specific processes and operations indicated in the attached drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit shall constitute grounds for revocation and enforcement action by the department.
3. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information: (a) a description of the cause of non-compliance; and (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.
4. As provided in subsection 403.087(6), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
5. This permit is required to be posted in a conspicuous location at the work site or source during the entire period of construction or operation.
6. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Section 403.111, F.S.
7. In the case of an operation permit, permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or department rules.
8. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant, or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, except where specifically authorized by an order from the department granting a variance or exception from department rules or state statutes.
9. This permit is not transferable. Upon sale or legal transfer of the property or facility covered by this permit, the permittee shall notify the department within thirty (30) days. The new owner must apply for a permit transfer within thirty (30) days. The permittee shall be liable for any non-compliance of the permitted source until the transferee applies for and receives a transfer of permit.
10. The permittee, by acceptance of this permit, specifically agrees to allow access to permitted source at reasonable times by department personnel presenting credentials for the purposes of inspection and testing to determine compliance with this permit and department rules.
11. This permit does not indicate a waiver of or approval of any other department permit that may be required for other aspects of the total project.
12. This permit conveys no title to land or water, nor constitutes state recognition or acknowledgement of title, and does not constitute authority for the reclamation of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.
13. This permit also constitutes:
 - ☒ Determination of Best Available Control Technology (BACT)
 - ☒ Determination of Prevention of Significant Deterioration (PSD)
 - ☐ Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)

Permit No: AC 50-43777
Applicant: Osceola Farms Company

SPECIFIC CONDITIONS:

1. The proposed boiler shall be constructed in accordance with the capacities and specifications stated in the application and additional information supplied by the applicant.
2. The proposed boiler's maximum emission rates shall not exceed the emission limits listed below.

<u>Pollutant</u>	<u>Maximum Allowable Emissions</u>	
	<u>lb/hr</u>	<u>ton/yr</u>
PM	44.3	64.6
SO ₂	150.9	248.1
CO	73.3	120.6
VOC	73.3	120.6
NO _x	50.3	82.7

3. Sulfur content of the fuel oil fired in the proposed boiler and all existing boilers shall not exceed 2.0 percent. Permit conditions of all operation permits for Boilers 1,2,3,4, and 5 shall be revised to limit sulfur content in the fuel oil to 2.0 percent.
4. Emissions of VOC and CO shall be maintained at the lowest possible level through the installation, calibration, and operation of a flue gas oxygen monitor as described in the attached article: "Use of Flue Gas Oxygen Meter as BACT for Combustion Controls".
5. The boiler shall not be operated more than 137 days per year during the season from November to March.
6. Compliance with the emission limits required in condition No. 2 shall be determined by performance tests while the boiler is at or close to full operating capacity. The performance tests shall be conducted in accordance with EPA reference methods (40 CFR 60, Appendix A) and the provisions of 40 CFR 60.8 and 40 CFR 60.46. EPA reference method 25 shall be used to determine VOC emissions. The boiler efficiency will be established during compliance tests.
7. Visible emissions from the bagasse handling system shall not exceed 5 percent opacity over any 6-minute period as measured by EPA reference method 9.
8. Instruments shall be installed, calibrated, and maintained to continuously measure the fuel oil used by Boilers 2,4, 5 and the proposed boiler. The records of fuel oil usage will be kept by the company, available for regulatory agencies' inspection, for a two-year period.
9. Total fuel oil consumption in Boilers 1,2,3,4,5, and the proposed boiler shall not exceed 10,000 gallons per day.

Permit No: AC 50-43777

Applicant: Osceola Farms Company

SPECIFIC CONDITIONS:

10. The scrubber shall be equipped with a manometer or equivalent instrument to measure the total pressure drop of the flue gas stream across the scrubber, with pressure gauges to measure the water pressure at the spray nozzles, with a flow meter or equivalent device (weir) to measure the quantity of water circulating through the scrubber and a pH meter to measure pH of scrubber water at the scrubber inlet. Data from these instruments shall be recorded each shift (every 8 hours) and kept available for regulatory agencies' inspection for a two-year period.
11. The stack sampling configuration of the proposed boiler shall comply with the minimum of 2D downstream and 0.5D upstream distances to the sampling ports required to use reference method 2.
12. The quantity of 79.6 tons per year of VOC emissions is hereby assigned to the boiler from the new source allowance balance for Palm Beach County pursuant to 17-2.17(7)(a) and (d). At such time as the LAER determination for this boiler is revised, based on data acquired under Specific Condition #6, any VOC emission allowance not required shall revert to Palm Beach County available new source allowance.
13. Fuel oil purchased by the company for all boilers at the plant shall not contain more than 2.0 percent sulfur. The fuel oil storage tank at the site and main pipeline from the tank to boilers shall be equipped with sampling points.
14. A boiler efficiency test shall be performed on the new unit and the measured efficiency will be used to determine the heat input during the compliance test.
15. Boiler #1 shall be put in a cold standby position, while the boiler #6 is in commercial operation. Boiler #1 can be operated only when boiler #6 is not operating.
16. Before construction permit is issued for the new boiler, the operating permit of boiler #1 shall be revised to reflect that 41.0 tons per year VOC emissions are assigned to boiler #6 as emission offsets. The assignment shall be effective as soon as operating permit is issued to boiler #6.

Expiration Date: April 15, 1982

Issued this _____ day of _____, 1981.

 Pages Attached

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Signature

Preliminary Determination

Osceola Farms Company

Application PSD-FL-080

The preceeding Technical Evaluation and Preliminary Determination are adopted by reference for the proposed federal permit, PSD-FL-080.

Special Conditions listed in the draft State permit, AC-50-43777, are adopted as special conditions for the draft federal permit, PSD-080, for this source.

The attached General Conditions are also made a part of the proposed federal permit PSD-FL-080 for this source.

Attachment: General Conditions (Federal)

GENERAL CONDITIONS

1. The permittee shall notify the permitting authority in writing of the beginning of construction of the permitted source within 30 days of such action and the estimated date of start-up of operation.
2. The permittee shall notify the permitting authority in writing of the actual start-up of the permitted source within 30 days of such action and the estimated date of demonstration of compliance as required in the specific conditions.
3. Each emission point for which an emission test method is established in this permit shall be tested in order to determine compliance with the emission limitations contained herein within sixty (60) days of achieving the maximum production rate, but in no event later than 180 days after initial start-up of the permitted source. The permittee shall notify the permitting authority of the scheduled date of compliance testing at least thirty (30) days in advance of such test. Compliance test results shall be submitted to the permitting authority within forty-five (45) days after the complete testing. The permittee shall provide (1) sampling ports adequate for test methods applicable to such facility, (2) safe sampling platforms, (3) safe access to sampling platforms, and (4) utilities for sampling and testing equipment.
4. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.
5. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall provide the permitting authority with the following information in writing within five (5) days of such conditions:
 - (a) description of noncomplying emission(s),
 - (b) cause of noncompliance,
 - (c) anticipated time the noncompliance is expected to continue or, if corrected, the duration of the period of noncompliance,
 - (d) steps taken by the permittee to reduce and eliminate the noncomplying emission,and
 - (e) steps taken by the permittee to prevent recurrence of the noncomplying emission.

Failure to provide the above information when appropriate shall constitute a violation of the terms and conditions of this permit. Submittal of this report does not constitute a waiver of the emission limitations contained within this permit.

6. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increased emissions must be reported to the permitting authority. If appropriate, modifications to the permit may then be made by the permitting authority to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.
7. In the event of any change in control or ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit by letter and forward a copy of such letter to the permitting authority.
8. The permittee shall allow representatives of the State environmental control agency or representatives of the Environmental Protection Agency, upon the presentation of credentials:
 - (a) to enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of the permit;
 - (b) to have access to any copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Act;
 - (c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;
 - (d) to sample at reasonable times any emission of pollutants;and
 - (e) to perform at reasonable times an operation and maintenance inspection of the permitted source.
9. All correspondence required to be submitted by this permit to the permitting agency shall be mailed to:

Chief, Air Facilities Branch
Air and Hazardous Materials Division
U. S. Environmental Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30308

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

The emission of any pollutant more frequently or at a level in excess of that authorized by this permit constitute a violation of the terms and conditions of this permit.

USE OF FLUE GAS OXYGEN METER AS BACT FOR
COMBUSTION CONTROLS

Within the time limits specified in General Condition 3 of this permit, the permittee shall determine the emissions of nitrogen oxides and carbon monoxide from the permitted combustion device in accordance with test methods and procedures set out in 40 CFR Part 60, Appendix A, Methods 7 and 10, respectively. These emission determinations shall be made at:

- 1) Maximum design capacity; and
- 2) Normal operational load.

The permittee shall install a continuous oxygen monitor in the flue of the permitted combustion device which meets the requirements of 40 CFR Part 60, Appendix B, Performance Specification 3. Results of emission determinations shall be correlated to the flue gas oxygen content to define:

- 1) The point at which Nitrogen Oxides (NO_x) emissions (lb/MMBtu) equals the allowable NO_x emission rate contained in the permit.
- 2) The point at which carbon monoxide (CO) emissions exceed the allowable CO emission rate contained in the permit.

The flue gas oxygen content shall be maintained between these points and alarms shall be set to sound when flue gas oxygen levels exceed either side of this range. Any operation outside of this range will constitute noncompliance with this specific condition, shall be recorded in accordance with General Condition 4 of this permit, and will be reported quarterly along with excess emissions in accordance with 40 CFR 60.7(c).

Should any combustion equipment modifications be made such as different type burners, combustion air relocation, fuel conversion, tube removal or addition, etc., emissions correlations as described above shall be conducted within 90 days of attaining full operation after such modification. Results of all emission determinations shall be sent to the permitting authority within 90 days after completion of the tests.

Best Available Control Technology (BACT) Determination

Osceola Farms Company

Palm Beach County

The applicant proposes to install a 288 million Btu per hour bagasse fired steam generator at their existing facility located in Pahokee, Florida. The proposed unit designated as boiler No. 6 will use No. 6 oil for start-up and as a supplementary fuel. Bagasse is a plant residue remaining from the processing of sugar cane and is burned in the boiler to eliminate a solid waste disposal problem and produce steam required in the processing plant. At maximum capacity the unit will burn 1.1 barrels of oil plus 80,000 pounds of bagasse per hour. Operation at the facility is seasonal, scheduled around-the-clock November through March for a total of 3072 hours.

BACT Determination Requested by the Applicant:

<u>Pollutant</u>	<u>Emission Limit</u>
Particulates (Bagasse)	0.20 lb/10 ⁶ Btu
Particulates (Fuel Oil)	0.10 lb/10 ⁶ Btu
SO ₂	1.0% low sulfur oil

A Joy Turbulaire Type D impingement scrubber will be used to control particulate emissions. Low sulfur fuel will be used to control SO₂ emissions.

Date of Receipt of a BACT Application:

June 2, 1981

Date of Publication in the Florida Administrative Weekly:

June 12, 1981

Review Group Members:

A tentative BACT determination was drafted based upon a previous Department determination for a similar source. Comments on the draft were obtained from Willard Hanks and Bob King, New Source Review Section; Mirza Baig, DER South Florida District; Michael Martin, Palm Beach County Health Department; and Cleve Holladay, Air Modeling Section. There was group solidarity for the pollutant emission limits which have been determined to be BACT.

Page Two

BACT Determined by DER:

<u>Pollutant</u>	<u>Emission Limit</u>
Particulates	
100% Bagasse	0.15 lb/million Btu input
100% No. 6 Oil	0.10 lb/million Btu input
Sulfur Dioxide	No. 6 new ¹ fuel oil with sulfur content not to exceed 1.0 percent
Visible Emissions	Maximum 30% opacity, except that 40% opacity is permissible for not more than 2 minutes in any one hour
Hydrocarbons (VOC)	LAER

¹ The term "new" oil means an oil which has been refined from crude oil and has not been used, and which may or may not contain additives.

Justification of DER Determination:

Bagasse is a plant residue remaining from the processing of sugar cane. This residue by-product is burned in a boiler to eliminate a solid waste disposal problem and produce steam required in the processing plant. Fuel oil is used during the boiler start-up and may be fired concurrently with bagasse as necessary to meet plant steam demands. The moisture content of the bagasse in the locale is 58.2 percent, but can vary from 52 to 61 percent depending on geographic location and climate conditions during the sugar cane growing season.

Bagasse is by DER definition a Carbonaceous Fuel (17-2.02(21)F.A.C.). The particulate emission limiting standard for a new source burning carbonaceous fuel is 0.2 per million Btu heat input (17-2.05(6)1.(2)(b)F.A.C., Table II). A previous Department and EPA determination for a similar source was 0.15 pound particulates per million Btu heat input when burning bagasse. This emission limit was based upon stack test results obtained from various facilities with existing bagasse burning boilers.

There have been no significant technology improvements made since the last BACT determination on a bagasse boiler to justify a more stringent particulate emission limit. The particulate emission limit of 0.15 lb per million Btu heat input is, therefore, determined to be BACT. Compliance with the standard will be determined by EPA reference methods 1,2,3 and 5.

Page Three

The applicant contends it will not be economical to meet the more stringent particulate emission limit and is not warranted since there is no documentation indicating this limit can be obtained on a continuous basis using the present control technology.

The particulate emission limit will be as determined to be BACT, however, the applicant has the option to prove, with actual operating and test data, that this limit is not attainable on a continuous basis. The Department will then review the BACT determination based on the submitted data.

The use of fuel oil with a low sulfur content to control SO₂ emissions is determined as BACT. Bagasse typically contains 0.1 to 0.2 percent sulfur and SO₂ emissions are minor compared to fuel oil. This agrees with previous Department determinations for a similar source.

One member of the review group recommended the use of fuel oil with a 0.7 percent sulfur content. Since bagasse is the more economical fuel, and, fuel oil with 1 percent sulfur content is a common blend used in the area; and, no SO₂ increment violation is predicted, the Department does not think a fuel oil containing 0.7 percent sulfur is justified at this time.

The term "new oil" is included to prevent the use of waste oil as fuel, emissions from which were not considered in this BACT analysis.

The source is located in an area classified nonattainable for the pollutant ozone (17-2.16(1)(e)F.A.C.). The emission limit for hydrocarbons will be subject to a Lowest Achievable Emission Rate (LAER) determination (17-2.17(5)(a)1.F.A.C.).

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Recommended by:

Steve Smallwood
for Steve Smallwood, Chief, BAQM

Date:

8/7/81

Approved:

Victoria V. Tschinkel
Victoria V. Tschinkel, Secretary

Date:

8/10/81

SS:dav

Lowest Achievable Emission Rate (LAER) Determination

Osceola Farms Company

Palm Beach County, Florida

The applicant proposes to install a 288 million Btu per hour bagasse fired steam generator at their existing facility located in Pahokee, Florida. The proposed unit designated as boiler No. 6 will use residual oil for start-up and as a supplementary fuel. Bagasse is a plant residue remaining from the processing of sugar cane and is burned in the boiler to eliminate a solid waste disposal problem and produce steam required in the processing plant. At maximum capacity, the unit will burn 1.1 barrels of oil plus 80,000 pounds of bagasse per hour. Operation at the facility is seasonal, scheduled around-the-clock November through March for a total of 3072 hours.

The source is located in an area classified nonattainment for the pollutant ozone (17-2.16(1)(e)F.A.C.). Hydrocarbons or Volatile Organic Compounds (VOC) from the burning of bagasse are considered an anthropogenic emission which when released to the atmosphere can remain long enough to participate in photochemical reactions. The emission of VOC from the proposed unit is therefore subject to a LAER determination (17-2.17(5)(a)1.F.A.C.).

LAER Determination Requested by the Applicant:

<u>Pollutant</u>	<u>Emission Limit</u>
Hydrocarbons	2 lb/ton bagasse fired

LAER Determination by DER:

Emissions from the combustion of bagasse are to be tested and a VOC emission factor determined. 40 CFR 60, EPA method 25, Appendix A or Department approved equivalent shall be the test method used.

Justification of DER Determination:

The applicant proposed a hydrocarbon (VOC) emission limit as listed in the Source Classification Codes (SCC) in the National Emission Data System. There was no VOC emission factor listed in Table 1.8-1 of AP-42. This was cause for question since the two are usually interrelated. EPA was contacted and no documentation was available to substantiate the VOC emission factor listed in the SCC.

Using the Pulp and Paper industry VOC emission factor for wood residue and EPA report 600/7-80-111 for the VOC emission factor for residual oil, the VOC emissions would be less than 50 tons per year. This scenario would, however, exempt the source from the nonattainment provisions (17-2.17(3)(a) 1.a.(ii)F.A.C.) and require compliance with any applicable NSPS or emission limiting standard in 17-2.05 or 17-2.16, (17-2.17(4)F.A.C.).

The VOC emission factor of 2 pounds per ton of bagasse burned would result in emissions of 80.0 lb/hr or 122 ton per year. The Department, however, has reasonable doubt concerning the accuracy of this VOC emission factor. There are presently no actual test data available and verification by testing cannot be done until after the 1981 harvest begins.

In order to comply with the intent of the New Source Allowance/Offset provisions, it is necessary to assume the higher factor until sufficient test data can be obtained to clearly establish rule applicability.

LAER, therefore, is determined to be the documentation of a VOC emission factor when burning bagasse as boiler fuel. The VOC emission factor of 2 pounds per ton bagasse burned, in the interim, is determined as LAER. Once a VOC emission factor from bagasse burning is documented, this determination will be reviewed.

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, LAER Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Recommended by:


for Steve Smallwood, Chief, BAQM

Date:

8/14/81

Approved:


Victoria J. Tschinkel, Secretary

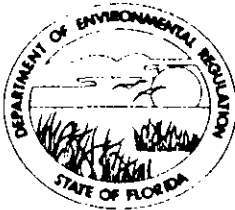
Date:

8/17/81

SS:EP:dav

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301



BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY

(904) 488-1344

July 2, 1981

Alexander L. Fanjul
Vice President
Osceola Farms Company
P. O. Box 679
Pahokee, Florida 33476

Dear Mr. Fanjul:

RE: Bagasse Boiler No. 6 - State Construction Permit Application

The Department has received your application for a permit to construct a bagasse boiler in Palm Beach County, Florida. Based on the initial review of your proposal, it has been determined that additional information is needed before we can process the application. The information required to complete the application is listed below.

1. The SO₂ emission calculations in the application are questionable. Our calculations show 134 lbs SO₂/hr from burning bagasse, not 80 lbs/hr. Total SO₂ emissions will be 141.6 lbs/hr or 217.5 tons/yr.
2. The maximum fuel oil consumption, 48 gal/hr, should be used for all emissions calculations. Please recalculate the PM, NO_x, HC and CO emissions by using 48 gal/hr fuel oil consumption instead of 24 gal/hr.
3. What are the designed maximum and minimum clear water flows to the scrubber (GPM), pressure on the spray headers (psig) and pressure drop ("H₂O) across the scrubber?
4. How many oil burners does the proposed boiler have? What is the capacity of each burner?
5. Describe the process that will be used to feed bagasse into the boiler. How will the amount of bagasse be measured during the feeding process? What unit will be used for reporting bagasse feed?
6. Please furnish a copy of the scrubber I.D. fan operating curve. Include the fan speed (R.P.M.), motor H.P. and amperage

Mr. Fanjul
July 2, 1981
Page Two

of the exhaust fan at design conditions. What is the temperature of the flue gas at the scrubber I.D. fan?

7. Provide the actual monthly fuel oil consumption during 1979 and 1980 for each existing boiler (units 1 through 5).
8. Is any plant expansion that would increase air pollutant emissions planned in conjunction with the proposed boiler?
9. What are the maximum emissions of all criteria pollutants and heat input rates for each existing boiler and the proposed boiler? List this information in a table.
10. How will fugitive particulate emissions from the storage and transfer of bagasse be controlled? Please submit a plan for the control of fugitive bagasse dust generated from storage.
11. Provide a letter from the scrubber manufacturer on the performance of the scrubber giving efficiency and the particulate emission limits (in pounds per million Btu heat input) which can be met for varying particule sizes.
12. Furnish a drawing of the stack configuration indicating sampling port locations, safety platforms, inlet ducting, etc.
13. Give the control efficiency, cost, and inlet and outlet loading of the multi-cyclone dust collector which was not specifically addressed as part of the control equipment in the application.
14. What is visible emissions impact in the area of the plant? (Will the new boiler increase the number of employees?).
15. In the PSD analysis, air quality impacts from Boilers #1 through #5 are compared with impacts from Boilers #2 through #6. Is Boiler #1 going to be shut down permanently?
16. Please perform an increment consumption analysis for both TSP and SO₂. According to information on page 14 of the PSD analysis, Boiler #5 and Boiler #6 would consume increment. Please submit increment consumption tables and the required computer modeling runs.

Mr. Fanjul
July 2, 1981
Page Three

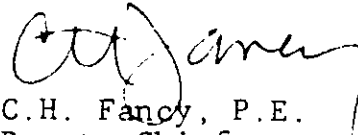
17. Please perform an ambient air quality standards analysis for SO_2 in the vicinity of Osceola Farms with Boiler #6 in operation. Interactions with surrounding sources should be investigated, including FPL-Martin. Please submit an ambient concentration table and the required modeling runs.
18. Since the new boiler will increase emissions of nitrogen oxides by a significant amount, an ambient air analysis of nitrogen oxides needs to be performed. Please submit the required modeling runs.
19. Based on the latest EPA ambient monitoring guidelines (Ambient Monitoring Guidelines for Prevention of Significant Deterioration, EPA-450/4-80-012, Section 2), we believe that ESE's procedure to determine a TSP background is not justified. We suggest two alternatives for developing this background. One alternative could be based on the data collected from the Palm Beach County Health Department TSP monitor PB-16. This monitor would be considered a "regional" monitor. Because of its remote location, with the Everglades to the north and Loxahatchee Wildlife Refuge to the south, the impact of cane field burning would probably not be reflected in data from this monitor. Therefore, a modeling analysis of the impact of cane field burning would need to be included in order to supplement the data from PM-16.

The other alternative would be to use data from an existing Sugar Cane League monitor within 10 km of Osceola Farms. The impact of cane field burning would probably be reflected in data from that monitor. If data from Sugar Cane League monitor was used, though, the data would have to meet all FDER and EPA quality assurance requirements, and the data would have to be submitted to FDER for verification. Since data from one of the Sugar Cane League monitors may be impacted by point source emissions from Osceola Farms, the modeled impact of these sources at the location of the monitor could be subtracted out. For either alternative, we suggest that three years of monitor data be used if available.

Mr. Fanjul
July 2, 1981
Page Four

As soon as we receive the required information, we will resume processing your application. If you have any questions on the data requested, please contact this office. Cleve Holladay should be contacted on any questions related to modeling and Bob King on the other items.

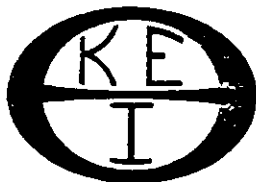
Sincerely,

A handwritten signature in dark ink, appearing to read "C.H. Fancy", written over the typed name.

C.H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management

CHF:dav

cc: West Palm Beach
DER, Ft. Myers



Kleeman Engineering, Inc.

404 North Andrews Avenue • Fort Lauderdale, Florida 33301

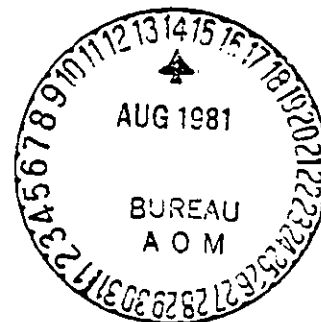
CHEMICAL & ENVIRONMENTAL ENGINEERS

305/467-6708 • 305/735-8614

August 10, 1981

Tim

Fla. Dept. of Environmental Regulation
Twin Towers Office Building
2600 BlairStone Road
Tallahassee, Fla. 32301



Attention: Mr. C.H. Fancy, P.E., Deputy Chief
Bureau of Air Quality Management

Re: Osceola Farms Co. - Bagasse Boiler #6
DER Construction Permit Application

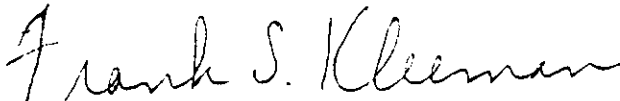
Dear Mr. Fancy:

We are pleased to respond to your letter of 7-2-81 as follows:

1. SO₂ emissions: Revised calculation sheet is enclosed.
2. PM, NO_x, HC and CO: Revised calculation sheets are enclosed.
3. Design clean water flow to scrubber: 200 gpm, max.
103 gpm, min.
Spray header pressure: 40 psi.
Pressure drop across scrubber: 6" w.c.
4. Number of oil burners: 2
Capacity: 615 gph each
5. Bagasse is fed to boiler by drag conveyor through a chute.
Equipment suppliers advise that spongy nature of bagasse prevents measuring quantity supplied by the feeding process. Consequently, quantities burned are calculated from combustion data.
6. I.D. fan operating curve is enclosed.
Fan speed: 900 rpm.
Motor H.P.: 354
Amp. of exhaust fan: N/A. Turbine curve is enclosed.
Temp. of flue gas at scrubber I.D. fan: 170° F.

7. Fuel oil consumption: Tabulation table is enclosed.
8. Is plant expansion planned?: No.
9. Maximum emissions for all boilers: Table is enclosed.
10. Fugitive particulate emissions from storage pile
can be controlled, when necessary, by wetting down the pile. However, this is limited by the inability to burn wet bagasse. Transfer points can be enclosed to extent feasible.
11. Scrubber efficiency and emission limits: Letter from manufacturer (Joy Mfg. Co.) is enclosed. This is the full extent of what they are willing to provide.
12. Stack configuration, etc.: Drawing is enclosed.
13. Dust collector control efficiency: There is no dust collector.
14. Use of the new boiler will not add to mill personnel, except 1 man per shift to operate it.
Visible emissions in area of the mill will be decreased, because of better combustion in boiler and reduction in useage of oil which will be accomplished.
15. Boiler #1 will be operable, but will not be operated unless one of the other boilers is out of service.
16. thru 19. These questions and requests for information and further studies have been addressed by Environmental Sciences & Eng., Inc. Their bound report and cover letter are enclosed.

Sincerely,



Frank S. Kleeman, P.E.

Osceola Environmental Consultant

cc: DER, Ft. Myers
P.B. County H. Dept.
Osceola Farms Co.

ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

July 27, 1981
ESE No. 80-180-100

Frank S. Kleeman, P.E.
Kleeman Engineering, Inc.
404 North Andrews Avenue
Ft. Lauderdale, Florida 33301

Dear Frank:

The enclosed table and computer printouts constitute a reply to Questions 16, 17, and 18 in Clair Fancy's July 2, 1981 letter to Alexander Fanjul. An explanation of the table and a reply to Question 19 follow.

MODELING

Printouts #1 and #2 are 5-year CRSTER runs assuming stack emissions from combustion of 0.2 percent sulfur bagasse with total conversion of sulfur to SO_2 . Table 5A summarizes the results of these calculations assuming a 40 percent loss over stoichiometric emission calculations for bagasse combustion. Total conversion is still assumed for sulfur found in oil. Neither SO_2 Ambient Air Quality Standards (AAQS) nor PSD increments are predicted to be violated. Neither AAQS nor increments would be violated if as little as 8 percent loss in stoichiometric sulfur were assumed.

Table 7 of the PSD report shows that all surrounding sources with potentially significant contributions in the area of Osceola's impact are bagasse or bagasse residue combustion sources. The maximum contribution from all surrounding sources is 7 ug/m^3 (24-hour). Since SO_2 emissions while burning bagasse or residue are only 2 to 3 times particulate emissions, SO_2 contributions from surrounding sources will be no greater than 21 ug/m^3 . An addition of 21 ug/m^3 to concentrations in any interactive direction would not cause a violation of SO_2 AAQS.

Printout #4 shows the SO_2 impact of FPL Martin at 24.5 km in the direction of interaction with Osceola, 178° . This interaction does not occur in a direction influenced by any nearby sources, and the additional 19 ug/m^3 would not cause a violation of AAQS.

Table 5A also summarizes Printout #3, which demonstrates that TSP increments are not predicted to be exceeded.

The original PSD report contains model printouts which predict annual (arithmetic average) TSP impacts due to operation of the Osceola mill. By comparing Osceola's emission rates (Table 1), annual average NO_x impacts are estimated to be 3 ug/m^3 . Even when a background of 20 ug/m^3 is assumed, the predicted concentration is less than 25 percent of the AAQS.

Mr. Frank Kleeman
July 27, 1981
Page 2

BACKGROUND

The stack parameters and operating strategy for the proposed new source were designed to meet TSP AAQS with an assumed constant background of 40 ug/m^3 . In reality, background levels are not constant and are best described by a log-normal distribution; 40 ug/m^3 is at the 72-percentile level, well above the mean of 1978-80 PB-16 data. Since PB-16 is bordered on two sides by cane fields, any effects of cane field burning on air quality are already included in the measured values and need not be separately accounted for.

In a reply to a similar question with regard to the SCGC permit application (July 6, 1981 letter to Clair Fancy), it was described how daily concentrations at a single point could be described mathematically and the distribution functions of background and plant impacts combined.

When data from PB-16, collected during 1978 through 1980, were combined with predicted plant impacts, it was determined that the violation return period at the point of highest, second-highest impact for the SCGC mill was 111 years. Similar results would be expected from an analysis with Osceola emissions. This demonstrates that the proposed plant design will adequately protect AAQS at the level of background concentrations existing over the last 3 years.

This letter and enclosures may be submitted to DER in response to their request for additional information.

If you or DER have any questions, please do not hesitate to call or direct them to me.

Sincerely,



Michael H. Dybevic
Air Permitting and Meteorology

MHD/ljh

Enclosures

Table 5A. Ground Level Impacts of Osceola Sugar Mill Emissions ($\mu\text{g}/\text{m}^3$)

	SO ₂ *			TSP		NO _x †
	24-hour**	3-hour**	Annual††	24-hour**	Annual††	Annual††
Total Plant Impact (Boilers 2-6)	165	390	10	109	6	3
Plus Background	<u>20</u>	<u>20</u>	<u>20</u>	<u>40</u>	<u>40</u>	<u>20</u>
Total Air Quality Impact	185	410	30	149	46	23
Increment Consumption (Boilers 5 and 6 with Boiler 1 Impacts Subtracted)	59	136	4	27	2	—

* Based on 40 percent system loss for bagasse combustion over stoichiometric calculations from 0.2 percent total bagasse sulfur content.

† Estimated by scaling emission factors and impacts for SO₂.

** Highest, second-highest.

†† Arithmetic mean.

Source: ESE, 1981.

Section D Emissions Calculations

Particulate Emissions: Stack tests were conducted on Boiler #5
by So. FLA. ENVIRONMENTAL TESTING 12-31-79.

Particulate Emissions were determined as follows:

		Lbs/Hr	
		Steam Generated	Oil Used
Run No. <u>1</u>	<u>47.4</u> lbs/hr		
Run No. <u>2</u>	<u>44.8</u> " "		
Run No. <u>3</u>	<u>39.2</u> " "		
Average	<u>43.8</u> lbs/hr	<u>125,000</u>	<u>160</u>

$$\frac{43.8}{1} \times \frac{150,000}{125,000} = 52.6 \text{ lbs/hr @ } 150,000 \text{ lbs/hr design cap.}$$

$$\frac{52.6 \times 24 \times 128}{2000} = 81.3 \text{ Tons/yr Particulates}$$

Sulfur Oxide Emissions: (based on 40% removal in scrubber)

SO₂ Emissions, in Lbs/ton Bagasse burned = 24 X %S

$$\frac{80,000}{2000} \times 24 \times \underline{0.14} = 134 \text{ lbs/hr SO}_2 \text{ from Bagasse}$$

SO₂ Emissions, in Lbs/1000 gallons Residual Oil burned = 94.2 X %S

$$\frac{384}{8.0 \text{ lbs/gal}} = \text{gal/hr Oil burned } 48.0$$

$$\frac{48.0}{1000} \times 94.2 \times \underline{1.0} \%S = 4.5 \text{ lbs/hr SO}_2 \text{ from Oil}$$

$$\text{Total SO}_2 \text{ Emissions} = \underline{134} + \underline{4.5} = 138.5 \text{ lbs/hr}$$

$$\frac{138.5 \times 24 \times 128}{2000} = 212.7 \text{ tons/yr total SO}_2 \text{ Emissions}$$

NO_x Emissions:

NO_x Emissions, in Lbs/ton Bagasse burned = 1.20

$$\frac{80,000}{2000} \times 1.20 = 48.0 \text{ lbs/hr NO}_x \text{ from Bagasse}$$

NO_x Emissions, in Lbs/1000 gal Residual Oil burned = 22

$$\frac{384}{8.0 \text{ lbs/gal}} = 48.0 \text{ gal/hr Oil burned}$$

$$\frac{48.0}{1000} \times 22 = 1.0 \text{ lbs/hr NO}_x \text{ from Oil}$$

$$\text{Total NO}_x \text{ Emissions} = \underline{48.0} + \underline{1.0} = 49.0 \text{ lbs/hr}$$

$$\frac{49.0 \times 24 \times 128}{2000} = 75.3 \text{ tons/yr}$$

Section E Calculation of Scrubber Efficiency

Inlet Particulates loading to the scrubber was calculated utilizing emission tests performed on Boiler _____ by _____ on _____.

Test No. _____ Date _____ lbs/hr

Test No. _____ Date _____ lbs/hr

Test No. _____ Date _____ lbs/hr

Average (at _____ lbs/hr Steam production) = _____ lbs/hr

Average Emissions from Boiler _____ Scrubber = _____ lbs/hr
@ _____ lbs/hr steam production

_____ X _____ = _____ lbs/hr @ _____ lbs/hr steam prod.

Scrubber Efficiency = _____ X 100 = _____ %

Section C Emissions Calculations (continued)

Hydrocarbon Emissions:

From Bagasse = 2.0 lbs/ton

$$\frac{80,000}{2000} \times 2.0 = 80.0 \text{ lbs/hr. HC from Bagasse}$$

From Oil = 1.0 lb/1000 gal.

$$\frac{48.0}{1000} \times 1.0 = 0.04 \text{ lbs/hr. from Oil}$$

Total HC = 80.0 + 0.04 = 80.04 lbs/hr.

$$\frac{80.04 \times 24 \times 128}{2000} = 123 \text{ tons/yr. Hydrocarbons}$$

CO Emissions:

From Bagasse = 2.0 lbs/ton

$$\frac{80,000}{2000} \times 2.0 = 80.0 \text{ lbs/hr. from Bagasse}$$

From Oil = 5.0 lbs/1000 gal.

$$\frac{48.0}{1000} \times 5.0 = 0.2 \text{ lbs/hr. from Oil}$$

$$\frac{24 \times 80.2 \times 128}{2000} = 123 \text{ Tons/yr. Carbon Monoxide}$$

$80.0 + 0.2 = 80.2 \text{ LBS/hr TOTAL CO}$

Uncontrolled Emissions

Particulates:

From Bagasse = 16 lbs/ton

$$\frac{80,000}{2000} \times 16 = 640 \text{ lbs/hr.}$$

From Oil = 13 lbs/1000 gal.

$$\frac{48.0}{1000} \times 13 = 0.6 \text{ lbs/hr.}$$

Total = 640 + 0.6 = 640.6 lbs/hr.

$$\frac{640.6 \times 24 \times 128}{2000} = 984 \text{ tons/yr. Particulates.}$$

Osceola Farms Co. Boiler #6

BARRON INDUSTRIES

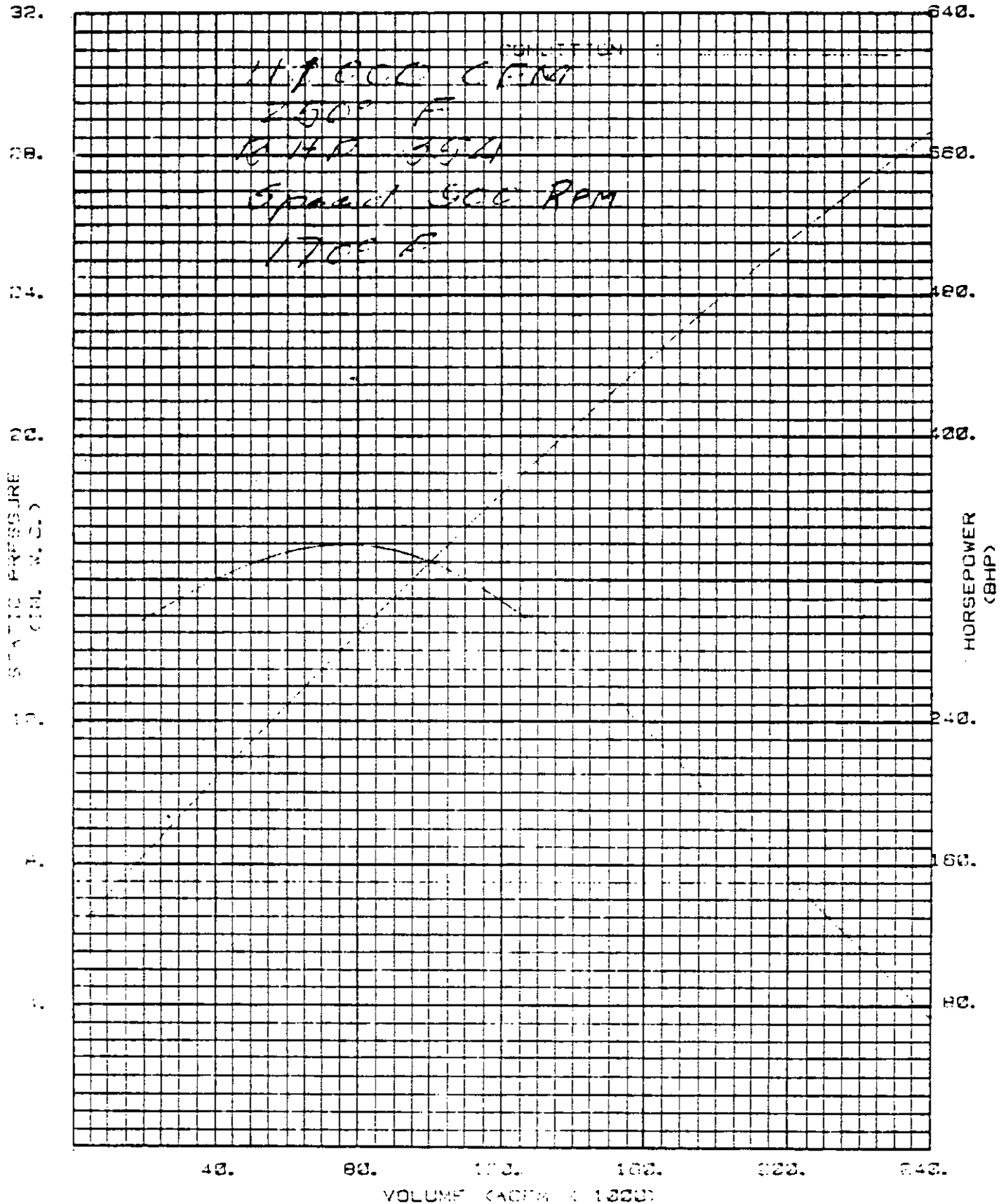
ENGINEERS & MANUFACTURERS

FAN SIZE 790
FAN SERIES T30A
FAN TYPE DI (92.00%) DW

COND. 1
DEN. (LB/CU. FT.) .0553
RPM 2900.

REF. IPS ENGINEERS, INC. OSCEOLA FARMS CO.

DATE: 12-3-60



PERFORMANCE CURVE

THE TRANE CO.
PROCESS DIVISION
MURRAY STEAM TURBINES
BURLINGTON, IOWA

MURRAY TURBINE SERIAL NO. 4127

old file 6 m 1/1

FRAME: 742U

INLET PRESSURE: 250 PSIG

INLET TEMPERATURE: 406 °FTT

EXHAUST PRESSURE: 15 PSIG

RPM: SEE CURVE

2.5

2.4

2.0

1.6

1.2

0.8

0.4

0

STEAM FLOW - 1000 LBS/HR

3600 RPM

5000 RPM

ALL HAND VALVES CLOSED

HORSEPOWER

100

200

300

400

500

600

700

800

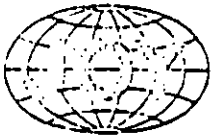
Osceola Farms Co.
#6 Fuel Oil Consumption

	1979	1980
(JANUARY) Enero	277,953 Gals	138,939 Gals
Febrero	113,582 Gals	155,322 Gals.
Marzo	149,650 Gals	136,975 Gals
Abril	132,423 Gals.	_____
Mayo	_____	_____
Junio	_____	_____
Julio	_____	_____
Agosto	_____	_____
Septiembre	_____	_____
Octubre	113,201 Gals	93,237
Noviembre	143,905 Gals	242,186
Diciembre	115,290 Gals	238,949
TOTAL	1,046,004.	1,005,608

7-13-1981

OSCEOLA FARMS CO.

<u>Boiler No.</u>	Maximum Emissions (lbs/hr.)					Maximum Heat Input (MM Btu/hr.)
	<u>P.M.</u>	<u>SO₂</u>	<u>NO_x</u>	<u>HC</u>	<u>CO</u>	
1	15.3	30.2	10.8	18.0	18.0	64.8
2	33.6	67.8	25.7	39.1	39.5	156.0
3	40.8	18.8	6.7	11.2	11.2	40.3
4	29.6	61.8	21.0	31.6	32.0	127.5
5	40.1	106.3	68.0	61.9	62.0	226.5
6	52.6	138.5	49.0	80.0	80.2	295.2



WESTERN PRECIPITATION DIVISION

JOY MANUFACTURING COMPANY
4565 COLORADO BOULEVARD
LOS ANGELES, CALIFORNIA 90039
Phone: (213) 240-2300

February 8, 1974

Florida Sugar Cane League, Inc.
P.O. Box 1148
Clewiston, Florida 33440

Attention: Mr. J. Nelson Fairbanks
Vice President & General Manager

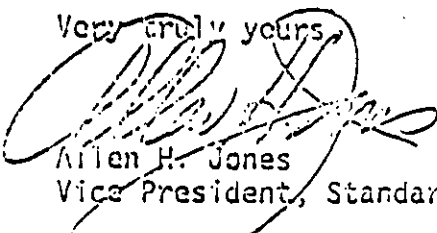
Gentlemen:

Confirming our conversations of January 30, 1974, we wish to present, herewith, the guarantees we are prepared to make to any member of the Sugar Cane League on the performance of our Type D "TURBULAIRE" Scrubber when used in conjunction with bagasse fired boilers.

With an inlet loading to the scrubber of 2 gr/dry standard CFM (DSCFM), we will guarantee a particulate outlet not to exceed .07 gr/DSCFM. If the condensables are to be included with particulate emission, we will then guarantee an outlet not to exceed .08 gr/DSCFM. These guarantees are based on operating the equipment at a pressure drop across the unit of not less than 5" water column (w.c.) and not more than 9" w.c. In addition, these guarantees are based on sampling with the EPA Train, Method 5, described in the Federal Register, Volume 36, No. 247, Thursday, December 23, 1971, copy enclosed.

The aforementioned guarantees are made on our equipment as originally designed or as modified with our approval. Any unauthorized modifications will abrogate these guarantees.

Very truly yours,


Allen H. Jones
Vice President, Standard Products

AMJ:js

Encl. EPA Train, Method 5.

cc: F. Arroyo - Arroyo Process Equipment
cc: L. Newton - Western Precipitation
cc: R. Fernandez - Western Precipitation

OSCEOLA FARMS CO.

RAW SUGAR FACTORY

INTERSECTION U. S. 98 & HATTON HWY.

September 14, 1981

TELEPHONE:
(305) 924-7156

CABLE: SUGAR

POST OFFICE BOX 679
PAHOKEE, FLORIDA 33476

~~BH~~
Bob



Mr. C.H. Fancy, Deputy Chief
Bureau of Air Quality Management
Florida Department of Environmental Regulation
Twin Towers Office Building
Room 616
2600 Blainstone Road
Tallahassee, Florida 32301

RE: Osceola Farms Co. - Pahokee
Bagasse Boiler # 6 - Construction Permit Application

Dear Mr. Fancy:

Confirming Mr. Frank Kleeman's phone conversation of September 14, 1981 with Mr. Bob King, we anticipate that the coming 1981/82 grinding season will encompass 137 days.

If I can be of any further assistance please do not hesitate to call me.

Very truly yours,

OSCEOLA FARMS CO.

Oscar F. Hernandez
Assistant Manager

OFH/io