Check Sheet

Company Name: U.S. Sugar Corporation
Permit Number: ~~AC 26-126~~ AC 26-126295
PSD Number: 26-126965
Permit Engineer:

Application:

- ☐ Initial Application
  - ☒ Incompleteness Letters
  - ☒ Responses
  - ☐ Waiver of Department Action
  - ☐ Department Response
  - ☐ Other

Cross References:
☐
☐
☐

Intent:

- ☒ Intent to Issue
- ☐ Notice of Intent to Issue
- ☒ Technical Evaluation
- ☒ BACT or LAER Determination
- ☒ Unsigned Permit

  Correspondence with:
  - ☐ EPA
  - ☐ Park Services
  - ☐ Other
- ☒ Proof of Publication
  - ☐ Petitions - (Related to extensions, hearings, etc.)
  - ☐ Waiver of Department Action
  - ☐ Other

Final Determination:

- ☒ Final Determination
- ☐ Signed Permit
- ☒ BACT or LAER Determination
  - ☐ Other

Post Permit Correspondence:

- ☐ Extensions/Amendments/Modifications
- ☒ Other

PS Form 3811, July 1983 447-845

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☒ Show to whom, [redacted].
2. ☐ Restricted Delivery.

3. Article Addressed to:
A. R. Mayo
United States Sugar Corporation
P.O. Drawer 1207
Clewiston, FL 33440

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number
P 408 531 576

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X A. R. Mayo

6. Signature – Agent
X

7. Date of Delivery
4-8-87

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

DOMESTIC RETURN RECEIPT

P 408 531 576

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to A. R. Mayo	
Street and No. United States Sugar Corp. P.O. Drawer 1207	
P.O., State and ZIP Code Clewiston, FL 33440	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return Receipt Showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date 4/6/87 AC 26-126965	

PS Form 3800, Feb. 1982

File Copy

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

April 1, 1987

DER
APR 3 1987
BAQM

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. A. R. Mayo
Senior Vice President
United States Sugar Corporation
Post Office Drawer 1207
Clewiston, Florida 33440

Dear Mr. Mayo:

Re: Modification of Conditions - Permit No. AC 26-126965

The department is in receipt of Mr. Peter Barquin's March 23, 1987, letter requesting the permit to construct boiler No. 4 be extended to allow the compliance tests to be conducted at the start of the next sugar production season. This request is acceptable and the expiration date is changed from July 1, 1987, to May 1, 1988.

A copy of this letter must be attached to the reference construction permit and shall become a part of that permit.

Sincerely,

Dale Twachtmann
Secretary

DT/ks

cc: David Knowles
Peter Barquin

Attachment

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

TO: file
FROM: Willard Hanks
SUBJECT: U. S. Sugar
DATE: 3/25/87

Peter Barquin, U. S. Sugar, sent letter to BAQM requesting an extension of the construction permit for the no. 4 boiler. Dates in letter are incorrect. U. S. Sugar will do compliance test by 12/31/87. They will mail applic for permit to operate by 1/31/88. (If application submitted 90 day prior to expiration, permit should be extended to 4/30/88)

Told Peter Barquin not necessary to correct letter, I understood what the timing needed was.

last para 1st pg. → ext. until 12/31/87 cond comp tes to Jan 31, 88 submit oper. permit

Peter Barquin
813 983-8121
ext. 2370
March 23
Boiler #4
Clewiston

UNITED STATES SUGAR CORPORATION
Post Office Drawer 1207 Clewiston, Florida 33440
Telephone: (813) 983-8121 Telex: 510-952-7753

March 23, 1987

Mr. Clair Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: U.S. Sugar Corporation
Clewiston Mill Boiler #4
Permit No. AC-26-126965

Dear Mr. Fancy:

As I discussed with your Mr. Willard Hanks over the phone on March 18th and 23rd, and previously in our meeting in Tallahassee, we are having difficulties bringing our #4 Boiler at the Clewiston Sugar House to its maximum permitted capacity under its new modified permit. This is probably due to problems with the fuel (bagasse) moisture since our grinding mills are partially worn as we approach the end of the crop. We have also found some combustion air leakages in the boiler that we are attempting to locate and correct but this may not be possible to do until after the end of the grinding season.

We shall continue to work to bring this boiler to capacity before the end of this crop but we would like to request an extension on the deadline for the compliance test and therefore the submittal of application for the Permit to Operate until the early part of next year since we are now less than two weeks away from the end of our current crop season and have no certainty that we will be able to bring this boiler to capacity to conduct the tests in the short time we have available.

For the above reasons we would like to request an extension until December 31, 1987 to conduct the compliance tests and until January 31 to submit the application for the new operation permit.

For your information the compliance test for this boiler for the original permit conditions for the 1986-87 crop have been conducted and submitted to the Department.

Very truly yours,

UNITED STATES SUGAR CORPORATION

Peter Barquin
Adm. Ass't. To Senior Vice President
Sugar Houses

PB/dsp

cc: Mr. Willard Hanks
Mr. Peter C. Cunningham
Mr. David Knowles

File copy

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

March 20, 1987

Mr. Peter C. Cunningham
Hopping, Boyd, Green, & Sams
Post Office Box 6526
Tallahassee, Florida 32314

Dear Mr. Cunningham:

Re: U.S. Sugar Corporation
Clewiston Mill Boiler No. 4
Permit No. AC 26-126965

Locating the meteorological instrument required by Specific Condition No. 14 of the referenced permit at the Research Center is acceptable to the department provided the instrument is installed in such a manner as to give the representative wind speeds at ground level for the area. We recommend the sensing component be installed at least: 10 meters above ground level; at a distance from any obstruction at least 10 times the height of the obstruction; and, 3 meters above any structure it may be located on (roof).

If you have any questions concerning the installation of this instrument, please call Shao-Hang Chu, BAQM meteorologist, at (904)488-1344.

Sincerely,

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

CHF/WH/s

cc: Shao-Hang Chu
David Knowles
Peter Barquin

Draft
Ltr
3-13-87

HOPPING BOYD GREEN & SAMS
ATTORNEYS AND COUNSELORS
SUITE 420, FIRST FLORIDA BANK BUILDING
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
(904) 222-7500

CARLOS ALVAREZ
BRIAN H. BIBEAU
ELIZABETH C. BOWMAN
WILLIAM L. BOYD, IV
RICHARD S. BRIGHTMAN
PETER C. CUNNINGHAM
WILLIAM H. GREEN
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ROBERT P. SMITH, JR.

JAMES S. ALVES
KATHLEEN BLIZZARD
ANNE W. CLAUSSEN
C. TIMOTHY GRAY
ELEANOR M. HUNTER
CHERYL G. STUART

OF COUNSEL
W. ROBERT FOKES

March 12, 1987

DE
MAR 12 1987
BAQM

BY HAND DELIVERY

Clair Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Re: U. S. Sugar Corporation
Clewiston Mill Boiler No. 4
Permit No. AC 26-126965

Dear Clair:

The Department recently issued the above referenced permit for U. S. Sugar Corporation's Clewiston Mill Boiler No. 4. Specific Condition 14 of the permit provides that the permittee shall maintain a meteorological instrument to record wind speed at the plant site. As we discussed last week, U. S. Sugar would prefer that the wind speed monitoring device be located at its Research Center, which is slightly more than one mile north of the Clewiston Mill. (See attached map.) This would allow measurement of wind speed at the same place as other meteorological data are collected and in the location where U. S. Sugar technicians are present.

If the Department agrees that the Research Center would be an appropriate location for the wind speed monitoring device, I would request that you confirm that installation of the device at the Research Center will be sufficient for compliance with Specific Condition 14 of the above referenced permit.

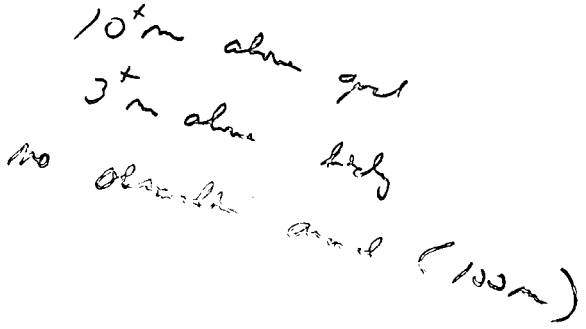
Please do not hesitate to call me if you have any questions about this matter.

Sincerely,

Peter C. Cunningham

PCC/gb

cc: Willard Hanks
David Knowles
Julia Costas
Aryan Mayo
Peter Barquin



HOPPING BOYD GREEN & SAMS
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C. TIMOTHY GRAY
ELEANOR M. HUNTER
CHERYL G. STUART

OF COUNSEL
W. ROBERT FOKES

February 9, 1987

DER
FEB 9 1987
BAQM

BY HAND DELIVERY

Clair Fancy
Deputy Chief
Bureau of Air Quality Management
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Re: U. S. Sugar Corporation
Clewiston Mill Boiler No. 4
Proposed Permit No. AC 26-126965

Dear Clair:

I am writing to correct an error in my letter to you of February 4, 1987 on the referenced proposed permit. As I have discussed with Willard Hanks of the Central Air Permitting Section staff, the revised language for Specific Condition 16 of the subject permit suggested in my letter inadvertently included the wrong steam production rate figure (369,000 lb/hr). The correct figure is 335,000 lb/hr (at 600 psig and 750° F).

Based on my discussion with Mr. Hanks, I understand that the Department is amenable to issuing the final permit with the following language in the second sentence of Specific Condition 16:

> As a condition to this permit, particulate matter and visible emissions tests shall be conducted concurrently on the boiler while it is operating at an average steam production rate of approximately 335,000 lb/hr at 600 psig and 750° F (approximately 707 million Btu/hr).

I further understand that the word "approximately" as used in this Specific Condition would allow compliance testing to be conducted at 90-100 percent of the steam production rate specified in the condition, consistent with Specific Condition 9 of the proposed permit.

I regret any inconvenience my error may have caused. Please do not hesitate to call me if you have any questions regarding the Boiler No. 4 permit.

Sincerely,

Peter C. Cunningham

PCC/gb

cc: Willard Hanks
A. R. Mayo
Peter Barquin

HOPPING BOYD GREEN & SAMS
ATTORNEYS AND COUNSELORS
SUITE 420, FIRST FLORIDA BANK BUILDING
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
(904) 222-7500

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ELEANOR M. HUNTER
CHERYL G. STUART

OF COUNSEL
W. ROBERT FOKES

February 4, 1987

DER
FEB 4 1987
BAQM

Clair Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Re: U. S. Sugar Corporation
Clewiston Mill Boiler No. 4
Permit No. AC 26-126965

Dear Clair:

I am writing on behalf of U. S. Sugar Corporation in regard to the above-referenced permit as proposed by the Department in its Intent to Issue dated January 16, 1987 and accompanying Technical Evaluation and Preliminary Determination. U. S. Sugar has reviewed the proposed permit for its Clewiston Boiler No. 4, and believes there are several provisions that require revision or merit clarification in the final permit. As you know, I have discussed these items Mr. Willard Hanks of the Central Air Permitting Section, and I believe we were able to reach agreement on virtually all of the provisions of concern to U. S. Sugar. By this letter I am confirming the matters discussed with Mr. Hanks, and memorializing the agreements we reached on changes to the permit language.

Page 1

The description of the increased production capacity for Boiler No. 4 appearing on the first page of the proposed permit could be misleading, as it refers to only one of the two steam temperature and pressure conditions under which the boiler may operate. Mr. Hanks suggested deleting the specific language dealing with the heat input and steam figures rather than adding a complete description of all of

the permitted steam conditions. U. S. Sugar finds this an acceptable approach, as Specific Condition 1 of the proposed permit clearly delineates the permitted heat input and steam production capacities under both steam conditions. Accordingly, the first sentence of the second paragraph on page one of the proposed permit would be revised to read as follows:

> Authorization to increase the heat input and steam production of the Foster wheeler boiler No. 4 at U. S. Sugar Corporation's existing sugar mill that is located near the intersection of W. C. Owens Avenue and Clewiston Street in Clewiston, Hendry County, Florida.

Specific Condition 8

The third sentence of this specific condition would require observation and logging of scrubber gas pressure drop "during the first season of operation at the higher steam production rate". As Mr. Hanks and I discussed, the reference to "the first season of operation" is somewhat ambiguous because of the likelihood that the final permit will be issued in the midst of the current season. Mr. Hanks suggested that the intent was to obtain the scrubber data for one season of operation following issuance of the permit authorizing a higher capacity for Boiler No. 4. Since boiler operation is limited to 160 days per crop season under the proposed permit, Mr. Hanks and I agreed that the language of the sentence in question might be changed to read as follows:

> During the first 160 days of operation following issuance of this construction permit, hourly readings of the gas pressure drop shall be taken and logged for each day that boiler No. 4 operates.

Similarly, the first sentence of the second paragraph of Specific Condition 8 would be revised by adding "following issuance of this construction permit" at the end of the sentence. Also, the fourth paragraph of Specific Condition 8 would be revised in the same manner as follows:

> Records and measurements required by this condition shall be obtained for the first 160 days of operation of Boiler No. 4 after issuance of this

> construction permit and copies of the records transmitted to the South Florida District and Bureau of Air Quality Management at the end of the season(s).

Following my discussion with Mr. Hanks, I talked with Peter Barquin of U. S. Sugar about this permit provision. Mr. Barquin is presently compiling information on Boiler No. 4 scrubber parameters logged during last season, and he indicated that the very considerable volume of data and paper involved makes the task extremely burdensome. In view of this, I would request that the Department consider reducing the time period during which the scrubber parameters must be observed and logged to 30 days after issuance of the final permit. This would hopefully allow completion of the task during the current season. If 30 days is not acceptable to the Department, U. S. Sugar requests some other period less than 160 days. In any event, the language suggested above would be an improvement over that in the proposed permit.

Specific Condition 13

This condition would limit sulfur dioxide emissions from Boiler No. 4 while burning 100% bagasse to 0.166 lb/million Btu heat input. As I discussed with Mr. Hanks, this figure is considerably lower than the limit on the original Boiler No. 4 permit (0.25 lb/MM btu), and is also lower than the figure for 100% bagasse burning stated in U. S. Sugar's application to increase Boiler No. 4's capacity (0.19 lb/MM Btu). In light of Mr. Hanks's explanation of the 0.166 figure, U. S. Sugar is prepared to accept such a sulfur dioxide limit provided that language such as the following in the Technical Evaluation for the proposed permit is incorporated into Specific Condition 13 of the final permit:

> [The Department] will reevaluate this reduced [sulfur dioxide] standard, without penalty to the applicant, if Technical data is submitted to the Department prior to the expiration of this construction permit that confirms the emissions from bagasse are different under the two operation modes (bagasse only v. bagasse/oil combination).

Mr. Hanks stated that such a provision could be added to the permit condition.

I would also note here that the proposed permit contains two specific conditions numbered 13.

Specific Condition 16

As written, the second sentence of this condition would require particulate matter and visible emissions compliance testing with Boiler No. 4 "operating at its maximum permitted heat input (777.2 MM Btu/hr)". Mr. Hanks indicated that the Department is willing to revise this sentence in recognition that the 777.2 million Btu/hr figure is a peak that will be rarely if ever reached, and of the impossibility of operating a bagasse fired boiler at an exact capacity level at any given time. The following language is suggested:

> As a condition of this permit, particulate matter and visible emissions tests shall be conducted concurrently on the boiler while it is operating at an average steam production rate of approximately 369,000 lb/hr (approximately 707 million Btu/hr).

Based on my discussions with Mr. Hanks, it is U. S. Sugar's understanding that the word "approximately" as used in this condition would allow compliance testing to be conducted at 90-100 percent of the capacity specified, consistent with the language of Specific Condition 9 of the proposed permit.

Testing Requirements

Because certain of the permit provisions on compliance testing might be confusing, I would like to confirm U. S. Sugar's understanding on this point as agreed with Mr. Hanks. The only compliance testing definitely required during the term of the proposed construction permit would be for particulate matter and visible emissions, pursuant to Specific Condition 16. In accordance with the first sentence of Specific Condition 16, compliance with all other emission limits (i.e., those for SO_2, NO_x, CO and VOC) may be based on emission factors established by previous EPA reference method tests on Boiler No. 4. We understand this

to mean that the language relating to compliance testing for SO_2 (Specific Condition 13), CO and VOC (the second Specific Condition 13) and NO_x (Specific Condition 15) is not intended to impose a requirement to conduct a compliance test under the construction permit if U. S. Sugar wishes to rely on previous test results for these pollutants. Mr. Hanks confirmed our understanding on this point, and this letter will serve to memorialize that agreement.

Technical Evaluation

There is one portion of the Technical Evaluation that merits comment because as written it might cause confusion. In section I.B. of the Technical Evaluation document, the statement is made that "Heat input would increase from 545.5 to 777.2 million Btu/hr." This is somewhat misleading, as the original construction permit and current operating permit for Boiler No. 4 refer to the heat input figure of 545.5 as a "six hour average", while the 777.2 figure under the proposed permit is a one hour average. The appropriate comparison would be between heat input rates of 545.5 million Btu/hr and 706.6 million Btu/hr, as both are six hour averages.

In closing, I would like to thank you and Mr. Hanks for your consideration in this permitting effort. U. S. Sugar appreciates the expeditious handling of the permit to date, and would emphasize how important it is to obtain the final permit as soon as possible.

Please call me if there are any questions about this matter.

Sincerely,

Peter C. Cunningham

PCC/gb

cc: Willard Hanks
A. R. Mayo
Peter Barquin

HOPPING BOYD GREEN & SAMS
ATTORNEYS AND COUNSELORS
SUITE 420, FIRST FLORIDA BANK BUILDING
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
(904) 222-7500

CARLOS ALVAREZ
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ELEANOR M. HUNTER
CHERYL G. STUART

OF COUNSEL
W. ROBERT FOKES

February 4, 1987

DER
FEB 4 1987
BAQM

BY HAND DELIVERY

Dale H. Twachtmann, Secretary
c/o Office of General Counsel
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Re: U. S. Sugar Corporation
Clewiston Mill Boiler No. 4
Permit No. AC 26-126965

Dear Secretary Twachtmann:

On January 22, 1987, U. S. Sugar Corporation received the Department's Intent to Issue the above-referenced air construction permit, which would authorize an increase in the production capacity of Boiler No. 4 at its Clewiston Mill. The proposed permit was issued by the Department's Bureau of Air Quality Management, along with a Technical Evaluation and Preliminary Determination. Pursuant to Florida Administrative Code Rule 17-103.155 and the Intent to Issue, U. S. Sugar has until February 5, 1987 to file a petition for administrative proceedings regarding the Department's Intent to Issue Permit No. AC 26-126965 ("the proposed permit").

I am writing on behalf of U. S. Sugar Corporation to request an extension of twenty-eight (28) days, to and including March 5, 1987, in which to file a petition for administrative proceedings regarding the proposed permit. This request is made pursuant to Florida Administrative Code Rule 17-103.070, which provides that a timely request for extension of time shall toll the running of the time period in which to file an appropriate petition. As good cause for granting the requested extension of time for filing, U. S. Sugar would show the following:

1. The proposed permit would authorize an increase in the production capacity of an existing bagasse-fired boiler previously permitted by the Department. The proposed permit contains eighteen specific conditions, and U. S. Sugar believes several of the permit provisions should be revised or are in need of clarification.

2. I recently met with staff of the Bureau of Air Quality Management's Central Air Permitting Section to discuss U. S. Sugar's concerns regarding the proposed permit. Based on that discussion, it appears that virtually all of my clients concerns have been satisfactorily resolved. My letter to Mr. Clair Fancy confirming the points of agreement reached regarding changes to the proposed permit is being submitted concurrently with this request for extension of time.

3. This request is filed as a protective measure to avoid waiver of U. S. Sugar's rights to challenge any provision of the proposed permit. Grant of this request will allow the parties an opportunity to conclude discussions of the permit conditions and to achieve a mutually acceptable resolution of U. S. Sugar's concerns without the need for initiation of formal administrative proceedings.

I hereby certify that I have spoken with Julia Cobb Costas, Assistant General Counsel for the Department, and that she is in agreement with the grant of this request.

Accordingly, I respectfully request that you formally extend the time for filing of a petition for administrative proceedings in regard to the Department's proposed agency action as embodied in its Intent to Issue Permit No. AC 26-126965 to and including March 5, 1987.

Sincerely,

Peter C. Cunningham

PCC/gb

cc: Julia Cobb Costas, Esquire
Clair Fancy
Willard Hanks
A. R. Mayo

UNITED STATES SUGAR CORPORATION
Post Office Drawer 1207 Clewiston, Florida 33440
Telephone: (813) 983-8121 Telex: 510-952-7753

January 27, 1987

DER
JAN 28 1987
BAQM

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

Dear Mr. Fancy:

We are enclosing Proof of Publication affidavit certifying that the Notice of Intent forwarded to us with your January 16, 1987 letter was duly published in the advertising section of the January 23, 1987 issue of The Palm Beach Post.

Very truly yours,

UNITED STATES SUGAR CORPORATION

A. R. Mayo
Senior Vice President
Sugar Houses

ARM:jt
Enclosure

cc: Mr. Peter Cunningham

THE PALM BEACH 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 Barbara M. McCord who on oath says that she/he is Class. Adv. Mgr. of The Palm Beach 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 intent

in the ---Court, was published in said newspaper in the issues of January 23, 1987

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 she/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.

Barbara M. McCord

Sworn to and subscribed before me this 23 day of January A.D. 1987

Karen M. McClinton

NOTARY PUBLIC, STATE OF FLORIDA
MY COMMISSION EXP. NOV 15,1988
BONDED THRU GENERAL INS. UND.

NO. 705718
State of Florida
Department of
Environmental Regulation
Notice of Intent

The Department gives notice of its intent to issue a permit to United States Sugar Corporation to increase the steam production of its bagasse/oil fired boiler No. 4 at their existing sugar mill in Clewiston, Hendry County, Florida. A revised determination of best available control technology (BACT) was not required.

Persons whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative determination (hearing) in accordance with Section 120.57, Florida Statutes. The petition must conform to the requirements of Chapters 17-103 and 28-5, Florida Administrative Code, and must be filed (received) in the Department's Office of General Counsel, 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Failure to file a petition within this time period constitutes a waiver of any right such person has to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the proposed agency action. Therefore, persons who may not wish to file a petition may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Rule 28-5.207, Florida Administrative Code, at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of Administrative Hearings, Department of Administration, 2009 Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32301. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

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

Dept. of
Environmental Regulation
Bureau of Air
Quality Management
2600 Blair Stone Road
Tallahassee, Florida
32399-2400

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

Municipal Library
630 South Main Street
Belle Glade, Florida 33430

Any person may send written comments on the proposed action to Mr. Bill Thomas at the department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the department's final determination.

Pub: The Palm Beach Post
January 23, 1987

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

January 16, 1987

Municipal Library
530 South Main Street
Belle Glade, Florida 33430

Attention: Librarian

RE: Preliminary Determination - U. S. Sugar Corporation
Boiler No. 4 Modification - Hendry County

The Bureau of Air Quality Management needs to make the enclosed information available for public inspection pursuant to Chapter 17-2, Florida Administrative Code. A notice directing people to the library will be published in a local newspaper in the near future. The information must be available upon request for a period of at least 14 days from the notice date. At the end of the period, we will forward to you a Final Determination on the permit application.

We appreciate your help in providing this valuable public service, and your assistance does not necessarily constitute an endorsement of the project. Should you have any questions, please call me at (904)488-1344.

Sincerely,

Patty Adams

Patty Adams
Staff Assistant
Bureau of Air Quality
Management

pa

Enclosure

Final Determination

The Technical Evaluation and Preliminary Determination for the proposed modification to U.S. Sugar Corp.'s No. 4 boiler was distributed on January 16, 1987. Copies of the evaluation were available for public inspection at the Municipal Library in Belle Glade and the department's offices in Ft. Myers and Tallahassee. The Notice of Proposed Agency Action on the permit application was published in The Palm Beach Post on January 23, 1987.

Mr. Peter Cunningham, attorney for the permittee, met with the bureau to discuss several issues his client was concerned with. All issues were resolved, in principal, as confirmed in Mr. Cunningham's February 4, 1987 letter. In response to these comments, the draft permit was revised as follows.

1. The description of the modification was reworded.

2. Specific Condition No. 8 was revised to relax the quantity of special records of scrubber parameters required by the permit and to clarify over what time period the data was to be collected.

3. The statement in the Technical Evaluation on the department's agreement to reevaluate the sulfur dioxide standard for bagasse without penalty to the permittee was incorporated in Specific Condition No. 12.

4. Specific Condition No. 16 was reworded to clarify the operating condition of the boiler during the compliance tests.

The final action of the department will be to issue the permit with the changes listed above.

attachment: February 4, 1987 letter

PS Form 3811, July 1983 447-845

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Mr. A. R. Mayo
United States Sugar Corp.
P. O. Drawer 1207
Clewiston, FL 33440

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number
P 408 531 162

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X [signature]

6. Signature – Agent
X

7. Date of Delivery
2-19-87

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

DOMESTIC RETURN RECEIPT

P 408 531 162

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. A. R. Mayo	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return Receipt Showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date 2/17/87	

PS Form 3800, Feb. 1982

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

Mr. A. R. Mayo
Senior Vice President
Sugar Houses
United States Sugar Corporation
Post Office Drawer 1207
Clewiston, Florida 33440

February 17, 1987

Enclosed is Permit Number AC 26-126965 to United States Sugar Corporation which authorizes an increase in heat input and steam production of boiler No. 4 at the applicant's sugar mill in Clewiston, Hendry County, Florida. This permit is issued pursuant to Section 403, Florida Statutes.

Any Party to this permit has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this permit is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Copies furnished to:

David A. Buff, P.E.
Peter C. Cunningham
David Knowles
Wayne Aronson

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all copies were mailed before the close of business on Feb. 17, 1987 to the listed persons.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Patricia G. Adams — Clerk

Feb. 17, 1987 — Date

Final Determination

United States Sugar Corporation
Clewiston, Florida
Hendry County

Boiler No. 4 Modification
Permit No. AC 26-126965

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

February 11, 1987

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

PERMITTEE:
U.S Sugar Corporation
P. O. Drawer 1207
Clewiston, Florida 33440

Permit Number:AC 26-126965
Expiration Date: July 1, 1987
County: Hendry
Latitude/Longitude: 26° 44' 30"N
80° 56' 15"W
Project: Boiler No. 4 Modification

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

Authorization to increase the heat input and steam production of the Foster Wheeler boiler No. 4 at U.S. Sugar Corporation's existing sugar mill that is located near the intersection of W. C. Owens Avenue and Clewiston Street in Clewiston, Hendry County, Florida. The UTM coordinates of this site are zone 17, 506.1 km E and 2956.9 km N.

The modification shall be in accordance with the application (cover letter dated October 28, 1986) received November 3, 1986, and the additional information submitted in the Mr. Mayo's letter dated December 4, 1986, except for the changes mentioned in the Technical Evaluation and Preliminary Determination and listed as Specific Conditions in this permit to construct.

Attachments:

1. U.S. Sugar Application received November 3, 1986.

2. U.S. Sugar letter dated December 4, 1986.

PERMITTEE:
U.S. Sugar Corporation

Permit Number: AC 26-126965
Expiration Date: July 1, 1987

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 Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement 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 applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.722(5), 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. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use 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.

5. 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, unless specifically authorized by an order from the department.

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. 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 noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

GENERAL CONDITIONS:

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.

9. 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 Sections 403.73 and 403.111, Florida Statutes.

10. The 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.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Compliance with New Source Performance Standards.

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Steam production, steam pressure, steam temperature, heat input, and bagasse consumption shall not exceed the following:

Steam press.	Steam temp. °F	time	Steam Prod. lb/hr	Heat input 10^6 Btu/hr	Bagasse Consum. lbs/hr-wet
850	900	Max.	346,231	777.2	215,889
		6-hr avg	314,757	706.6	196,264
600	750	Max.	368,500	777.2	215,889
		6-hr avg	335,000	706.6	196,264

*Maximum is a 1 hour average.

PERMITTEE:
U.S. Sugar Corporation

Permit Number: AC 26-126965
Expiration Date: July 1, 1987

SPECIFIC CONDITIONS:

2. Heat input from No. 6 residual oil shall not exceed 225 million Btu per hour which is approximately equivalent to 1,500 gallons per hour of oil and 150,000 pounds per hour of steam. The boiler shall be built so that not more than two burners with two oil guns each (total of four oil guns) can be installed with a total maximum capacity not to exceed the permitted oil input.

3. During any 12 month period, the maximum quantity of No. 6 residual oil burned in boiler No. 4 shall not exceed 500,000 gallons.

4. During any 24 hour period, not more than 40,800 gallons of fuel oil shall be burned in all stationary fuel oil burning equipment at the plant. All permits to operate other oil burning equipment at this plant shall be revised to include this limitation prior to the issuance of a permit to operate boiler No. 4.

5. During any 3 hour period, not more than 6,300 gallons of fuel oil shall be burned in all stationary fuel oil burning equipment at the plant. All permits to operate other oil burning equipment at this plant shall be revised to include this limitation prior to the issuance of a permit to operate boiler No. 4.

6. All stationary fuel oil burning equipment at the plant shall be equipped with integrating fuel oil flow meters or continuous recorders to measure the amount of fuel oil consumed by the equipment. Oil meter readings on all oil consuming equipment shall be read and logged at least once every three hours, unless oil consumption for the equipment is recorded continuously, and these records shall be kept for at least five years for department inspection. Each meter shall be calibrated annually by a method approved by the department.

7. A test shall be made on Boiler No. 4 to determine its actual thermal efficiency in accordance with the ASME short-form procedure each time the operating permit for this boiler is renewed. The test shall be done while the tubes are clean and within 14 days of the compliance test. A current report on the thermal efficiency test must be included with the application to operate this boiler.

SPECIFIC CONDITIONS:

8. The scrubber controlling the emissions from Boiler No. 4 which was built to Joy Manufacturing Company's specifications for their Turbulaire, Type D, Size 200 spray impingement scrubber shall be equipped with instruments to measure the gas pressure drop and pH of the scrubber water. Instruments to continuously record the scrubber water pressure and volumetric flow shall also be provided. During the first 160 days of operation following the issuance of this construction permit, one reading every 4 hours of the gas pressure drop shall be taken and logged for each day that boiler No. 4 operates. If any reading is twenty-five percent below the average pressure drop recorded during the compliance test, the department may require a compliance test at the lower pressure drop and may also require the installation of an instrument to continuously measure and record the gas pressure drop.

Readings every 4 hours of the pH of the scrubber water shall be taken and logged for each day during which bagasse is burned in boiler No. 4 during its first 160 days of operation following issuance of this construction permit. The department will be notified if chemicals are used to adjust pH. If any pH value falls more than ten percent below the pH that existed during the compliance test for sulfur dioxide, the department may require the installation of an instrument to continuously measure and record scrubber water pH.

During compliance testing, the scrubber parameters shall be measured and recorded at 15 minute intervals.

Records of the measurements required by this condition shall be obtained for the first 160 days of operation of boiler No. 4 after issuance of this construction permit and copies of the records transmitted to the South Florida District and Bureau of Air Quality Management at the end of the season(s).

After review of the 160 days of data, the Bureau of Air Quality Management and the South Florida District will establish the scrubber parameters to be monitored and the frequency of monitoring. These requirements shall become a condition to any permit to operate issued to boiler No. 4. The records required by the permit to operate shall be kept for five years for agency inspection.

SPECIFIC CONDITIONS:

9. Particulate matter emissions from boiler No. 4 shall not exceed 0.150 lb/million Btu heat input for bagasse fuel or 0.10 lb/million Btu heat input for No. 6 residual oil fuel. In event that both fuels are burned concurrently, the allowable particulate matter emissions shall be prorated from the allowable standards for each fuel by their respective heat inputs. Compliance with the particulate matter standards shall be determined by EPA Reference Methods 1, 2, 3, 4, and 5 as described in 40 CFR 60, Appendix A. The compliance test results shall be calculated by assuming the thermal efficiency of boiler No. 4 is 55 percent, or any new method subsequently adopted by department rule. For informational purposes only, the particulate matter emission rate shall also be calculated by utilizing both the F factor (for each compliance test) and the short term ASME boiler efficiency test results (once every five years). Scrubber parameters listed in Specific Condition No. 8 shall be recorded every 15 minutes or continuously during the compliance test.

All compliance tests shall be conducted while the boiler is operating within 10 percent of its maximum or permitted capacity, whichever is lower. The South Florida District office shall be notified 15 days prior to any compliance test.

10. Visible emissions from boiler No. 4 shall not exceed 20 percent opacity except that 40 percent opacity is allowed for 2 minutes during any hour. Compliance with the standard shall be determined by DER Method 9 as described in Chapter 17-2, FAC. The particulate matter emissions and visible emissions shall be determined concurrently. Under circumstances when this is not feasible, the Company shall obtain prior approval from the South Florida District to conduct the tests at separate times. In such circumstances, the tests shall be conducted as close to each other as is feasible.

11. Any No. 6 residual fuel oil burned in this boiler shall contain no more than 2.50 percent sulfur and shall be replaced during the season in which it is burned with fuel oil containing no more than 1.50 percent sulfur. Compliance with this condition shall be determined from certified analysis of the replacement oil by ASTM Method D-129. Records of the quantity and analysis of fuel oil consumed in boiler No. 4 and invoices for the oil purchased shall be kept for a minimum of five years for regulatory agency inspection.

SPECIFIC CONDITIONS:

12. Sulfur dioxide emissions from boiler No. 4, while it is burning 100 percent bagasse fuel, shall not exceed 0.166 lb/million Btu heat input as determined by EPA Method 6 as described in 40 CFR 60, Appendix A. The compliance test results shall be calculated by assuming the thermal efficiency of Boiler No. 4 is 55 percent, or any new method subsequently adopted by department rule. The department will reevaluate this sulfur dioxide standard, without penalty to the applicant, if technical data is submitted to the department prior to the expiration of this construction permit that confirms the emissions from bagasse are different under the two operation modes (bagasse only versus bagasse/oil combination). For informational purposes only, the sulfur dioxide emission rate shall also be calculated by utilizing both the F factor (for each compliance test) and the short term ASME boiler efficiency test results (once every five years). Scrubber parameters listed in Specific Condition No. 8 shall be recorded every 15 minutes or continuously during the compliance test.

All compliance tests shall be conducted while the boiler is operating within 10 percent of its maximum or permitted capacity, whichever is lower. The South Florida District Office shall be notified 15 days prior to any compliance test.

Sulfur dioxide emissions from boiler No. 4, while it is burning a mixture of oil and bagasse, shall not exceed 680 lb/hr.

13. Emissions of carbon monoxide and volatile organic compounds shall be maintained at the lowest possible level through the implementation of an Operation and Maintenance plan that is approved by the department. Emissions of carbon monoxide shall not exceed 0.25 lb/million Btu as determined by EPA Method 10. Emissions of volatile organic compounds shall not exceed 1.7 lb/ton of wet bagasse as determined by EPA Method 25. These test methods are described in 40 CFR 60, Appendix A. Compliance tests for these pollutants will not be required if the visible emissions from boiler No. 4 are below 20 percent opacity.

14. Visible emissions from the bagasse handling systems shall not exceed 10 percent opacity over any 6 minute period as measured by EPA Reference Method 9, provided, however, that this visible emissions limit shall not apply during periods of high winds (wind speed of 18 miles per hour or greater) if reasonable precautions (covered conveyors, windbreaks, and the height of drop points are minimized) to control fugitive emissions have been taken. The Company shall maintain a meteorological instrument to record the wind speed at the plant site.

PERMITTEE:
U.S. Sugar Corporation

Permit Number: AC 26-126965
Expiration Date: July 1, 1987

SPECIFIC CONDITIONS:

15. Nitrogen oxides emissions, expressed as NO_2, shall not exceed 192.4 lb/hr (max.) and 180.7 lb/hr (6 hr avg.) as determined by EPA Reference Method 7 described in 40 CFR 60, Appendix A. After the initial compliance test, the Company may substitute an Operation and Maintenance plan that is approved by the department that optimized the NO_x emissions for the compliance tests specified in this specific condition if the initial Method 7 test show compliance.

16. Compliance with all emission standards for boiler No. 4, except particulate matter and visible emissions, may be based on emission factors established by previous EPA reference method tests on this boiler. As a condition of this permit, particulate matter and visible emissions tests shall be conducted concurrently on the boiler while it is operating at its average steam production rate of approximately 315,000 lbs/hr of 850 psig stream or 335,000 lbs/hr of 600 psig steam (approximately 707 MMBtu/hr). The applicant will demonstrate compliance with the conditions of the construction permit and submit a complete application for a permit to operate to the South Florida District Office 90 days prior to the expiration date of this construction permit. The applicant may continue to operate in compliance with all terms of this construction permit until its expiration date.

17. Any permit to operate issued for Boiler No. 4 will limit operation to 160 days per season; require the scrubber to be operated at a six hour average pressure drop not less than 90 percent of the six hour average pressure drop that existed during the particulate matter test that showed compliance or not less than 75 percent of the average six hour pressure drop at any time; require, as a minimum, annual particulate matter and visible emission tests; an annual operation report which will include the amount of oil burned at the plant to determine compliance with the limits on oil usage in this permit, and the sulfur content of the residual oil purchased for the season; and a monthly summary of the scrubber parameters listed in Specific Condition No. 8.

Issued this 16 day of Feb., 1987

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

Dale Twachtmann, Secretary

____ pages attached.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

FOR ROUTING TO OTHER THAN THE ADDRESSEE

To: _____ LOCTN: _____
To: _____ LOCTN: _____
To: _____ LOCTN: _____
FROM: _____ DATE: _____

TO: Dale Twachtmann

THRU: Howard Rhodes

FROM: Clair Fancy

DATE: February 16, 1987

SUBJ: Approval of Air Construction Permit

Attached for your approval and signature is one air construction permit to United States Sugar Corporation to authorize an increase in heat input and steam production of boiler No. 4 at the applicant's sugar mill in Clewiston, Hendry County, Florida. All controversies regarding this have been resolved by the bureau.

Day 90, after which the permit would be issued by default, is March 30, 1987.

The bureau recommends your approval and signature.

CF/ks

Attachment

PS Form 3811, July 1983 447-845

DOMESTIC RETURN RECEIPT

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Mr. A. R. Mayo
U. S. Sugar Corp.
P. O. Box 1207
Clewiston, FL 33440

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number
P 408 530 597

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X

7. Date of Delivery 1-22-87

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

P 408 530 597

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

PS Form 3800, Feb. 1982

Sent to	Mr. A. R. Mayo
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return Receipt Showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	1/16/87

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

January 16, 1987

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. A. R. Mayo
Senior Vice President
United States Sugar Corporation
Post Office Drawer 1207
Clewiston, Florida 33440

Dear Mr. Mayo:

Attached is one copy of the Technical Evaluation and Preliminary Determination, and proposed permit to increase steam production of boiler No. 4 at your existing sugar mill in Clewiston, Hendry County, Florida.

Please submit, in writing, any comments which you wish to have considered concerning the department's proposed action to Mr. Bill Thomas of the Bureau of Air Quality Management.

Sincerely,

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

CHF/pa

Attachments

cc: David Knowles
Peter Cunningham
Wayne Aronson

State of Florida
Department of Environmental Regulation
Notice of Intent

The Department gives notice of its intent to issue a permit to United States Sugar Corporation to increase the steam production of the bagasse/oil fired boiler No. 4 at their existing sugar mill in Clewiston, Hendry County, Florida. A revised determination of best available control technology (BACT) was not required.

Persons whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative determination (hearing) in accordance with Section 120.57, Florida Statutes. The petition must conform to the requirements of Chapters 17-103 and 28-5, Florida Administrative Code, and must be filed (received) in the Department's Office of General Counsel, 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Failure to file a petition within this time period constitutes a waiver of any right such person has to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the proposed agency action. Therefore, persons who may not wish to file a petition may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Rule 28-5.207, Florida Administrative Code, at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of Administrative Hearings, Department of Administration, 2009, Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32301. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

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

Dept. of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

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

Municipal Library
530 South Main Street
Belle Glade, Florida 33430

Any person may send written comments on the proposed action to Mr. Bill Thomas at the department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the department's final determination.

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permit by:

United States Sugar Corporation
Post Office Drawer 1207
Clewiston, Florida 33440

DER File No. AC 26-126965

INTENT TO ISSUE

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above. The Department is issuing this Intent to Issue for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, United States Sugar Corporation, applied on November 3, 1986, to the Department of Environmental Regulation for a permit to increase the steam production of the bagasse/oil fired boiler No. 4 at their existing mill in Clewiston, Hendry County, Florida.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes and Florida Administrative Code Rules 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that an air construction permit was needed for the proposed work.

Pursuant to Section 403.815, F.S. and DER Rule 17-103.150, FAC, you (the applicant) are required to publish at your own expense the enclosed Notice of Proposed Agency Action on permit application. The notice must be published one time only in a section of a major local newspaper of general circulation in the county in which the project is located and within thirty (30) days from receipt of this intent. Proof of publication must be provided to the Department within seven days of publication of

the notice. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S. A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. Petitions must comply with the requirement of Florida Administrative Code Rules 17-103.155 and 28-5.201 (copies enclosed) and be filed with (received by) the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant must be filed within fourteen (14) days of receipt of this intent. Petitions filed by other persons must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this intent, whichever first occurs. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes, concerning the subject permit application. Petitions which are not filed in accordance with the above provisions will be dismissed.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Copies furnished to:

A. R. Mayo
David Knowles
Peter Cunningham
Wayne Aronson

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF INTENT TO ISSUE and all copies were mailed before the close of business on January 16, 1987.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Patricia S Adams
Clerk

Jan. 16, 1987
Date

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.

of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32301. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to an administrative determination (hearing) under Section 120.57, F.S.

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(4) Notice to substantially affected persons concerning applications for Department permits is an essential and integral part of the state environmental licensing process. Therefore, no application for a permit for which publication of notice is required shall be granted until and unless proof of publication of Notice is furnished to the appropriate Department permitting office.

(5)(a) Any applicant or person benefiting from the Department's action may elect to publish notice of proposed agency action in the manner provided by subsection (2) or (3). Any person who elects to publish notice of proposed agency action, upon presentation of proof of publication to the Department, prior to final agency action, shall be entitled to the same benefits under this rule as a person who is required to publish notice of proposed agency action. Since persons whose substantial interests are affected by a Department decision on a permit application may petition for an administrative proceeding within fourteen (14) days after receipt of notice and since, unless notice is given or published as prescribed in this rule, receipt of notice can occur at any time, the applicant or persons benefiting from the Department's action cannot justifiably rely on the finality of the Department's decision without the notice having been duly given or published.

(b) The notices required by this rule may be combined with other notices required by the Department pursuant to Chapter 403, 376, or 253, F.S., or Chapter 17, FAC.

(c) The provisions of this section shall also apply to the permitting of hazardous waste facilities, but only to the extent it is consistent with Chapter 17-30, Part IV, FAC. Whenever Chapter 17-30, Part IV, FAC, provides for a different time or notice procedure than that set forth in this section the time and notice provisions of Chapter 17-30 shall govern.

(6) Failure to publish any notice of application, notice of proposed agency action, or notice of agency action required by the Department shall be an independent basis for the denial of a permit.

Specific Authority: 120.53, 403.0876, 403.815, F.S. Law Implemented: 120.53, F.S. History: New 9-20-79, Amended 4-28-81, Transferred from 17-1.62 and Amended 6-1-84.

17-103.155 Petition for Administrative Hearing; Waiver of Right to Administrative Proceeding.

(1)(a) Any person whose substantial interests may be affected by proposed or final agency action may file a petition for administrative proceeding. A petition shall be in the form required by this Chapter and Chapter 28-5, FAC, and shall be filed (received) in the Office of General Counsel of the Department within fourteen (14) days of receipt of notice of proposed agency action or within fourteen (14) days of receipt of notice of

agency action whenever there is no public notice of proposed agency action. In addition to the requirements of Rule 28-5.201, FAC, the Petition must specify the county in which the project is or will be located.

(b) Failure to file a petition within fourteen (14) days of receipt of notice of agency action or fourteen (14) days of receipt of notice of proposed agency action, whichever notice first occurs, shall constitute a waiver of any right to request an administrative proceeding under Chapter 120, F.S.

(c) When there has been no publication of notice of agency action or notice of proposed agency action as prescribed in Rule 17-103.150, FAC, a person who has actual knowledge of the agency action or has knowledge which would lead a reasonable person to conclude that the Department has taken final agency action, has a duty to make further inquiry within fourteen (14) days of obtaining such knowledge by contacting the Department to ascertain whether action has occurred. The Department shall upon receipt of such an inquiry, if agency action has occurred, promptly provide the person with notice as prescribed by Rule 17-103.150, FAC. Failure of the person to make inquiry with the Department within fourteen (14) days after obtaining such knowledge may estop the person from obtaining an administrative proceeding on the agency action.

(2)(a) "Receipt of notice of agency action" means receipt of written notice of final agency action, as prescribed by Department rule, or the publication, pursuant to Department rule, of notice of final agency action, whichever first occurs.

(b) "Receipt of notice of proposed agency action" means receipt of written notice (such as a letter of intent) that the Department proposes to take certain action, or the publication pursuant to Department rule of notice of proposed agency action, whichever first occurs.

(3) Notwithstanding any other provision in this Chapter, should a substantially affected person who fails to timely request a hearing under Section 120.57, F.S., administratively appeal the final Department action or order, the record on appeal should be limited to:

(a) the application, and accompanying documentation submitted by the applicant prior to the issuance of the agency's intent to issue or deny the requested permit.

(b) the materials and information relied upon by the agency in determining the final agency action or order;

(c) any notices issued or published; and

(d) the final agency action or order entered concerning the permit application.

(4) In such cases where persons do not timely exercise their rights accorded by Section 120.57(1), Florida Statutes, the allegations of fact contained in or incorporated by the final agency action shall be deemed uncontested and true, and appellants may not dispute the truth of such allegations upon subsequent appeal.

(5) Any applicant may challenge the Department's request for additional information by filing with the Office of General Counsel an appropriate petition for administrative proceeding pursuant to Section 120.60, F.S., following receipt by

the applicant of the Department's notification, pursuant to Section 403.0876, F.S., that additional information is required.
Specific Authority: 120.53, 403.0876, 403.815, F.S. Law Implemented: 120.53, F.S.
History: New 9-20-79, Amended 4-28-81, Transferred from 17-1.62 and Amended 6-1-84.

17-103.160 Uniformity in Approval and Denial of Applications for Department Permits and Certifications. To the extent possible and consistent with the public interest, the Department approves and denies applications for permits and certifications on a uniform and consistent basis. Final Department actions on applications for permits and certifications shall be consistent with prior Department actions, unless deviation therefrom is explained by the Department in writing or the hearing officer who submits a recommended order to the Department for final agency action in accordance with Section 120.57, Florida Statutes.
Specific Authority: 120.53(1), F.S. Law Implemented: 120.53(1), 120.68(12), F.S. History: New 2-6-78, Transferred from 17-1.63, 6-1-84.

17-103.170 Designation, Preparation and Transmittal of Record for Administrative Appeals.

When any Department action or order is the subject of an administrative appeal under Chapter 17-103, Part II, FAC, the following requirements shall apply:

(1) Designation of Record. Within fifteen (15) days of rendition of the Department's final order, the appellant shall designate to the Department, in writing, with copies to other parties, those documents or things under the control of or in the possession of the Department which the appellant desires to have included in the record, and which were received or considered in the Department proceeding below. If a proceeding was reported by mechanical recording devices, the appellant shall designate those portions of the proceeding for which it requires written transcription or tapes for transcription. Any other party may designate other portions of the record in the manner provided herein. Such cross-designation shall be filed with the Department, with copies provided other parties, within seven (7) days after receipt of the designation by the appellant.

(2) Original Record. The Department shall thereupon include in the record all of the designated portions of the original papers and exhibits in the proceedings or matter from which administrative appeal is taken, together with a copy of any such parts of the proceedings as were stenographically reported or transcribed from tapes, and as have been designated by the parties and certified by a notary public, the reporter, or other officer for inclusion in the record on appeal or review, and certified copies of the order, if any, of which review is sought. The Department may, at its discretion, substitute certified copies for original papers or documents in its possession.

(3) Preparation of Record. Upon tender or deposit by appellant of the estimated cost of preparation, the Department shall prepare the record in accordance with the designations of the parties. The cost of preparation, and reproduction,

Technical Evaluation
and
Preliminary Determination

United States Sugar Corporation
Clewiston, Florida
Hendry County

Boiler No. 4 Modification
File No. AC 26-126965

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

January 15, 1987

I. Application

A. Applicant

United States Sugar Corporation
Post Office Drawer 1207
Clewiston, Florida 33440

B. Request

On November 3, 1986, Mr. A. R. Mayo, Senior Vice President of the United States Sugar Corporation, submitted an application for permit to increase the steam production of the bagasse/oil fired No. 4 boiler at their existing sugar mill (SIC 2061). Heat input would increase from 545.5 to 777.2 million Btu/hr. Season operations would be reduced from 182 to 160 days per crop season. The application was considered complete on receipt of Mr. Mayo's December 4, 1986, letter.

C. Project and Location

United States Sugar Corporation has requested permission to increase the steam production of their No. 4 boiler from:

275,000 lbs/hr (max) or 250,000 lbs/hr (6 hr avg) of 850 psig, 900°F steam,

to:

346,231 lbs/hr (max) or 314,757 lbs/hr (6 hr avg) of 850 psig, 900°F steam,
or 368,500 lbs/hr (max) or 335,000 lbs/hr (6 hr avg) of 600 psig, 750°F steam.

The increased steam production will be obtained by burning more bagasse in the No. 4 boiler than the current permit allows. No physical modifications to the No. 4 boiler and scrubber are needed to operate at the higher steam production rates. The boiler is located at the sugar mill near the intersection of W. C. Owens Avenue and Clewiston Street in Clewiston, Hendry County, Florida. The UTM coordinates of the mill are Zone 17, 506.1 km E and 2956.9 km N.

D. Air Pollutant Emissions

Emissions from boiler No. 4 are controlled by a modified Joy Turbulaire impingement scrubber, low sulfur fuel oil, and good operating practices. The emission standards were established by a best available control technology (BACT) determination when the original construction permit for this boiler was issued (AC 26-80930 dated 1/11/85). The permitted

emissions requested for this boiler at the present and proposed steam production rate and hours per season operation are shown in Table I.

II. Rule Applicability

A. State Regulations

The proposed project, increasing the steam production from an existing carbonaceous fuel fired boiler (No. 6 oil supplementary fuel) located at a sugar mill (SIC 2061), is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code.

The plant site is in an area designated attainment for all criteria air pollutants (17-2.420).

The facility is a major source of particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and volatile organic compounds since the emissions of each of these criteria pollutants exceeds 100 TPY (17-2.100). The installation is not subject to the Prevention of Significant Deterioration (PSD) regulations (17-2.500) because the increases in emissions for each pollutant does not exceed the Significant Emissions Rates listed in Table 500-2 (17-2.500(2)(d)2.).

Therefore, the project is a minor modification to a major source and subject to Rule 17-2.520, FAC, Sources Not Subject to Prevention of Significant Deterioration or Nonattainment Requirements. The allowable emissions from the modified boiler will be based on the emission rates (lbs/MMBtu) established in the January 1, 1985, Best Available Control Technology (BACT) determination for this boiler along with the emission rates and operation time requested by the applicant. Higher emissions (TPY) would subject this modification to review under the PSD regulations.

B. Federal Regulations

The proposed project, a minor modification to a major source, is not subject to review under federal PSD regulations because the modification will not result in a significant net emissions increase of any criteria pollutant.

III. Technical Evaluation

The original Technical Evaluation and Preliminary Determination, dated November 7, 1984, issued by the department for this boiler discussed the air pollution controls to be used by this boiler. The document is available for public inspection at the department's offices in Ft. Myers and Tallahassee. The

Table I

Pollutant	Present Emissions (2) lb/hr	TPY	Proposed Emission (2) lb/hr	TPY	Change lb/hr	TPY
Particulate (1) matter	90.0 (max) 81.8 (6 hr avg)	-- 178.7	116.6 (max) 106.0 (6 hr avg)	-- 203.5	26.6 24.2	-- +24.8
Sulfur (3) Dioxide	680.0	382.3	680.0	348.7	0	-33.6
Nitrogen Oxides	136.8	206.0	192.4 (max) 180.7 (6 hr avg)	236.6	55.6 (max) 43.9	-- +30.6
Carbon Monoxide	150.0 (max) 136.4 (6 hr avg)	-- 297.9	194.3 (max) 176.6 (6 hr avg)	-- 339.1	44.3 40.2	-- +41.2
Hydrocarbons	141.7 (max) 128.8 (6 hr avg)	-- 281.3	183.5 166.8	-- 320.3	41.8 38.0	-- +39.0

(1) Emission standard is 0.150 lbs PM/MMBtu heat input for bagasse and 0.10 lb/MMBtu from oil

(2) Present allowable 182 days operation per season reduced to proposed 160 days per season

(3) Emission standard is 0.19 lb SO_2/MMBtu for 100% bagasse or 0.166 lbs SO_2/MMBtu from bagasse when burned along with oil in boiler No. 4

original technical evaluation is still valid. To be consistant with the regulations (17-2.610(3)), the department will modify the emission standard for the bagasse handling system and require the company to take reasonable precaution to minimize emissions. Two other changes included in this modification are a reduction in the days of operation per season (from 182 to 160) and a reduction in the allowable contribution to sulfur dioxide emissions from the use of bagasse fuel. This is possible because test data shows actual sulfur dioxide emissions from bagasse are less than allowable emissions. The department will specify the lower sulfur dioxide limit for this fuel. We will reevaluate this reduced standard, without penalty to the applicant, if technical data is submitted to the department prior to the expiration of this construction permit that confirms the emissions from bagasse are different under the two operation modes (bagasse only vs. bagasse/oil combination fuel).

IV. Air Quality Analysis

The proposed modification will not result in a significant net emission increase as set forth in Rule 17-2.500(2)(e)2., FAC. Therefore, no air quality analysis is required by the regulations. Based on previous analyses, the department has reasonable assurance that the modification will not violate any air quality standard or PSD increment. After the proposed modification, boiler No. 4 will not consume any additional sulfur dioxide or particulate matter increment over the levels previously modeled by the applicant in the original application.

V. Conclusion

Based on the data submitted by United States Sugar Corporation, the department has concluded that the company can operate boiler No. 4 at a higher steam production rate and comply with all applicable state and federal regulations provided the Joy designed scrubber is maintained and operated at its optimum efficiency and the restrictions on oil consumption and sulfur content of the supplemental fuel oil previously placed on this boiler are complied with. Compliance with the General and Specific Conditions listed in the proposed permit (attached) will assure compliance of the source with the air pollution control regulations.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

PERMITTEE:
U.S Sugar Corporation
P. O. Drawer 1207
Clewiston, Florida 33440

Permit Number:AC 26-126965
Expiration Date: July 1, 1987
County: Hendry
Latitude/Longitude: 26° 44' 30"N
80° 56' 15"W
Project: Boiler No. 4 Modification

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

Authorization to increase the heat input and steam production of the Foster Wheeler boiler No. 4 up to 777.2 million Btu/hr (max.) and 368,500 lbs/hr steam (600 psig, 750°F) at U.S. Sugar Corporation's existing sugar mill that is located near the intersection of W. C. Owens Avenue and Clewiston Street in Clewiston, Hendry County, Florida. The UTM coordinates of this site are zone 17, 506.1 km E and 2956.9 km N.

The modification shall be in accordance with the application (cover letter dated October 28, 1986) received November 3, 1986, and the additional information submitted in the Mr. Mayo's letter dated December 4, 1986, except for the changes mentioned in the Technical Evaluation and Preliminary Determination and listed as Specific Conditions in this permit to construct.

Attachments:

1. U.S. Sugar Application received November 3, 1986.

2. U.S. Sugar letter dated December 4, 1986.

PERMITTEE:
U.S. Sugar Corporation

Permit Number: AC 26-126965
Expiration Date: July 1, 1987

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 Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement 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 applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.722(5), 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. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use 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.

5. 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, unless specifically authorized by an order from the department.

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. 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 noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

GENERAL CONDITIONS:

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.

9. 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 Sections 403.73 and 403.111, Florida Statutes.

10. The 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.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Compliance with New Source Performance Standards.

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Steam production, steam pressure, steam temperature, heat input, and bagasse consumption shall not exceed the following:

Steam press.	Steam temp. °F	Avging. time *	Steam Prod. lb/hr	Heat input 10^6 Btu/hr	Bagasse Consum. lbs/hr-wet
850	900	Max.	346,231	777.2	215,889
		6-hr avg	314,757	706.6	196,264
600	750	Max.	368,500	777.2	215,889
		6-hr avg	335,000	706.6	196,264

*Maximum is a 1 hour average.

SPECIFIC CONDITIONS:

2. Heat input from No. 6 residual oil shall not exceed 225 million Btu per hour which is approximately equivalent to 1,500 gallons per hour of oil and 150,000 pounds per hour of steam. The boiler shall be built so that not more than two burners with two oil guns each (total of four oil guns) can be installed with a total maximum capacity not to exceed the permitted oil input.

3. During any 12 month period, the maximum quantity of No. 6 residual oil burned in boiler No. 4 shall not exceed 500,000 gallons.

4. During any 24 hour period, not more than 40,800 gallons of fuel oil shall be burned in all stationary fuel oil burning equipment at the plant. All permits to operate other oil burning equipment at this plant shall be revised to include this limitation prior to the issuance of a permit to operate boiler No. 4.

5. During any 3 hour period, not more than 6,300 gallons of fuel oil shall be burned in all stationary fuel oil burning equipment at the plant. All permits to operate other oil burning equipment at this plant shall be revised to include this limitation prior to the issuance of a permit to operate boiler No. 4.

6. All stationary fuel oil burning equipment at the plant shall be equipped with integrating fuel oil flow meters or continuous recorders to measure the amount of fuel oil consumed by the equipment. Oil meter readings on all oil consuming equipment shall be read and logged at least once every three hours, unless oil consumption for the equipment is recorded continuously, and these records shall be kept for at least five years for department inspection. Each meter shall be calibrated annually by a method approved by the department.

7. A test shall be made on Boiler No. 4 to determine its actual thermal efficiency in accordance with the ASME short-form procedure each time the operating permit for this boiler is renewed. The test shall be done while the tubes are clean and within 14 days of the compliance test. A current report on the thermal efficiency test must be included with the application to operate this boiler.

SPECIFIC CONDITIONS:

8. The scrubber controlling the emissions from Boiler No. 4 which was built to Joy Manufacturing Company's specifications for their Turbulaire, Type D, Size 200 spray impingement scrubber shall be equipped with instruments to measure the gas pressure drop and pH of the scrubber water. Instruments to continuously record the scrubber water pressure and volumetric flow shall also be provided. During the first season of operation at the higher steam production rates, hourly readings of the gas pressure drop shall be taken and logged for each day that boiler No. 4 operates. The hourly data shall be converted into consecutive three hour averages. If any three hour average gas pressure drop falls more than ten percent below the average pressure drop recorded during the compliance test that showed compliance with the particulate matter standard, or any one hour reading is twenty-five percent below the average pressure drop recorded during the compliance test, the department may require a compliance test at the lower pressure drop and may also require the installation of an instrument to continuously measure and record the gas pressure drop.

Hourly readings of the pH of the scrubber water shall be taken and logged for each hour during which bagasse is burned in boiler No. 4 during its first 160 days of operation. The hourly data shall be converted into consecutive three hour averages. The department will be notified if chemicals are used to adjust pH. If any three hour average pH value falls more than ten percent below the pH that existed during the compliance test for sulfur dioxide, the department may require the installation of an instrument to continuously measure and record scrubber water pH.

During compliance testing, the scrubber parameters shall be measured and recorded at 15 minute intervals.

Records of the measurements required by this condition shall be obtained each day boiler No. 4 operates during the first 160 days and copies of the records transmitted to the South Florida District and Bureau of Air Quality Management at the end of the season(s).

After review of the first 160 days of data, the Bureau of Air Quality Management and the South Florida District will establish the scrubber parameters to be monitored and the frequency of monitoring. These requirements shall become a condition to any permit to operate issued to boiler No. 4. The records required by the permit to operate shall be kept for five years for agency inspection.

SPECIFIC CONDITIONS:

9. Particulate matter emissions from boiler No. 4 shall not exceed 0.150 lb/million Btu heat input for bagasse fuel or 0.10 lb/million Btu heat input for No. 6 residual oil fuel. In event that both fuels are burned concurrently, the allowable particulate matter emissions shall be prorated from the allowable standards for each fuel by their respective heat inputs. Compliance with the particulate matter standards shall be determined by EPA Reference Methods 1, 2, 3, 4, and 5 as described in 40 CFR 60, Appendix A. The compliance test results shall be calculated by assuming the thermal efficiency of boiler No. 4 is 55 percent, or any new method subsequently adopted by department rule. For informational purposes only, the particulate matter emission rate shall also be calculated by utilizing both the F factor (for each compliance test) and the short term ASME boiler efficiency test results (once every five years). Scrubber parameters listed in Specific Condition No. 8 shall be recorded every 15 minutes or continuously during the compliance test.

All compliance tests shall be conducted while the boiler is operating within 10 percent of its maximum or permitted capacity, whichever is lower. The South Florida District office shall be notified 15 days prior to any compliance test.

10. Visible emissions from boiler No. 4 shall not exceed 20 percent opacity except that 40 percent opacity is allowed for 2 minutes during any hour. Compliance with the standard shall be determined by DER Method 9 as described in Chapter 17-2, FAC. The particulate matter emissions and visible emissions shall be determined concurrently. Under circumstances when this is not feasible, the Company shall obtain prior approval from the South Florida District to conduct the tests at separate times. In such circumstances, the tests shall be conducted as close to each other as is feasible.

11. Any No. 6 residual fuel oil burned in this boiler shall contain no more than 2.50 percent sulfur and shall be replaced during the season in which it is burned with fuel oil containing no more than 1.50 percent sulfur. Compliance with this condition shall be determined from certified analysis of the replacement oil by ASTM Method D-129. Records of the quantity and analysis of fuel oil consumed in boiler No. 4 and invoices for the oil purchased shall be kept for a minimum of five years for regulatory agency inspection.

SPECIFIC CONDITIONS:

13. Sulfur dioxide emissions from boiler No. 4, while it is burning 100 percent bagasse fuel, shall not exceed 0.166 lb/million Btu heat input as determined by EPA Method 6 as described in 40 CFR 60, Appendix A. The compliance test results shall be calculated by assuming the thermal efficiency of Boiler No. 4 is 55 percent, or any new method subsequently adopted by department rule. For informational purposes only, the sulfur dioxide emission rate shall also be calculated by utilizing both the F factor (for each compliance test) and the short term ASME boiler efficiency test results (once every five years). Scrubber parameters listed in Specific Condition No. 8 shall be recorded every 15 minutes or continuously during the compliance test.

All compliance tests shall be conducted while the boiler is operating within 10 percent of its maximum or permitted capacity, whichever is lower. The South Florida District Office shall be notified 15 days prior to any compliance test.

Sulfur dioxide emissions from boiler No. 4, while it is burning a mixture of oil and bagasse, shall not exceed 680 lb/hr.

13. Emissions of carbon monoxide and volatile organic compounds shall be maintained at the lowest possible level through the implementation of an Operation and Maintenance plan that is approved by the department. Emissions of carbon monoxide shall not exceed 0.25 lb/million Btu as determined by EPA Method 10. Emissions of volatile organic compounds shall not exceed 1.7 lb/ton of wet bagasse as determined by EPA Method 25. These test methods are described in 40 CFR 60, Appendix A. Compliance tests for these pollutants will not be required if the visible emissions from boiler No. 4 are below 20 percent opacity.

14. Visible emissions from the bagasse handling systems shall not exceed 10 percent opacity over any 6 minute period as measured by EPA Reference Method 9, provided, however, that this visible emissions limit shall not apply during periods of high winds (wind speed of 18 miles per hour or greater) if reasonable precautions (covered conveyors, windbreaks, and the height of drop points are minimized) to control fugitive emissions have been taken. The Company shall maintain a meteorological instrument to record the wind speed at the plant site.

15. Nitrogen oxides emissions, expressed as NO_2, shall not exceed 192.4 lb/hr (max.) and 180.7 lb/hr (6 hr avg.) as determined by EPA Reference Method 7 described in 40 CFR 60, Appendix A. After the initial compliance test, the Company may substitute an Operation and Maintenance plan that is approved by the department that optimized the NO_x emissions for the compliance tests specified in this specific condition if the initial Method 7 test show compliance.

PERMITTEE:
U.S. Sugar Corporation

Permit Number: AC 26-126965
Expiration Date: July 1, 1987

SPECIFIC CONDITIONS:

16. Compliance with all emission standards for boiler No. 4, except particulate matter and visible emissions, may be based on emission factors established by previous EPA reference method tests on this boiler. As a condition of this permit, particulate matter and visible emissions tests shall be conducted concurrently on the boiler while it is operating at its maximum permitted heat input (777.2 MMBtu/hr). The applicant will demonstrate compliance with the conditions of the construction permit and submit a complete application for a permit to operate to the South Florida District Office 90 days prior to the expiration date of this construction permit. The applicant may continue to operate in compliance with all terms of this construction permit until its expiration date.

17. Any permit to operate issued for Boiler No. 4 will limit operation to 160 days per season; require the scrubber to be operated at a six hour average pressure drop not less than 90 percent of the six hour average pressure drop that existed during the particulate matter test that showed compliance or not less than 75 percent of the average six hour pressure drop at any time; require, as a minimum, annual particulate matter and visible emission tests; an annual operation report which will include the amount of oil burned at the plant to determine compliance with the limits on oil usage in this permit, and the sulfur content of the residual oil purchased for the season; and a monthly summary of the scrubber parameters listed in Specific Condition No. 8.

Issued this_____day of_____, 19___

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

_____
Howard L. Rhodes, P.E.
Director, Division of Environmental Programs

____ pages attached.

UNITED STATES SUGAR CORPORATION
Post Office Drawer 1207 Clewiston, Florida 33440
Telephone: (813) 983-8121 Telex: 510-952-7753

December 4, 1986

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

DER
DEC 5 1986
BAQM

Dear Mr. Fancy:

This is in response to your letter dated November 24, 1986 regarding our application for permit modification submitted to you on October 28, 1986 for our Boiler No. 4 at our Clewiston mill.

The following are the replies to the questions asked in your letter:

1. U. S. Sugar wishes to increase the steam production from boiler #4 to provide increased evaporation capabilities for our process. The additional steam will be utilized for either a modest increase in capacity or increased sugar recovery efficiency or both.

It is also of significant importance to U. S. Sugar to have this boiler permitted at a production level that cannot easily be exceeded since bagasse is a fuel of quite variable combustion characteristics and an operator oversight might result in an event of non-compliance which this company wishes to avoid.

2. We are attaching a copy of the compliance test report conducted by South Florida Environmental Services, Inc. which includes scrubber parameters during tests for particulate matter, carbon monoxide, sulfur dioxide, nitrogen oxides and VOC. This report includes F Factor calculations, a Short Form ASME Efficiency Determination and fuel analysis made by Riley Stoker Corporation.

3. There was no visible emission test conducted for the bagasse handling system during the compliance test on December 23, 1985, however, an inspection was made by Mr. Mirza Baig on January 20, 1986 during very windy, gusty conditions. According to his report the 10% opacity limit was exceeded and a citation was issued for this apparent violation. Subsequently a Consent Order draft was sent to U. S. Sugar by the South Florida District office for our review. The revised form of this draft was returned to your Fort Myers office on November 13, 1986 for final processing. It is our understanding that DER finds no significant objection to the revised proposed version and therefore we expect an early resolution of this matter.

Precautions taken to minimize fugitive emissions from the system are:

a) The point of discharge of the backfeed elevator to the belt conveyor as well as the belt conveyor for a distance of 25 ft. to each side of this point was enclosed and extended curtains from the elevator down to near ground level were added to direct any spills to the ground in a way which shields it from the effects of the wind.

b) A 25 to 30 ft. high levy of bagasse was built around the discharge end of field belt conveyor in a 270 degree arc to serve as a wind shield. In effect the discharge end of this conveyor is in a crater like enclosure to shield it from winds.

c) An enclosure of approximately 20 ft. height closed at the top and three sides was built over the receiving hopper, where bagasse from the pile is discharged by the payloader for backfeed to the boilers, to contain the dust generated by this operation.

d) Replaced the 36 in. wide belt of the 500 ft. long field belt conveyor with a new belt 42 in. wide to keep the bagasse being conveyed from occasionally spilling over the sides.

e) Installed automatic retractable loading skirts with suitable seals on the reversible 500 ft. belt conveyor so that the bagasse remains separated from the edge of the belt by an adequate distance to prevent these spills.

f) Installed a hood over the field discharge end of the 500 ft. field belt conveyor and installed wind-shield curtains at each side of the conveyor at this point. A cover was put over the discharge chute leading to the ground.

g) The plowing of bagasse from the 500 ft. field belt conveyor to feed the bagasse silage plant has been permanently discontinued and a separate conveyor may be installed in the future for this purpose if the plant operates again.

h) The bottom or discharge end of the discharge chute at the field end of the belt conveyor has been equipped with a split-sock or Roman-Skirt type spout which flares open around the apex of the bagasse pile to shield against wind when the material is discharged.

i) The top or load deck of the drag type bagasse elevator conveyor used for backfeed from the field to the mill and which discharges onto the 500 ft. belt conveyor when backfeeding is taking place has been equipped with extended sides and cover for its entire exposed length.

Answers to your questions 4, 5 and 6 have been prepared by our consultant, Mr. David Buff of KBN Engineering, who was the engineer on record for the preparation of the application and therefore responsible for the calculations in question. See attached pages 4a and 4b for Mr. Buff's reply. We would appreciate your referring any questions you may have on these last three items directly to Mr. Buff so as to help expedite the processing of this application.

We wish to thank you for the attention you have given this application and for the assistance from your Mr. Willard Hanks in the matters addressed in your letter.

Very truly yours,

UNITED STATES SUGAR CORPORATION

A. R. Mayo
Senior Vice President, Sugar Houses

ARM:jt
Enclosures: 3

cc: Mr. David Knowles
Mr. David Buff
Mr. Peter Cunningham

RESPONSE TO FDER LETTER DATED
November 24, 1986

4. The calculated 588 lb/hr SO_2 emission rate from oil burning is based upon the AP-42 factor for oil burning of 157S lb/1000 gals (Table 1.3.1 of AP-42). The factor inherently accounts for an approximate 95% conversion of fuel sulfur to SO_2, based upon actual field data (see Section 1.3.2 of AP-42). This probably accounts for the somewhat higher figure of 614 lb/hr SO_2 which DER has calculated based upon a mass balance. However, the AP-42 factor was used in the original Boiler No. 4 permit application, and was accepted by DER at that time. It is considered to be the most appropriate factor to use for Boiler No. 4.

5. In response to the first question posed by DER, the actual SO_2 emissions due to bagasse burning will not be different when burning either bagasse alone or bagasse in combination with fuel oil. However, allowable SO_2 emissions due to bagasse firing will be different in order not to increase SO_2 emissions above currently permitted levels. In order to demonstrate compliance with the SO_2 emission limits for bagasse burning, it is proposed to initially conduct an SO_2 test while burning 100% bagasse (this represents normal testing conditions). If this test shows emissions to be less than 0.166 lb/MMBtu, this would demonstrate compliance with the emission limits for both fuel burning scenarios. If this test results in emissions of greater than 0.166 lb/MMBtu, then an additional SO_2 test while burning bagasse/oil will be conducted to demonstrate compliance with the emission limit when burning bagasse/oil in combination.

6. According to AP-42, Table 1.3-1, the correct NO_x emission factor for fuel oil burning for boilers which have a heat input rate of greater than 100 MMBtu/hr is 67 lb/1000 gals. The factor of 55 lb/1000 gals cited by DER is for boilers with a heat input rate of between 10 and 100 MMBtu/hr. The Boiler No. 4 maximum heat input rate of 777.2 MMBtu/hr exceeds the 100 MMBtu/hr upper limit for the boiler category of Table 1.3-1.

Additional Responses to Mr. Linn's Questions

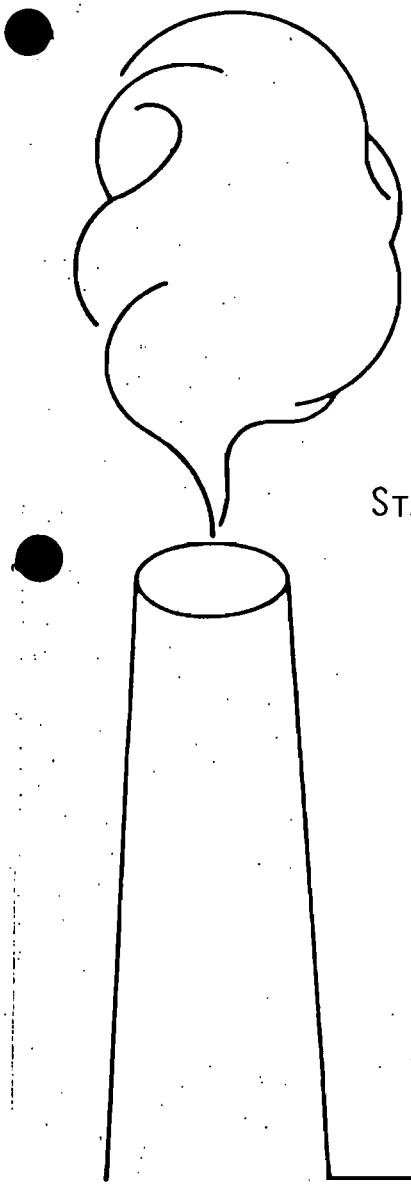
Concerning the air quality impact analysis presented in the application, a new modeling analysis for particulate matter (PM) was not conducted because the presently proposed maximum PM emissions at the higher steam rate for Boiler No. 4 are less than the PM emissions modeled in the original Boiler No. 4 permit application. A comparison of previously modeled emissions and currently proposed emissions are presented below:

Previously modeled:	238.3 TPY	109.1 lb/hr (24-hr avg.)
Currently proposed:	203.48 TPY	105.98 lb/hr (24-hr avg.)

The currently proposed maximum 24-hr average PM emission rate of 105.98 lb/hr is based upon the maximum 6-hr average emissions presented in the permit application. The 6-hour averaging time limitation will limit U. S. Sugar to the 105.98 lb/hr for any 24-hour period. Although U. S. Sugar is proposing a steam rate increase, the currently proposed emissions are lower because the previous modeling was based upon the boiler emitting PM at 0.2 lb/MMBtu, and currently proposed emissions are based upon 0.15 lb/MMBtu. In addition, the currently proposed annual average emissions reflect reduced number of crop days per year.

Since the previous air quality analysis for PM demonstrated compliance with PM air quality standards, and currently proposed emissions are less than previously modeled, the proposed steam rate increase will also comply with the air quality standards.

David A. Buff, P.E.
KBN Engineering & Applied Sciences, Inc.



UNITED STATES SUGAR CORPORATION

BOILER NO. 4 - CLEWISTON

STACK TESTS FOR PARTICULATE, SO_2, NOx, CO AND VOC EMISSIONS

REPORT 859-S

DECEMBER 23, 1985

South Florida Environmental Services, Inc.

8211-6 Bama Lane West Palm Beach, Florida 33406 305 / 793-4481

TABLE OF CONTENTS

INTRODUCTION

The United States Sugar Corporation operates a raw sugar mill located near the intersection of W.C. Owens Avenue and Clewiston Street in Clewiston, Hendry County, Florida.

On December 23, 1985, tests for Carbon Monoxide, Oxides of Nitrogen, Particulate, Sulfur Dioxide and Total Gaseous Nonmethane Organic Emissions were performed on the exhaust stack servicing Boiler No. 4.

The tests were performed in order to comply with permit operating conditions set forth in Florida Department of Environmental Regulation Permit No. AC26-80930, and to determine compliance with Chapter 17-02 of the Florida Administrative Code.

A visible emission test was not performed because the plume from Boiler No. 4 was intermingled with the plumes from surrounding boilers, an accurate reading was not possible.

During the testing period, records of the boiler data were maintained by plant personnel, and are presented in the Appendix.

The tests were observed by Mr. Mirza Baig of the Florida Department of Environmental Regulation, Fort Myers office.

The results of these tests verify compliance with the Florida Department of Environmental Regulation Permit No. AC26-80930 and Chapter 17-02 of the Florida Administrative Code.

SOUTH FLORIDA ENVIRONMENTAL SERVICES, INC.

STACK TESTS FOR PARTICULATE, SO2, NOX, CO, AND VOC EMISSIONS

United States Sugar Corporation
Post Office Drawer 1207
Clewiston, Florida 33440

Clewiston Mill

Type Process - Sugar Manufacturing

Boiler No. 4

Abatement Device - Turbulaire Impingement Scrubber

Compliance Stack Test

Report 859-S

December 23, 1985

All testing and analysis was performed in accordance with the Florida Department of Environmental Regulation, Florida Administrative Code, Chapter 17-2.

I hereby certify that to my knowledge all data submitted in this report is true and correct.

William D. Arlington
Project Director

ALLOWABLE EMISSION DETERMINATION

The allowable emissions were determined in accordance with the Florida Department of Environmental Regulation Permit No. AC 26-80930.

CYCLONIC FLOW DETERMINATION

Due to the configuration of the system, cyclonic flow is considered to be non-existent at the sampling site.

SUMMARY OF RESULTS
UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON

PARTICULATE

RUN	EMISSIONS LBS./HR.	ALLOWABLE LBS./HR.	EMISSIONS LBS./MM BTU	ALLOWABLE LBS./MM BTU	EMISSIONS F-FACTOR	LB./MM BTU BY ASME EFFICIENCY
1	71.36	84.21	.127	.150	.1605	.141
2	84.76	84.40	.151	.150	.1837	.168
3	87.86	79.85	.165	.150	.1919	.184
AVERAGE	81.33	82.82	.148	.150	.1787	.164

SULFUR DIOXIDE

RUN	ACTUAL EMISSIONS LBS./MM BTU	ALLOWABLE RATE LBS./MM BTU	EMISSIONS F-FACTOR LB/MM BTU	LB/MM BTU BY ASME EFFICIENCY
1	.0022	.25	.00284	.00250
2	.0014	.25	.00179	.00164
3	.0014	.25	.00181	.00173
AVERAGE	.0016	.25	.00215	.00196

OXIDES OF NITROGEN

RUN	ACTUAL EMISSIONS LBS./HR.	ALLOWABLE RATE LBS./HR.
1	92.92	136.8
2	70.41	136.8
3	53.17	136.8
AVERAGE	73.83	136.8

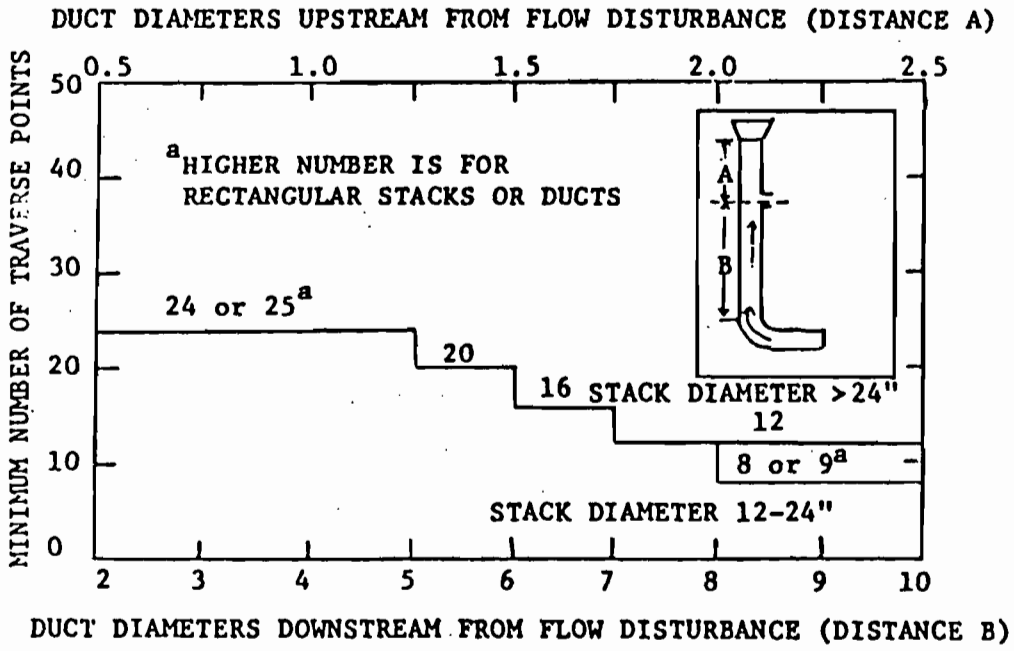
CARBON MONOXIDE

RUN	ACTUAL EMISSIONS	ALLOWABLE RATE LB./MM BTU
1	0	.25
2	0	.25
3	0	.25
AVERAGE	0	.25

VOLATILE ORGANIC COMPOUNDS

RUN	ACTUAL EMISSIONS LB./TON WET BAGASSE	ALLOWABLE RATE LB./TON WET BAGASSE
1	1.37	1.7
2	.93	1.7
3	1.66	1.7
AVERAGE	1.32	1.7

SAMPLING POINT DETERMINATION



CIRCULAR STACKS

Number of points equal next higher multiple of four.

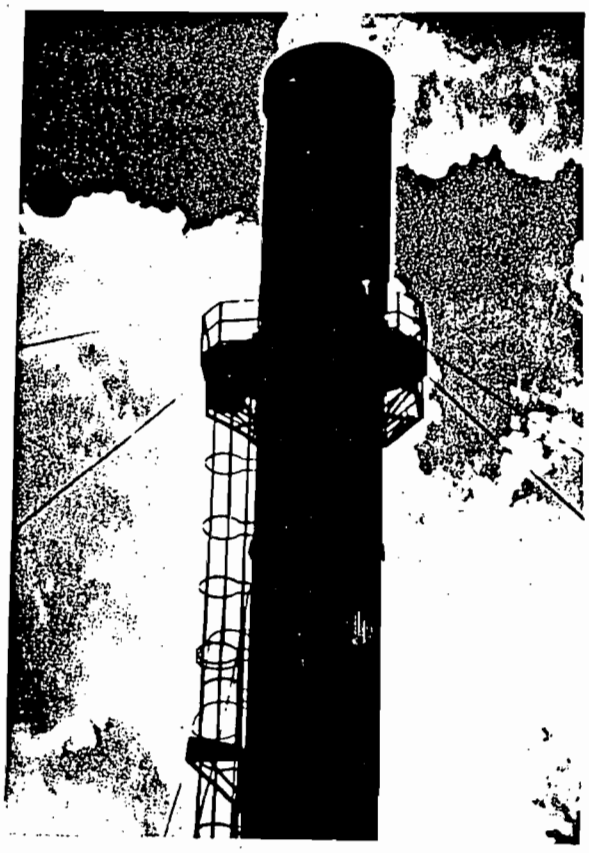
RECTANGULAR STACKS

Number of Traverse Points	Subarea Layout Matrix
9	3 x 3
12	4 x 3
16	4 x 4
20	5 x 4
25	5 x 5
30	6 x 5
36	6 x 6
42	7 x 6
49	7 x 7

SAMPLING POINT DETERMINATION
UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON

STACK CONFIGURATION:	CIRCULAR
DIAMETER (INCHES):	98.75
DISTANCE A - PORT TO DOWNSTREAM DISTURBANCE (INCHES):	168
DISTANCE B - PORT TO UPSTREAM DISTURBANCE (INCHES):	768
NUMBER OF SAMPLING POINTS:	16
NUMBER OF TEST PORTS:	2
NUMBER OF POINTS ON A TRAVERSE:	8

POINT LOCATION ON A TRAVERSE:



TRAVERSE POINT NUMBER	INCHES TO STACK WALL
1	3.2
2	10.3
3	19.1
4	31.9
5	66.8
6	79.6
7	88.4
8	95.6

Particulate Emissions

SUMMARY OF RESULTS - PARTICULATE
UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT NUMBER 859-S

	RUN 1	RUN 2	RUN 3
DATE	12-23-85	12-23-85	12-23-85
ALLOWABLE EMISSIONS(LB/HR)	84.21	84.40	79.85
EMISSION RATE(LB/HR)	71.36	84.76	87.86
ALLOWABLE EMISSIONS(LB/MBTU)	.15	.15	.15
EMISSION RATE(LB/MBTU)	.127	.151	.165
AVERAGE ALLOWABLE(LB/HR)	82.82	84.21 84.40 79.85	
AVERAGE EMISSION(LB/HR)	81.33	71.36 84.76 87.86	
AVERAGE EMISSION(LB/MBTU)	.148	127 151 165	

TEST RESULTS - PARTICULATE
UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT NUMBER 859-S

	RUN 1	RUN 2	RUN 3
AREA (SQ.FT.)	53.19	53.19	53.19
SAMPLE VOLUME (CU.FT.)	31.80	31.97	31.90
WATER VAPOR (CU.FT.)	10.52	10.95	10.73
SAMPLE MOISTURE (%)	24.87	25.52	25.17
SATURATION MOISTURE (%)	27.08	27.54	29.27
MOLECULAR WEIGHT	27.02	26.94	26.98
VELOCITY (FPM)	3511	3507	3504
VOL.FLOW RATE (ACFM)	186739	186530	186374
VOL.FLOW RATE (SCFM-DRY)	✓121839	120511	120483
CONCENTRATION (GR/DSCF)	✓.0683	.0821	.0851
EMISSION RATE (LBS/HR)	✓71.36	84.76	87.86
% ISOKINETIC	95.92	97.50	97.33

FIELD AND ANALYTICAL PROCEDURES
EPA METHOD 5
DETERMINATION OF PARTICULATE EMISSIONS
FROM STATIONARY SOURCES

This method is used in conjunction with Methods 1 through 4 and is applicable for the determination of Particulate Emissions from Stationary Sources.

SUMMARY

A gas sample is extracted isokinetically from the stack through a heated probe and filter. Particulate matter is collected in the probe and on the filter and is measured gravemetrically. The mass of particulate matter includes any material that condenses at or above the specified temerature.

Volumetric flow rate, moisture and other pertinant parameters are determined simultaneous to particulate collection. Mass concentration and emissin rate are then determined based on standard cubic feet of dry gas.

FIELD PROCEDURE

Stack dimensions are determined, including upstream and downstream distances. The number of sampling points and position of each point is layed out in accordance with EPA Method 1. These positions are indicated in this report on the Sampling Point Determination Sheets.

The sampling train is assembled as depicted in the Diagram of Method 5 Sampling Train. The impingers are packed in ice to maintain a temperature of <69 degrees fahrenheit. In order to choose the appropriate nozzle size and K factor (sampling rate factor), assumptions are made of stack gas moisture, molecular weight and velocity (based on prior data or an initial traverse). A cyclonic flow determination is performed, if required, according to EPA Method 1.

A leak check of the sampling system and pitots is performed, correcting any leaks encountered.

After the appropriate warm-up of the heated components, the nozzle is unblocked, and the probe inserted into the stack to the first sampling point. The pump is immediately turned on and the sampling rate adjusted to provide an isokinetic flow rate.

Each point is then sampled at an even interval of between two to five minutes, adjusting the flow rate and recording all indicated data on the Field Data Sheets.

A sample of the gas is extracted after leaving the orifice meter for analysis of CO2, O2 and CO, where applicable.

After all sampling points have been sampled, observing both minimum sampling time and sampling volume as specified, the pump is shut off and the probe removed from the stack. A final leak check is performed on the system and the leakage rate recorded on the Field Data Sheet.

The probe and filter are removed from the sampling train to the clean-up area where all particulates are washed from the probe, nozzle and filter holder front half, and then sealed in a bottle marking the liquid level. The filter is removed and sealed in a separate container.

The impingers are removed from the ice bath, all moisture is measured volumetrically. The silica gel is removed and placed in a sealed plastic container.

The sampling procedure is then repeated twice more to provide three test runs per compliance test.

All samples, including a blank filter, are identified by report and run number or as a blank.

At the conclusion of the last test run a calibration check on the dry gas meter and orifice meter (Y/Yi) is performed. The result is logged on the Field Data Sheets.

LABORATORY PROCEDURES

Upon receipt of the samples, the liquid level is checked for any loss. These solutions are then quantatively transfered to pre-tared beakers and placed along with the filters in an oven at 105 degrees centigrade until dry, then placed in a desicator until cool and weighed to 0.1 mg.

The silica gel is weighed and reported 0.1 gm.

Prior to field operations, all filters and beakers are pre-conditioned in the same manner as described above, numbered for identification, and weighed to the appropriate tolerance.

The silica gel is pre-dryed at 175 degrees centigrade, weighed to 200.0 grams and placed in a sealed plastic bottle.

The balances are checked using Class-S Weights as specified in the U.S. Environmental Protection Agency Quality Assurance Procedures.

Acetone residues are used as specified by the supplier, (not to exceed .001%).

CALCULATIONS

All calculations are identical to those given in EPA Reference Methods 1 through 5.

FIELD SAMPLING EQUIPMENT

Probe Nozzle - 316 stainless steel, button hook configuration with sharp leading edge.

Probe - 316 stainless steel inner core wrapped with heating wire and insulation to maintain a temperature of 250 degrees fahrenheit.

Pitot Tube - Stainless steel, Type S, attached to the probe.

Filter Holder - Borosilicate glass with a stainless steel frit filter support and 28/15 joints attached directly to the probe.

Impingers - Glass with ball joints and glass U-tube connectors connected in series. The first, third and fourth being modified Greenburg-Smith type, the second Greenburg-Smith standard tip. The first and second impingers containing 100 mls. of distilled water, the third impinger left empty, and the fourth containing 200.0 grams of silica gel.

Control Box - Contains a duel inclined manometer, Rockwell 175-S dry gas meter, orifice meter, vacuum gauge, impinger outlet, stack and filter temperatures, and the necessary tubing and valves to maintain leak-free sampling

Pump - Sliding vane type, maintained leak free to move the sample gas through the system.

Thermocouple Probes - Copper constantan with stainless steel outer sheath. The stack thermocouple probe is attached directly to the main probe. The filter probe is inserted in the lower portion of the filter holder directly in the gas stream.

Umbilical Cord - Of sufficient length to connect the probe and filter to the control box and impingers, including all necessary wiring and tubing for temperature control, sample transfer, and pitot pressures. All tubing and fittings are leak-free.

Barometer - Aneroid type capable of measuring atmospheric pressure to plus or minus 0.1" hg.

Orsat Gas Analyzer - Capable of measuring CO2, CO and O2 to plus or minus 0.1%, maintained leak-free.

Fyrite Gas Analyzer - Used to determine CO2 and O2 when required for molecular weight determination and when Method 19 is not required. The Fyrite Analyzer is maintain leak-free.

*** All equipment is designed in accordance with "Maintenance, Calibration, and Operation of Source Sampling Equipment," (APTD-0576).

CALIBRATION

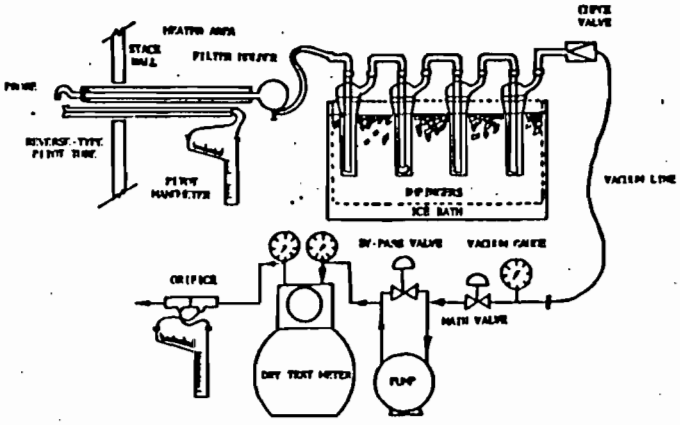
All equipment calibrations are performed in accordance with the procedures outlined in the U.S. Environmental Protection Agency Quality Assurance Manual, Volume III, and logged in the Calibration Log Book.

Calibrations are performed periodically to comply with the frequency of calibrations specified by the State of Florida Department of Environmental Regulation, and the appropriate reference method. Additional calibrations are performed whenever the equipment is damaged.

The latest calibrations are included in this report.

*** The procedures described herein are not to be considered as complete test procedures used, but as a general overview of the methods employed.

DIAGRAM OF METHOD 5 SAMPLING TRAIN



SUMMARY OF FIELD AND LABORATORY DATA
UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT NUMBER 859-S

	RUN 1	RUN 2	RUN 3
DATE	12-23-85	12-23-85	12-23-85
START TIME	0900	1612	1934
STOP TIME	1005	1720	2056
CP FACTOR	.824	.824	.824
Y	1.0030	1.0030	1.0030
Y/YI	1.0070	1.0070	1.0070
DH@	1.777	1.777	1.777
DIAMETER OF NOZZLE (IN.)	.2103	.2103	.2103
DIAMETER OF STACK (IN.)	98.75	98.75	98.75
NO. STACKS	1	1	1
STATIC PRES. (IN. H2O)	-.36	-.36	-.36
BAROMETRIC PRES. (IN. HG)	30.21	30.21	30.21
TEST TIME (MIN.)	60	60	60
METER VOLUME (CU.FT.)	31.00	31.97	32.36
AVG.RT.^P (IN.H2O)	.958	.955	.953
AVG.ORIFICE PRES. ^H (IN.H2O)	.919	.941	.939
AVG.METER TEMP. (DEG.F)	62.3	75.8	83.4
AVG.STACK TEMP. (DEG.F)	153.1	153.8	156.3
TOTAL PARTICULATE WT. (GMS)	.1408	.1700	.1759
WATER COLLECTED (MLS)	223.6	232.7	228.0
MOLECULAR WT. (DRY)	30.00	30.00	30.00
SATURATION MOISTURE (%)	27.08	27.54	29.27

PARTICULATE FIELD DATA

PLANT USSC - Clewiston
REPORT 85-5-1
DATE Dec. 23, 1985
OPERATOR SA
TIME 0900 - 1005
K FACTOR ~~.80~~ 1.0
ASSUMED MOISTURE % 30
DRY GAS METER NO. 4
NOZZLE ID NO. 5/32A
WET BULB TEMP. 156 °F
POST LEAK CHECK 000 cfm @ 15"
Cp .834 (2.8)
Y 1.0036

Y/Y$_i$ 1.0070
Δ Ha 1.7767
Dn .2103
DIAMETER (in) 98.75
NO. DUCT 1
STATIC PRES. -.360
BAR. PRES. (in. Hg) 30.21
TEST TIME (min) 60
METERED VOL. 31.00
AVE. $\sqrt{\Delta p}$ .958
AVG. ΔH .919
AVG. METER TEMP. 62.3
AVG. STACK TEMP. 153.1

TRAVERSE POINT NUMBER	SAMPLING TIME (min)	DRY GAS METER CU. FT. 988.17	VELOCITY HEAD (Δp) In. H_2O	PRESSURE ORIFICE METER (Δ H) In H_2O	DRY GAS TEMP. (°F)	PUMP VACUUM (In. Hg.)	IMPINGER (°F)	FILTER TEMP. (°F)	STACK TEMP. (°F)
1	3.75	989.87	.78	.78	59	6	53	253	155
2		991.74	.90	.90	58	6	48	257	154
3		993.85	.99	.99	59	7	47	260	155
4		995.91	1.10	1.10	59	7	47	264	155
5		997.86	1.05	1.05	60	8	47	262	154
6		999.81	.87	.87	60	8	48	263	154
7		1.65	.85	.85	61	8	48	263	152
8		3.50	.81	.81	62	8	48	262	152
	—	—	—	—	—	—	—	—	—
1	3.75	5.45	.87	.87	63	9	48	252	153
2		7.40	.96	.96	63	10	47	266	152
3		9.42	.99	.99	64	10	48	269	153
4		11.51	1.00	1.00	64	11	48	273	153
5		13.47	.96	.96	65	11	48	264	153
6		15.42	.90	.90	66	11	49	259	153
7		17.39	.87	.87	66	10	49	260	150
8		19.17	.81	.81	67	10	48	267	151
		Myra Baf.							

LABORATORY DATA

UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT NUMBER 859-S-1 DATE 12/24/85

FILTER NUMBER 2395

FINAL WEIGHT	.4971	GRAMS
TARE WEIGHT	.3726	GRAMS
DIFFERENCE	.1245	GRAMS

BEAKER NUMBER 1

FINAL WEIGHT	95.8218	GRAMS
TARE WEIGHT	95.8042	GRAMS
DIFFERENCE	.0176	GRAMS

FILTER BLANK NO 2441

FINAL WEIGHT	.3753	GRAMS
TARE WEIGHT	.3752	GRAMS
DIFFERENCE	1E-04	GRAMS

WASH DOWN BLANK

VOLUME OF RINSE	160	MLS
SOLUTION RESIDUE	7.843E-06	GR/ML
TOTAL RESIDUE	1.3E-03	GRAMS

TOTAL PARTICULATE WEIGHT .1408 GRAMS

WATER COLLECTED

TOTAL WATER	409.9	MLS
INITIAL WATER	200.0	MLS
FINAL SILICA	213.7	GRAMS
INITIAL SILICA	200.0	GRAMS

TOTAL WATER COLLECTED 223.6 MLS

ANALYST SB

PARTICULATE FIELD DATA

PLANT USSC- Clairton
REPORT 859-5-3
DATE Dec 23, 1985
OPERATOR GA
TIME 1934 - 2056
K FACTOR 1.03
ASSUMED MOISTURE % 30
DRY GAS METER NO. 4
NOZZLE ID NO. 5/32A
WET BULB TEMP. 153°F
POST LEAK CHECK .002 cfm @ 15"
Cp .824 (P8)
Y 1.0030

Y/Y1 1.0070
Δ Ha 1.7767
Dn .2103
DIAMETER (in) 98.75
NO. DUCT 1
STATIC PRES. -.36
BAR. PRES. (in. Hg) 30.21
TEST TIME (min) 60
METERED VOL. 32.36
AVE. $\sqrt{\Delta p}$ .953
AVG. ΔH .939
AVG. METER TEMP. 83.4
AVG. STACK TEMP. 156.3

TRAVERSE POINT NUMBER	SAMPLING TIME (min)	DRY GAS METER CU. FT.	VELOCITY HEAD (Δp) in. H_2O	PRESSURE ORIFICE METER (ΔH) in H_2O	DRY GAS TEMP. (°F)	PUMP VACUUM (in. Hg.)	IMPINGER (°F)	FILTER TEMP. (°F)	STACK TEMP. (°F)
		52.40							
1	3.75	54.31	.80	.82	83	7	62	227	156
2		56.38	.89	.92	83	7	51	248	155
3		58.34	.95	.98	83	7	50	242	155
4		60.70	.95	.98	83	8	50	239	156
5		62.41	.92	.95	82	10	50	242	158
6		64.71	.98	1.01	82	10	51	248	155
7		66.81	.96	.99	83	10	51	259	156
8		68.83	.95	.98	82	10	50	262	156 *
	–	–	–	–	–	–	–	–	–
1	3.75	70.70	.75	.77	84	10	59	201	158
2		73.11	.92	.95	84	10	51	252	157
3		75.11	.93	.96	84	12	51	247	154
4		76.86	.94	.97	84	12	52	236	158
5		79.01	.94	.97	84	12	53	237	156
6		80.87	.89	.92	84	12	53	232	158
7		82.72	.89	.92	84	9	60	240	156
8		84.76	.90	.93	85	10	53	224	156

* mill down 10 min.

[signature]

PARTICULATE FIELD DATA

PLANT USSC - Clairton
REPORT 859-5-2
DATE Dec 23, 1985
OPERATOR BA
TIME 1612 - 1720
K FACTOR 1.03
ASSUMED MOISTURE % 30
DRY GAS METER NO. 4
NOZZLE ID NO. .2103 5/32A
WET BULB TEMP. 153° F
POST LEAK CHECK .002 CFM @ 15"
Cp .824 (P-8)
Y 1.0030

Y/Y$_i$ 1.0070
Δ Ha 1.77167
Dn .2103
DIAMETER (in) 98.75
NO. DUCT 1
STATIC PRES. -.36
BAR. PRES. (In. Hg) 30.21
TEST TIME (min) 60
METERED VOL. 31.97
AVE. $\sqrt{\Delta p}$ .955
AVG. ΔH .941
AVG. METER TEMP. 75.8
AVG. STACK TEMP. 153.8

TRAVERSE POINT NUMBER	SAMPLING TIME (min)	DRY GAS METER CU. FT. 20.14	VELOCITY HEAD (Δ p) In. H_2O	PRESSURE ORIFICE METER (Δ H) In H_2O	DRY GAS TEMP. (°F)	PUMP VACUUM (In. Hg.)	IMPINGER (°F)	FILTER TEMP. (°F)	STACK TEMP. (°F)
1	3.75	22.06	.84	.87	74	6	57	202	153
2		24.12	.94	.97	74	6	49	233	154
3		26.41	.91	.94	74	6	49	234	153
4		28.42	.99	1.02	74	7	49	243	154
5		30.42	.94	.97	74	7	49	246	153
6		33.37	.94	.97	74	8	50	237	153
7		34.21	.90	.93	75	7	50	246	154
8		36.14	.88	.91	75	8	50	253	155
	—	—	—	—	—	—	—	—	—
1	3.75	38.21	.88	.91	76	8	52	239	154
2		40.29	.94	.97	76	9	50	257	154
3		42.22	.98	1.01	77	10	51	259	154
4		44.31	.96	.99	77	10	51	257	154
5		46.42	.95	.98	78	10	52	255	154
6		48.33	.91	.94	78	10	52	257	153
7		50.41	.84	.87	78	10	52	256	153
8		52.11	.79	.81	79	10	52	258	155
	Visible Em.								

LABORATORY DATA

UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT NUMBER 859-S-2 DATE 12/24/85

FILTER NUMBER 2396

FINAL WEIGHT	.5307	GRAMS
TARE WEIGHT	.3790	GRAMS
DIFFERENCE	.1517	GRAMS

BEAKER NUMBER 2

FINAL WEIGHT	98.3661	GRAMS
TARE WEIGHT	98.3467	GRAMS
DIFFERENCE	.0194	GRAMS

FILTER BLANK NO 2441

FINAL WEIGHT	.3753	GRAMS
TARE WEIGHT	.3752	GRAMS
DIFFERENCE	1E-04	GRAMS

WASH DOWN BLANK

VOLUME OF RINSE	140	MLS
SOLUTION RESIDUE	7.843E-06	GR/ML
TOTAL RESIDUE	1.1E-03	GRAMS

TOTAL PARTICULATE WEIGHT .1700 GRAMS

WATER COLLECTED

TOTAL WATER	423.6	MLS
INITIAL WATER	200.0	MLS
FINAL SILICA	209.1	GRAMS
INITIAL SILICA	200.0	GRAMS

TOTAL WATER COLLECTED 232.7 MLS

ANALYST

LABORATORY DATA

UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT NUMBER 859-S-3 DATE 12/24/85

FILTER NUMBER 2397

FINAL WEIGHT	.5367 GRAMS
TARE WEIGHT	.3727 GRAMS
DIFFERENCE	.1640 GRAMS

BEAKER NUMBER 3

FINAL WEIGHT	86.6258 GRAMS
TARE WEIGHT	86.6126 GRAMS
DIFFERENCE	.0132 GRAMS

FILTER BLANK NO 2441

FINAL WEIGHT	.3753 GRAMS
TARE WEIGHT	.3752 GRAMS
DIFFERENCE	1E-04 GRAMS

WASH DOWN BLANK

VOLUME OF RINSE	170 MLS
SOLUTION RESIDUE	7.843E-06 GR/ML
TOTAL RESIDUE	1.3E-03 GRAMS

TOTAL PARTICULATE WEIGHT .1759 GRAMS

WATER COLLECTED

TOTAL WATER	419.3 MLS
INITIAL WATER	200.0 MLS
FINAL SILICA	208.7 GRAMS
INITIAL SILICA	200.0 GRAMS

TOTAL WATER COLLECTED 228.0 MLS

ANALYST CB

ALLOWABLE EMISSIONS
PARTICULATE

ITED STATES SUGAR CORPORATION
ILER NO. 4 - CLEWISTON
N NUMBER 859-S-1

'U OF STEAM @ 765 F & 620 PSIA		1386.9 BTU/LB
'U OF FEED WATER @ 240 F & 900 PSIA		210.6 BTU/LB
:T BTU VALUE OF STEAM		1176.3 BTU/LB
NITIAL INTEGATOR READING	9277	
INAL INTEGATOR READING	9357	
NTEGATOR FACTOR	3500	
OTAL TIME(MIN.)	64	
TEAM PRODUCTION RATE		262500 LB/HR
URNACE EFFICENCY		55%
OTAL HEAT INPUT		561.4 MBTU/HR
EAT INPUT - OIL		0 MBTU/HR
EAT INPUT - BAGASSE		561.4 MBTU/HR
LLOWABLES - OIL @ .1 LB/MBTU		0 LB/HR
LLOWABLES - BAGASSE @ .15 LB/MBTU		84.21 LB/HR
OTAL ALLOWABLES @ .15 LB/MBTU		84.21 LB/HR

ALLOWABLE EMISSIONS
PARTICULATE

NITED STATES SUGAR CORPORATION
OILER NO. 4 - CLEWISTON
UN NUMBER 859-S-2

TU OF STEAM @ 760 F & 620 PSIA		1384 BTU/LB
TU OF FEED WATER @ 250 F & 900 PSIA		220.6 BTU/LB
ET BTU VALUE OF STEAM		1163.4 BTU/LB
NITIAL INTEGATOR READING	9812	
INAL INTEGATOR READING	9888	
NTEGATOR FACTOR	3500	
OTAL TIME(MIN.)	60	
TEAM PRODUCTION RATE		266000 LB/HR
URNACE EFFICENCY		55%
OTAL HEAT INPUT		562.7 MBTU/HR
EA INPUT - OIL		0 MBTU/HR
EAT INPUT - BAGASSE		562.7 MBTU/HR
LLOWABLES - OIL @ .1 LB/MBTU		0 LB/HR
LLOWABLES - BAGASSE @ .15 LB/MBTU		84.4 LB/HR
OTAL ALLOWABLES @ .15 LB/MBTU		84.4 LB/HR

ALLOWABLE EMISSIONS
PARTICULATE

UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
RUN NUMBER 859-S-3

BTU OF STEAM @ 760 F & 600 PSIA		1385.1 BTU/LB
BTU OF FEED WATER @ 250 F & 900 PSIA		220.6 BTU/LB
NET BTU VALUE OF STEAM		1164.5 BTU/LB
INITIAL INTEGATOR READING	132	
FINAL INTEGATOR READING	217	
INTEGATOR FACTOR	3500	
TOTAL TIME(MIN.)	71	
STEAM PRODUCTION RATE		251408.5 LB/HR
FURNACE EFFICENCY		55%
TOTAL HEAT INPUT		532.3 MBTU/HR
HEAT INPUT - OIL		0 MBTU/HR
HEAT INPUT - BAGASSE		532.3 MBTU/HR
ALLOWABLES - OIL @ .1 LB/MBTU		0 LB/HR
ALLOWABLES - BAGASSE @ .15 LB/MBTU		79.85 LB/HR
TOTAL ALLOWABLES @ .15 LB/MBTU		79.85 LB/HR

CALCULATIONS FOR RUN 1 - PARTICULATE

STACK AREA

(DIAMETER / 24)SQ. X 3.1416 X NO. OF STACKS

(98.75 / 24)SQ. X 3.1416 X 1

53.187

STACK PRESSURE

BAROMETRIC PRESSURE + (STATIC PRESSURE / 13.6)

30.21 + (-.36 / 13.6)

30.184

SAMPLE VOLUME

17.64 X (Y) X METER VOLUME X STACK PRESURE / (METER TEMP. + 460)

17.64 X 1.003 X 31 X 30.184 / (62.3 + 460)

31.795

WATER VAPOR VOLUME

.04707 X WATER COLLECTED

.04707 X 223.6

10.525

PERCENT MOISTURE

100 X WATER VAPOR VOLUME / (WATER VAPOR VAPOR VOLUME + SAMPLE VOLUME)

100 X 10.525 / (10.525 + 31.795)

24.87

CALCULATIONS FOR RUN 1 - PARTICULATE

SATURATION MOISTURE

100 X (VAPOR PRESSURE @ STACK TEMP. / STACK PRESSURE)

100 X (8.173 / 30.184)

27.077

STACK MOISTURE FRACTION

THE LESSOR OF SAMPLE MOISTURE OR SATURATION MOISTURE / 100

24.87 / 100

.2487

MOLECULAR WEIGHT OF STACK GAS

29.00 (DRYERS) OR 30.00 (BOILERS) X (1 - MOISTURE) / (18 X MOISTURE)

30 X (1 - .2487) / (18 X .2487)

27.016

STACK VELOCITY

5.49 X CP X 60 X ^P X SQR(STACK TEMP. + 460) /SQR(STACK PRESSURE X MOLECULAR WT.)

$$\frac{85.49 \times .824 \times 60 \times .958 \times \mathrm{SQR}(153.1 + 460)}{\mathrm{SQR}(30.184 \times 27.016)}$$

3511

VOLUMETRIC FLOW RATE (ACFM)

STACK AREA X STACK VELOCITY

53.187 X 3511

186738.9

CALCULATIONS FOR RUN 1 - PARTICULATE

VOLUMETRIC FLOW RATE (SCFM DRY)

17.64 X (ACFM) X STACK PRESSURE X (1-MOISTURE) / (STACK TEMP. + 460)

17.64 X 186738.9 X 30.184 X (1-.2487) / (153.1 + 460)

121839.4

PARTICULATE CONCENTRATION

15.43 X PARTICULATE WEIGHT / SAMPLE VOLUME

15.43 X .1408 / 31.795

.0683299999

EMISSION RATE

CONCENTRATION X (SCFM DRY) X 60 / 7000

.0683299999 X 121839.4 X 60 / 7000

71.359

PERCENT ISOKINETIC

.0945 X (STACK TEMP. + 460) X SAMPLE VOLUME X 60

STACK PRES. X VELOCITY X NOZZLE AREA X TEST TIME X (1-MOISTURE)

.0945 X 153.1+ 460) X 31.795 X 60

30.184 X 3511 X 2.4E-04 X 60 X (1 - .2487)

95.918

Particulate Emissions by F-Factor

EMISSIONS BY F-FACTOR BASED ON 9366 DSCF/10^6 BTU
UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT 859-S

RUN	CONCENTRATION GRAINS/DSCF	CONCENTRATION LB/DSCF	PERCENT O2	EMISSIONS LB/10^6 BTU
1	.0683	9.757×10^{-6}	9.0	.1605
2	.0821	1.173×10^{-5}	8.4	.1837
3	.0851	1.216×10^{-5}	8.5	.1919
Average				.1787

$$\text{EMISSIONS} = \frac{Fd \times Cs \times 20.9}{(20.9 - O2)}$$

Particulate Emissions by ASME Efficiency

SUMMARY OF RESULTS
UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT NUMBER 859-S
BASED ON 61.19% EFFICIENCY

	RUN 1	RUN 2	RUN 3
DATE	12-23-85	12-23-85	12-23-85
ALLOWABLE EMISSIONS(LB/HR)	75.69	75.86	71.77
EMISSION RATE(LB/HR)	71.36	84.76	87.86
ALLOWABLE EMISSIONS(LB/MBTU)	.15	.15	.15
EMISSION RATE(LB/MBTU)	.141	.168	.134
AVERAGE ALLOWABLE(LB/HR)	74.44		
AVERAGE EMISSION(LB/HR)	81.33		

ALLOWABLE EMISSIONS

UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
RUN NUMBER 859-S-1

BTU OF STEAM @ 765 F & 620 PSIA		1386.9 BTU/LB
BTU OF FEED WATER @ 240 F & 900 PSIA		210.6 BTU/LB
NET BTU VALUE OF STEAM		1176.3 BTU/LB
INITIAL INTEGATOR READING	9277	
FINAL INTEGATOR READING	9357	
INTEGATOR FACTOR	3500	
TOTAL TIME(MIN.)	64	
STEAM PRODUCTION RATE		262500 LB/HR
FURNACE EFFICENCY		61.19%
TOTAL HEAT INPUT		504.6 MBTU/HR
HEAT INPUT - OIL		0 MBTU/HR
HEAT INPUT - BAGASSE		504.6 MBTU/HR
ALLOWABLES - OIL @ .1 LB/MBTU		0 LB/HR
ALLOWABLES - BAGASSE @ .15 LB/MBTU		75.69 LB/HR
TOTAL ALLOWABLES @ .15 LB/MBTU		75.69 LB/HR

ALLOWABLE EMISSIONS

ITED STATES SUGAR CORPORATION
ILER NO. 4 - CLEWISTON
N NUMBER 859-S-2

'U OF STEAM @ 760 F & 620 PSIA	1384 BTU/LB
'U OF FEED WATER @ 250 F & 900 PSIA	220.6 BTU/LB
ET [redacted] VALUE OF STEAM	1163.4 BTU/LB
NITIAL INTEGATOR READING 9812	
INAL INTEGATOR READING 9888	
NTEGATOR FACTOR 3500	
OTAL TIME(MIN.) 60	
TEAM PRODUCTION RATE	266000 LB/HR
URNACE EFFICENCY	61.19%
'OTAL HEAT INPUT	505.7 MBTU/HR
IEAT INPUT - OIL	0 MBTU/HR
IEAT INPUT - BAGASSE	505.7 MBTU/HR
\LLOWABLES - OIL @ .1 LB/MBTU	0 LB/HR
\LLOWABLES - BAGASSE @ .15 LB/MBTU	75.86 LB/HR
TOTAL ALLOWABLES @ .15 LB/MBTU	75.86 LB/HR

ALLOWABLE EMISSIONS

UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
RUN NUMBER 859-S-3

BTU OF STEAM @ 760 F & 600 PSIA		1385.1 BTU/LB
BTU OF FEED WATER @ 250 F & 900 PSIA		220.6 BTU/LB
NET BTU VALUE OF STEAM		1164.5 BTU/LB
INITIAL INTEGATOR READING	132	
FINAL INTEGATOR READING	217	
INTEGATOR FACTOR	3500	
TOTAL TIME(MIN.)	71	
STEAM PRODUCTION RATE		251408.5 LB/HR
FURNACE EFFICENCY		61.19%
TOTAL HEAT INPUT		478.5 MBTU/HR
HEAT INPUT - OIL		0 MBTU/HR
HEAT INPUT - BAGASSE		478.5 MBTU/HR
ALLOWABLES - OIL @ .1 LB/MBTU		0 LB/HR
ALLOWABLES - BAGASSE @ .15 LB/MBTU		71.77 LB/HR
TOTAL ALLOWABLES @ .15 LB/MBTU		71.77 LB/HR

Carbon Monoxide

TEST RESULTS
UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT NUMBER 859-S

Percent Carbon Monoxide was determined in accordance with EPA Method 3 for Integrated Sampling. The results of each run were at or below the minimum detectable limit.

RUN	PERCENT CO
1	<0.1
2	<0.1
3	<0.1

GAS ANALYSIS DATA FORM

PLANT UNITED STATES SUGAR CORPORATION - CLEWISTON COMMENTS:
DATE 12-23-85 TEST NO 859-S-1
SAMPLING TIME (24-hr CLOCK) 0900 - 1005
SAMPLING LOCATION STACK SAMPLING PORTS
SAMPLE TYPE (BAG, INTEGRATED, CONTINUOUS) INTEGRATED BAG
ANALYTICAL METHOD EPA METHOD 3
AMBIENT TEMPERATURE
OPERATOR WA

RUN / GAS	1		2		3		AVERAGE NET VOLUME	MULTIPLIER	MOLECULAR WEIGHT OF STACK GAS (DRY BASIS) M_d
	ACTUAL READING	NET	ACTUAL READING	NET	ACTUAL READING	NET			
CO_2	11.7		11.7		11.7		11.7	44/100	5.14
O_2 (NET IS ACTUAL O_2 READING MINUS ACTUAL CO_2 READING)	20.7	9.0	20.7	9.0	20.7	9.0	9.0	32/100	2.88
CO (NET IS ACTUAL CO READING MINUS ACTUAL O_2 READING)	20.7	0	20.7	0	20.7	0	0	28/100	0
N_2 (NET IS 100 MINUS ACTUAL CO READING)		79.3		79.3		79.3	79.3	28/100	22.20
								TOTAL	30.22

GAS ANALYSIS DATA FORM

PLANT UNITED STATES SUGAR CORPORATION - CLEWISTON COMMENTS:
DATE 12-23-85 TEST NO 859-S-2
SAMPLING TIME (24-hr CLOCK) 1612 - 1720
SAMPLING LOCATION STACK SAMPLING PORTS
SAMPLE TYPE (BAG, INTEGRATED, CONTINUOUS) INTEGRATED BAG
ANALYTICAL METHOD EPA METHOD 3
AMBIENT TEMPERATURE
OPERATOR WS

RUN / GAS	1		2		3		AVERAGE NET VOLUME	MULTIPLIER	MOLECULAR WEIGHT OF STACK GAS (DRY BASIS) M_d
	ACTUAL READING	NET	ACTUAL READING	NET	ACTUAL READING	NET			
CO_2	12.2		12.3		12.3		12.3	44/100	5.41
O_2 (NET IS ACTUAL O_2 READING MINUS ACTUAL CO_2 READING)	20.6	8.4	20.7	8.4	20.7	8.4	8.4	32/100	2.68
CO (NET IS ACTUAL CO READING MINUS ACTUAL O_2 READING)	20.7	0.1	20.7	0	20.7	0	<0.1	28/100	0
N_2 (NET IS 100 MINUS ACTUAL CO READING)		79.3		79.3		79.3	79.3	28/100	22.20
								TOTAL	30.29

GAS ANALYSIS DATA FORM

PLANT UNITED STATES SUGAR CORPORATION - CLEWISTON COMMENTS:
DATE 12-23-85 TEST NO 859-5-3
SAMPLING TIME (24-hr CLOCK) 1934-2056
SAMPLING LOCATION STACK SAMPLING PORTS
SAMPLE TYPE (BAG, INTEGRATED, CONTINUOUS) INTEGRATED BAG
ANALYTICAL METHOD EPA METHOD 3
AMBIENT TEMPERATURE
OPERATOR

RUN / GAS	1		2		3		AVERAGE NET VOLUME	MULTIPLIER	MOLECULAR WEIGHT OF STACK GAS (DRY BASIS) M_d
	ACTUAL READING	NET	ACTUAL READING	NET	ACTUAL READING	NET			
CO_2	12.2		12.3		12.3		12.3	44/100	5.41
O_2 (NET IS ACTUAL O_2 READING MINUS ACTUAL CO_2 READING)	20.7	8.5	20.8	8.5	20.8	8.5	8.5	32/100	2.72
CO (NET IS ACTUAL CO READING MINUS ACTUAL O_2 READING)	20.7	0	20.8	0	20.8	0	0	28/100	0
N_2 (NET IS 100 MINUS ACTUAL CO READING)		79.3		79.2		79.2	79.2	28/100	22.18
								TOTAL	30.31

Sulfur Dioxide

TEST RESULTS - SULFUR DIOXIDE
UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT 859-S

CALCULATIONS

$$WSO2 = K2(VT-VTB)N(VSOLN/VA)$$

$$CSO2 = (WSO2/VM)$$

$$E = CSO2 \times QS \times 60$$

NOMENCLATURE

W2SO - SULFUR DIOXIDE CAPTURED IN SAMPLE, POUNDS
K2 - 7.061×10^{-5} LBS./MEG.
VT - VOLUME OF TITRATE (ML) SAMPLE
VTB - VOLUME OF TITRATE (ML) BLANK
N - NORMALITY OF TITRATE
VSOL - VOLUME OF SOLUTION
VA - VOLUME OF ALIQUOT TITRATED
CSO2 - CONCENTRATION OF SULFUR DIOXIDE, (LB/DSCF)
VM - VOLUME AT THE METER (STD CU./FT.)
QS - VOLUMETRIC FLOW RATE (SCFM)
E - EMISSION RATE (LBS./HR.)

BLANK (VTB) = 0
NORMALITY (N) = .01036

RUN	VT	VSOL	VA	VM	CSO2	QS	EMISSIONS
1	.3	500	20	31.80	2E-07	12187	1.26
2	.2	500	20	31.97	1E-07	120509	.83
3	.2	500	20	31.90	1E-07	120481	.83
AVERAGE							.97

FIELD AND ANALYTICAL PROCEDURES
EPA METHOD 6
DETERMINATION OF SULFUR DIOXIDE EMISSIONS
FROM STATIONARY SOURCES

Determination of Sulfur Dioxide was accomplished by utilizing the option of simultaneous determination with EPA Method 5. The water in the impingers was replaced with 3% H_2O_2 as specified in the reference method. Upon completion of each test run, the H_2O_2 solution was removed from the impingers, measured and diluted to one liter for analysis according to EPA Method 6.

Oxides of Nitrogen

TEST RESULTS - OXIDES OF NITROGEN
UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT 859-S

VSC - SAMPLE VOLUME AT STANDARD CONDITIONS, DRY BASIS, ML

M - MASS OF NOX AS NO2 IN GAS SAMPLE, MG.

C - CONCENTRATION OF NOX AS NO2, DRY BASIS, CORRECTED TO STANDARD CONDITIONS, LB./DSCF

E - EMISSION RATE, LBS./HR.

RUN	VSC	N	C	E
1	568.3	81.4	8.9E-06	64.89
2	1922.5	335.4	1.09E-05	79.04
3	1922.9	454.7	1.48E-05	107.13
4	1924.2	512.2	1.66E-05	120.6
5	1867.1	238.6	8E-06	57.89
6	1886.8	282.1	9.3E-06	67.73
7	1847.0	308.7	1.04E-05	75.73
8	1901.1	336.8	1.11E-05	80.27
9	1906.3	324.2	1.06E-05	77.04
10	1878.3	289.1	9.6E-06	69.73
11	1879.7	190.9	6.3E-06	46.00
12	1912.4	168.4	5.5E-06	39.89
AVERAGE				73.83

OXIDES OF NITROGEN

FIELD DATA

REPORT 859-5 OPERATOR uA SAMPLE LOCATION Stack Inlet

DATE 12-23-85 INSTALLATION Boiler BAROMETRIC PRESSURE 30.21

SAMPLE NUMBER	FLASK & VALVE NUMBER	SAMPLE TIME	PROBE TEMPERATURE	LEG A_i	LEG B_i	INITIAL PRESSURE
1	1	0908	155	31.2	2.6	1.61
2	2	0921	154	31.3	2.6	1.51
3	3	0943	153	31.3	2.6	1.51
4	4	0955	151	31.3	2.6	1.51
5	5	1617	154	31.3	2.7	1.61
6	6	1633	154	31.3	2.7	1.61
7	7	1653	154	31.2	2.8	1.81
8	8	1707	153	31.3	2.6	1.51
9	9	1944	155	31.3	2.7	1.61
10	10	1954	158	31.3	2.7	1.61
11	11	2023	154	31.2	2.7	1.71
12	12	2035	156	31.3	2.6	1.51

OXIDES OF NITROGEN

LABORATORY DATA

REPORT 859-S ANALYST CA kc 701.7

DATE 12-26-85 BAROMETRIC PRESSURE 30.31 Ph ADJUSTMENT MADE Yes

SAMPLE NUMBER	FLASK & VALVE NUMBER	TIME	LEG A_f	LEG B_f	FINAL PRESSURE P_f	FINAL TEMPERATURE T_f	FLASK VOLUME V_f	ABSORBANCE A	DILUTION FACTOR f
1	1	0900	6.8	27.1	10.01	67	2053	.058	1
2	2	0902	16.8	17.2	29.91	67	2049	.239	1
3	3	0904	16.8	17.2	29.91	67	2049	.324	1
4	4	0906	16.8	17.2	29.91	67	2050	.365	1
5	5	0908	16.4	17.6	29.11	67	2054	.170	1
6	6	0910	16.6	17.4	29.51	67	2046	.201	1
7	7	0912	16.4	17.6	29.11	67	2047	.220	1
8	8	0914	16.6	17.4	29.51	67	2054	.240	1
9	9	0916	16.7	17.3	29.71	67	2052	.231	1
10	10	0918	16.5	17.5	29.31	67	2051	.206	1
11	11	0920	16.6	17.4	29.51	67	2045	.136	1
12	12	0922	16.7	17.3	29.71	67	2051	.120	1
Blank	13	0924	16.8	17.2	29.91	67	2048	.000	1

STANDARD SOLUTION AND CONTROL SAMPLE
ANALYTICAL DATA FORM

Plant U. S. S. C. Date 12-26-85

Analyst MA Optimum Wavelength 404 nm

Blank used as reference? Yes

Sample Number	Sample, Mg	Working solution	Control sample	Measured, absorbance OD	Calculated absorbance,[a] OD	Absorbance comparison error, b%
A1	100	x		.151	--	--
A2	200	x		.294	--	--
A3	300	x		.440	--	--
A4	400	x		.553	--	--
S1	100		x	.148	.143	3.5
S2	200		x	.291	.285	2.1
S3	300		x	.438	.428	2.3
						Avg[c] 2.6

$$K_c = 100\left[\frac{A_1+2A_2+3A_3+4A_4}{A_1^2+A_2^2+A_3^2+A^2{}_4}\right] = 701.7.$$

[a] Calculated absorbance: OD = (mg)/K_c i.e., S1 calculated absorbance = 100/K_c

[b] Absorbance Comparison errors:

$$\% = 100 \times \frac{\text{(measured absorbance, OD) - (calculated absorbance, OD)}}{\text{calculated absorbance, OD}}$$

[c] Average of absolute values.

Optimum Wavelength Determination Form

Spectrophotometer Number 7122 Date 12-26-85

Calibrated by MA Reviewed By _____

Spectrophotometer setting, nm	Absorbance of standard OD[a]	Absorbance of blank OD[b]	Actual absorbance of OD[c]
399	.279	.012	.267
400	.280	.011	.269
401	.281	.010	.271
402	.282	.009	.273
403	.282	.008	.274
404	.284	.008	.276
405	.283	.008	.275
406	.283	.009	.274
407	.283	.009	.274
408	.283	.010	.273
409	.283	.010	.273
410	.282	.010	.272
411	.282	.011	.271
412	.282	.012	.270
413	.281	.012	.269
414	.281	.013	.268
415	.280	.013	.267
416	.280	.014	.266

[a]Absorbance of the 200 mg NO_2 standard in a single beam spectrophotometer

[b]Absorbance of the blank in a single-beam spectrophotometer

[c]For a single-beam spectrophotometer -- absorbance of the standard minus absorbance of the blank. For a double beam spectrophotometer -- absorbance of the 200 mg NO_2 standard with the blank in the reference cell.

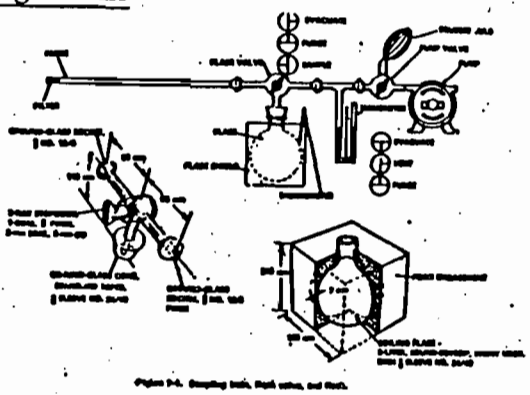
Spectrophotometer setting for maximum actual absorbance of standard 404 nm.

If the maximum actual absorbance occurs at a spectrophotometer setting of $\leq$399 or $\leq$416 nm, the spectrophotometer must be repaired or recalibrated.

FIELD AND ANALYTICAL PROCEDURES
EPA METHOD 7
DETERMINATION OF NITROGEN OXIDE EMISSIONS
FROM STATIONARY SOURCES

All laboratory and field procedures were performed in accordance with EPA Reference Method 7. Calibrations and Quality Assurance was performed as described in the EPA Quality Assurance Manual III.

Nox Sampling Train



III-Appendix A-30

OXIDES OF NITROGEN

NOMENCLATURE AND CALCULATIONS

A - ABSORBANCE OF SAMPLE

C - CONCENTRATION OF NOX AS NO2, DRY BASIS, CORRECTED TO STANDARD CONDITIONS. LB./DSCF

F - DILUTION FACTOR (IE;25/5, 25/10, ETC) REQUIRED ONLY IF SAMPLE DILUTION WAS NEEDED TO REDUCE THE ABSORBANCE TO THE RANGE OF CALIBRATION

KC - SPECTROPHOTOMETER CALIBRATION FACTOR

M - MASS OF NOX AS NO2 IN GAS SAMPLE, MG

PF - VOLUMETRIC FLOW RATE, DSCF

PI - INITIAL ABSOLUTE PRESSURE OF FLASK, K ('R)

PSTD - STANDARD ABSOLUTE PRESSURE, 760 MM (29.92 IN.) HG.

TF - FINAL ABSOLUTE TEMPERATURE OF FLASK K ('R)

TI - INITIAL ABSOLUTE TEMPERATURE OF FLASK, K ('R)

TSTD - STANDARD ABSOLUTE TEMPERATURE, 293K (528'R)

VSC - SAMPLE VOLUME AT STANDARD CONDITIONS, DRY BASIS, ML

VF - VOLUME OF FLASK AND VALVE, ML.

VA - VOLUME OF ABSORBING SOLUTION, 25 ML.

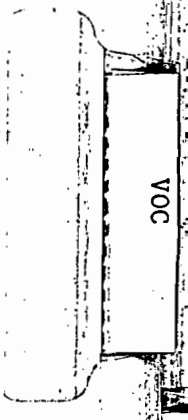
E - EMISSION RATE, LBS./HR.

Q - VOLUMETRIC FLOW RATE, DSCF

CALCULATIONS

VS = 17.64 X (VF-25) X ((PF/(TF+460))-(PA/(TA+460))
M = 2 X KC X A X F
C = .00006243 X M/VS
E = 60 X Q X C

Total Gaseous Nonmethane Organics



VOLATILE ORGANIC COMPOUNDS
UNITED STATES SUGAR CORPORATION
BOILER NO. 4 - CLEWISTON
REPORT 859-S

RUN	PPM	Mg/DSCM	LB/DSCF	Qs	LB./HR.
1	459.4	228.8	1.428×10^{-5}	121839	104.4
2	315.8	157.3	9.820×10^{-6}	120511	71.0
3	534.8	266.3	1.663×10^{-5}	120483	120.2
AVERAGE					98.5

REPORT ON ANALYSIS FOR TOTAL GASEOUS NONMETHANE ORGANICS

AIR CONSULTING & ENGINEERING
GAINESVILLE, FL

CAE Project No: 3554

CLEAN AIR ENGINEERING, INC
Jan 16, 1985

CONTENTS

SUMMARY

OBJECTIVES

Clean Air Engineering was contracted by Air Consulting & Engineering to determine the level of total gaseous nonmethane organic (TGNMO) compounds from samples collected at the U.S. Sugar plant in Florida.

Samples were collected by Air Consulting & Engineering on Dec 23, 1986 and submitted to CAE for analysis on Jan 6, 1986. Analysis was performed on Jan 12, 1986.

CONCLUSIONS

1.) At the #4 boiler/scrubber, TGNMO concentrations ranged from 315.8-534.8 ppmv carbon equivalent.

To the best of our knowledge, the data presented in this report is accurate and complete.

Respectfully submitted,

CLEAN AIR ENGINEERING, INC

Stephanie J. Schmidt/BR

Stephanie J. Schmidt
Project Engineer

Barbara Krohn

Barbara Krohn
Technical Editor

SJS/BK/lls

355401/84

SUMMARY OF PROCEDURES

SAMPLING PROCEDURES

Field sampling was performed by Air Consulting & Engineering according to Method 25, "Determination of Total Gaseous Nonmethane Organic Emissions as Carbon." This method appears in Title 40 of the Code of Federal Regulations (CFR), Part 60, Subpart A. The sampling train for Method 25 is shown in Fig 1 on page 4-1.

ANALYTICAL PROCEDURES

All samples were analyzed according to EPA Method 25 cited above. Analysis was performed on a Byron Instrumetns Model 401 gas analyzer. This instrument is an automated gas chromatograph that has been modified to meet performance specifications of Method 25. Peak areas were integrated using an Interactive Microware, Inc microcomputer.

The gas analyzer was calibrated with gas containing nominally 78.1 ppm methane, 23.5 ppm propane, 77.9 ppm carbon monoxide and 68.6 ppm carbon dioxide. Calibration was performed before running each sample set. In addition calibration gas containing 1% carbon dioxide was injected daily to monitor catalyst efficiency and system linearity.

QUALITY CONTROL PROCEDURES

Quality control procedures for all aspects of sample preservation and holding time; reagent quality; analytical method; analyst training and safety; and instrument cleaning, calibration and safety were followed.

RESULTS

Results of Method 25 analysis for TGNMO are summarized in accompanying Table 1. Sample calculations are provided in the Appendix along with nomenclature and laboratory data.

Table 1
Analysis for TGNMO

Boiler/ Scubber Location	Run No	Tank	Trap	Vs	Ct	Cc	TGNMO (ppm C)	TGNMO (mg C)
#4	1A	4T21	A40	3119.6	111.3	348.1	459.4	228.8
#4	2A	4T35	A15	2892.4	111.9	204.0	315.8	157.3
#4	3A	4T37	A9	3060.8	189.7	345.1	534.8	266.3

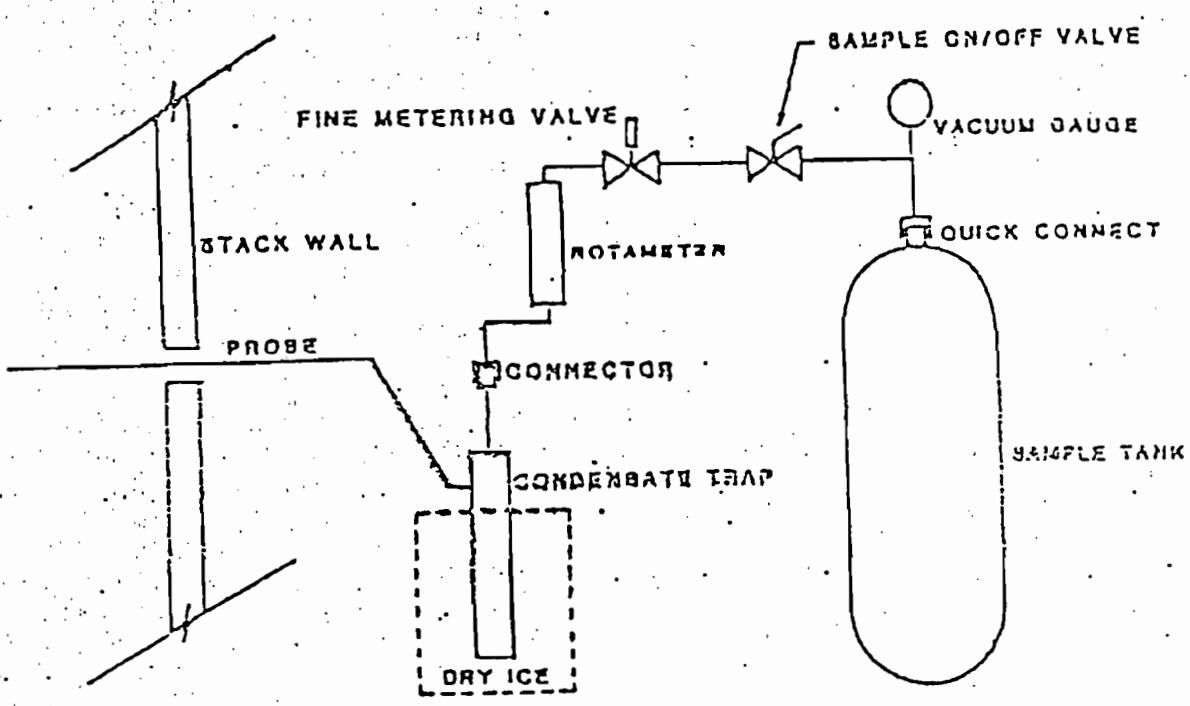


Fig 1. The sampling train for EPA Method 25 is shown.

Method 25 Nomenclature

As -- cross sectional area of sampling plane (ft^2)
Ba -- measured TGNMO analyzer blank value (ppmv C)
Bt -- measured CO_2 blank value for condensate recovery and conditioning system carrier gas (ppmv CO_2)
Bwo-- proportion of water vapor in the gas stream by volume (%)
C -- TGNMO concentration in the effluent (ppmv C equivalent)
Cc -- calculated condensible organic concentration in the condensate trap (ppmv C equivalent)
Ccm-- measured TGNMO for the condensate trap, ICV (ppm CO_2)
Cp -- pitot tube coefficient (dimensionless)
Ct -- calculated noncondensible organic concentration in the effluent (ppmv C equivalent)
Ctm-- measured TGNMO concentration for the sample tank (ppm C equivalent)
Dp -- average of square roots of gas stream velocity heads (in. H_2O)
ICV-- intermediate collection vessel
Kp -- $\frac{[(lb/lb\text{-}mole)(in.\ Hg)]}{[(°R)(in.\ H_2O)]}$ = 85.49 ft/sec
Kc -- calibration factor
Mc -- TGNMO mass concentration in the effluent (mg C/dscm)
Md -- dry molecular weight of gas stream (lb/lb-mole)
Ms -- molecular weight of gas stream, wet basis (lb/lb-mole)
Pb -- barometric pressure at test location (mm Hg absolute)
PbF-- barometric pressure after pressurizing sample tank (mm Hg absolute)
PbFf- barometric pressure after pressurizing ICV (mm Hg absolute)
PbI-- barometric pressure prior to sampling (mm Hg absolute)
PF -- final pressure of ICV (mm Hg gauge)
Pf -- final pressure of ICV (mm Hg absolute)
PFI-- initial pressure of ICV (mm Hg gauge)
Ps -- pressure gas stream (in. Hg absolute)
PT -- sample tank pressure after sampling, prior to pressurizing (mm Hg gauge)
Pt -- sample tank pressure after sampling, prior to pressurizing (mm Hg absolute)
PTF-- final sample tank pressure after pressurizing (mm Hg gauge)
Ptf-- final sample tank pressure after pressurizing (mm Hg absolute)
PTI-- sample tank pressure prior to sampling (mm Hg gauge)
Pti-- sample tank pressure prior to sampling (mm Hg absolute)
Qa -- volumetric flow rate, actual conditions
Qs -- volumetric flow rate, standard conditions
Qstd- volumetric flow rate, standard conditions, dry basis
TF -- final temperature of ICV (°F)
Tf -- final temperature of ICV (°K)
TGNMO-total gaseous nonmethane organics

Method 25 Nomenclature (Continued)

TTI-- sample tank temperature prior to sampling (°F)
Tti-- sample tank temperature prior to sampling (°K)
TT -- sample tank temperature at completion of sampling (°F)
Tt -- sample tank temperature at completion of sampling (°K)
TTF-- sample tank temperature after pressurizing (°F)
Ttf-- sample tank temperature after pressurizing (°K)
Ts -- stack temperature (°R)
V -- sample tank volume (cm^3)
Vv -- volume ICV (cm^3)
Vs -- volume gas sampled (dscm)
VS -- velocity gas stream (ft/sec)
n -- number of data points
q -- total number of analyzer injections from ICV
where k = injection number 1.....q
r -- total number of analyzer injections from sample tank
where j = injection number 1 . . . r
Xi -- individual measurements

Method 25 Sample Calculations

All equations are written using absolute pressure in mm Hg. Absolute pressures are determined by adding the measured barometric pressure to the measured gauge pressure. All temperatures are in degrees Kelvin. The following calculations are done using Run 1A.

1.) Sample volume (dscc)

$$Vs = 0.386(V)\left(\frac{pt}{tt} - \frac{pti}{tti}\right)$$

$$= 0.3846(4004)\left(\frac{(-165 + 759)}{289.7} - \frac{(-752 + 761)}{290.8}\right)$$

$$= 3120 \ cm^3$$

where: pt = PT + Pb
pti = PTI + PbI
tt = 5/9(TT - 32) + 273
tti = 5/9(TTI - 32) + 273

2. Noncondensible organics (ppmv C equivalent)

$$Ct = \frac{\frac{ptf}{ttf}}{\frac{pt}{tt} - \frac{pti}{tti}}\left(\frac{1}{r}\left(\sum_{j=1}^{r} Ctm_j\right) - Ba\right)$$

$$= \frac{\frac{(762 + 816)}{295.8}}{\frac{(-165 + 759)}{289.7} - \frac{(-752 + 761)}{290.8}}$$

$$x \ [1/3 \ [42.7 + 42.7 + 42.5] - 0.5]$$

$$= 111$$

where: ptf = PTF + PbF
ttf = 5/9(TTF - 32) + 273

3. Condensible organics (ppmv C equivalent)

$$Cc = 0.386 \frac{(Vv)(pf)}{(Vs)(tf)} \left(\frac{1}{q} \left(\sum_{k=1}^{q} Ccm_k \right) - Bt \right)$$

$$= 0.3846 \frac{(4011)(763 + 864)}{(3120)(296.9)}$$

$$x \; [1/3[140.6 + 141.2 + 141.7] - 13.1]$$

$$= 348 \text{ ppm}$$

where: $pf = (PF + PbFf)$
$tf = 5/9(TF - 32) + 273$

4. Total gaseous nonmethane organics, TGNMO (ppmv C equivalent)

$$C = (Ct) + (Cm)$$

$$= (348) + (111)$$

$$= 459 \text{ ppm}$$

5. Total gaseous nonmethane organics, TGNMO (mg C/dscm)

$$Mc = 0.498(C)$$

$$= 0.498(459)$$

$$= 229 \text{ mg C/dscm}$$

Job No.			Plant	U.S. SUGAR
Client	VOC Inc.		Sampling Location	BOILER FOUR
Report No.			Date	DEC. 23, 1985
Preliminary Data				
Run No.		1A	2A	3A
Tank No.		31	35	37
Trap No.		40	43	3
Tank Volume, V	(cc)	4004	4043	4006
Field Data				
PTI	(mmHg)	-752	-750	-750
TTI	(F)	64	64	63
PbI	(mmHg)	761	761	759
PT	(mmHg)	-163	-214	-188
TT	(F)	62	59	58
Pb	(mmHg)	759	759	759
Lab Data				
Noncondensible Organics				
PTF	(mmHg)	816	814	836
TTF	(F)	73	73	73
PbF	(mmHg)	762	761	762
Ba	(PPmv C)	.5	.5	.5
Ctm 1	(PPmv C)	42.7	39.8	70.0
Ctm 2	(PPmv C)	42.7	39.6	70.0
Ctm 3	(PPmv C)	42.5	39.4	70.1
Avg. Ctm	(PPmv C)	42.6	39.6	70.0
Std. Dev. Ctm		.08	.14	.04
Ct	(PPmv C)	111.3	111.3	189.7
Condensible Organics				
ICV Tank No.		<1	46	32
ICV Tank Vv	(cc)	4011	3922	4011
PF	(mmHg)	864	873	856
TF	(F)	73	73	73
PbFf	(mmHg)	762	760	762
Bt	(PPmv C)	13.1	13.1	13.1
Ccm 1	(PPmv C)	140.6	84.1	138.0
Ccm 2	(PPmv C)	141.2	84.3	138.0
Ccm 3	(PPmv C)	141.7	83.6	137.7
Avg. Ccm	(PPmv C)	141.2	84.0	137.9
Std. Dev. Ccm		.39	.25	.12
Cc	(PPmv C)	343.1	284.0	345.1
Total Gaseous Nonmethane Organics (TGNMO)				
Vg	(cc)	3119.6	2892.4	3060.8
Ct+Cc=C	(PPmv C)	459.4	315.3	534.9
Mc	(mg C/dscm)	220.8	157.7	266.3

JOB# |
CLIENT | Air Consultants
REPORT# |
PAGE# |

M25 ANAL.

PLANT | U.S. Sugar
CITY,STATE |
SMPLE LOC. | #4 Boiler/Scrubber
SMPLE OPR. | Neal
SMPLE DATE | 12/03/85

IDENTIFICATION ITEM	UNITS	RAW DATA	COMP. DATA	RAW DATA	COMP. DATA	RAW DATA	COMP. DATA
RUN	ID #	XXXXXXXXXX	3A	XXXXXXXXXX	5B	XXXXXXXXXX	BLANK
TANK	ID #	XXXXXXXXXX	4T37	XXXXXXXXXX	4T42	XXXXXXXXXX	4T5.2
TRAP	ID #	XXXXXXXXXX	A9	XXXXXXXXXX	A52	XXXXXXXXXX	A45
FIELD DATA							
V	ml	XXXXXXXXXX		XXXXXXXXXX		XXXXXXXXXX	4018
PTI	mmHg	(/)-	-750	(/)-	-748	(/)-	-
TTI	deg F		63		63		
PbI	mmHg	( )-	759	( )-	759	( )-	
PT	mmHg	(/)-	-183	(/)-	-421	(/)-	-
TT	deg F		54		66		
PbT	mmHg	( )-	759	( )-	759	( )-	
LAB DATA							
PURGE							
PT	mmHg	(74 180) :	-154	(/)	-	(366/372)	-735
TT	deg F		73				69
PbT	mmHg	( )	762	( )		( )	751
discr.	+/-mls		XXXXX		XXXXX		XXXXX
PTF	mmHg	(416/420)		(/)		(425/419)	
TTF	deg F		73				64
PbF	mmHg	( )	762	( )		( )	751
BURN							
ICV	tank#	XXXXXXXXXX	4T32	XXXXXXXXXX		XXXXXXXXXX	4T9
VV	ml	XXXXXXXXXX		XXXXXXXXXX		XXXXXXXXXX	4500
PFI	mmHg	(372/378)	-750	(/)	-	360/365	-725
TFI	deg F		73				65
PbFi	mmHg	( )	762	( )		( )	751
PF	mmHg	(430/426)	856	(/)		(424/418)	842
TF	deg F		73				70
PbFf	mmHg	( )	762	( )		( )	751
BA	ppmC	XXXXXXXXXX		XXXXXXXXXX		XXXXXXXXXX	
BT	ppmC	XXXXXXXXXX		XXXXXXXXXX		XXXXXXXXXX	
DATE/OPERATOR			XXXXX		XXXXX		XXXXX
ANALYSIS DATA							
CTM 1	ppmC	XXXXXXXXXX	70.0	XXXXXXXXXX		XXXXXXXXXX	.6
CTM 2	ppmC	XXXXXXXXXX	70.0	XXXXXXXXXX		XXXXXXXXXX	.5
CTM 3	ppmC	XXXXXXXXXX	70.1	XXXXXXXXXX		XXXXXXXXXX	.5
CTMavg.	ppmC		XXXXX		XXXXX		XXXXX
CTMrsd.	%		XXXXX		XXXXX		XXXXX
PGE STD. FILE		D1/17	XXXXX		XXXXX	P1/13/85	XXXXX
DATE/OPERATOR		SJS 1/17	XXXXX		XXXXX	1/13/85 ALS	XXXXX
CCM 1	ppmC	XXXXXXXXXX	138.0	XXXXXXXXXX		XXXXXXXXXX	13.7
CCM 2	ppmC	XXXXXXXXXX	138.0	XXXXXXXXXX		XXXXXXXXXX	12.8
CCM 3	ppmC	XXXXXXXXXX	137.7	XXXXXXXXXX		XXXXXXXXXX	12.8
CCMavg.	ppmC		XXXXX		XXXXX		XXXXX
CCMrsd.	%		XXXXX		XXXXX		XXXXX
BRN STD. FILE		B1/17	XXXXX		XXXXX	B1/13/85	XXXXX
DATE/OPERATOR		SJS 1/17	XXXXX		XXXXX	1/13/85 ALS	XXXXX

COMMENTS:

JOB#
CLIENT Air Consultants
REPORT#
PAGE#

M25 ANAL.

PLANT U.S. Solar
CITY, STATE
SMPLE LOC. #4 BOILER
SMPLE OPR. Neck
SMPLE DATE 12/23/85

IDENTIFICATION ITEM	UNITS	RAW DATA	COMP. DATA	RAW DATA	COMP. DATA	RAW DATA	COMP. DATA
RUN	ID #	XXXXXXXXXX	1A	XXXXXXXXXX	1B	XXXXXXXXXX	
TANK	ID #	XXXXXXXXXX	4T21	XXXXXXXXXX	4T50	XXXXXXXXXX	
TRAP	ID #	XXXXXXXXXX	A40	XXXXXXXXXX	A50	XXXXXXXXXX	
FIELD DATA							
V	ml	XXXXXXXXXX		XXXXXXXXXX		XXXXXXXXXX	
PTI	mmHg	(/)-	-752	(/)-	-751	(/)-	-
TTI	deg F		64		64		
PbI	mmHg	( )-	761	( )-	761	( )-	
PT	mmHg	(/)-	-1605	(/)-	-561	(/)-	-
TT	deg F		62		62		
PbT	mmHg	( )-	759	( )-	759	( )-	
LAB DATA							
PURGE							
PT	mmHg	(1601/1606)	H260	(/)	-	(/)	-
TT	deg F		73				
PbT	mmHg	( )	762	( )		( )	
discr.	+/-mls		XXXXX		XXXXX		XXXXX
PTF	mmHg	(411/405)	816	(/)		(/)	
TTF	deg F		73				
PbF	mmHg	( )	762	( )		( )	
BURN							
ICV	tank#	XXXXXXXXXX	4T41	XXXXXXXXXX		XXXXXXXXXX	
VV	ml	XXXXXXXXXX		XXXXXXXXXX		XXXXXXXXXX	
PFI	mmHg	(372/377)	-749	(/)	-	(/)	-
TFI	deg F		73				
PbFi	mmHg	( )	762	( )		( )	
PF	mmHg	(435/429)	864	(/)		(/)	
TF	deg F		75				
PbFf	mmHg	( )	763	( )		( )	
CA	ppmC	XXXXXXXXXX		XXXXXXXXXX		XXXXXXXXXX	
CT	ppmC	XXXXXXXXXX		XXXXXXXXXX		XXXXXXXXXX	
DATE/OPERATOR			XXXXX		XXXXX		XXXXX
ANALYSIS DATA							
CTM 1	ppmC	XXXXXXXXXX	42.7	XXXXXXXXXX		XXXXXXXXXX	
CTM 2	ppmC	XXXXXXXXXX	42.7	XXXXXXXXXX		XXXXXXXXXX	
CTM 3	ppmC	XXXXXXXXXX	42.5	XXXXXXXXXX		XXXXXXXXXX	
CTMavg.	ppmC		XXXXX		XXXXX		XXXXX
CTMrsd.	%		XXXXX		XXXXX		XXXXX
PGE STD. FILE	12/12		XXXXX		XXXXX		XXXXX
DATE/OPERATOR	CJS 1/12		XXXXX		XXXXX		XXXXX
CCM 1	ppmC	XXXXXXXXXX	140.6	XXXXXXXXXX		XXXXXXXXXX	
CCM 2	ppmC	XXXXXXXXXX	141.2	XXXXXXXXXX		XXXXXXXXXX	
CCM 3	ppmC	XXXXXXXXXX	141.7	XXXXXXXXXX		XXXXXXXXXX	
CCMavg.	ppmC		XXXXX		XXXXX		XXXXX
CCMrsd.	%		XXXXX		XXXXX		XXXXX
BRN STD. FILE	B 1/17		XXXXX		XXXXX		XXXXX
DATE/OPERATOR	CJS 1/17		XXXXX		XXXXX		XXXXX

COMMENTS: _____

VOLATILE ORGANIC CARBON

FACILITY _____ SAMPLE LOCATION #4 BOILER

LOCATION U.S. SUGAR - CLEWISTON OPERATOR NECK

DATE 12-23-85 RUN NUMBER 1

TANK NUMBER 4T21 TRAP NUMBER A 40 SAMPLE ID NUMBER 1A

	TANK VACUUM, Hg		BAROMETHIC PRESSURE, Hg	AMBIENT TEMPERATURE,
PRETEST (MANOMETER)	~~29~~ 29.85	(GAUGE) 30	30.21	64
POST TEST (MANOMETER)	~~28~~ 6,55	(GAUGE) 7.0	30.14	62

LEAK RATE Hg / 10 min

START 1406 PRETEST 0.00

POST TEST _____

TIME CLOCK/SAMPLE	GAUGE VACUUM, Hg	FLOWMETER SETTING	COMMENTS
1411	~~28~~ 27	75	
1416	24	~~23~~ 75	
1421	22	75	PLUGGED FOR ABOUT 30 SEC.
1426	20	75	
1431	17	75	
1436	15	75	
1441	13	75	
1446	9.5	75	
1451	7.0	75	

Clean Air Engineering, Inc.

VOLATILE ORGANIC CANISTER

FACILITY U S SUGAR — SAMPLE LOCATION #4 BOILER

LOCATION CLEWISTON, FL. — OPERATOR NEIL

DATE 12-23-85 — RUN NUMBER 1

TANK NUMBER 4T50 — TRAP NUMBER A50 — SAMPLE ID NUMBER 1B

	TANK VACUUM, "Hg		BAROMETRIC PRESSURE, "Hg	AMBIENT TEMPERATURE, °F
PRETEST (MANOMETER)	29.8	(GAUGE) 29	30.21	64
POST TEST (MANOMETER)	20.25	(GAUGE) 22	30.14	62

LEAK RATE — "Hg / 10 min

START 1406 — PRETEST 0.00

POST TEST

TIME CLOCK/SAMPLE	GAUGE VACUUM, "Hg	FLOWMETER SETTING	COMMENTS
1411	26	75	
1416	23	75	
1421	22	75	(DOWN) SOME WITH PUMP
1423	22		STOP 1423
			WON'T CLEAR WITH
			HEAT. I THINK
			TRAP IS PLUMBED
			BACKWARDS (BRASS
			IS ATTACHED TO
			OUTLET INSTEAD OF
			INLET.)

Clean Air Engineering, Inc.

VOLATILE ORGANIC CARBON

FACILITY U.S. SUGAR — SAMPLE LOCATION BOILER 4 SCRUBBER STACK
LOCATION CLEWISTON, FL — OPERATOR NEIL
DATE 12-23-15 — RUN NUMBER 2
TANK NUMBER 4T35 — TRAP NUMBER A15 — SAMPLE ID NUMBER 2A

	TANK VACUUM, in. Hg		BAROMETRIC PRESSURE, in. Hg	AMBIENT TEMPERATURE, °F
PRETEST (MANOMETER)	29.75	(GAUGE) 29	30.21	64
POST TEST (MANOMETER)	~~12.10~~ 8.15	(GAUGE) 9	30.14	59

LEAK RATE ____ in. Hg / 10 min
START 1604 — PRETEST 0.20
POST TEST ____

TIME CLOCK/SAMPLE	GAUGE VACUUM, in. Hg	FLOWMETER SETTING	COMMENTS
1609	26	90	
1614	23	90	
1619	20	90	
1624	17	90	
1629	14	90	
1634	11	90	
1639	9	90-85	Can't Maintain flow any longer

Clean Air Engineering, Inc.

VOLATILE ORGANIC CARBON

FACILITY U.S. Sugar — SAMPLE LOCATION UNIT 4 SCRUBBER
LOCATION CLEWISTON, FLA — OPERATOR Neek
DATE 12-23-95 — RUN NUMBER 2
TANK NUMBER 4T25 — TRAP NUMBER A-45 — SAMPLE ID NUMBER 2B

	TANK VACUUM, "Hg		"Hg	BAROMETHIC PRESSURE, "Hg	AMBIENT TEMPERATURE, °F
PRETEST (MANOMETER)	29.80	(GAUGE)	30	30.21	64
POST TEST (MANOMETER)	12.9	(GAUGE)	13	30.14	59

LEAK RATE "Hg / 10 min

1604 START PRETEST
POST TEST

TIME CLOCK/SAMPLE	GAUGE VACUUM, "Hg	FLOWMETER SETTING	COMMENTS
1609	26 ~~29~~	90	
1614	24	90	
1619	21	90	
1624	19	90	
1629	17	90	
1634	15	90	
1639	13	90-85	Can't maintain flow any longer

Clean Air Engineering, Inc.

VOLATILE ORGANIC CARBON

FACILITY U.S. SUGAR — SAMPLE LOCATION UNIT 4

LOCATION CLEWISTON, FL. — OPERATOR Neal

DATE 12-23-15 — RUN NUMBER 3

TANK NUMBER 4T37 — TRAP NUMBER A-9 — SAMPLE ID NUMBER 3A

	TANK VACUUM, "Hg		"Hg	BAROMETRIC PRESSURE, "Hg	AMBIENT TEMPERATURE, °F
PRETEST (MANOMETER)	29.75	(GAUGE)	30	30.14	63
POST TEST (MANOMETER)	7.25	(GAUGE)	7.5	30.14	56

LEAK RATE "Hg / 10 min

START 1750 — PRETEST 0.0 — POST TEST

TIME CLOCK/SAMPLE	GAUGE VACUUM, "Hg	FLOWMETER SETTING	COMMENTS
1755	26	90	
1800	24	90	
1805	21	90	
1810	19	90	
1815	16	90	
1820	13	90	STOP FOR P.M. TEST
RESTART 1851		90	
1856	10	90	
1901	7.5	90-80	Can't maintain flow - end

Clean Air Engineering, Inc.

VOLATILE ORGANIC CARBON

FACILITY U.S. SUGAR — SAMPLE LOCATION UNIT 4
LOCATION CLEWISTON, FL — OPERATOR Neely
DATE 12-23-85 — RUN NUMBER 3
TANK NUMBER 4T42 — TRAP NUMBER A-52 — SAMPLE ID NUMBER 3B

	TANK VACUUM, "Hg		"Hg	BAROMETHIC PRESSURE, "Hg	AMBIENT TEMPERATURE, °F
PRETEST (MANOMETER)	29.70	(GAUGE)	29	30.14	63
POST TEST (MANOMETER)	[illegible]	(GAUGE)	[illegible]	30.14	56

LEAK RATE "Hg / 10 min
START 1750 PRETEST
POST TEST

TIME CLOCK/SAMPLE	GAUGE VACUUM, "Hg	FLOWMETER SETTING	COMMENTS
1755	27	90	
1800	26	90	
1805	25	90	
1810	24	90	
1815	22.5	90	
1820	21.5	90	STOP FOR PM TEST
RESTART 1851		70	Can't maintain
1856	18	70	flow - Strange
1901	17	End 60	problems. Flow
			meter shows ≈20
			ccm with VALVE
			all the way open

Clean Air Engineering, Inc.

Process Data

PROCESS DATA

COMPANY USSC - Clewiston INSTALLATION Boiler No 4

DATE Dec 23, 1985 REPORT NO. 8595

TYPE OF INSTALLATION Steam Generator

TYPE OF MATERIAL PROCESSED Steam

TYPE(S) OF FUEL USED Bagasse

TYPE OF POLLUTION CONTROL SYSTEM Impingment Scrubber

GENERAL CONDITION OF CONTROL EQUIPMENT Normal

	NORMAL	RUN 1	RUN 2	RUN 3
FUEL USED	Bagasse	Bagasse	Bagasse	Bagasse
SCRUBBER WATER FLOW RATE	460 GPM	460	460	460
PRESSURE DROP (INCHES)	7.0	7.0	7.5	7.5
TOTAL OPERATING CURRENT	n/a	n/a	n/a	n/a
MATERIALS PROCESSED	Steam	Steam	Steam	Steam

COMPANY REPRESENTATIVE Ben T. Sanford, Jr.

TITLE Supv. Special Projects

PH of No. 4 Scrubber Discharge Water

Date 12-23-85

Test	PH	Solids	Name
Start 9:00 AM	8.0	1%	Jeff Mathis
9:15	7.9	2%	Jeff Mathis
9:30	7.8	1%	Jeff Mathis
9:45	7.8	1%	Jeff Mathis
Stop 10:00	7.8	0%	Jeff Mathis
10:15			
10:30			
10:45			
11:00	7.6	0%	Jeff Mathis
11:15			
11:30			
11:45			
Noon 12:00	7.8	0%	Jeff Mathis
12:15			
12:30			
12:45			
1:00	7.8	1%	Jeff Mathis
1:15			
1:30			
1:45			
2:00	7.8	1%	Jeff Mathis
2:15			
2:30			
2:45			
3:00	7.8	0%	Jeff Mathis
3:15			
3:30			
3:45			
4:00	7.9	2%	Tony Varnum
4:15	7.9	2%	Tony Varnum
4:30	7.8	2%	Tony Varnum
4:45	7.5	2%	Tony Varnum
5:00	7.8	1%	Tony Varnum
5:15	7.9	2%	Tony Varnum
5:30	7.8	2%	Tony Varnum

PH	SOLIDS	NAME
7.8	2%	TONY VARNUM
7.8	1%	TONY VARNUM
7.9	1%	TONY VARNUM
7.7	1%	TONY VARNUM
7.8	1%	TONY VARNUM
7.7	1%	TONY VARNUM

12/23/85

No. 4 Boiler Scrubber Tests

Time	Δ P Scrubber	Water Pressure	Water Flow
9:00 AM	7.0" H_2O	80 PSI	490 GPM
9:15	7.0"	84	480
9:30	7.0"	86	480
9:45	7.0"	88	480
10:00	7.0"	88	490
10:15	7.0"	85	470
10:30	7.0"	90	460
10:45	7.0"	94	470
11:00	7.0"	84	460
11:15	7.0"	84	470
11:30	7.0"	88	460
11:45	7.0"	85	460
12:00 N	7.0"	80	465
12:15 PM	7.0"	80	470
12:30	7.0"	80	470
12:45	7.0"	76	470
1:00	7.0"	80	470
1:15	7.0"	85	470
1:30	7.0"	85	470
1:45	7.0"	85	480
2:00	7.5"	82	470
2:15	7.5"	81	465
2:30	7.5"	89	465
2:45	7.5"	78	465
3:00	7.5"	84	465

Munger Sanford 12-23-85

Recorded By: Bert Sanford Jr.

12/23/85 – No. 4 Boiler Scrubber

Time	ΔP Scrubber	Water Pressure	Water Flow
3:15 PM	7.5" H_2O	88 PSI	465 GPM
3:30 PM	7.5"	91	465
3:45	7.5"	87	465
4:00	7.5"	87	470
4:15	7.5"	87	465
4:30	7.5"	84	465
4:45	7.5"	84	460
5:00	7.5"	85	465
5:15	7.5"	84	465
5:30	7.5"	85	470
5:45	7.5"	84	465
6:00	7.5"	84	465
6:15	7.5"	84	465
6:30	7.5"	84	470
6:45	7.5"	84	470
7:00	7.5"	84	470
7:15	7.5"	85	475
7:30	7.5"	84	475
7:45	7.5"	84	470
8:00	7.5"	83	470
8:15	7.5"	85	470
8:30	7.5"	85	470
8:45	7.5"	85	470
9:00	7.5"	84	470

[signature] 12-23-85

Recorded By Ben F Sanford, Jr.

BEST AVAILABLE COPY

BOILER DATA SHEET

COMPANY USSC - Clewiston BOILER NUMBER 4

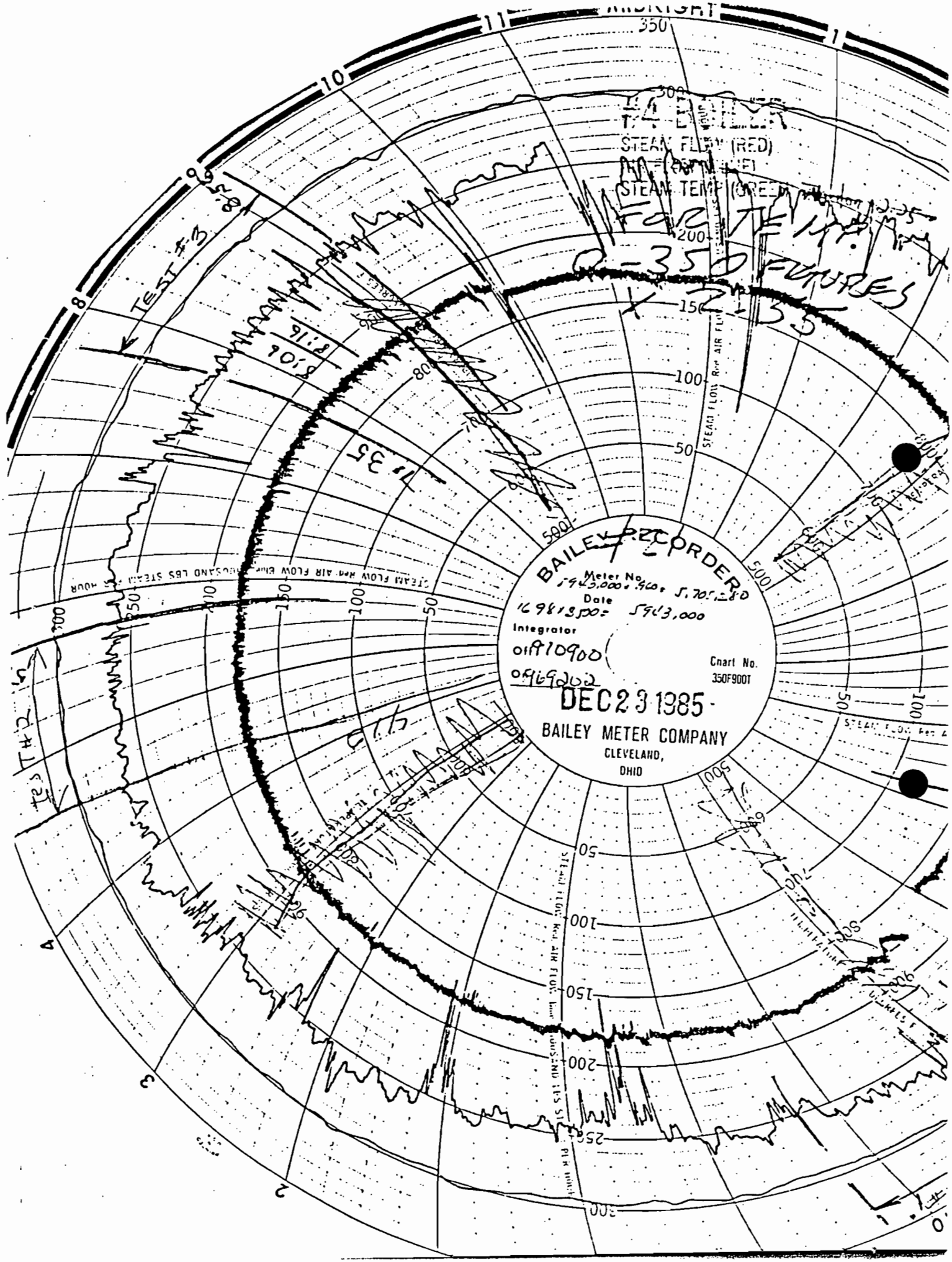
DATE Dec. 23, 1985 REPORT NO. 8585

INTEGRATOR FACTOR 3500 OIL METER FACTOR 120

TIME	INTEGRATOR	OIL METER	STEAM FLOW	STEAM TEMP.	STEAM PRESSURE	FEED WATER TEMP.	FEED WATER PRESSURE	
8:59	969277	859946	265	765	600	240	900	
914			262	770	610	240	900	
929			265	765	600	240	[illegible]	
944			260	765	625	240	850	
10:03	969357	859946	250	765	620	240	580	
		(1386.9)		765	620 psig	240	900 psig	210.6
~~4:12~~	~~969727~~	~~859946~~	~~262~~	~~770~~	~~610~~	~~250~~	~~900~~	
4:27	969812	859946	264	760	610	254	890	
4:42	969831		260	760	610	252	890	
457	969847		260	760	610	254	890	
512	969867		260	760	600	254	900	
527	969888	859946	250	760	610	252	880	
~~531~~	~~969899~~		~~250~~	~~760~~	~~580~~	~~250~~		
		(1384.0)		760	620	250	900	220.6
735	970042	859946	250	760	620	254	880	
750			250	760	600	254	890	
806	970079							
816	970090		250	760	570	256	900	
8:31			250	760	570	254	900	
846	970138	859946	251	760	570	254	910	
856		(1385.1)		760	600 psig	250	900	220.6

Mirza Baig.

SIGNED Witnessed by Scott Stafford Jr.



ASME Efficiency Determination

SUMMARY SHEET

ASME TEST FORM FOR ABBREVIATED EFFICIENCY TEST

PTC 4.1-a (1964)

TEST NO 1 BOILER NO. 4 DATE 23/12/85

OWNER OF PLANT United States Sugar Corporation LOCATION Clewiston, Florida

TEST CONDUCTED BY United States Sugar Corporation OBJECTIVE OF TEST DURATION

BOILER MAKE & TYPE Foster Wheeler Two Drum, Superheater, Water Walls RATED CAPACITY 250,000 pph

STOKER TYPE & SIZE Detroit Stoker, Rotograte, 505 sq. ft. surface

PULVERIZER, TYPE & SIZE BURNER, TYPE & SIZE

FUEL USED Bagasse MINE COUNTY Hendry STATE Florida SIZE AS FIRED

PRESSURES & TEMPERATURES

1	STEAM PRESSURE IN BOILER DRUM	psia	643
2	STEAM PRESSURE AT S. H. OUTLET	psia	615
3	STEAM PRESSURE AT R. H. INLET	psia	
4	STEAM PRESSURE AT R. H. OUTLET	psia	
5	STEAM TEMPERATURE AT S. H. OUTLET	F	820
6	STEAM TEMPERATURE AT R H INLET	F	
7	STEAM TEMPERATURE AT R. H. OUTLET	F	
8	WATER TEMP. ENTERING (ECON.) (BOILER)	F	258
9	STEAM QUALITY % MOISTURE OR P.P.M.		
10	AIR TEMP. AROUND BOILER (AMBIENT)	F	80
11	TEMP AIR FOR COMBUSTION (This is Reference Temperature) †	F	80
12	TEMPERATURE OF FUEL	F	
13	GAS TEMP. LEAVING (Boiler) (Econ.) (Air Htr.)	F	366
14	GAS TEMP. ENTERING AH (If conditions to be corrected to guarantee)	F	535

UNIT QUANTITIES

15	ENTHALPY OF SAT. LIQUID (TOTAL HEAT)	Btu/lb	226.72
16	ENTHALPY OF (SATURATED) (SUPERHEATED) STM.	Btu/lb	1,417.8
17	ENTHALPY OF SAT. FEED TO (BOILER) (ECON.)	Btu/lb	
18	ENTHALPY OF REHEATED STEAM R. H. INLET	Btu/lb	
19	ENTHALPY OF REHEATED STEAM R. H. OUTLET	Btu/lb	
20	HEAT ABS. LB OF STEAM (ITEM 16 – ITEM 17)	Btu/lb	
21	HEAT ABS. LB R. H. STEAM (ITEM 19 – ITEM 18)	Btu/lb	
22	DRY REFUSE (ASH PIT + FLY ASH) PER LB AS FIRED FUEL	lb/lb	.0267
23	Btu PER LB IN REFUSE (WEIGHTED AVERAGE)	Btu/lb	7955
24	CARBON BURNED PER LB AS FIRED FUEL	lb/lb	
25	DRY GAS PER LB AS FIRED FUEL BURNED	lb/lb	

HOURLY QUANTITIES

26	ACTUAL WATER EVAPORATED	lb/hr	
27	REHEAT STEAM FLOW	lb/hr	
28	RATE OF FUEL FIRING (AS FIRED wt)	lb/hr	
29	TOTAL HEAT INPUT (Item 28 × Item 41) / 1000	kB/hr	
30	HEAT OUTPUT IN BLOW-DOWN WATER	kB/hr	
31	TOTAL HEAT OUTPUT (Item 26 - Item 20) + Item 27 - Item 21) + Item 30 / 1000	kB/hr	

FLUE GAS ANAL. (BOILER) (ECON) (AIR HTR) OUTLET

32	CO_2	% VOL	14.06
33	O_2	% VOL	6.84
34	CO	% VOL	–
35	N_2 (BY DIFFERENCE)	% VOL	79.10
36	EXCESS AIR	%	44.00

FUEL DATA

COAL AS FIRED PROX. ANALYSIS

		% wt
37	MOISTURE	53.7
38	VOL MATTER	39.63
39	FIXED CARBON	5.72
40	ASH	0.95
	TOTAL	100.00
41	Btu per lb AS FIRED	3,683
42	ASH SOFT TEMP.* ASTM METHOD	

COAL OR OIL AS FIRED ULTIMATE ANALYSIS

43	CARBON	22.31	
44	HYDROGEN	2.82	
45	OXYGEN	20.06	
46	NITROGEN	.13	
47	SULPHUR	.01	
40	ASH	.953	
37	MOISTURE	53.7	
	TOTAL	100.00	

COAL PULVERIZATION

48	GRINDABILITY INDEX*	
49	FINENESS % THRU 50 M*	
50	FINENESS % THRU 200 M*	
64	INPUT-OUTPUT EFFICIENCY OF UNIT %	ITEM 31 × 100 / ITEM 29

OIL

51	FLASH POINT F*	
52	Sp. Gravity Deg. API*	
53	VISCOSITY AT SSU* BURNER SSF	
44	TOTAL HYDROGEN % wt	
41	Btu per lb	

GAS

		% VOL
54	CO	
55	CH_4 METHANE	
56	C_2H_2 ACETYLENE	
57	C_2H_4 ETHYLENE	
58	C_2H_6 ETHANE	
59	H_2S	
60	CO_2	
61	H_2 HYDROGEN	
	TOTAL	
	TOTAL HYDROGEN % wt	
62	DENSITY 68 F ATM. PRESS.	
63	Btu PER CU FT	
41	Btu PER LB	

HEAT LOSS EFFICIENCY

		Btu/lb A. F. FUEL	% of A. F FUEL
65	HEAT LOSS DUE TO DRY GAS	260.76	7.08
66	HEAT LOSS DUE TO MOISTURE IN FUEL	631.03	17.13
67	HEAT LOSS DUE TO H_2O FROM COMB OF H_2	298.24	8.09
68	HEAT LOSS DUE TO COMBUST. IN REFUSE	212.39	5.76
69	HEAT LOSS DUE TO RADIATION	–	.53
70	UNMEASURED LOSSES	8.37	.22
71	TOTAL		38.81
72	EFFICIENCY = (100 – Item 71)		61.19

* Not Required for Efficiency Testing

† For Point of Measurement See Par. 7.2.8.1-PTC 4.1-1964

Printed in U.S.A. (10/74)

ASME TEST FORM
CALCULATION SHEET FOR ABBREVIATED EFFICIENCY TEST

Revised September, 1965

OWNER OF PLANT: United States Sugar Corp. TEST NO. 1 BOILER NO. 4 DATE 23/12/8

30 HEAT OUTPUT IN BOILER BLOW-DOWN WATER = LB OF WATER BLOW-DOWN PER HR × [(ITEM 15 − ITEM 17)/1000] kB/hr = ...

24 *If impractical to weigh refuse, this item can be estimated as follows*

DRY REFUSE PER LB OF AS FIRED FUEL = (% ASH IN AS FIRED COAL) / (100 − % COMB. IN REFUSE SAMPLE)

CARBON BURNED PER LB AS FIRED FUEL = (ITEM 43 / 100) − [(ITEM 22 × ITEM 23) / 14,500] = (22.31/100) − [(.0267 × 7955)/14,500] = .2085 − .0146 = ...

NOTE: IF FLUE DUST & ASH PIT REFUSE DIFFER MATERIALLY IN COMBUSTIBLE CONTENT, THEY SHOULD BE ESTIMATED SEPARATELY. SEE SECTION 7, COMPUTATIONS.

25 DRY GAS PER LB AS FIRED FUEL BURNED = [11(CO₂ + SO₂) + 7(N₂ + CO)] / [3(CO₂ + CO)] × (LB CARBON BURNED PER LB AS FIRED FUEL + (3/8) S)

= 11 × (ITEM 32 / 3 × (ITEM 32 + ITEM 34)) × (ITEM 33 / 100) + 7 × ((ITEM 35 − ITEM 34) / (ITEM 32 + ITEM 34)) × [(ITEM 24 + (ITEM 47 / 267)]

= 11 × (14.06 / 3 × (14.06 + 0)) × (6.84/100) + 7 × ((79.1 − 0)/(14.06 + 0)) × [.2085 + (.01/267)] = 3.799 lbs.

36 EXCESS AIR[1] = 100 × (O₂ − CO/2) / (.2682 N₂ − (O₂ − CO/2)) = 100 × (ITEM 33 − ITEM 34/2) / (.2682 (ITEM 35) − (ITEM 33 − ITEM 34/2)) = ...

	HEAT LOSS EFFICIENCY	Btu/lb AS FIRED FUEL	LOSS / THIV × 100 =	LOSS %
65	HEAT LOSS DUE TO DRY GAS = LB DRY GAS PER LB AS FIRED FUEL × C_p × (t_{avg} − t_{air}) = ITEM 25 × 0.24 × (ITEM 13) − (ITEM 11) = 3.799 × 0.24 × (366 − 80) = ...	260.76	65/41 × 100 = 3688	7.08
66	HEAT LOSS DUE TO MOISTURE IN FUEL = LB H_2O PER LB AS FIRED FUEL × [(ENTHALPY OF VAPOR AT 1 PSIA & T GAS LVG) − (ENTHALPY OF LIQUID AT T AIR)] = ITEM 37/100 × [(ENTHALPY OF VAPOR AT 1 PSIA & T (ITEM 13)) − (ENTHALPY OF LIQUID AT T (ITEM 11))] = 33/100 × (1223.2 − 48.09) = ...	631.03	66/41 × 100 = 3683	.17.13
67	HEAT LOSS DUE TO H_2O FROM COMB. OF H_2 = 9 H_2 × [(ENTHALPY OF VAPOR AT 1 PSIA & T GAS LVG) − (ENTHALPY OF LIQUID AT T AIR)] = 9 × ITEM 44/100 × [(ENTHALPY OF VAPOR AT 1 PSIA & T ITEM 13) − (ENTHALPY OF LIQUID AT T ITEM 11)] = 9 × 2.82/100 × (1223.2 − 48.09) = ...	298.24	67/41 × 100 = 3683	8.09
68	HEAT LOSS DUE TO COMBUSTIBLE IN REFUSE = ITEM 22 × ITEM 23 = .0267 × 7955 = ...	212.39	68/41 × 100 = 3683	5.76
69	HEAT LOSS DUE TO RADIATION* = TOTAL BTU RADIATION LOSS PER HR / (LB AS FIRED FUEL − ITEM 28) ..... ABMA Curve	.....	69/41 × 100 = ...	.53 .....
70	UNMEASURED LOSSES **	8.37	70/41 × 100 = 3683	.22
71	TOTAL	.....	.....	38.81
72	EFFICIENCY = (100 − ITEM 71)	.....	.....	61.19

[1] For rigorous determination of excess air see Appendix 9.2 – PTC 4.1-1964

* If losses are not measured, use ABMA Standard Radiation Loss Chart, Fig. 8, PTC 4.1-1964

** Unmeasured losses listed in PTC 4.1 but not tabulated above may by provided for by assigning a mutually agreed upon value for Item 70.

CARBON LOSS DATA _____ Test No. 1 Date 23/12/85 Cont. _____

Plant of United States Sugar Corporation Location Clewiston, FL

Kind of Fuel Bagasse Mine _____ County Hendry State Florida Size as Fired _____

FUEL DATA

	As Fired	Dry	Comb'le
Moisture ..... %	53.7		
Vol. Matter ..... %	39.63		
Fixed Carbon .... %	5.72		
Ash ..... %	.95		
Total ..... %	100.00		
Btu. per Lb.	3,683		
Sul. Sep. Det.)			

Weight of Chemical Ash = $\frac{\text{Lbs. Fuel}}{100} \times \text{\% Ash}$ = $\frac{1}{100} \times .95$ = .0095 Lbs. (Item A)

Sample Collected From	Wt. Dry Refuse (1)	% Ref. (2)	Lab. Tests % Ash	Lab. Tests % Carb.	Wt. Ash Pounds (5)	Wt. Carb. Pounds (6)	% Carb. Loss.	Remarks
Furnace Ash Pit							†	
							†	
Scrubber	.0267	100	35.48	64.50	.0095	.0172	†	
							†	
							†	
							†	
To Stack By Assumption / By Sample							†	
TOTALS	.0267	100.0			• .0095	.0172	§	

NOTE—Total Wt. Dry Refuse (Col. 1) Must Equal Sum of Ash Wt. and Carb. Wt. (Col. 5 + Col. 6).

• Total Wt. Ash Shown must be same as Chemical ash (Item A.)

Lb. Unburned Carbon in Refuse Per Lb. Fuel = $\frac{\text{Total Wt. Carbon}}{\text{Wt. of Fuel Fired}}$ = _____ Lb./Lb.

† Carbon Loss Shown = $\frac{\text{Wt. Carb} \times 14600}{\text{Wt. Fuel} \times \text{Btu./Lb. Fuel}} \times 100$ = Enter Result in Above Table.

§ Total Carbon Loss Percentage is Sum of Tabulated Amounts Check by Formula:

% Total Carbon Loss = $\frac{\text{Lb. Unburned Carbon Per Lb. Fuel} \times 14600}{\text{Btu. Per Lb. Fuel}} \times 100$ = 5.29 %

Miscellaneous: _____

BEST AVAILABLE COPY

pg 1 62 / 624 / 68 / PB

LC: A. K. Mayo

RILEY | RILEY STOKER CORPORATION

POST OFFICE BOX 547, WORCESTER, MASS. 01613

An Ashland Technology Company

FUELS LABORATORY

TEST REPORT

Laboratory No. 35,592 Sample of Bagasse Date Rec'd 1/2/86

Received From U.S. Sugar Corp. Clewiston, Florida

Sample Data Bagasse Sample 1-85 12/23/85 #4 Blr. Comp. of sample during compliance tests.

Contract No. (641-61018) Field Sample By

Air Drying Loss %					
Proximate Analysis	**As Rec'd**	**Dry**	**Ultimate Analysis**	**As Rec'd**	**Dry**
Moisture	53.7 %	------	Moisture	%	--------
Volatile	39.63 %	85.59 %	Carbon	%	48.2 %
Ash	0.95 %	2.06 %	Hydrogen	%	6.1 %
Fixed Carbon	5.72 %	12.35 %	Nitrogen	%	0.28 %
	100.0 %	100.0 %	Oxygen (diff)	%	43.34 %
British Thermal Units	3,683	7,955	Sulfur	%	0.02 %
Fusibility of Ash			Ash	%	2.06 %
Initial Deformation		F		100.0 %	100.0 %
Softening		F	Free Swelling Index		
Fluid		F	Grindability Index		

Date 1/10/86 Tom Gallagher

FM 214

CALIBRATION DATA

CALIBRATION DATA

November 1, 1985

Meter No. 4
Barometric Pressure 29.95

H	0.1	0.3	0.5	1.0	2.0	4.0	8.0
CFw	2.51	2.51	5.00	4.98	9.97	9.99	10.03
CFd	2.50	2.50	5.00	5.00	10.00	10.00	10.00
Tw	84	85	85	86	86	86	87
Td	85	87	88	89	91	94	96
Time	13.32	7.73	12.31	8.83	12.74	9.01	6.50
Y	1.0056	1.0069	1.0043	.9990	1.0012	1.0038	.9999
Ha	1.619	1.635	1.7387	1.8069	1.8701	1.8532	1.9137

Average H = 1.7767 Average Y = 1.0030

Thermocouple Calibrations

	TC-1	TC-2	ASTM
Ice	32	33	32
Boiling Water	211	214	212
Oil	433	437	434

Barometer Calibration

Aneroid - 29.95 Hg - 29.95

Pitot No. 8

	1	2	3
Std.	.29	.30	.31
Side A	.42	.44	.44
Side B	.43	.44	.44
CPs	.823	.817	.831
Deviation	.001	.007	.007

Average CPs = .824

Nozzle Calibration

Date 12/23/85 5/32A = .211, .210, .210, .210 = .2103

Chain of Custody

CHAIN OF CUSTODY

NAME Kaye Barker
DATE Dec 23, 1985
REPORT NUMBER 8595
REASON FOR CUSTODY: ✓ SAMPLE CLEAN-UP
✓ SAMPLE ANALYSIS - Particulate Only
OTHER _____
SAMPLE DISPOSITION: ___ DELIVERED TO S.F.E.S. LABORATORY
OTHER _____

NAME W. Arlington
DATE 12-23-85
REPORT NUMBER 859-5
REASON FOR CUSTODY: ✓ SAMPLE CLEAN-UP
✓ SAMPLE ANALYSIS
OTHER SO_x, CO + NO_x
SAMPLE DISPOSITION: ___ DELIVERED TO S.F.E.S. LABORATORY
OTHER _____

NAME _____
DATE _____
REPORT NUMBER _____
REASON FOR CUSTODY: ___ SAMPLE CLEAN-UP
___ SAMPLE ANALYSIS
OTHER _____
SAMPLE DISPOSITION: ___ DELIVERED TO S.F.E.S. LABORATORY
OTHER _____

NAME _____
DATE _____
REPORT NUMBER _____
REASON FOR CUSTODY: ___ SAMPLE CLEAN-UP
___ SAMPLE ANALYSIS
OTHER _____
SAMPLE DISPOSITION: ___ DELIVERED TO S.F.E.S. LABORATORY
OTHER _____

Project Participants

PROJECT PARTICIPANTS

SOUTH FLORIDA ENVIRONMENTAL SERVICES, INC.

WILLIAM D. ARLINGTON
R. L. CHARTIER
KAYE BARKER

AIR CONSULTING AND ENGINEERING, INC.

STEVE NECK

UNITED STATES SUGAR CORPORATION

PETER BARQUIN
BEN SANFORD
BERT STARRETT

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

MIRZA P. BAIG

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTH FLORIDA
DISTRICT
2269 BAY STREET
FORT MYERS, FLORIDA 33901-2896

BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY
PHILIP R. EDWARDS
DISTRICT MANAGER

January 24, 1986

CERTIFIED MAIL #P166523993
Return Receipt Requested

Mr. A. R. Mayo, Vice President
U. S. Sugar Corp.
Post Office Drawer 1207
Clewiston, Florida 33440

RE: Hendry County - AP
U. S. Sugar Corporation

Dear Mr. Mayo:

An inspection of U. S. Sugar, in Clewiston, by Mirza Baig on January 20, 1986 revealed that your facility is in violation of State Rules and Regulations. The inspection also revealed that many of these violations are recurrent. (Inspection copies are enclosed.)

We would like to meet with you to discuss the violations at the Clewiston facility.

Please contact me within five (5) days to arrange a suitable meeting time.

Sincerely,

Bill Krumbholz

Bill Krumbholz
Environmental Specialist
Enforcement

LAWLEY
ADAIR

Enclosure

BK/ls

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Visible Emission Form

Source Name U.S. SUGAR, CLEWISTON Observer MIRZA P. BAIG

Address P.O. DRAWER 1207 CLEWISTON 33440 Date JAN 20, 1986

Point Description BOILER #4 BAGASSE HANDLING SYSTEM Permit No. AC-26-80930

Time Observation Began 12 01 P.M. Ended 12 16 P.M.

A) Observer Location:
1) Distance from stack (ft.) ≈ 100'
2) Direction from stack SOUTH

B) Meteorological Conditions:
1) Wind Speed (mph) ≈ 10 mph
2) Wind Direction N.W.
3) Sky Condition 5% CLOUD COVER

C) Plume Description:
1) Color BAGASSE DUST
2) Distance Visible (ft) ≈ 100 Ft.
3) Steam Plume (Yes/No) N/A.

D) Summary of Results
1) Average Opacity 33.9 %.
2) Readings range from 25 % to 50 %
3) Opacity exceeded 10 % for 15 mins 0 secs.
4) Source ~~was~~/was not in compliance at the time evaluation was made
5) Applicable Regulation: SPECIFIC CONDITION NO: 15 (PSD PERMIT).

E)
1) Process Input Rate UNKNOWN AMOUNT OF BAGASSE WAS BEING BACK-FED FROM BAGASSE STORAGE PILE
2) Operating Parameters 240,000 #/HOUR STEAM.

	0	15	30	45		0	15	30	45
0	30	35	30	25	30				
1	35	30	25	30	31				
2	30	35	25	25	32				
3	35	35	40	40	33				
4	25	40	35	30	34				
5	30	35	30	35	35				
6	40	40	30	30	36				
7	35	40	25	30	37				
8	30	30	25	30	38				
9	30	35	40	30	39				
10	30	35	40	30	40				
11	30	25	25	35	41				
12	50	45	50	30	42				
13	35	30	35	45	43				
14	50	50	40	40	44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				

Observer Signature: Mirza P. Baig

Date Certified: September 1985 Expiration Date: March 1986

INSPECTION REPORT FORM
AIR POLLUTANT EMISSION SOURCES

FACILITY U.S. SUGAR, CLEWISTON		DISTRICT SOUTH FLORIDA	COUNTY HENDRY
ADDRESS P.O. DRAWER 1207 CLEWISTON, FLA. 33440		CONTACT MR. A.R. MAYO, Vice Pres. MR. BERT STARRETT	
APIS # 52/25/0003/04	PERMIT # AC-26-80930	EXPIRATION DATE APRIL 11, 1986	
SOURCE DESCRIPTION BOILER #4. BAGASSE HANDLING/BACKFEEDING SYSTEM			
INSPECTION DATE JAN 20, 1986	AUDIT TYPE II	COMPLIANCE STATUS UNSATISFACTORY	

INSPECTION COMMENTS/RECOMMENDATIONS

FOLLOWING BOILER/SCRUBBER DATA WERE OBSERVED:

BOILER #1 : 150,000 #/HOUR STEAM SCRUBBER $\Delta P = 4''$
BOILER TUBES WERE LEAKING - HAD TO SHUT DOWN ≈ 10 OU/AM

BOILER #2 : 175,000 #/HOUR STEAM SCRUBBER $\Delta P = 7''$

BOILER #3 : 110,000 #/HOUR STEAM SCRUBBER $\Delta P = 11.5''$
PEAK 130,000 #/HOUR FOR ONE HOUR

BOILER #4 : 240,000 #/HOUR STEAM SCRUBBER $\Delta P = 7\frac{1}{2}''$; PH = 7.9
PEAK 265,000 #/HR FOR 10 MINUTES

BOILER #5 : 55,000 #/HOUR STEAM SCRUBBER $\Delta P = 5''$

BOILER #6 : 60,000 #/HOUR STEAM SCRUBBER $\Delta P = 5''$.

NEED A FALSE PLATFORM/WALKWAY NEAR THE SCRUBBER MANOMETERS OF BOILERS # 3, #5 AND #6.

COMBINED OPACITY OF ALL BOILERS WAS $\approx 35\%$.

TV CAMERAS TO MONITOR STACKS WERE FUNCTIONING PROPERLY.

EXCESS BAGASSE HANDLING SYSTEM WAS UN-SATISFACTORY. THIS WAS MENTIONED TO MR. STARRETT LAST SEASON

INSPECTOR(S) NAME(S) MIRZA P. BAIG	
SIGNATURE(S) Mirza P. Baig.	DATE Jan 21, 1986.

INSPECTION REPORT FORM
AIR POLLUTANT EMISSION SOURCES

FACILITY U.S. SUGAR, CLEWISTON		DISTRICT SOUTH FLORIDA	COUNTY HENDRY
ADDRESS		CONTACT	
APIS # 52/26/0003/04	PERMIT # AC-26-80930	EXPIRATION DATE 4-11-1986	
SOURCE DESCRIPTION BOILER # 4			
INSPECTION DATE JAN 20, 1986	AUDIT TYPE	COMPLIANCE STATUS	

INSPECTION COMMENTS/RECOMMENDATIONS

AND A YEAR PRIOR TO THAT ALSO.

BAGASSE BACKFEEDING OPERATION WAS IN PROGRESS AT THE TIME OF MY INSPECTION. SALAGE (FEED) WAS BEING PROCESSED. EXCESSIVE EMISSIONS OF BAGASSE DUST WERE BEING EMITTED FROM: FRONT-END LOADER LOADING NEAR THE HOPPER; FUGITIVE BAGASSE DUST GENERATED BY THE LOADER; BAGASSE DRAG/CONVEOR BELT; TRANSFER POINTS AT THREE DIFFERENT LOCATIONS. DUE TO HIGH WINDS THIS PROBLEM WAS MORE EVIDENT TODAY.

IMMEDIATE ATTENTION IS REQUIRED TO UPGRADE THE EXCESS BAGASSE HANDLING/STORAGE/TRANSFER SYSTEMS. I WAS COVERED WITH BAGASSE DUST WHILE CONDUCTING THE INSPECTION. NEED TO RESOLVE THIS PROBLEM.

INSPECTOR(S) NAME(S) MIRZA P. BAIG	
SIGNATURE(S) Mirza P. Baig.	DATE JAN 21, 1986.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

November 24, 1986

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. A. R. Mayo, Vice President
United States Sugar Corporation
Post Office Drawer 1207
Clewiston, Florida 33440

Dear Mr. Mayo:

A preliminary review of your application for permit to increase the steam production of the No. 4 bagasse/oil fired boiler has been made by the Bureau of Air Quality Management. Before your application can be processed, the Bureau will need the following additional information.

1. Why does this plant need the higher steam production from boiler No. 4? Is it for higher sugar production or will the steam production of the other boilers at this plant be reduced?

2. Please furnish a copy of the compliance tests report which includes the scrubber parameters that existed during the tests for particulate matter, sulfur dioxide, carbon monoxide, VOC, nitorgen oxides, and visible emissions.

3. Please provide a copy of the visible emissions test report for the bagasse handling system. What precautions have been taken to minimize fugitive emissions from this system?

DB

4. BACT for boiler No. 4 limited the sulfur content of the fuel oil to 1.5 percent. To avoid requiring the company to install a separate fuel oil system for the new boiler, the department authorized the use of oil containing up to 2.5 percent (maximum allowed for the other boilers at this plant) provided any oil burned in boiler No. 4 was replaced with oil containing a maximum of 1.5 percent sulfur. If all the sulfur in the 1499 GPH No. 6 oil containing 2.5 percent sulfur is oxidized, it will produce 615 lbs SO_2/hr, not 588 lbs/hr as listed under bagasse/oil burning in Attachment B. Please comment on the above statement.

DB (5.) It was noted that two sulfur dioxide emission standards for bagasse were proposed in the application, 0.19 lbs/MMBtu and 0.166 lbs/MMBtu when the bagasse is burned with oil. Please explain why the actual emissions will be different and how you propose to show compliance with both standards.

DB (6.) AP-42 lists the NOx emission factor for oil-fired industrial boilers as 55 lbs/1000 gal. Please justify your request for a higher emission factor. If the basis of the request is the nitrogen content of the fuel oil, provide an analysis which shows the nitrogen content of both the low sulfur (1.5%) and high sulfur (2.5%) oils used at this plant.

Utility boiler

If we have any question on your ambient air quality impact, our modeler, Max Linn, will contact your engineer, David Buff.

As soon as we receive answers to the above questions, we will resume processing your application. If you have any questions about the information requested, please call Willard Hanks (Review Engineer) or Max Linn (Modeler) at (904)488-1344 or write to me at the letterhead address.

Sincerely,

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

CHF/WH/s

cc: D. Knowles
D. Buff
P. Cunningham

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

Nº 76135

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from United States Sugar Corp. Date Nov. 6, 1986

Address P. O. Drawer 1207, Clewiston, FL 33440 Dollars $ 250.00

Applicant Name & Address Same as above

Source of Revenue

Revenue Code 001031 Application Number AC 26-126965

By Patricia D. Adam

UNITED STATES SUGAR CORPORATION
Post Office Drawer 1207 Clewiston, Florida 33440
Telephone: (813) 983-8121 Telex: 510-952-7753

October 28, 1986

Mr. C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
State of Florida Department of
Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

1031

Re: Clewiston Mill Boiler No. 4
Application for Modification of
Permits No. AC26-80930 and A026-115292

Dear Mr. Fancy:

Enclosed for filing please find four copies of an application for modification of the referenced Department air permits for Boiler No. 4 at U. S. Sugar Corporation's Clewiston Mill. The purpose of the requested permit modifications is to increase the currently permitted steam production capacity and heat input rate for Boiler No. 4 to better reflect the available operating capacity of the boiler.

As you will recall, the air construction permit for Boiler No. 4 was originally issued January 11, 1985. The construction permit specified that "Steam production shall not exceed an average of 250,000 pounds per hour during any consecutive six hour period; or an instantaneous rate of 275,000 pounds per hour." Also that, "Heat input to Boiler No. 4 from bagasse fuel or a combination of bagasse/oil fuels shall not exceed 545.5 million Btu per hour, six hour average, or an instantaneous rate of 600 million Btu per hour." U. S. Sugar expressed serious concerns about the imposition of these steam production restrictions, especially in view of Boiler No. 4's capability of producing steam with temperature and pressure lower than the steam condition on which the steam capacity limits in the permit were based. Because of the need to move forward with this project, however, U. S. Sugar decided to accept the construction permit for Boiler No. 4, recognizing that modification of the permit could be sought in the future to adjust its steam production provisions.

Following construction of the boiler, compliance with the applicable emission limits was demonstrated through stack testing during the 1985-86 crop season. The Department subsequently issued the air operation permit for Boiler No. 4 with the same steam production limits as were specified in the construction permit.

U. S. Sugar has recently identified the need for additional steam capacity at the Clewiston Mill. It has also become apparent that Boiler No. 4 is capable, under certain favorable bagasse conditions, of producing substantially more steam than the currently permitted production capacity. The requested increase in the permitted capacity will help to meet the Mill's need for additional steam by allowing Boiler No. 4 to achieve its available production capacity. It will also reduce the amount of bagasse surplus produced by the Mill, thereby reducing the potential for emission of fugitive dust from bagasse

handling and storage. Finally, it will provide a needed margin of safety to ensure that the permitted steam production rates are not inadvertently exceeded due to the variable combustion characteristics of bagasse and unavoidable fluctuations in Mill operating conditions.

You will note that the enclosed application addresses two different steam conditions for Boiler No. 4: (1) 850 psig, 900° F., and (2) 600 psig, 750° F. The requested steam production limits differ depending upon the steam condition, with a higher steam capacity sought for the lower steam temperature and pressure condition. The heat input rates corresponding to the requested steam production rates are identical, however, due to the lower steam enthalpy associated with the lower pressure and temperature steam condition. It is very important to U. S. Sugar that the modified permits for Boiler No. 4 provide for operation under both of the specified steam conditions, and that the revised steam production rates allow full operating capacity to be utilized when the boiler is producing the lower temperature and pressure steam.

The requested permit modification does not involve a significant increase in the emissions of any regulated pollutant, and thus PSD review is not triggered. We therefore hope that the Department will be able to expeditiously process the enclosed application. We look forward to working with you and your staff in this permit modification effort.

Attached please find a check for the amount of $250.00 to cover the application fee as discussed with your Mr. Bill Thomas on October 23rd where it was agreed that this fee should be based on the applicable potential increase in pollutants involved in this application for modification of the original permit.

Sincerely,

UNITED STATES SUGAR CORPORATION

A. R. Mayo
Senior Vice President
Sugar Houses

ARM: jt
Enclosures

cc: Mr. David Knowles
Mr. David Buff, P.E.
Mr. Peter C. Cunningham, Esq.

STATE OF FLORIDA AC 26-126965

DEPARTMENT OF ENVIRONMENTAL REGULATION

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

ALEX SENKEVICH
DISTRICT MANAGER

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Bagasse/Oil-Fired Boiler [ ] New[1] [XX] Existing[1]

APPLICATION TYPE: [ ] Construction [ ] Operation [XX] Modification

COMPANY NAME: U.S. Sugar Corporation, Clewiston Mill COUNTY: Hendry

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Boiler No. 4

SOURCE LOCATION: Street W.C. Owens Ave. and Clewiston Street City Clewiston

UTM: East 506.1 North 2956.9

Latitude 26 ° 44 ' 30 "N Longitude 80 ° 56 ' 15 "W

APPLICANT NAME AND TITLE: A.R. Mayo, Vice President

APPLICANT ADDRESS: P.O. Drawer 1207, Clewiston, Florida 33440

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of U.S. Sugar Corporation

I certify that the statements made in this application for a Construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: A.R. Mayo

A.R. Mayo, Vice President
Name and Title (Please Type)

Date: 10/14/86 Telephone No. 813-983-8121

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed David A. Buff

David A. Buff
Name (Please Type)

KBN Engineering and Applied Sciences, Inc.
Company Name (Please Type)

P.O. Box 14288, Gainesville, Florida 32604
Mailing Address (Please Type)

Florida Registration No. 19011 Date: 10-6-86 Telephone No. 904/375-8000

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

See Attachment A

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction * Completion of Construction *

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

No new system required: existing scrubber and stack will be utilized

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

AC 26-80930 Issued 1/11/85 Expired 4/11/86

AO 26-115292 Issued 5/19/86 Expires 5/19/91

* No physical construction is required. Boiler, control equipment and other associated equipment are already designed to accommodate the higher steam production rate.

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 22.86;

if power plant, hrs/yr_____; if seasonal, describe: Normally November thru March; maximum crop season will be 160 days

F. If this is a new source or major modification, answer the following questions. (Yes or No) Not Applicable - Minor modification (see Attachment A)

1. Is this source in a non-attainment area for a particular pollutant? _____

   a. If yes, has "offset" been applied? _____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? _____

   c. If yes, list non-attainment pollutants. _____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. _____

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. _____

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? _____

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? _____

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants? _____

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Not Applicable

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): see Attachment A

2. Product Weight (lbs/hr): see Attachment A

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

See Attachment A

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Spray Impingement Scrubber equivalent to Joy turbulaire, Type D, Size 200	Particulate	+90%	>0.1 microns	stack test
	SO_2	>50%	Not applicable	stack test

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
No. 6 fuel oil		1,499 gal/hr	225.0
See Attachment A for Bagasse Consumption			

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: Bagasse (dry basis)/Oil

Percent Sulfur: 0-0.2%/2.5% max Percent Ash: 0.3-3.3/0.1

Density: NA/8.2 lbs/gal Typical Percent Nitrogen: 0.30/0.25

Heat Capacity: 8,000* /18,300 BTU/lb NA/150,000 BTU/gal

*3,600 @ 55% H_2O

Other Fuel Contaminants (which may cause air pollution):

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average Not Applicable Maximum

G. Indicate liquid or solid wastes generated and method of disposal.

Water from scrubbers used to sluice cane juice mud and then discharged to holding ponds.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 150 ft. Stack Diameter: 8.25 ft.

Gas Flow Rate: * ACFM * DSCFM Gas Exit Temperature: approx. 155 °F.

Water Vapor Content: approx. 28 % Velocity: * FPS

* See Attachment A

SECTION IV: INCINERATOR INFORMATION

Not Applicable

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

Not Applicable

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1] Explain method of determining efficiency.
[2] Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

Not Applicable

A. Company Monitored Data

1. _____no. sites _____ TSP _____( ) SO^2* _____ Wind spd/dir

Period of Monitoring ____/____/____ to ____/____/____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

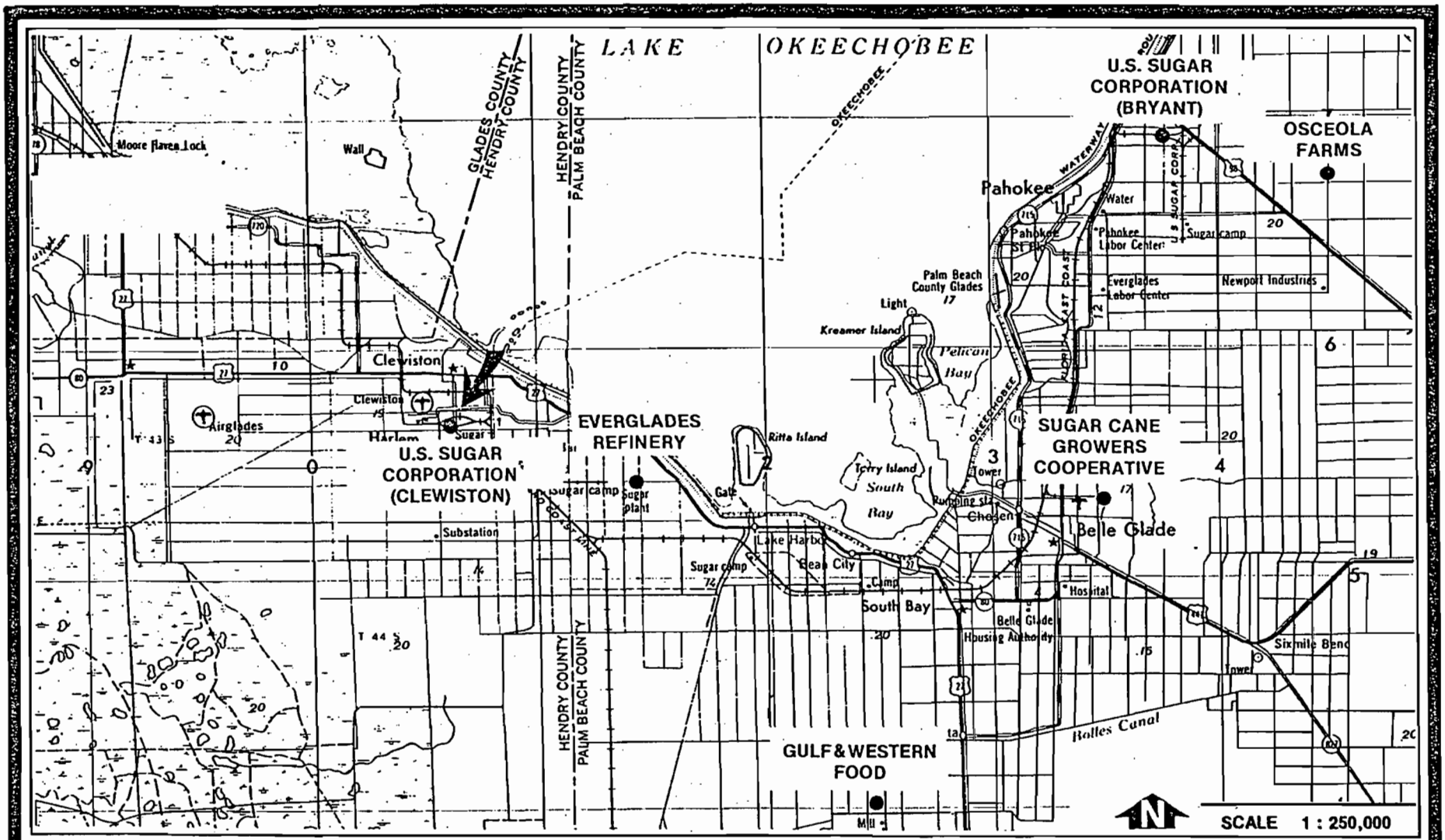
E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

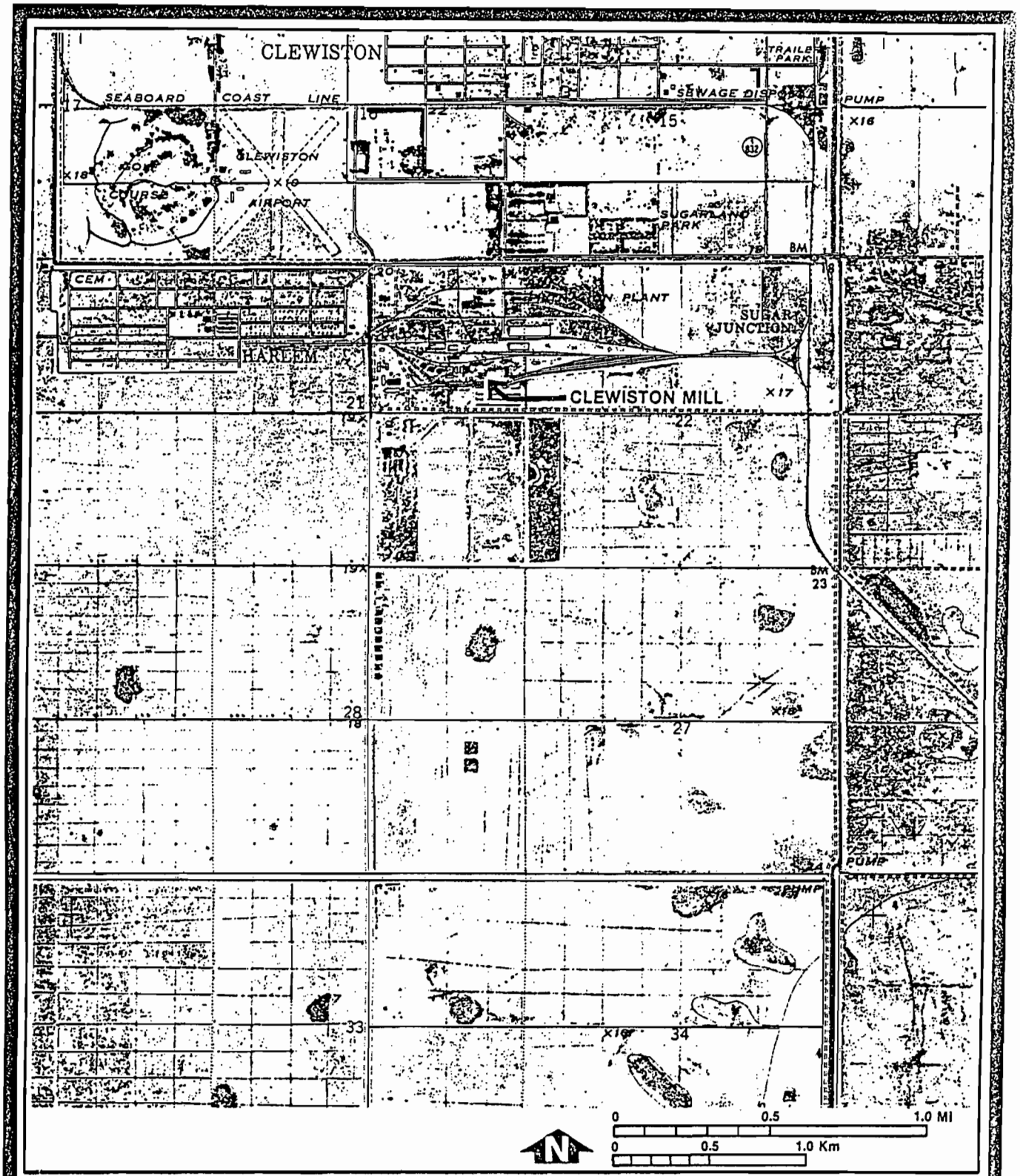
H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.



LOCATION OF U.S. SUGAR CORPORATION WITH RESPECT TO SURROUNDING AREA

SOURCE: ESE, 1983.

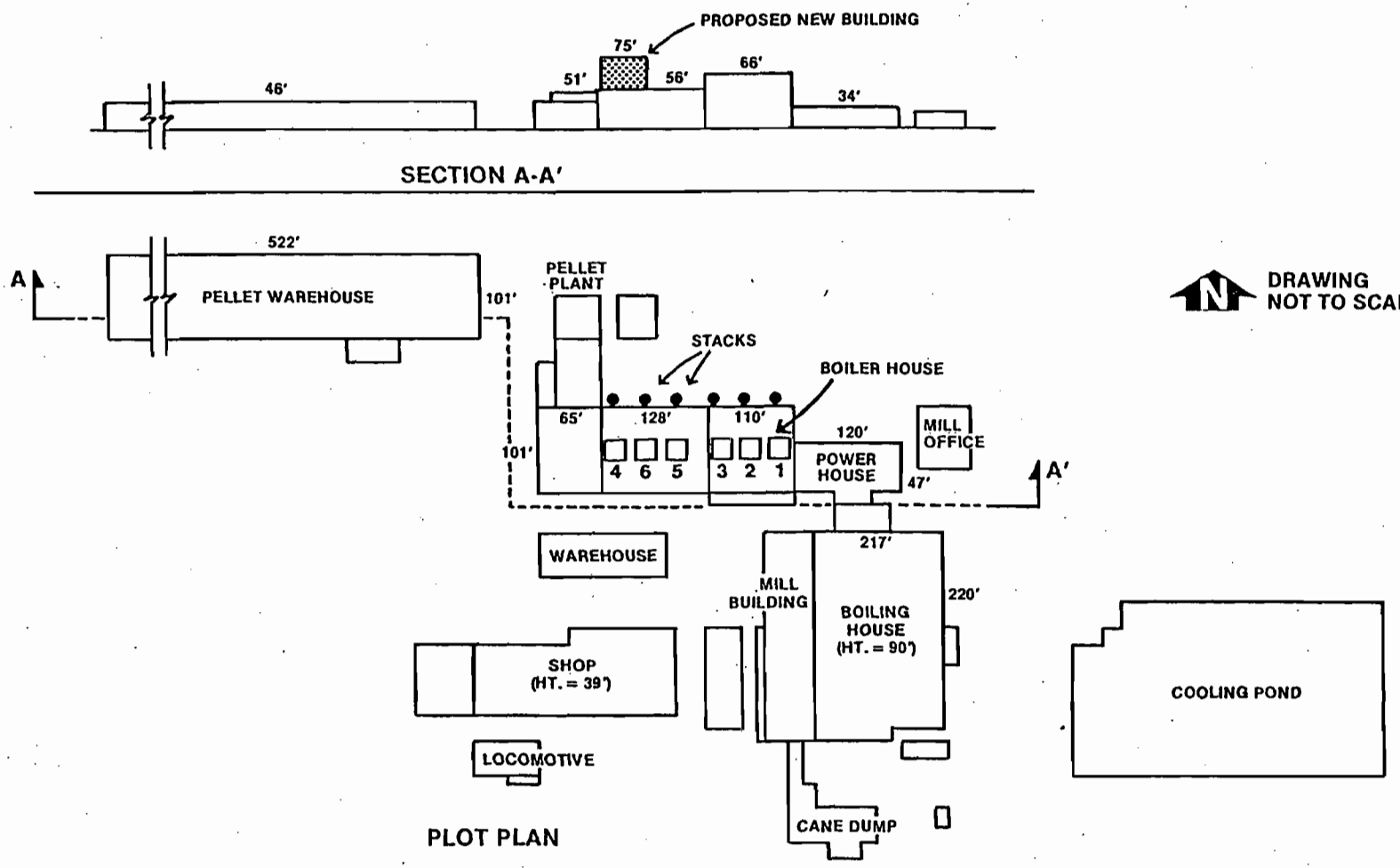
U.S. SUGAR CORPORATION
Clewiston, Florida



VICINITY MAP OF U.S. SUGAR CORPORATION'S CLEWISTON MILL

SOURCE: USGS, 1970.

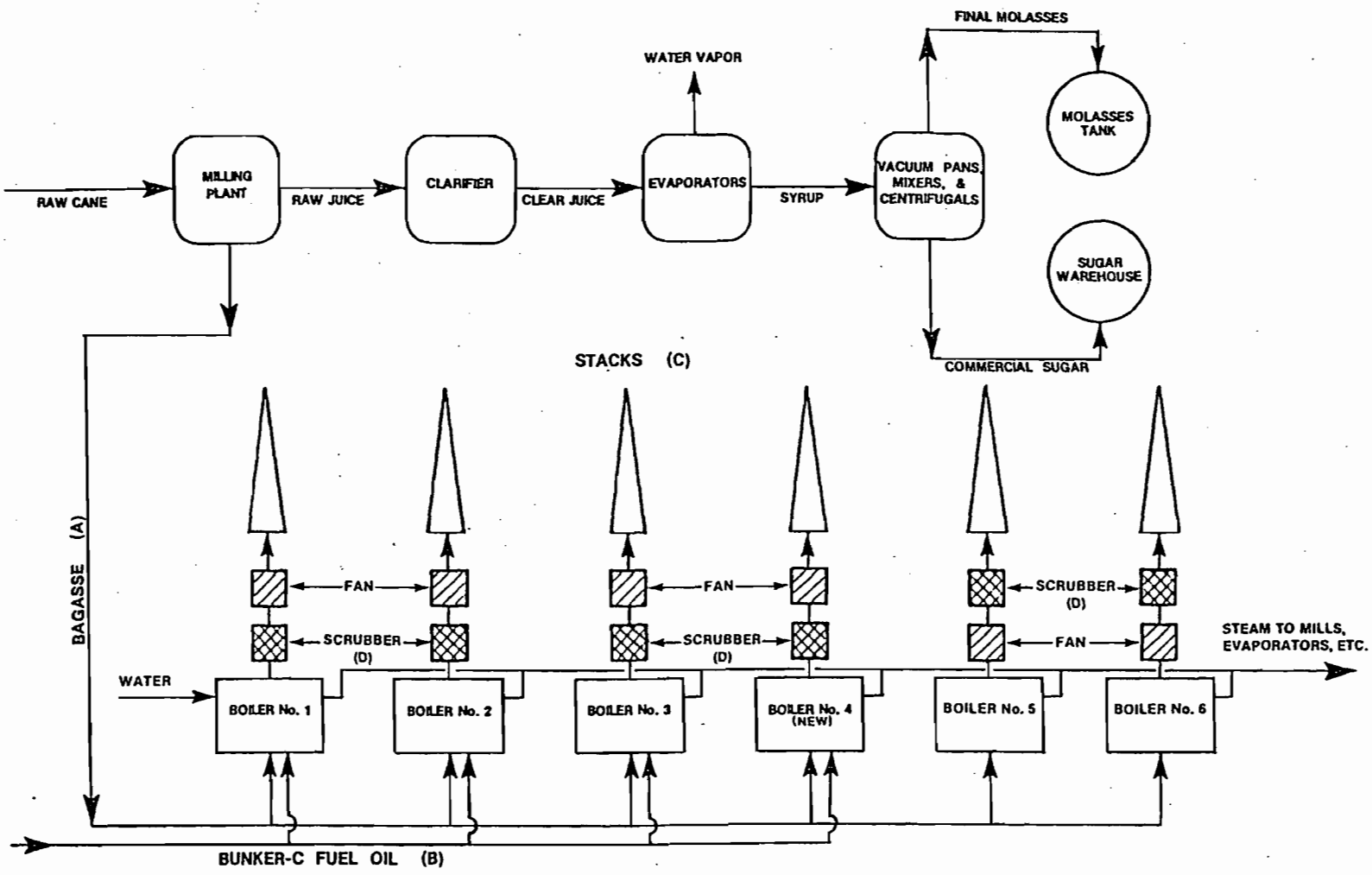
U.S. SUGAR CORPORATION
Clewiston, Florida



PLOT PLAN FOR CLEWISTON MILL

SOURCE: ESE, 1983.

U.S. SUGAR CORPORATION
Clewiston, Florida



SCHEMATIC PROCESS FLOW DIAGRAM

SOURCE: ESE, 1983.

U.S. SUGAR CORPORATION
Clewiston, Florida

ATTACHMENT A

PROJECT DESCRIPTION AND SOURCE APPLICABILITY

A.1 PROJECT DESCRIPTION

The operation of Boiler No. 4 at U.S. Sugar Corporation's Clewiston mill has indicated that it is capable, under certain favorable bagasse conditions, of producing substantially more steam than the currently permitted production capacity. Therefore, U.S. Sugar is proposing to increase the permitted capacity of this boiler. Boiler No. 4 is a dual pressure boiler that can operate at two different steam conditions: 850 psig, 900°F, the permitted condition; and 600 psig, 750°F, the current operating condition. As a result, the modification also calls for expressing of the permitted steam production in terms of the current operating pressure and steam temperature.

The current permitted steam rates and conditions for the boiler, and the proposed steam rates at these conditions, are shown in Table A-1. Associated with the steam production rate increase will be an increase in the permitted heat input rate and maximum bagasse fuel burning rate. These increased rates are also shown in Table A-1. No increase in the permitted fuel oil burning rate for Boiler No. 4 is being requested.

No physical changes will be made to Boiler No. 4 to accommodate the steam rate increase. The existing equipment, including wet scrubber, are already capable of accommodating the increased production rates.

The current operating permit for Boiler No. 4 limits operation to 182 days per year. As part of the proposed increase in steam production rate, future operation will be limited to 160 days per year.

A.2 EMISSIONS AND SOURCE APPLICABILITY

The increased maximum heat input and bagasse burning rates associated with the increase in steam production rate will result in an increase in air emissions from Boiler No. 4. Emission calculations for the proposed modification are presented in Attachment B. These estimates are in general

Table A-1. Current Permitted and Proposed Operating Rates and Conditions, U.S. Sugar Boiler No. 4

Boiler Operating Condition	Pressure (psig)	Temperature (^{o}F)	Averaging Time	Steam Rate (lb/hr)		Heat Input Rate (10^6 Btu/hr)		Maximum Bagasse Burning Rate (lb/hr wet)#	
				Current*	Proposed	Current*	Proposed	Current*	Proposed
1	850	900	Maximum	275,000	346,231	600.0	777.20	166,667	215,889
1	850	900	6-hour	250,000	314,757	545.5	706.55	151,528	196,264
2	600	750	Maximum	(292,600)**	368,500	600.0	777.20	166,667	215,889
2	600	750	6-hour	(266,000)**	335,000	545.5	706.55	151,528	196,264

* Based upon operating permit AO-26-115292

\# Wet bagasse assumed to contain 55% moisture (3600 Btu/lb wet)

** The steam production rate for Boiler operating Condition 2, equivalent to that of Boiler operating Condition 1 (i.e., same maximum heat input rate).

based upon the allowable emission rates contained in the Prevention of Significant Deterioration (PSD) construction permit for Boiler No. 4, or the emission factors presented in the construction permit application for Boiler No. 4. In the case of sulfur dioxide emissions from bagasse burning, U.S. Sugar is proposing a more stringent limit than is contained in the present permit for Boiler No. 4, such that there will be no increase above current permitted SO_2 emission rates.

Presented in Table A-2 is a summary of regulated pollutant emissions from Boiler No. 4 both before and after the increase in steam production. The current permitted or maximum emission rates were obtained from the construction permit or the construction permit application for Boiler No.4. Three averaging times are addressed in Table A-2: 1-hour, 6-hour, and annual.

The proposed future maximum emissions reflect the worst case fuel (i.e., bagasse only burning for PM, CO and VOC, or bagasse/fuel oil combination burning for SO_2 and NO_x). Emissions of trace elements are not shown in Table A-2 because such emissions were due solely to fuel oil burning, and no increase in the fuel oil burning rate for Boiler No. 4 is being requested.

The PSD permit and current operating permit limit SO_2 emissions from bagasse burning to 0.25 lb/10^6 Btu heat input and limit total SO_2 emissions from bagasse/oil burning to 680.0 lb/hr. Normal operation of Boiler No. 4 is 100% bagasse burning. At the current permitted level of 0.25 lb/10^6 Btu due to bagasse burning, current maximum SO_2 emissions from burning 100% bagasse are 150.0 lb/hr for an instantaneous peak and 136.4 lb/hr for a six-hour average. In order to not increase these maximum SO_2 emission rates at the increased steam production rates, U.S. Sugar will limit SO_2 emissions from Boiler No. 4 to 0.19 lb/10^6 Btu when burning bagasse. This SO_2 emission level is equivalent to a 62% removal efficiency (uncontrolled emissions are 0.5 lb/10^6 Btu). SO_2 testing performed on Boiler No. 4 has demonstrated that the 0.19 lb/10^6 Btu level can be achieved on a continuous basis without changing operation of the boiler system or wet scrubbing system.

Table A-2. Current Permitted, Proposed and Net Increase in Emissions, U.S. Sugar Boiler No. 4

Pollutant	Current Permitted Emissions*			Proposed Future Emissions			Net Emissions Increase			PSD Significant Emission Rate
	Maximum (lb/hr)	6-Hr.Avg. (lb/hr)	Annual (TPY)	Maximum (lb/hr)	6-Hr.Avg. (lb/hr)	Annual (TPY)	Maximum (lb/hr)	6-Hr.Avg. (lb/hr	Annual (TPY)	(TPY)
Particulate Matter	90.0	81.83	178.72	116.58	105.98	203.48	26.58	24.15	24.76	25
Sulfur Dioxide	680.0	680.0	382.3	680.0	680.0	348.7	0	0	-33.6	40
Nitrogen Oxides	136.8	136.8	206.0	192.4	180.7	236.60	55.6	43.9	30.6	40
Carbon Monoxide	150.0	136.4	297.9	194.3	176.6	339.1	44.3	40.2	41.2	100
Vol. Org. Compounds	141.7	128.8	281.3	183.5	166.8	320.3	41.8	38.0	39.0	40

Note: Worst case emissions for PM, CO and VOC occur when burning 100% bagasse; worst case emissions for SO_2 and NO_x occur when burning the maximum allowable fuel oil with the remainder of heat input due to bagasse.

TPY = Tons Per Year

* When specific permit limits were not set, figures reflect maximum emission rate contained in PSD permit application.

During infrequent periods when fuel oil is burned in Boiler No. 4, maximum SO_2 emissions are limited to 680.0 lb/hr. U.S. Sugar is proposing no increase in SO_2 emissions during such periods. Under conditions of highest SO_2 emissions from fuel oil burning (i.e., 225 x 10^6 Btu/hr heat input due to oil and 2.5% sulfur content), SO_2 emissions due to bagasse burning would be limited to 0.166 lb/10^6 Btu on an instantaneous basis and 0.19 lb/10^6 on a six-hour average.

Based upon the six-hour averaging time conditions and proposed SO_2 emission rates described above, total annual SO_2 emissions are calculated at 348.7 TPY. This is less than the current permitted annual SO_2 emissions of 382.3 TPY.

Shown in Table A-2 is the net increase in permitted emission rates proposed for Boiler No. 4, and the PSD significant emission rates. As shown, all net increases are below the respective PSD significant emission rate. As a result, the proposed modification is not subject to PSD review. For sulfur dioxide, the stricter emission limit discussed previously for bagasse burning will result in no net increase in short-term SO_2 emissions, and a decrease in annual SO_2 emissions.

For other pollutants, the net increases are small and are below the PSD significant emission rates.

A.3 STACK PARAMETERS

The existing stack serving Boiler No. 4 will continue to be utilized. In addition, no change in the exhaust gas temperature is expected. However, due to the increased bagasse burning, an increase in the maximum exhaust gas flow rates are expected. On the basis of the recent compliance test for Boiler No. 4 (12/23/85), maximum hourly and 6-hour average exhaust gas flows representative of the proposed maximum steam production rates were estimated, and are shown in Table A-3.

Table A-3. Estimated Boiler No. 4 Exhaust Gas Flow Rates at the Proposed Maximum Steam Production Rates

Condition	Bagasse Burning Rate (lb/hr wet)	Estimated Gas Flow Rate * (acfm)	Estimated Gas Flow Rate * (dscfm)	Estimated Exit Velocity+ (ft/s)
Stack test 12/23/85*	149,920	186,548	120,944	58.2
Condition 1 or 2, maximum	215,889	268,634	174,163	83.8
Condition 1 or 2, 6-hr average	196,264	244,215	158,331	76.1

* Data are average of three tests
\+ When burning 100% bagasse; stack diameter is 8.25 ft.

A.4 AIR QUALITY IMPACT ANALYSIS

A.4.1 Particulate Matter

The construction permit application for Boiler No. 4 presented a detailed air quality impact analysis for particulate matter (PM). This analysis considered all boilers at the Clewiston mill including a background PM concentration. Boiler No. 4 was modeled at a PM emission rate of 0.2 $lb/10^6$ Btu, equivalent to 109.1 lb/hr and 238.3 tons per year (TPY). Total PM impacts, including background, were predicted to be 149 ug/m^3 for the 24-hour averaging time, and 51.9 ug/m^3 for the annual averaging time. The maximum predicted impacts of Boiler No. 4 were 8 ug/m^3, 24-hour average, and 0.4 ug/m^3, annual average. The small proposed increase of 24.76 TPY associated with the proposed steam rate increase from Boiler No. 4 will not significantly increase the predicted annual average impacts (i.e., less than a 0.1 ug/m^3 increase based upon the previous analysis). Total annual average impacts will remain well below the ambient air quality standard (AAQS) of 60 ug/m^3.

In the case of the 24-hour averaging time, the proposed future Boiler No. 4 PM emission rate, based upon 0.15 $lb/10^6$ Btu, is 105.98 lb/hr (maximum 6-hour average). Since this emission rate is lower than the previously modeled emission of 109.1 lb/hr, predicted maximum 24-hour PM concentrations would also be lower than the previously predicted 149 ug/m^3 (the AAQS is 150 ug/m^3). In addition, the 105.98 lb/hr PM will be emitted with a greater exhaust gas flow (approximately 244,215 acfm) compared to the previously modeled situation (205,180 acfm). This increase in exhaust gas flow will act to further reduce PM impacts below those previously predicted, by increasing the effective plume rise of the emissions.

Based upon these considerations, the impact of the increased Boiler No. 4 PM emissions are predicted to comply with all PM AAQS.

A.4.2 Sulfur Dioxide

Since maximum sulfur dioxide (SO_2) emissions (both short-term and annual), will not increase as a result of the proposed modification, no increase in SO_2 impacts are predicted to occur. As discussed in regard to PM emissions,

previously predicted SO_2 short-term impacts will actually decrease due to the higher exhaust gas flow rate associated with the modification. The net decrease in permitted annual SO_2 emissions due to the proposed modification will result in decreased annual average SO_2 impacts.

A.4.3 Nitrogen Dioxide

Only an annual average AAQS exists for nitrogen dioxide (NO_2). The previously predicted maximum NO_2 impact due to Boiler No. 4 was 0.5 ug/m^3. This level was below the significant impact level of 1 ug/m^3. The maximum annual NO_x emissions from Boiler No. 4 will increase by only 30.6 TPY as a result of the proposed modification. This is an increase of only 15 percent, and therefore maximum future NO_2 impacts due to Boiler No. 4 are predicted to remain below the significance level 1 ug/m^3.

A.4.4 Carbon Monoxide

Previously predicted maximum carbon monoxide (CO) impacts due to Boiler No. 4 were more than 25 times less than the 1-hour and 8-hour significance levels of 2000 ug/m^3 and 500 ug/m^3, respectively. The proposed modification will result in an increase of 30 percent in maximum CO emissions from Boiler No. 4. Therefore, maximum CO impacts with Boiler No. 4 operating at the proposed steam rates should remain well below the significance levels.

A.4.5 PSD Increment Consumption

As discussed in Section A.4.1 and A.4.2, maximum emissions of SO_2 (short-term and annual average) and PM (short-term only) considered in the previous modeling analysis will not increase as a result of the proposed modification. A slight increase in annual PM emissions over the level previously modeled will be associated with the modified Boiler No. 4 operation.

The construction permit application for Boiler No. 4 discussed the effect of Boiler No. 4 operation upon PSD allowable increments (increments have been established for PM and SO_2 only). It was stated that the relatively small increment consuming impacts of Boiler No. 4, the increment expansion provided by the East and West pellet plant shutdowns, and the high baseline

emissions for Boiler Nos. 5 and 6 (no scrubbers installed), and the lack of other increment consuming emissions in the vicinity of the Clewiston mill, demonstrated that Boiler No. 4 would not cause or contribute to a violation of any PSD Class II allowable increment.

The previous maximum annual average PM impact of Boiler No. 4 of 0.4 ug/m^3, based upon 0.2 lb/10^6 Btu and 238.3 TPY, represents only 2 percent of the allowable PSD Class II increment for PM of 19 ug/m^3, annual average. The proposed small increase in annual average PM emissions (24.76 TPY) does not alter the previous conclusions. The operation of Boiler No. 4 at the proposed steam rates, therefore, is predicted to result in compliance with all Class II allowable PSD increments.

ATTACHMENT B

Boiler No. 4 Emission Calculations

A. Boiler Operating Data

1. Steam Enthalpies

Boiler feedwater @ 250°F = 218.59 Btu/lb

Steam condition 1: 850 psig, 900°F = 1453.2 Btu/lb

Steam condition 2: 600 psig, 750°F = 1378.6 Btu/lb

2. Heat input calculations

Based upon boiler efficiency of 55% when firing bagasse

Steam production rates:

Condition 1, 6-hr average = 314,757 lb/hr (@ 850 psig, 900°F)

Condition 1, maximum = 346,231 lb/hr (@ 850 psig, 900°F)

Condition 2, 6-hr average = 335,000 lb/hr (@ 600 psig, 750°F)

Condition 2, maximum = 368,500 lb/hr (@ 600 psig, 750°F)

Condition 1, 6-hr average (@ 850 psig, 900°F):

Heat gain by steam = 1453.2 - 218.59 = 1234.61 Btu/lb

Heat input to boiler = 314,757 lb/hr x 1234.61 / 0.55 =
706.55×10^6 Btu/hr

Condition 1, maximum (@ 850 psig, 900°F):

Heat gain by steam = 1234.61 Btu/lb

Heat input to boiler = 346,231 lb/hr x 1234.61 / 0.55 =
777.2×10^6 Btu/hr

Condition 2, 6-hr average (@ 600 psig, 750°F):

Heat gain by steam = 1378.6 - 218.59 = 1160.0 Btu/lb

Heat input to boiler = 335,000 lb/hr x 1160.0 / 0.55 =
706.55×10^6 Btu/hr

Condition 2, maximum (@ 600 psig, 750°F):

Heat gain by steam = 1160.0 Btu/lb

Heat input to boiler = 368,500 lb/hr steam x 1160.0 / 0.55
777.2×10^6 Btu/hr

3. Maximum steam production from oil firing (approximately 1500 gal/hr oil equivalent to approximately 150,000 lb/hr steam)
   Based upon 80% boiler efficiency when firing oil
   Maximum heat input due to oil = 225 x 10^6 Btu/hr
   Condition 1: 225 x 10^6 Btu/hr / 1234.61 Btu/hr x 0.80
   = 145,795 lb/hr steam (@ 850 psig, 900°F)
   Condition 2: 225 x 10^6 Btu/hr / 1160.0 Btu/lb x 0.80
   = 155,172 lb/hr steam (@ 600 psig, 750°F)

B. Emission Calculations

Based upon Boiler No. 4 PSD application, maximum emissions of PM, CO and VOC occur when burning 100% bagasse. Maximum emissions of SO_2 and NO_x occur when burning the maximum amount of fuel oil, with the remainder of heat input due to bagasse burning. Since emissions are based upon either heat input or amount of fuel burned, maximum emission rates are the same for both steam operating conditions. Boiler operation will be limited to 160 days per year.

1. Particulate Matter

Emission limit = 0.15 lb/10^6 Btu
Maximum : 777.2 x 10^6 Btu/hr x 0.15 lb/10^6 Btu = 116.58 lb/hr
6-hr avg. : 706.55 x 10^6 Btu/hr x 0.15 lb/10^6 Btu = 105.98 lb/hr
Annual : 105.98 lb/hr x 24 hr/day x 160 day/yr / 2000 lb/ton
= 203.48 tons/yr

2. Sulfur Dioxide

The sulfur dioxide emission tests conducted on Boiler No. 4 demonstrate a high degree of removal within the boiler/scrubber system when burning bagasse. A removal efficiency of 50% was assumed in the PSD application, with an associated emission level of 0.25 lb/10^6 Btu. Based upon the test results, U.S. Sugar Corporation is willing to limit itself to <u>no increase</u> in emissions over the current permitted level.

a. Bagasse burning

1. Current permitted levels

0.25 lb/10^6 Btu

Instantaneous - 600 x 10^6 Btu/hr x 0.25 lb/10^6 Btu
= 150.0 lb/hr

6-hour average - 545.4 x 10^6 Btu/hr x 0.25 lb/10^6 Btu
= 136.4 lb/hr

2. Proposed levels

Instantaneous - 150 lb/hr / 777.2 x 10^6 Btu/hr
= 0.19 lb/10^6 Btu

6-hour average - 136.4 lb/hr / 706.55 x 10^6 Btu/hr
= 0.19 lb/10^6 Btu

Proposed emission level = 0.19 lb/10^6 Btu

Uncontrolled emissions = 0.5 lb/10^6 Btu

SO_2 removal efficiency = (0.5 - 0.19) / 0.5 x 100
= 62%

b. Bagasse/oil burning

Current SO_2 emissions are limited to 680.0 lb/hr. This current level will not be exceeded in the future. SO_2 emissions due to fuel oil burning at 225 x 10^6 Btu/hr heat input and assuming all sulfur in fuel oil emitted as SO_2 (from Boiler No. 4 permit application) = 588.4 lb/hr.

Remainder of SO_2 due to bagasse burning = 680.0 - 588.4
= 91.6 lb/hr

1. Proposed instantaneous maximum heat input rate
= 777.2 x 10^6 Btu/hr

Heat input due to bagasse at maximum oil firing rate
= 777.2 - 225.0 = 552.2 x 10^6 Btu/hr

Revised SO_2 emission rate due to bagasse burning (during maximum oil-firing conditions)
= 91.6 lb/hr / 552.2 x 10^6 Btu/hr
= 0.166 lb/10^6 Btu

SO_2 Removal efficiency (for maximum oil-firing conditions): = (0.50 - 0.166) / 0.5 x 100 = 66.8%

2. Proposed 6-hour average heat input rate
   = 706.55 x 10^6 Btu/hr
   Heat input due to bagasse at maximum oil firing rate
   = 706.55 - 225.0 = 481.55 x 10^6 Btu/hr
   Revised SO_2 emission rate due to bagasse burning (during maximum oil firing conditions)
   = 91.6 / 481.55 = 0.19 lb/10^6 Btu
   SO_2 Removal efficiency = (0.5 - 0.19)/0.5 x 100 = 62%

c. Annual SO_2 emissions

Current maximum annual SO_2 emmissions, based upon PSD permit application, are 382.3 TPY.

Proposed annual emissions are calculated as follows:

SO_2 emissions due to Fuel oil burning @ 500,000 gal/yr
= 98.0 TPY SO_2 (see Boiler No. 4 permit application).

Fuel oil burning limited to equivalent of 333.6 hr/yr at maximum fuel oil burning rate (see Boiler No. 4 permit application).

During these hours, heat input due to bagasse
= 706.55 - 225.0 = 481.55 x 10^6 Btu/hr (based upon 6-hour averaging time for annual calculations).

Remainder of hours, operate at maximum bagasse input:
706.55 x 10^6 Btu/hr

Hours per year on all bagassee = (160 x 24) - 333.6
= 3506.4 hr/yr

SO_2 emissions due to bagasse firing (at proposed limits):
333.6 hr/yr @ 481.55 x 10^6 Btu/hr and 0.19 lb $SO_2/10^6$ Btu
= 15.3 TPY

3506.4 hr/yr @ 706.55 x 10^6 Btu/hr and 0.19 lb $SO_2/10^6$ Btu
= 235.4 TPY

Total SO_2 (bagasse/oil) = 15.3 + 235.4 + 98.0 = 348.7 TPY

3. Nitrogen Oxide

The following information, taken from the PSD application, is still valid:

Maximum heat input due to fuel oil burning = 225 x 10^6 Btu/hr

Maximum fuel oil consumption = 1,499 gal/hr

Maximum annual fuel oil consumption = 500,000 gal/yr

Hours operating on oil = 333.6 hr/yr

NO_x emission factor for oil burning = 67 lb/1000 gal

NO_x emission factor for bagasse burning = 1.2 lb/ton (wet)

NO_x due to oil firing at 225 x 10^6 Btu/hr = 100.4 lb/hr

Annual NO_x due to oil firing at 500,000 gal/yr = 17.0 tons/yr

Revised NO_x emission calculations based upon the above data are provided below for the two potential steam operating conditions:

	Condition 1 (850 psig, 900°F)		Condition 2 (600 psig, 750°F)	
	6-hr avg.	Maximum	6-hr avg.	Maximum
Oil/Bagasse Burning				
Maximum Steam production due to oil (lb/hr) (at 1499 gal/hr)	145,795	145,795	155,172	155,172
Equivalent Operating Hours on maximum oil supplemented by bagasse	333.6	333.6	333.6	333.6
Maximum Steam production due to bagasse (lb/hr)	168,962	200,436	179,828	213,328
Heat input due to bagasse (10^6 Btu/hr)	481.55	552.20	481.55	552.20
Bagasse firing rate (lb/hr wet)	133,764	153,389	133,764	153,389
NO_x due to bagasse (lb/hr)	80.26	92.03	-- same as Condition 1 --	
(tons/yr)	13.39	N/A	-- same as Condition 1 --	
NO_x due to oil burning (lb/hr)	100.4	100.4	-- same as Condition 1 --	
(tons/yr)	16.75	N/A	-- same as Condition 1 --	
Total NO_x due to oil/bagasse firing (lb/hr)	180.66	192.43	-- same as Condition 1 --	
(tons/yr)	30.14	N/A	-- same as Condition 1 --	
Bagasse Burning Only				
Operating hours (hr/yr)	3,506.4	3,506.4	-- same as Condition 1	
Bagasse firing rate (lb/hr wet)	196,264	215,889	-- same as Condition 1 --	
NO_x due to bagasse (lb/hr)	117.76	129.53	-- same as Condition 1 --	
(tons/yr)	206.46	N/A	-- same as Condition 1 --	
Total NO_x (tons/yr)	236.6	N/A	-- same as Condition 1 --	

4. Carbon Monoxide

   Emission factor = 0.25 lb/10^6 Btu (bagasse burning)

   Maximum: 777.20 x 10^6 Btu/hr x 0.25 lb/10^6 Btu = 194.3 lb/hr

   6-hr average: 706.55 x 10^6 Btu/hr x 0.25 lb/10^6 Btu/hr = 176.6 lb/hr

   Annual: 176.6 lb/hr x 24 hr/day x 160 day/yr / 2000 lb/ton
   = 339.1 tons/yr

5. Volatile Organic Compounds

   Emission factor = 1.7 lb/ton (wet) (bagasse burning)

   Maximum: 215,889 lb/hr bagasse x 1.7 lb/ton / 2000 = 183.5 lb/hr

   6-hr average: 196,264 lb/hr bagasse x 1.7 / 2000 = 166.8 lb/hr

   Annual: 166.8 lb/hr x 24 x 160 / 2000 = 320.3 tons/yr