Check Sheet

Company Name: Sugar Cane Growers Cooperative of Florida
Permit Number: 0990026.001-AC / AC50250421
PSD Number: 213
Permit Engineer:

Application:

- [x] Initial Application
  - [x] Incompleteness Letters
  - [x] Responses
  - [x] Waiver of Department Action
  - [x] Department Response
  - [ ] Other

Cross References:

- [ ]
- [ ]
- [ ]

Intent:

- [x] Intent to Issue
- [x] Notice of Intent to Issue
- [x] Technical Evaluation
- [x] BACT Determination
- [x] Unsigned Permit

Correspondence with:

- [ ] EPA
- [ ] Park Services
- [ ] Other

- [x] Proof of Publication
  - [ ] Petitions - (Related to extensions, hearings, etc.)
  - [ ] Waiver of Department Action
  - [x] Other Revised Intent/Notice/TVD

Final Determination:

- [x] Final Determination
- [x] Signed Permit
- [x] BACT Determination
- [ ] Other

Post Permit Correspondence:

- [ ] Extensions/Amendments/Modifications
- [ ] Other

Is your RETURN ADDRESS completed on the reverse side?

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

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Jose G. Alvarez, VP
Sugar Cane Growers
PO Box 666
Belle Glade, Fl 33430

4a. Article Number
Z 127 632 594

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

7. Date of Delivery
6-7-96

5. Signature (Addressee)

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

6. Signature (Agent)
Debra Johnson

PS Form 3811, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Z 127 632 594

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Jose Alvarez	
Street and No. Sugar Cane	
P.O., State and ZIP Code Belle Glade, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 6-4-96 PSO-Fl-213	

PS Form 3800, March 1993

Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

State of Florida
Department of Environmental Protection
Notice of Permit

In the matter of an Application for Permit by:

DEP File No. AC 50-250421
PSD-FL-213
Palm Beach County

Mr. Jose F. Alvarez
Vice President of Planning & Plant Operations
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430

_____/

Enclosed is Permit Number AC 50-250421 (PSD-FL-213) for the construction (modification of the permit) of the existing No. 8 boiler which is fired with bagasse, bagasse residue, and No. 6 residual fuel oil. This boiler is located at your sugar mill in Belle Glade, Palm Beach County, Florida. This permit is issued pursuant to Section 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by 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, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 14 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

C. H. Fancy, P.E., for

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed by certified mail before the close of business on 6-4-96 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kyni Faber — Clerk
6-4-96 — Date

Copies furnished to:

David Knowles, SD
Jewell Harper, EPA
John Bunyak, NPS
David Buff, KBN
James Stormer, PBCHU

Final Determination

Sugar Cane Growers Cooperative of Florida
Palm Beach County
Belle Glade, Florida

Boiler No. 8
Department Permit No. AC 50-250421
PSD-FL-213

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

May 28, 1996

FINAL DETERMINATION

Sugar Cane Growers Cooperative
AC 50-250421/PSD-FL-213

The Intent to Issue an air construction permit to Sugar Cane Growers Cooperative to increase the allowable carbon monoxide (CO) emissions from the bagasse/residue/fuel oil-fired Boiler No. 8 located at the sugar mill in Belle Glade, Palm Beach County, Florida, was distributed on November 28, 1995. The Notice of Intent to Issue was published in the Palm Beach Post on January 2, 1996.

At the applicant's request, the proposed permit was modified to correct an error in the hours per year the boiler could operate. This correction increased the tons per year CO emissions from the boiler. A second Notice of Intent which listed the higher CO emissions was published in the Palm Beach Post on April 19, 1996.

Copies of the evaluation were available for public inspection at the Palm Beach County Health Department in West Palm Beach and the Department's offices in West Palm Beach, Ft. Myers, and Tallahassee.

Comments on the Department's Intent were submitted by the applicant's engineer and the Palm Beach County Health Department. The applicant requested that the allowable steam parameters and heat inputs be added as a condition to the permit. This request was accepted and Specific Condition No. 3 was modified to add these restrictions. The County requested that Good Combustion Practices (GCP), which is used to optimize carbon monoxide emissions, be specified to assist them in determining compliance with that requirement. In response to this comment, the Department has incorporated an Operation and Maintenance Plan (O&M) into Specific Condition No. 6. Compliance with the O&M is acceptable as proof of GCP.

The final action of the Department will be to issue the construction permit as proposed except for the changes noted above.

Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

PERMITTEE:
Mr. Jose F. Alvarez
Vice President of Planning and Plant Operation
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430

APIS No: 52FTM50002608
Permit Number:AC50-250421/PSD-FL-213
Expiration Date: March 31, 1997
County: Palm Beach
Latitude/Longitude: 26°42'06"N 80°38'57"W

Project: Boiler No. 8 Modification

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210, 62-212, 62-275, 62-296, and 62-297, Florida Administrative Code (F.A.C.). The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and specifically described as follows:

This permit authorizes an increase allowable carbon monoxide (CO) emissions from the existing bagasse/residue/No. 6 residual fuel oil-fired Boiler No. 8 located at Sugar Cane Growers Cooperative of Florida's sugar mill. This mill is on West Sugar House Road in Belle Glade, Palm Beach County, Florida. The UTM Coordinates of this mill are Zone 17,534.9 km E and 295 3.3 km N.

The modification shall be in accordance with the application received on May 6, 1994, and the additional information submitted with the letters from Hopping, Greene, Sams and Smith dated April 14, 1995 and August 30, 1995, except for the changes mentioned in the Technical Evaluation and Preliminary Determination and listed as Specific Conditions in this permit.

Attachments are listed below:

1. Application received May 6, 1994.
2. DEP May 19, 1994, letter.
3. DEP November 14, 1994, letter.
4. Hopping, Green, Sams & Smith December 20, 1994, letter.
5. Hopping, Green, Sams & Smith March 31, 1995, letter.
6. Hopping, Green, Sams & Smith April 14, 1995, letter.
7. Hopping, Green, Sams & Smith August 30, 1995, letter.
8. KBN February 1, 1996, letter.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

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), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither 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 is not 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 this permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment 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, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of F.S. and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and 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

GENERAL CONDITIONS:

credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:

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

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

c. Sample or monitor 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 provide the Department with the following information:

a. A description of and cause of non-compliance; and,

b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for 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 involving the permitted source arising under the F.S. or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.

GENERAL CONDITIONS:

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-30.300, F.A.C., 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 or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

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

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold 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) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained 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 dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used;
- the results of such analyses.

SPECIFIC CONDITIONS:

1. This permit supersedes permit No. AC50-42476, issued October 28, 1981, and its revisions dated November 16, 1981. Except for the changes that follow in Specific Condition No. 3, 4, 5, 6 and 7 the provision of amended permit No. AC 50-42476 and permit No. PSD-FL-077 are incorporated as a condition of this air construction permit.

2. This permit modified only the steam production parameters, stack heights for boiler Nos. 2, 3, and 5 and the allowable carbon monoxide (CO) emission limits and CO testing requirements for Boiler No. 8. Boiler No. 8 remains subject to all other previous permit conditions, permit modifications, and regulations, including Rule 62-296.570, F.A.C. - Requirements for major VOC and NO_x - Emissions Facilities.

3. The allowable operation parameters for Boiler No. 8 are summarized in the following table:

Steam Pressure (psig)	Steam Temperature (°F)	Fuel Burned	Steam Production (lb/hr)	Heat Input (MMBtu/hr)	Amount of Fuel Consumed (lb/hr)
400	585	Bagasse	264,000	504.0 (a)	63,000 (a)
		Bagasse Residue	264,000	443.5 (b)	49,831 (b)
600	740	Bagasse	242,100	504.0 (a)	63,000 (a)
		Bagasse Residue	242,100	443.5 (b)	49,831 (b)
400	740	Bagasse	240,000	504.0 (a)	63,000 (a)
		Bagasse Residue	240,000	443.5 (b)	49,831 (b)

(a)Based upon 55% thermal efficiency and 8,000 Btu/lb (dry) while burning bagasse.
(b)Based upon 62.5% thermal efficiency and 8,900 Btu/lb while burning bagasse residue.

4. The allowable carbon monoxide emission limits listed in Specific Condition No. 2 of permit No. AC 50-42476 are changed from 140 lbs/hr and 511 tons per year (TPY) to 5.5 lbs/MMBtu heat input (assuming boiler has a thermal efficiency of 55% when burning bagasse), 2,772 lbs/hr (average of 3 runs of a minimum of 1 hour

SPECIFIC CONDITIONS:

per run by EPA method 10 as described in 40 CFR 60, Appendix A), and 10,112 TPY based on a maximum of 7,296 hours per year operation. Crop season operation may last a maximum of 184 days while off-season operation may last a maximum of 120 days.

5. The CO emissions from Boiler No. 8 shall be measured annually by EPA Method 10 as described in 40 CFR 60, Appendix A. Test reports shall be submitted to the Department's South District office and the Palm Beach County Public Health Unit within 45 days of completion of the test.

6. The permittee shall install, maintain and operate an alarm system on Boiler No. 8 that will be triggered whenever the boiler oxygen level drops below 4 percent. The time the boiler operates with less than 4 percent oxygen shall be logged and may be used as a basis to modify the Operation and Maintenance Plan. The permittee shall use the Operation and Maintenance Plan for Carbon Monoxide Control for Boiler No. 8 (Revised February 1, 1996).

7. The stack heights on Boiler Nos. 2 and 5 shall be increased to a minimum of 150 feet above ground elevation. The stack height on Boiler No. 3 shall be increased to a minimum of 90 feet above ground elevation. These stacks shall be equipped with testing facilities meeting the requirements of Rule 62-297.345(3),F.A.C., Test Facilities.

8. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation prior to 60 days before the expiration of the permit. (Rule 62-4.090, F.A.C.)

9. A timely application for a Title V operation permit must be submitted to the Department's South District office by the date specified in Rule 62-213, F.A.C.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Howard L. Rhodes

Howard L. Rhodes, Director
Division of Air Resources Management

Best Available Control Technology (BACT) Determination
Sugar Cane Growers Cooperative of Florida

AC 50-250421
PSD-FL-213

The Sugar Cane Growers Cooperative of Florida requested the carbon monoxide (CO) emission limit for Boiler No. 8 at the existing sugar mill in Belle Glade, Palm Beach County, Florida, be increased from 0.28 lbs CO/MMBtu heat input to 6.0 lbs CO/MMBtu heat input. The request followed a Department change in the required test method to demonstrate compliance with the CO emission limit. The revised emission limit adopted by the Department is based on actual EPA Method 10 test data on Boiler No. 8. The increase in allowable emissions is not associated with any change in production or operation of the boiler. The emissions of all other air pollutants are not affected by this request.

The higher allowable emission rate requested will result in an apparent increase in CO emissions above the significant emission rate of 100 TPY. This subjects the facility to the Prevention of Significant Deterioration (PSD) new source review regulations. These regulations require a BACT determination to be made for CO for the boiler.

Date of Receipt of a BACT Application:

May 6, 1994

Date Application Complete

August 30, 1995

BACT Requested by the Applicant:

The BACT determination for CO requested by the applicant is 6.0 lbs CO/MMBtu heat input. For the 504 MMBtu/hr bagasse/ residue/No. 6 residual fuel oil-fired boiler, this will result in 3,024 lbs CO/hr emissions. For a 7,296 hour per year operation, this is equivalent to 11,032 tons CO emissions during any 12 consecutive month period. The CO emission limit of 6.0 lbs/MMBtu is to be achieved by Good Combustion Practices (GCP) of the boiler. Compliance is to be determined using EPA Reference Method 10 as described in 40 CFR 60, Appendix A.

BACT Determination Procedure:

In accordance with Rule 62-212.410, Florida Administrative Code, Best Available Control Technology Determination, Stationary Source-Preconstruction Review, this BACT determination is based on

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

(a) Any Environmental Protection Agency determination of BACT pursuant to 40 CFR 52.21, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).

(b) All scientific, engineering, and technical material and other information available to the Department.

(c) The emission limiting standards or BACT determinations of any other state.

(d) The social and economic impact of the application of such technology.

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

BACT Determined by the Department:

CO emissions from Boiler No. 8 shall be minimized through Good Combustion Practices (GCP). CO emissions shall not exceed 5.5 lbs/MMBtu and, based on a maximum allowable heat input of 504 MMBtu/hr, 2,772 lbs/hr (1-hr max.). CO emissions during any consecutive 12-month period shall not exceed 10,112 tons (based on a maximum allowable 6-hr average of 504 MMBtu/hr heat input and 7,296 hrs/yr operation). Compliance shall be determined using EPA Reference Method 10 as described in 40 CFR 60, Appendix A. These emission limits shall be achieved through GCP of the boiler.

BACT Determination Rationale:

The applicant implemented a GCP program pursuant to the original BACT determination for this boiler that was made in 1981. Test data using the Department-specified "wet" CO test method (EPA Method 3) indicated compliance with the emission limit of 0.28 lbs/MMBtu set by the Department as BACT. Subsequently the applicant was required to use a more recently adopted instrumental method (EPA Method 10) to measure CO emissions. The result was that previously undetectable CO was measured and found to be substantially higher than believed by the applicant and the Department.

The basis for this modification was to determine what level of CO emission control can be achieved without unreasonably expensive boiler modification. However, compliance with other PSD parameters, such as maximum predicted ground-level concentration, was required.

The applicant submitted information indicating the high CO emissions from this boiler are due to the short residence time of the combustion gases in the furnace area. Based on emission data, they concluded that CO emissions averaged 2.3 lbs/MMBtu. Maximum measured CO emissions were 5.4 lbs/MMBtu. The requested limit of 6.0 lbs/MMBtu, is to be achieved through GCP.

The applicant investigated the use of combustion controls, retrofitting a flue gas recirculation system (FGR), use of a CO oxidation system, and drying the bagasse prior to burning (at the Department's request).

Boiler vendors stated that the high CO level for this boiler was due to the low residence time of the flue gases in the boiler. Higher residence times would allow for more complete combustion. Newer boilers have up to twice the volume of this existing boiler.

Retrofitting a flue gas recirculation (FGR) system to the existing boiler would be difficult and expensive ($1,400,000 capital cost + $1,000,000 annual operation cost). The CO reduction by a FGR system was unknown and potentially no reduction would be achieved. No bagasse boiler in Florida is using FGR.

Oxidation catalyst systems require elevated temperatures and low particulate matter loading. This boiler's flue gas temperature is too low and the particulate matter loading is too high to use an oxidation catalyst. No bagasse boiler in Florida uses an oxidation catalyst system.

Drying the bagasse prior to burning was considered unproven technology. No data was available to show a CO reduction from this approach.

The newer bagasse boilers with larger furnaces have lower CO emission rates. Expanding the volume of the existing boiler is not considered feasible. Through elimination of add-on controls, the Department is left with GCP as BACT to control CO emissions from this existing boiler. Most of the time, GCP will result in operation of the boiler under high excess air conditions and will result in CO emissions of less than 3 lbs/MMBtu. Under the best conditions (relatively dry bagasse, etc.) CO emissions will be less than 2 lbs/MMBtu. The Department has no information to suggest that this boiler is designed significantly differently from the other bagasse boilers that were given a similar limit.

The Department believes that if this boiler is operated properly, it should be able to consistently meet the CO concentration that was measured during actual tests on this boiler. The BACT determination for Boiler No. 8 is established as GCP with emissions not to exceed 5.5 lbs CO/MMBtu.

Conclusion

For a CO emission standard of up to 6.0 lbs/MMBtu (originally proposed by the applicant), the ambient air impact will be below the ambient air standards provided that the heights of the stacks on Boiler Nos. 2, 3, and 5 are increased to 150, 90, and 150 feet elevation respectively. The Department proposal is achievable by GCP and provides an additional margin of safety to protect the ambient air quality standard for CO.

Details of the Analysis May be Obtained by Contacting:

A. A. Linero, P.E., Administrator
W. M. Hanks, Review Engineer
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

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

June 3, 1996
Date

Approved by:

Howard L. Rhodes
Howard L. Rhodes, Director
Division of Air Resources Mgmt.

June 3, 1996
Date

Attachments Available Upon Request

Florida Department of
Environmental Protection

Memorandum

To: Howard L. Rhodes

Thru: Clair Fancy
A. A. Linero

From: Willard Hanks

Date: May 28, 1996

Subject: Approval of a Construction Permit
Sugar Cane Growers Cooperative

Attached for your approval and signature is a Best Available Control Technology determination and a construction permit that will authorize an increase in carbon monoxide emissions from a bagasse/residue/fuel oil-fired boiler at a sugar mill in Belle Glade, Palm Beach County, Florida.

The permit allows an increase in the potential/allowable carbon monoxide emissions from an existing boiler. The purpose of the allowable increase in carbon monoxide emissions is to reflect a more accurate test method (EPA Method 10) implemented at the initiative of the Department. There is no actual increase in carbon monoxide emissions from the boiler. The allowable emission standard of 5.5 lbs CO/MMBtu is based on actual Method 10 test data from this boiler.

Comments on the proposed permit were submitted by the applicant and the Palm Beach County Health Department. The applicant requested that the boiler steam parameters be incorporated in the permit. The County requested the Department specify Good Combustion Practices. Both of these requests were acceptable and Specific Conditions Nos. 3 and 6 that were in the proposed permit were modified to address these comments.

I recommend approval of the permit.

CF/wh/h

Attachments

GLADES SUGAR HOUSE

Sugar Cane Growers Cooperative of Florida

POST OFFICE BOX 666 BELLE GLADE, FLORIDA

33430-0666

April 26, 1996

Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL. 32399-2400

Subject: AC 50-250421
PSD-FL-213

Dear Sirs:

Sugar Cane Growers Cooperative of Florida has published the Department's Notice of Intent to Issue Permit pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C. The proof of publication is attached.

Sincerely,

Jose F. Alvarez
Vice President Planning and Plant Operations

Enclosure

JFA/lm

cc: Hanks
Knowles, SD
D. Buff, KBN
J. Koerner, PBCHD
EPA
NPS

Telephone (407) 996-5556 Fax No. (407) 996-4747

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 Chris Bull 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 to Issue Permit in the _____ Court, was published in said newspaper in the issues of April 19, 1996

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.

Chris Bull

Sworn to and subscribed before me this 23 day of April A.D. 19 96

OFFICIAL NOTARY SEAL
KAREN M MCLINTON
NOTARY PUBLIC STATE OF FLORIDA
COMMISSION NO. CC240480
MY COMMISSION EXP. NOV. 15,1996

Karen M. McLinton, Notary Public

Personally known XX or Produced Identification _____

Type of Identification Produced _____

No. 155650
LEGAL NOTICE
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT
AC 50-250421/PSD-FL-213

The Department of Environmental Protection (Department) gives notice of its intent to issue a construction permit, No. AC 50-250421/PSD-FL-213, to the Sugar Cane Growers Cooperative for a modification/increase in the potential/allowable carbon monoxide (CO) emission limit for the existing bagasse/residue/fuel oil-fired Boiler No. 8. The boiler is located at the existing sugar mill in Belle Glade, Palm Beach County, Florida. The modification will increase the allowable CO emission limit to reflect a more accurate test method implemented at the initiative of the Department. There will be no actual increase in emissions of any air pollutants. The permit will authorize an increase in the allowable emission rate of CO from 511 TPY to 10,112 TPY. The boiler's operation and allowable emissions of all other air pollutants are not changed by this permit. However, the apperent increase in CO emissions is above the significant emission rate and subjects the proposed modification to the Prevention of Significant Deterioration (PSD) regulations. The allowable CO emissions are set by a determination of Best Available Control Technology. The maximum predicted CO concentrations from all sources, including the 10,112 TPY CO emission rate increase requested by the applicant, ere: 31.3 mg/m3, 1-hour average, or 78 percent of the 1-hour ambient eir quality standard (AAQS) of 40 mg/m3; and, 9.2 mg/m3, 8-hour avarage, or 92 percent of the 8-hour AAQS of 10 mg/m3.

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 (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400., within 14 days of publication of this notice. Petitioner shall mail e copy of the petition to the applicant at the address indicated above at the time of filing. 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, F.S.

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

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 position taken by it in this Notice. Persons whose subatantial interests will be affected by eny decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified [illegible] be filed (received) [illegible] days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such peraon has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

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

Department of Environmenj Protection,
Bureau of Air Regulation
111 S. Magnolia Drive,
Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
South District
2295 Victoria Avenue,
Suite 364
Fort Myers, Florida 33901

Palm Beach County Health Department
901 Evernia Streot
West Palm Beach, Florida 34401

Any person may send written comments on the proposed action to the Administrator, New Source Review at the Department of Environmental Protection, Bureau of Air Regulation, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any persons(s). Such request must be submitted within 30 days of this notice.

PUB: The Palm Beach Post
April 19, 1996

Is your RETURN ADDRESS completed on the reverse side?

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

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

Consult postmaster for fee.

3. Article Addressed to:
Jose Alvarez, VP
Sugar Cane Growers
Coop. of Fla
PO Box 666
Belle Glade, Fl 33430

4a. Article Number
Z 127 633 187

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

7. Date of Delivery
3/19/96

5. Signature (Addressee)
Vanton Hall

6. Signature (Agent)

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

Thank you for using Return Receipt Service.

PS Form **3811**, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Z 127 633 187

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to: Jose Alvarez	
Street and No.: Sugar Cane G	
P.O., State and ZIP Code: Belle Glade, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	3-15-96

AC50-250421
PSD-FI-213

PS Form **3800**, March 1993

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

March 14, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jose F. Alvarez
Vice President of Planning & Plant
Operations
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430

Dear Mr. Alvarez:

The Department has reviewed the comments on proposed permit No. AC50-250421/PSD-FL-213 which will authorize an increase in the allowable carbon monoxide emissions from Boiler No. 8. As the correction of this boiler's operation time results in a significant net emissions increase in CO emissions, the Department is reopening the public notice comment period. The Department has also responded to your other comments in the revised draft permit.

Enclosed is a copy of the Department's revised Intent to Issue, the addendum to the Technical Evaluation and Preliminary Determination, proposed BACT determination, and draft permit for increasing the allowable carbon monoxide emission limit for Boiler No. 8. Included for your action is a revised Public Notice of Intent to Issue Permit.

Submit any written comments you wish to have considered concerning the Department's proposed action to Mr. A. A. Linero, P.E., New Source Review Section. If you have any questions regarding this matter, please call Willard Hanks at (904)488-1344.

Sincerely,

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

CHF/WH/s

Enclosure

cc: David Knowles, SD
Jewell Harper, EPA
John Bunyak, NPS
David Buff, P.E., KBN
Jeff Koerner, PBCHD

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Application for Permit by:

DEP File No. AC 50-250421
PSD-FL-213
Palm Beach County

Mr. Jose F. Alvarez
Vice President of Planning & Plant Operations
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430

_____/

INTENT TO ISSUE

The Department of Environmental Protection (Department) hereby gives notice of its intent to issue a construction permit (copy attached) for the proposed project, as detailed in the application specified above, for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Sugar Cane Growers of Florida, applied on May 6, 1994, for an air construction permit to modify/increase the allowable carbon monoxide (CO) emission limit for their existing bagasse/residue/fuel oil-fired Boiler No. 8. In a letter dated February 1, 1996, the maximum allowable hours per year operation of Boiler No. 8 listed in the application was corrected. This results in an annual increase in the allowable CO emissions. The boiler is located at the existing sugar mill in Belle Glade, Palm Beach County, Florida. The modification will increase the allowable CO emission limit to reflect a more accurate test method implemented at the initiative of the Department. No increase in actual emissions is expected since the source must still comply with a previous determination of Best Available Control Technology (BACT) requiring Good Combustion Practice.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). The project is not exempt from permitting procedures. The Department has determined that a construction permit is required for the proposed action.

Pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of
Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a 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, F.S.. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit

applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. 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, F.S.

The Petition shall contain the following information;

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

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 position taken by it in this Intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this intent in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
904-488-1344

Sugar Cane Growers
Cooperative of Florida
AC 50-250421/PSD-FL-213

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 3-15-96 to the listed persons.

Clerk Stamp
FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

Clerk 3-15-96 Date

Copies furnished to:

cc: David Knowles, SD
Jewell Harper, EPA
John Bunyak, NPS
David Buff, P.E., KBN
Jeff Koerner, PBCHD

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT

AC 50-250421/PSD-FL-213

The Department of Environmental Protection (Department) gives notice of its intent to issue a construction permit, No. AC 50-250421/PSD-FL-213, to the Sugar Cane Growers Cooperative for a modification/increase in the potential/allowable carbon monoxide (CO) emission limit for the existing bagasse/residue/fuel oil-fired Boiler No. 8. The boiler is located at the existing sugar mill in Belle Glade, Palm Beach County, Florida. The modification will increase the allowable CO emission limit to reflect a more accurate test method implemented at the initiative of the Department. There will be no actual increase in emissions of any air pollutants. The permit will authorize an increase in the allowable emission rate of CO from 511 TPY to 10,112 TPY. The boiler's operation and allowable emissions of all other air pollutants are not changed by this permit. However, the apparent increase in CO emissions is above the significant emission rate and subjects the proposed modification to the Prevention of Significant Deterioration (PSD) regulations. The allowable CO emissions are set by a determination of Best Available Control Technology.

The maximum predicted CO concentrations from all sources, including the 10,112 TPY CO emission rate increase requested by the applicant, are: 31.3 mg/m^3, 1-hour average, or 78 percent of the 1-hour ambient air quality standard (AAQS) of 40 mg/m^3; and, 9.2 mg/m^3, 8-hour average, or 92 percent of the 8-hour AAQS of 10 mg/m^3.

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 (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. 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, F.S.

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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:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
South District
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Palm Beach County Health Department
901 Evernia Street
West Palm Beach, Florida 34401

Any person may send written comments on the proposed action to the Administrator, New Source Review at the Department of Environmental Protection, Bureau of Air Regulation, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such request must be submitted within 30 days of this notice.

Addendum to the Technical Evaluation and Preliminary Determination

Sugar Cane Growers Cooperative of Florida
Palm Beach County
Belle Glade, Florida

Boiler No. 8
Department File No. AC 50-250421A
PSD-FL-213

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

March 14, 1996

Addendum

The Technical Evaluation and Preliminary Determination for Construction permit AC50-25421A/PSD-FL-213 to increase the allowable emissions of Carbon Monoxide (CO) emissions from Boiler No. 8 at Sugar Cane Growers Cooperation of Florida's sugar mill in Belle Glade, Florida was distributed on November 28, 1995. The applicant published the Notice of Intent in the Palm Beach Post on January 2, 1996.

Comments were submitted by the Palm Beach County Health Department and the applicant. Palm Beach County requested that Good Combustion Practices (GCP) be used to optimize CO emissions be defined. The applicant requested different allowable steam parameters be listed in this permit and that the allowable CO emissions be based on 7,296 hours per year.

The Department has revised the draft permit to include and Operation and Maintenance (O&M) plan to define GCP, listed the allowable steam parameters in the permit, and based the allowable annual CO emissions on 7,296 hours per year of boiler operation. The annual emissions of other air pollutants listed in previous permit is not changed. This results in the allowable CO emissions increasing from 9,396 tons per year (TPY) to 10,112 TPY. As this increase in allowable CO emissions exceeds the significant emission rate, the Department is reopening the public notice comment period for 30 days. The 30-day period will begin on publication of the revised Notice of Intent to Issue Permit AC50-25421A/PSD-FL-213.

3/15

Addendum

The Technical Evaluation and Preliminary Determination for Construction permit AC50-25421A/PSD-FL-213 to increase the allowable emissions of Carbon Monoxide (CO) emissions from Boiler No. 8 at Sugar Cane Growers Cooperation of Florida's sugar mill in Belle Glade, Florida was distributed on November 28, 1995. The applicant published the Notice of Intent in the Palm Beach Post on January 2, 1996.

Comments were submitted by the Palm Beach County Health Department and the applicant. Palm Beach County requested that Good Combustion Practices (GCP) be used to optimize CO emissions be defined. The applicant requested different allowable steam parameters be listed in this permit and that the allowable CO emissions be based on 7,296 hours per year.

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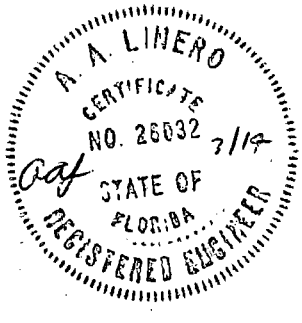

February 1, 1996

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

Re: Sugar Cane Growers Cooperative of Florida
Boiler No. 8
Revision of Operation & Maintenance Plan
AC50-250421

Dear Mr. Linero:

On behalf of Sugar Cane Growers Cooperative of Florida (SCGC), the purpose of this correspondence is to: 1) provide a revised Operation & Maintenance (O&M) Plan for consideration by the Department, and 2) provide a comment regarding Specific Condition 3 of the draft air construction permit. Each of these requests are described below.

Revisions to O&M Plan

In August, 1995, SCGC submitted a revised O&M Plan for Boiler No. 8 for consideration by the Department. In January, KBN received comments from The Department of the contents of the O&M Plan. These comments also included comments from the Palm Beach County Public Health Unit (PBCPHU). The comments concerned two major points: 1) the establishment of a specified percentage of the time that the Boiler oxygen level would be maintained above 4 percent, and 2) the defining of operating parameters which represent Good Combustion Practices (GCP), and the acceptable ranges for these parameters.

In response to these comments, it should be noted that, first and foremost, Boiler No. 8 will have a CO limit of 5.5 lb/MMBtu. This is the maximum emission rate which the Department has concluded represents GCP in it's BACT determination. This is the primary measure of compliance; annual stack testing will be conducted to demonstrate compliance.

Beyond this basic requirement, the boiler operators must have the flexibility to adjust boiler operating parameters to maintain steam load, based upon operating conditions. As stated in the O&M Plan, the operators will make all attempts to maintain the boiler oxygen level above 4 percent at the outlet of the boiler. However, this is not always possible, due to the variable nature of bagasse fuel. It must be recognized also that there are many other aspects of GCP other than merely maintaining the boiler oxygen level. These include boiler operator training and experience; boiler inspections, maintenance and timely repair; maintaining steam load; fuel characteristics; and complying with visible emission, particulate matter, NO_x, SO_2, VOC and CO emission limits.

SCGC does not presently have historical data for Boiler No. 8 concerning the percentage of time that the boiler oxygen level is maintained above 4 percent, since these data have not been required to be recorded in

KBN ENGINEERING AND APPLIED SCIENCES, INC.

6241 Northwest 23rd Street, Suite 500, Gainesville, Florida 32653-1500, 352-336-5600 FAX 352-336-6603
5405 West Cypress Street, Suite 215, Tampa, Florida 33607, 813-287-1717 FAX 813-287-1716
1801 Clint Moore Road, Suite 105, Boca Raton, Florida 33487, 407-994-9910, FAX 407-994-9393
7785 Baymeadows Way, Suite 105, Jacksonville, Florida 32256, 904-739-5600 FAX 904-739-7777
1616 'P' Street NW, Suite 350, Washington, DC 20036, 202-462-1100, FAX 202-462-2270

the past. As such, it is not possible for SCGC to agree to a specific percentage of time that the boiler will be operated above this level.

The compliance assurance monitoring (CAM) rule, now proposed by EPA, will be implemented in the next few years. The CAM rule will likely require that surrogate parameters be identified and monitored in order to assure continuous compliance with emission limits. It may be more appropriate to use this rule as the vehicle for implementing specific limits for surrogate parameters.

Consistent with O&M plans for CO that have been approved for other sugar mills, SCGC is also willing to install an alarm system on Boiler No. 8 that will be triggered whenever the boiler oxygen level drops below 4 percent. AS already stated in the O&M Plan, the boiler operators will be instructed to make adjustments as necessary to maintain the GCP oxygen level (>4 percent), consistent with meeting steam production demands.

In response to the PBCPHU's additional question concerning increasing emissions of other pollutants, increasing the air flow through the boiler (i.e., higher oxygen level) has the potential of increasing particulate emissions as well as NO_x emissions. The increase in PM emissions can result from an increase in the ash carryover from the boiler. NO_x emissions can increase due to more available oxygen and nitrogen, and therefore, more thermal NO_x emissions.

A revised O&M plan is attached which incorporates the above described changes.

Specific Condition 3 of Draft Permit

Specific Condition 3 of the draft permit states a maximum of 9,081 TPY CO based on a maximum of 6,552 hr/yr operation. In review of the previous permits for Boiler No. 8 (AC50-42476, PSD-FL-077; AO50-147870), the TPY limitations were based on total operating hours of 7,296 hr/yr (304 days per year). Permit AC50-42476 was amended on November 16, 1981, to higher TPY limits compared to the original permit. These revised limits equated to 7,296 hr/yr operation (see attached amendment letter). SCGC therefore requests that this condition be revised to allow 10,112.3 TPY based on 7,296 hr/yr operation.

Please call if you or your staff may have any questions concerning this information.

Sincerely,

David A. Buff

David A. Buff, Principal Engineer
Florida P.E. #19011

SEAL

DB/az

cc: Jose Alvarez
Gary Perko
File (2)

cc: W. Harks, BAR
D. Knowles, SFD
EPA
NPS
J. Koerner, PBC HD

16106A/1

SUGAR CANE GROWERS COOPERATIVE OF FLORIDA
OPERATION & MAINTENANCE PLAN FOR CARBON MONOXIDE CONTROL
BOILER NO. 8

(Revised 1/31/96)

1.0 PLAN SCOPE

The Operation and Maintenance (O&M) plan for minimizing carbon monoxide (CO) emissions from Boiler No. 8 contains several elements.

These elements are as follows:

A. Combustion System
B. CO Control Method
C. CO Control Devices
D. Personnel Training

2.0 COMBUSTION SYSTEM

Boiler No. 8 is designed to produce 264,000 lb/hr steam at 400 psig. Process requirements demand operation of this boiler at or above 90 percent of design capacity most of the time. The combustion system consists of a traveling grate, spreader stoker boiler with bagasse/bagasse residue feed systems, and a fuel oil firing system. The bagasse/bagasse residue fuel feed system consists of fuel bins which drop the fuel via feed chutes onto the traveling grate. The fuel burns in suspension in the boiler, or on the grate at the bottom of the furnace.

3.0 PERMITTED FUEL USAGE

Boiler No. 8 is permitted to burn three fuels: bagasse, bagasse residue, and No. 6 fuel oil. The permitted fuel burning rates are as follows:

Fuel	Utilization Rate	Heating Value (Btu/lb)	Heat Input (MMBtu/hr)
Bagasse	31.5 TPH, dry	8,000	504.0
Bagasse residue	24.5 TPH, dry	8,900	443.5
No. 6 Fuel oil	1,667 gal/hr	151,000	250.0

4.0 CO CONTROL METHOD

Good combustion practices (GCP) are to be implemented on Boiler No. 8 in order to minimize CO emissions to the extent practical. The amount of combustion air is one factor affecting bagasse combustion, and field data indicate that excess air levels above 70 percent at the stack outlet produces, on average, lower CO emission rates. An excess air level of 70 percent at the

stack outlet is approximately equivalent to a flue gas oxygen level of 4 percent at the outlet of the boiler.

Steam production on the boiler must be maintained at desired levels in order to support the sugar mill activities. At certain times, due primarily to bagasse fuel characteristics (i.e., moisture content, etc.), excess air levels above 70 percent may adversely affect boiler operation, primarily steam production rate.

In order to minimize CO emissions without sacrificing proper boiler operation, "good combustion practices" shall be observed at all times. SCGC's goal will be to maintain the flue gas oxygen content at or above 4 percent, to the extent practical. At times, the flue gas oxygen level may drop below 4 percent, depending upon fuel conditions. The oxygen level may fluctuate significantly above and below the 4 percent level.

SCGC will implement GCP by installing and maintaining a continuous steam flow meter and flue gas oxygen analyzer on Boiler No. 8. The instrument readout will be located in the boiler control room to provide real time data to the boiler operator. An alarm system will be installed on the flue gas oxygen analyzer, set to trip whenever the oxygen content falls below 4 percent. Whenever the alarm is tripped, the boiler operators will make adjustments as necessary to maintain the GCP oxygen level, again consistent with meeting steam production demands. The boiler operators will be instructed in the use of the flue gas oxygen meter for combustion control, and in the procedures to undertake to maintain excess air levels.

5.0 CO CONTROL DEVICE

The flue gas oxygen meter for the boiler will consist of a digital readout meter that meets the following specifications (or equivalent):

Manufacturer: Hays Republic Corporation
Model Name: Digital Oxygen Flow Meter
Meter Operational Range: 0 - 10 percent

SCGC will maintain the instruments properly and operate the equipment at all times except during equipment breakdown or malfunction. Any repairs will be performed as expeditiously as possible. Quarterly calibrations of the equipment will be performed, and the results maintained on-site by SCGC.

6.0 PERSONNEL TRAINING

Boiler operators and supervisors will be instructed in the operation of Boiler No. 8, consistent with the requirements to maintain GCP air levels as dictated in this O&M plan.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

November 16, 1981

Mr. Enrique R. Arias
Executive Vice President
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430

Dear Mr. Arias:

Modification of Conditions
Permit No. AC 50-42476

We are in receipt of your request for a modification of the permit conditions. The conditions are changed as follows:

Condition	Pollutant	From(ton/yr)	To(ton/yr)
(Specific)	PM	243	276
	CO	326	511
#2	VOC	325	511
	NO_x	209	449

This letter must be attached to your permit and becomes a part of that permit.

Actually 7,300 Mg

Sincerely,

Victoria Tschinkel
Secretary

VT:caa

RECEIVED
E.R.A.
DEC 2 1981

GLADES SUGAR HOUSE

Sugar Cane Growers Cooperative of Florida

POST OFFICE BOX 666 BELLE GLADE, FLORIDA
33430-0666

January 8, 1996

Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: AC 50-250421
PSD-FL-213

Dear Sirs:

Sugar Cane Growers Cooperative of Florida has published the Department's Notice of Intent to Issue Permit pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C. The proof of publication is attached.

Sincerely,

Jose F. Alvarez
Vice President Planning and Plant Operations

cc: D. Knowles, SD
D. Buff, KBN
J. Koerner, PBCHD
EPA
NPS
Willard Hanks, BAR

Telephone (407) 996-5556 Fax No. (407) 996-4747

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 Chris Bull who on oath says that she/he is Class AdvMgr 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 to Issue Permit --- in the _____ Court, was published in said newspaper in the issues of January 2, 1996

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.

Chris Bull

Sworn to and subscribed before me this 2 day of January A.D. 19 96

OFFICIAL NOTARY SEAL
KAREN M MCLINTON
NOTARY PUBLIC STATE OF FLORIDA
COMMISSION NO. CC240480
MY COMMISSION EXP. NOV. 15,1996

Karen M. McLinton, Notary Public

Personally known XX or Produced Identification ____

Type of Identification Produced _____

NO. 185530
LEGAL NOTICE
STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION
NOTICE OF INTENT
TO ISSUE PERMIT
AC 50-250421/PSD-FL-213

The Department of Environmental Protection (Department) gives notice of its intent to issue a construction permit, No. AC 50-250421/PSD-FL-213, to the Sugar Cane Growers Cooperative for a modification/increase in the potential/allowable carbon monoxide (CO) emission limit for the existing bargasse/residue/fuel oil-fired Boiler No. 8. The boiler is located at the existing sugar mill in Belle Glade, Palm Beach County, Florida. The modification will increase the allowable CO emission limit to reflect a more accurate test method implemented at the initiative of the Department. There will be no actual increase in emissions of any air pollutants. The permit will authorize and increase in the allowable emission rate of CO from 511 TPY to 9,081 TPY. The boiler's operation and allowable emissions of all other air pollutants are not changed by this permit. However, the apparent increase in CO emissions is above the significant emission rate and subjects the proposed modification to the Prevention of Significant Deterioration (PSD) regualtions. The allowable CO emissions are set by a determination of Best Available Control Technology. The maximum predicted CO concentrations form all sources, including the 9,396 TPY CO emission rate increase requested in the application, are: 31.3 mg/m3, 1-hour average, or 78 percent of the 1-hour ambient air quality standard (AAQS) of 40 mg/m3; and, 9.2 mg/m3, 8-hour average, or 92 percent of the 8-hour AAQS of 10 mg/m3.

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 (F.S). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. 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, F.S.

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

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 position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

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:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
South District
2295 Victoria Avenue,
Suite 364
Fort Myers, Florida 33901

Palm Beach County Health Department
901 Evernia Street
West Palm Beach, Florida 33401

Any person may send written comments on the proposed action to the Administrator, New Source Review at the Department of Environmental Protection, Bureau of Air Regulation, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such request must be submitted within 30 days of this notice.

PUB: The Palm Beach Post
January 2, 1996

Proof of Publication

vs.

Filed in the Office of Clerk of Circuit Court

_____ 19____

_____, Clerk

By_____, D.C.

Complainant's Solicitor.

November 29, 1995

Al Linero, P.E., Administrator
Division of Air Resource Management
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32301

RE: Sugar Cane Growers Cooperative of Florida
Request to Revise Boiler No. 8 Operating Parameters
DEP Permit Nos. AC50-250421/PSD-FL-213 and AO50-228196

Dear Mr. Linero:

Sugar Cane Growers Cooperative of Florida (SCGC) wishes to incorporate three alternate methods of operation into the pending Boiler No. 8 PSD permit. Boiler No. 8 currently operates at 400 psig and 585°F. SCGC desires to have the ability to operate this boiler at two additional steam conditions: 600 psig and 740°F; and 400 psig and 740°F. The boiler will be able to produce up to 242,100 lb/hr steam at 600 psig and 740°F and up to 240,000 lb/hr steam at 400 psig and 740°F.

The table below documents the requested operating parameters and the associated heat and fuel inputs. Documentation of these calculations is attached.

Steam Pressure (psig)	Steam Temperature (°F)	Fuel Burned	Steam Production (lb/hr)	Heat Input (MMBtu/hr)	Amount of Fuel Consumed (lbs/hr-dry)
Current Steam Condition:					
400	585	Bagasse	264,000	504.0 (a)	63,000 (a)
		Bagasse Residue	264,000	443.5 (b)	49,831 (b)
Requested Second Steam Condition:					
600	740	Bagasse	242,100	504.0 (a)	63,000 (a)
		Bagasse Residue	242,100	443.5 (b)	49,831 (b)
Requested Third Steam Condition:					
400	740	Bagasse	240,000	504.0 (a)	63,000 (a)
		Bagasse Residue	240,000	443.5 (b)	49,831 (b)

(a) Based upon 55% thermal efficiency and 8,000 Btu/lb (dry) while burning bagasse.
(b) Based upon 62.5% thermal efficiency and 8,900 Btu/lb (dry) while burning bagasse residue.

15008A/4

KBN ENGINEERING AND APPLIED SCIENCES, INC.

6241 Northwest 23rd Street, Suite 500, Gainesville, Florida 32653-1500, 904-336-5600 FAX 904-336-6603
5405 West Cypress Street, Suite 215, Tampa, Florida 33607, 813-287-1717 FAX 813-287-1716
1801 Clint Moore Road, Suite 105, Boca Raton, Florida 33487, 407-994-9910, FAX 407-994-9393
7785 Baymeadows Way, Suite 105, Jacksonville, Florida 32256, 904-739-5600 FAX 904-739-7777
1616 'P' Street N.W., Suite 350, Washington, D.C. 20036, 202-462-1100, FAX 202-462-2270

It is requested that the alternate operating methods be incorporated in the soon to be issued PSD construction permit. This change in no way affects the maximum heat input to the boiler nor will it increase air emissions from the boiler. Please call if you have any questions concerning this matter.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011

DB/ehj

Attachment

cc: Jose Alvarez
File (2)

CC: W Hanks, BAR
N. Knowles, SD
EPA
NPS
Jeff Koerner, PBCHD

Steam Flow Rate Calculations

The formula to calculate steam flow rate from a boiler based on steam conditions, boiler efficiency, and heat input is as follows:

$Q = [HI \times (Eff/100)] \div (H_s - H_f)$

where,

Q = steam flowrate, lb/hr

HI = heat input, MMBtu/hr

Eff. = boiler efficiency

H_s = enthalpy of steam at temperature and pressure, Btu/lb

H_f = enthalpy of boiler feed water, Btu/lb

Permitted Conditions:

HI =504 MMBtu/hr from bagasse combustion
443.5 MMBtu/hr from bagasse residue combustion
Q = 264,000 lb/hr at 400 psig and 585°F

Requested Steam Condition No.2 Variables:

Steam at 600 psig and 740°F
Boiler feed water at 260°F
Eff. = Boiler efficiency: 55% while burning bagasse and 62.5% while burning residue
H_s=1,374 Btu/lb
H_f=229 Btu/lb

For bagasse combustion:

$Q=[504 \times 10^6 \text{ Btu/hr} \times (55/100)] \div (1374-229)\text{Btu/lb}$
Q=242,100 lb/hr

For residue combustion:

$Q=[443.5 \times 10^6 \text{ Btu/hr} \times (62.5/100)] \div (1374-229)\text{Btu/lb}$
Q=242,100 lb/hr

Requested Steam Condition No.3 Variables:

Steam at 400 psig and 740°F
Boiler feed water at 260°F
Eff. = Boiler efficiency: 55% while burning bagasse and 62.5% while burning residue
H_s=1,384 Btu/lb
H_f=229 Btu/lb

For bagasse combustion:

$Q=[504 \times 10^6 \text{ Btu/hr} \times (55/100)] \div (1384-229)\text{Btu/lb}$
Q=240,000 lb/hr

For residue combustion:

$Q=[443.5 \times 10^6 \text{ Btu/hr} \times (62.5/100)] \div (1384-229)\text{Btu/lb}$
Q=240,000 lb/hr

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

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Jose F. Alvarez, V.P.
of Planning + Plant Operat.
Sugar Cane Growers Coop.
of Fla.
PO Box 666
Belle Glade, FL 33430

4a. Article Number
Z 127 632 583

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

5. Signature (Addressee)
Venton Hollon

6. Signature (Agent)

7. Date of Delivery

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

PS Form **3811**, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Put your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

Z 127 632 583

UNITED STATES POSTAL SERVICE

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to
Jose Alvarez
Street and No.
Sugar Cane Growers
P.O., State and ZIP Code
Belle Glade, FL

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

PS Form **3800**, March 1993

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

November 28, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jose F. Alvarez
Vice President of Planning & Plant
Operations
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430

Dear Mr. Alvarez:

Enclosed is a copy of the Department's Intent to Issue, the Technical Evaluation and Preliminary Determination, proposed BACT determination, and draft permit for increasing the allowable carbon monoxide emission limit for Boiler No. 8. Included for your action is the Public Notice of Intent to Issue Permit.

Submit any written comments you wish to have considered concerning the Department's proposed action to Mr. A. A. Linero, P.E., New Source Review Section. If you have any questions regarding this matter, please call Willard Hanks at (904)488-1344.

Sincerely,

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

CHF/WH/s

Enclosure

cc: David Knowles, SD
Jewell Harper, EPA
John Bunyak, NPS
David Buff, P.E., KBN
Jeff Koerner, PBCHD

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Application for Permit by:

DEP File No. AC 50-250421
PSD-FL-213
Palm Beach County

Mr. Jose F. Alvarez
Vice President of Planning & Plant Operations
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430
_____/

INTENT TO ISSUE

The Department of Environmental Protection (Department) hereby gives notice of its intent to issue a construction permit (copy attached) for the proposed project, as detailed in the application specified above, for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Sugar Cane Growers of Florida, applied on May 6, 1994, for an air construction permit to modify/increase the allowable carbon monoxide (CO) emission limit for their existing bagasse/residue/fuel oil-fired Boiler No. 8. The boiler is located at the existing sugar mill in Belle Glade, Palm Beach County, Florida. The modification will increase the allowable CO emission limit to reflect a more accurate test method implemented at the initiative of the Department. No increase in actual emissions is expected since the source must still comply with a previous determination of Best Available Control Technology (BACT) requiring Good Combustion Practice.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). The project is not exempt from permitting procedures. The Department has determined that a construction permit is required for the proposed action.

Pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general

circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a 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, F.S.. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. 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, F.S.

The Petition shall contain the following information;

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

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 position taken by it in this

intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this intent in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 11-28-95 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk

11-28-95
Date

Copies furnished to:

cc: David Knowles, SD
Jewell Harper, EPA
John Bunyak, NPS
David Buff, P.E., KBN
Jeff Koerner, PBCHD

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT

AC 50-250421/PSD-FL-213

The Department of Environmental Protection (Department) gives notice of its intent to issue a construction permit, No. AC 50-250421/PSD-FL-213, to the Sugar Cane Growers Cooperative for a modification/increase in the potential/allowable carbon monoxide (CO) emission limit for the existing bagasse/residue/fuel oil-fired Boiler No. 8. The boiler is located at the existing sugar mill in Belle Glade, Palm Beach County, Florida. The modification will increase the allowable CO emission limit to reflect a more accurate test method implemented at the initiative of the Department. There will be no actual increase in emissions of any air pollutants. The permit will authorize an increase in the allowable emission rate of CO from 511 TPY to 9,081 TPY. The boiler's operation and allowable emissions of all other air pollutants are not changed by this permit. However, the apparent increase in CO emissions is above the significant emission rate and subjects the proposed modification to the Prevention of Significant Deterioration (PSD) regulations. The allowable CO emissions are set by a determination of Best Available Control Technology.

The maximum predicted CO concentrations from all sources, including the 9,396 TPY CO emission rate increase requested in the application, are: 31.3 mg/m^3, 1-hour average, or 78 percent of the 1-hour ambient air quality standard (AAQS) of 40 mg/m^3; and, 9.2 mg/m^3, 8-hour average, or 92 percent of the 8-hour AAQS of 10 mg/m^3.

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 (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. 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, F.S.

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proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and, (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

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 position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

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:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
South District
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Palm Beach County Health Department
901 Evernia Street
West Palm Beach, Florida 34401

Any person may send written comments on the proposed action to the Administrator, New Source Review at the Department of Environmental Protection, Bureau of Air Regulation, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such request must be submitted within 30 days of this notice.

Technical Evaluation
and
Preliminary Determination

Sugar Cane Growers Cooperative of Florida
Palm Beach County
Belle Glade, Florida

Boiler No. 8
Department File No. AC 50-250421
PSD-FL-213

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

November 28, 1995

I. GENERAL INFORMATION

A. Applicant

Mr. Jose F. Alvarez
Vice President of Planning & Plant Operations
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430

B. Request

On May 6, 1994, Sugar Cane Growers Cooperative submitted an application for an air construction permit to modify/increase the potential/allowable carbon monoxide (CO) emission limit for the existing bagasse/residue/fuel oil-fired Boiler No. 8. The boiler is located at the existing sugar mill in Belle Glade, Palm Beach County, Florida. There will be no physical or operational change made to this boiler. The allowable emissions of all other air pollutants are not being changed. The application was considered complete on August 30, 1995. The UTM coordinates of this site are Zone 17, 534.9 km E and 2953.3 km N.

C. Emissions

The applicant requested that the allowable CO limit for Boiler No. 8 be increased from 140 pounds per hour (lbs/hr) or 0.28 pounds per million British thermal units heat input (lbs/MMBtu) to 3,024 lbs/hr (6.0 lbs/MMBtu) for bagasse. The purpose of this requested increase is to reflect a more accurate test method (EPA Method 10) implemented at the initiative of the Department. The previously required test method (EPA Method 3) fails to detect carbon monoxide emissions up to an order of magnitude higher than the existing allowable emission rate. Based on an allowable heat input of 504 MMBtu/hr and a limit on operation time of 6,552 hours per year operation, the allowable CO emissions requested would increase from 511 TPY to 9,907 TPY. There will be no increase in actual emissions since the applicant must still comply with a previous Best Available Control Technology (BACT) determination requiring Good Combustion Practice (GCP) made in 1981.

II. Rule Applicability

The proposed project, a modification to the permit for Boiler No. 8 at the existing sugar mill (SIC 2061), is subject to the preconstruction review requirements under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.).

The existing facility is located in Palm Beach County, which is an air quality area designated attainment/maintenance for ozone (Rule 62-275.600, F.A.C.) and attainment for all other criteria pollutants (Rule 62-275.400, F.A.C.).

The facility is categorized as a major source for the pollutants particulate matter, sulfur dioxide, nitrogen oxides, CO, and volatile organic compounds, because emissions of each exceed 100 TPY (Rule 62-212.200, F.A.C.).

The proposed modification is subject to the Prevention of Significant Deterioration (PSD) regulations (Rule 62-212.400, F.A.C.) because the apparent increase in CO emissions is above the significant net emission rate (Rule 62-212.400(2)(d)4., F.A.C.). The modification is not subject to any new source performance standard in 40 CFR 60, because there is no physical or operational change being made to the boiler.

This modification is subject to the new source review requirements pursuant to Rule 62-212.400(5), F.A.C., which requires a Best Available Control Technology (BACT) determination for CO pursuant to Rule 62-212.410, F.A.C.

III. Technical Evaluation

The CO emission limit for bagasse fuel in Boiler No. 8 was originally based on the Standard Classification Code, 1-01-011-01 emission factor of 2 pounds of CO for each ton of bagasse burned. This is equivalent to approximately 0.28 lbs CO/MMBtu heat input. Test data has shown that the factor grossly underestimated CO emissions. This bagasse fired boiler was previously subject to the PSD regulations and was required to meet this standard through Good Combustion Practice (GCP).

Early emission test data for CO was based on EPA Method 3. Typical test results by this method showed that the CO concentration in the flue gas was undetectable. Much higher results were obtained when this boiler began measuring CO emissions with EPA Method 10 at the direction of the Department. The results ranged from 2 to 18 lbs CO/MMBtu. The CO emissions appear to vary during operation.

The applicant has submitted emission test data showing that the average CO emission from Boiler No. 8 was 2.3 lbs/MMBtu and requested an emission limit of 6.0 lbs/MMBtu. Other existing bagasse boilers have already received similar CO emission limiting standards. The Department believes that if this boiler is operated in accordance with GCP, it should be able to meet a limit of 5.5 lbs CO/MMBtu. This was the maximum measured CO emissions from this boiler during extensive testing last winter. The BACT determination for this boiler for CO is 5.5 lbs/MMBtu. At the maximum allowable heat input of 504 MMBtu/hr (1-hour max.), the allowable CO emission limit is 2,772 lbs/hr.

The permit for Boiler No. 8 is being revised, based on actual test data, to allow a maximum CO emission limit of 5.5 lbs CO/MMBtu. This emissions limit is to be achieved by GCP. The other emission limits and boiler operation restrictions listed in the previous permits (AC 50-42476 and PSD-FL-077) are being retained.

IV.1. Air Quality Report

A. Introduction

The proposed project will emit CO in a PSD significant amount. The air quality impact analyses required by the PSD regulations for this pollutant include:

* An analysis of existing air quality;
* An Ambient Air Quality Standards (AAQS) analysis;
* An analysis of impacts on soils, vegetation, and visibility and of growth-related air quality modeling impacts; and
* A "Good Engineering Practice" (GEP) stack height determination.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The AAQS analysis depends on air quality dispersion modeling carried out in accordance with EPA guidelines.

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

B. Analysis of Existing Air Quality and Determination of Background Concentrations

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review. However, an exemption to the monitoring requirement can be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific de minimus concentration. If preconstruction ambient air

quality monitoring is required, this requirement may be met by using existing ambient monitoring data from a monitor in the vicinity of the project.

Even if preconstruction ambient monitoring is exempted, determination of background concentrations for PSD significant pollutants may be necessary for use in the AAQS analysis for each pollutant. These concentrations may be established from the required preconstruction ambient air quality monitoring analysis or from previously existing representative monitoring data. These background ambient air quality concentrations are added to pollutant impacts predicted by modeling and represent the air quality impacts of sources not included in the modeling.

Table 1 shows that CO impacts from the project were predicted to be greater than the de minimus level. Therefore, preconstruction ambient air quality monitoring is required. There are existing ambient CO data available from monitors located in West Palm Beach. Background CO concentrations for the 1-hour and 8-hour averaging times are based on data collected during 1992-1994 from these monitors, and were set equal to the highest-second highest 1-hour and 8-hour concentrations observed during this time. These background concentrations are given in Table 3.

C. Modeling Procedure

The EPA-approved Industrial Source Complex Short-Term (ISCST2) dispersion model was used to evaluate the pollutant emissions from the proposed facility and other existing major facilities. The model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, area and volume sources. The model incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition. The ISCST2 model allows for the separation of sources, building wake downwash, and various other input and output features. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options in each modeling scenario. Direction-specific downwash parameters were used for all sources for which downwash was considered.

Initially, for the significant impact analysis, concentrations were predicted at 288 receptors located in a radial grid centered on Boiler 8. Receptors were located in eight concentric rings at distances ranging from 1.0 to 10.0 km from this

boiler. Each ring contained 36 receptors spaced at 10-degree intervals. For the full impact AAQS analysis, concentrations were predicted at 353 receptors. The receptor grid included 36 receptors per ring (again spaced at 10-degree intervals) located at the following distances from the proposed boiler: 0.1, 0.2, 0.4, 0.6, 0.8, 1.0, 2.0, 3.0, 4.0 and 5.0 km. In addition, 36 receptors were located at the nearest plant boundary along 36 radials spaced at 10-degree intervals.

Meteorological data used in the ISCST2 model to determine air quality impacts consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) station at West Palm Beach. The 5-year period of meteorological data was from 1982 through 1986. The NWS station at West Palm Beach, located approximately 53 km east of the Belle Glade site, was selected for use in the study because it is the closest primary weather station to the study area and is most representative of the plant site. The surface observations included wind direction, wind speed, temperature, cloud cover and cloud ceiling.

Since five years of data were used and impacts for short-term averages only are necessary for CO emissions, the highest-second-high (HSH) predicted concentrations were compared with the appropriate CO AAQS. For determining the significant impact area, the highest predicted concentration was compared to the significant impact level.

D. Significant Impact Analysis

Table 2 shows that the maximum air quality impacts due to CO emissions from the proposed project are greater than the significant impact levels. Therefore, a full impact AAQS analysis was required for CO.

E. AAQS Analysis

For pollutants subject to an AAQS review, the total impact on ambient air is obtained by adding a "background" concentration to the maximum modeled concentration. This "background" concentration takes into account all sources of a particular pollutant that are not explicitly modeled. The results of the AAQS analysis for CO are summarized in Table 3. As shown in the table, emissions from the proposed project are not expected to cause or contribute to a violation of an AAQS.

IV.2 Additional Impacts Analysis

A. Impacts on Soils, Vegetation, and Wildlife

The maximum ground-level concentrations predicted to occur for CO, as a result of the proposed project, including background concentrations and all other nearby sources, will be below the associated AAQS. The AAQS are designed to protect both the public health and welfare. As such, this project is not expected to have a harmful impact on soils and vegetation in the vicinity of the facility. An air quality related values (AQRV) analysis was also done by the applicant for the Class I area. No significant impacts on this area are expected.

B. Growth-Related Air Quality Impacts

There will be no associated population growth with this project; therefore, there will be no growth-related air quality impacts.

C. GEP Stack Height Determination

Good Engineering Practice (GEP) stack height means the greater of: (1) 65 m (213 ft) or (2) the maximum nearby building height plus 1.5 times the building height or width, whichever is less. The facility's stacks will comply with the GEP stack height regulations. However, these stacks will be less than GEP; therefore, the potential for building downwash to occur was considered in the modeling analysis for these stacks.

V. Conclusion

Based on the information provided by Sugar Cane Growers Cooperative of Florida, the Department has reasonable assurance that the proposed modification of the permit for this bagasse/residue/fuel oil-fired boiler No. 8, as described in this evaluation and subject to the conditions proposed herein, will not cause a violation of any air quality standard, PSD increment, or any other technical provision of Chapter 62-212 of the Florida Administrative Code.

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11/12

Table 1. Maximum Project Air Quality Impact for Comparison to the De Minimus Ambient Level.

Pollutant	Avg. Time	Predicted Impact[1] (ug/m^3)	De Minimus Level (ug/m^3)
CO	8-hour	1,767	575

1. Highest, -high value over a five year period.

Table 2. Maximum Project Air Quality Impacts for Comparison to the PSD Class II Significant Impact Levels.

Pollutant	Avg. Time	Max Predicted Impact[1] (ug/m^3)	Significant Impact Level (ug/m^3)
CO	1-hour	4,246	2,000
	8-hour	1,767	500

1. Highest, -high value over a five year period for all averaging times.

Table 3. Ambient Air Quality Impact

Pollutant	Averaging Time	Modeled Sources Maximum Impact[1] (ug/m^3)	Background Conc. (ug/m^3)	Total Impact (ug/m^3)	Florida AAQS (ug/m^3)
CO	1-hour	23,326	8,050	31,376	40,000
	8-hour	4,556	4,600	9,156	10,000

1. Maximum highest, second-highest value over a five-year period.

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

PERMITTEE:
Mr. Jose F. Alvarez
Vice President of Planning and Plant Operation
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430

APIS No: 52FTM50002608
Permit Number: AC50-250421/PSD-FL-213
Expiration Date: March 31, 1997
County: Palm Beach
Latitude/Longitude: 26°42'06"N 80°38'57"W

Project: Boiler No. 8 Modification

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210, 62-212, 62-275, 62-296, and 62-297, Florida Administrative Code (F.A.C.). The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and specifically described as follows:

Authorization to increase allowable carbon monoxide (CO) emissions from the existing bagasse/residue/No. 6 residual fuel oil-fired Boiler No. 8 located at Sugar Cane Growers Cooperative of Florida's sugar mill. This mill is on West Sugar House Road in Belle Glade, Palm Beach County, Florida. The UTM Coordinates of this mill are Zone 17,534.9 km E and 295 3.3 km N.

The modification shall be in accordance with the application received on May 6, 1994, and the additional information submitted with the transmittal letter from Hopping, Green, Sams and Smith letters dated April 14, 1995 and August 30, 1995, except for the changes mentioned in the Technical Evaluation and Preliminary Determination and listed as Specific Conditions in this permit.

Attachments are listed below:

1. Application received May 6, 1994.
2. DEP May 19, 1994, letter.
3. DEP November 14, 1994, letter.
4. Hopping, Green, Sams & Smith December 20, 1994, letter.
5. Hopping, Green, Sams & Smith March 31, 1995, letter.
6. Hopping, Green, Sams & Smith April 14, 1995, letter.
7. Hopping, Green, Sams & Smith August 30, 1995, letter.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

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), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither 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 is not 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 this permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment 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, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of F.S. and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and 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

GENERAL CONDITIONS:

credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:

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

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

c. Sample or monitor 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 provide the Department with the following information:

a. A description of and cause of non-compliance; and,

b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for 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 involving the permitted source arising under the F.S. or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.

GENERAL CONDITIONS:

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-30.300, F.A.C., 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 or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

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

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold 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) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained 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 dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used;
- the results of such analyses.

SPECIFIC CONDITIONS:

1. This permit supersedes permit No. AC50-42476, issued October 28, 1981, and its revisions dated November 16, 1981. Except for the changes that follow in Specific condition No. 3 and 4, the provision of amended permit No. AC 50-42476 and permit No. PSD-FL-077 are incorporated as a condition of this air construction permit.

2. This permit modified only the stack heights for boiler Nos. 2, 3, and 5 and the allowable carbon monoxide (CO) emission limits and CO testing requirements for Boiler No. 8. Boiler No. 8 remains subject to all other previous permit conditions, permit modifications, and regulations, including Rule 62-296.570, F.A.C. - Requirements for major VOC and NO_X - Emissions Facilities.

3. The allowable carbon monoxide emission limits listed in Specific Condition No. 2 of permit No. AC 50-42476 are changed from 140 lbs/hr and 511 tons per year (TPY) to 5.5 lbs/MMBtu heat input (assuming boiler has a thermal efficiency of 55% when burning bagasse), 2,772 lbs/hr (average of 3 runs of a minimum of 1 hour per run by EPA method 10 as described in 40 CFR 60, Appendix A), and 9,081 TPY based on a maximum of 6,552 hours per year operation.

4. The CO emissions from Boiler No. 8 shall be measured annually by EPA Method 10 as described in 40 CFR 60, Appendix A. Test reports shall be submitted to the Department's South District office within 45 days of completion of the test.

5. The stack heights on Boiler Nos. 2 and 5 shall be increased to a minimum of 150 feet above ground elevation. The stack height on Boiler No. 3 shall be increased to a minimum of 90 feet above ground elevation. These stacks shall be equipped with testing facilities meeting the requirements of Rule 62-297.345(3),F.A.C., Test Facilities.

6. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation prior to 60 days before the expiration of the permit. (Rule 62-4.090, F.A.C.)

7. A timely application for a Title V operation permit must be submitted to the Department's South District office by the date specified in Rule 62-213, F.A.C.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Howard L. Rhodes, Director
Division of Air Resources Management

Best Available Control Technology (BACT) Determination
Sugar Cane Growers Cooperative of Florida

AC 50-250421
PSD-FL-213

The Sugar Cane Growers Cooperative of Florida requested the carbon monoxide (CO) emission limit for Boiler No. 8 at the existing sugar mill in Belle Glade, Palm Beach County, Florida, be increased from 0.28 lbs CO/MMBtu heat input to 6.0 lbs CO/MMBtu heat input. The request followed a Department change in the required test method to demonstrate compliance with the CO emission limit. The revised emission limit adopted by the Department is based on actual EPA Method 10 test data on Boiler No. 8. The increase in allowable emissions is not associated with any change in production or operation of the boiler. The emissions of all other air pollutants are not affected by this request.

The higher allowable emission rate requested will result in an apparent increase in CO emissions above the significant emission rate of 100 TPY. This subjects the facility to the Prevention of Significant Deterioration (PSD) new source review regulations. These regulations require a BACT determination to be made for CO for the boiler.

Date of Receipt of a BACT Application:

May 6, 1994

Date Application Complete

August 30, 1995

BACT Requested by the Applicant:

The BACT determination for CO requested by the applicant is 6.0 lbs CO/MMBtu heat input. For the 504 MMBtu/hr bagasse/ residue/No. 6 residual fuel oil-fired boiler, this will result in 3,024 lbs CO/hr emissions. For a 6,552 hour per year operation, this is equivalent to 9,907 tons CO emissions during any 12 consecutive month period. The CO emission limit of 6.0 lbs/MMBtu is to be achieved by Good Combustion Practice (GCP) of the boiler. Compliance is to be determined using EPA Reference Method 10 as described in 40 CFR 60, Appendix A.

BACT Determination Procedure:

In accordance with Rule 62-212.410, Florida Administrative Code, Best Available Control Technology Determination, Stationary Source-Preconstruction Review, this BACT determination is based on

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

(a) Any Environmental Protection Agency determination of BACT pursuant to 40 CFR 52.21, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).

(b) All scientific, engineering, and technical material and other information available to the Department.

(c) The emission limiting standards or BACT determinations of any other state.

(d) The social and economic impact of the application of such technology.

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

BACT Determined by the Department:

CO emissions from Boiler No. 8 shall be minimized through Good Combustion Practice (GCP). CO emissions shall not exceed 5.5 lbs/MMBtu and, based on a maximum allowable heat input of 504 MMBtu/hr, 2,772 lbs/hr (1-hr max.). CO emissions during any consecutive 12-month period shall not exceed 9,081 tons (based on a maximum allowable 6-hr average of 504 MMBtu/hr heat input and 6,552 hrs/yr operation). Compliance shall be determined using EPA Reference Method 10 as described in 40 CFR 60, Appendix A. These emission limits shall be achieved through GCP of the boiler.

BACT Determination Rationale:

The applicant implemented a GCP program pursuant to the original BACT determination for this boiler that was made in 1981. Test data using the Department-specified "wet" CO test method (EPA Method 3) indicated compliance with the emission limit of 0.28 lbs/MMBtu set by the Department as BACT. Subsequently the applicant was required to use a more recently adopted instrumental method (EPA Method 10) to measure CO emissions. The result was that previously undetectable CO was measured and found to be substantially higher than believed by the applicant and the Department.

The basis for this modification was to determine what level of CO emission control can be achieved without unreasonably expensive boiler modification. However, compliance with other PSD parameters, such as maximum ground-level concentration, was required.

The applicant submitted information indicating the high CO emissions from this boiler are due to the short residence time of the combustion gases in the furnace area. Based on emission data, they concluded that CO emissions averaged 2.3 lbs/MMBtu. Maximum measured CO emissions was 5.4 lbs/MMBtu. They requested limit of 6.0 lbs/MMBtu, is to be achieved through GCP.

The applicant investigated the use of combustion controls, retrofitting a flue gas recirculation system (FGR), use of a CO oxidation system, and drying the bagasse prior to burning (at the Department's request).

Boiler vendors stated that the high CO level for this boiler was due to the low residence time of the flue gases in the boiler. Higher residence times would allow for more complete combustion. Newer boilers have up to twice the volume of this existing boiler.

Retrofitting a flue gas recirculation (FGR) system to the existing boiler would be difficult and expensive ($1,400,000 capital cost + $1,000,000 annual operation cost). The CO reduction by a FGR system was unknown and potentially no reduction would be achieved. No bagasse boiler in Florida is using FGR.

Oxidation catalyst systems require elevated temperatures and low particulate matter loading. This boiler's flue gas temperature is too low and the particulate matter loading is too high to use an oxidation catalyst. No bagasse boiler in Florida uses an oxidation catalyst system.

Drying the bagasse prior to burning was considered unproven technology. No data was available to show a CO reduction from this approach.

The newer bagasse boilers with larger furnaces have lower CO emission rates. Expanding the volume of the existing boiler is not considered feasible. Through elimination of add-on controls, the Department is left with GCP as BACT to control CO emissions from this existing boiler. Most of the time, GCP will result in operation of the boiler under high excess air conditions and will result in CO emissions of less than 3 lbs/MMBtu. Under the best conditions (relatively dry bagasse, etc.) CO emissions will be less than 2 lbs/MMBtu. The Department has no information to suggest that this boiler is designed significantly differently from the other bagasse boilers that were given a similar limit.

The Department believes that if this boiler is operated properly, it should be able to consistently meet the CO concentration that was measured during actual tests on this boiler. The BACT determination for Boiler No. 8 is established as GCP with emissions not to exceed 5.5 lbs CO/MMBtu.

Conclusion

For a CO emission standard of up to 6.0 lbs/MMBtu (originally proposed by the applicant), the ambient air impact will be below the ambient air standards provided that the heights of the stacks on Boiler Nos. 2, 3, and 5 are increased to 150, 90, and 150 feet elevation respectively. The Department proposal is achievable by GCP and provides an additional margin of safety to protect the ambient air standard for CO.

Details of the Analysis May be Obtained by Contacting:

A. A. Linero, P.E., Administrator
W. M. Hanks, Review Engineer
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

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

_____, 1995
Date

Approved by:

Howard L. Rhodes, Director
Division of Air Resources Mgmt.

_____, 1995
Date

Florida Department of
Environmental Protection

Memorandum

TO: Clair Fancy

FROM: Al Linero 11/14

DATE: November 14, 1995

SUBJ: Intent to Issue Permit
Sugar Cane Growers Cooperative of Florida

Attached for your approval is a proposal that will authorize an increase in carbon monoxide emissions from a bagasse/residue/fuel oil-fired boiler. The recommended allowable emissions of 5.5 lbs CO/MMBtu is based on actual test data from this boiler. The purpose of the allowable increase in CO emissions is to reflect a more accurate test method (EPA Method 10) implemented at the initiative of the Department. There is no actual increase in CO or other air pollutant emissions from the boiler.

I recommend your approval of this proposal.

AL/WH/s

Attachment

HOPPING GREEN SAMS & SMITH
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
(904) 222-7500
FAX (904) 224-8551
FAX (904) 425-3415
Writer's Direct Dial No.
(904) 425-2359

JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
ELIZABETH C. BOWMAN
RICHARD S. BRIGHTMAN
PETER C. CUNNINGHAM
RALPH A. DEMEO
THOMAS M. DEROSE
WILLIAM H. GREEN
WADE L. HOPPING
FRANK E. MATTHEWS
RICHARD D. MELSON
DAVID L. POWELL
WILLIAM D. PRESTON
CAROLYN S. RAEPPLE
GARY P. SAMS
ROBERT P. SMITH
CHERYL G. STUART

KRISTIN M. CONROY
CONNIE C. DURRENCE
JONATHAN S. FOX
JAMES C. GOODLETT
GARY K. HUNTER, JR.
JONATHAN T. JOHNSON
ROBERT A. MANNING
ANGELA R. MORRISON
GARY V. PERKO
KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
LISA K. RUSHTON
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
CARLOS ALVAREZ
W. ROBERT FOKES

August 30, 1995

BY HAND DELIVERY

Al Linero, P.E., Administrator
Division of Air Resources Management
Department of Environmental Protection
111 South Magnolia, Suite 4
Tallahassee, FL 32301

RE: Sugar Cane Growers Cooperative of Florida
Request to Revise CO Limit for Boiler No. 8
DEP Permit Nos. AC50-250421/PSD-FL-213 and AO50-228196

Dear Mr. Linero:

On behalf of the Sugar Cane Growers Cooperative of Florida ("Cooperative"), I have enclosed additional materials relating to the Cooperative's pending request to revise the CO emission limit for Boiler No. 8 to 6.0 lbs/MBtu. As you may recall, in our prior meeting you requested that the Cooperative prepare an "O&M" plan discussing measures that boiler operators will undertake to ensure that "best combustion practices" are being observed at all times in accordance with the Department's BACT determination. Enclosure "A" provides the requested O&M plan.

As KBN's David Buff previously indicated in telephone discussions with DEP's Willard Hanks, the Cooperative has opted to pursue a different approach in order to resolve modeled exceedances of the ambient CO standard. Rather than raising Boiler Nos. 3 and 5 from 80 to 150 feet, the Cooperative will raise the stacks for Boiler Nos. 2 and 5 from 80 to 150 feet and the Boiler No. 3 stack from 80 to 90 feet. Enclosure "B" provides updated modeling analyses which demonstrate compliance with the 1-hour and 8-hour CO standards, based on the requested CO limit for Boiler No. 8 and the raised stack heights for Boiler Nos. 2, 3, and 5. As before, the Cooperative plans to implement these revised stack height increases before boiler operations begin for the next crop season.

As always, we appreciate the Department's continued cooperation in this matter. If you have any questions or comments about the enclosed materials, please do not hesitate to call David Buff at KBN (904/336-5600), or me at the above number.

Sincerely,

HOPPING GREEN SAMS & SMITH, P.A.

By: Gary V. Perko

Attorneys for SUGAR CANE GROWERS COOPERATIVE OF FLORIDA

Enclosures
cc: Willard Hanks (FDEP/BAR)
David Knowles (FDEP/SE Dist)
Jose Alvarez (SCGC)
Peter Cunningham (HGSS)

SUGAR CANE GROWERS COOPERATIVE OF FLORIDA
OPERATION & MAINTENANCE PLAN
FOR CARBON MONOXIDE CONTROL
BOILER #8

1.0 PLAN SCOPE

The Operation and Maintenance (O&M) plan for minimizing carbon monoxide (CO) emissions from Boiler No. 8 contains several elements. These elements are as follows:

A. Combustion System

B. CO Control Method

3. CO Control Devices

4. Personnel Training

2.0 COMBUSTION SYSTEM

Boiler No. 8 is designed to produce 264,000 lb/hr steam at 400 psig. Process requirements demand operation of this boiler at or above 90% of design capacity most of the time. The combustion system consists of a traveling grate, spreader stoker boiler with bagasse/bagasse residue feed systems, and a fuel oil firing system. The bagasse/bagasse residue fuel feed system consists of fuel bins which drop the fuel via feed chutes onto the traveling grate. The fuel burns in suspension in the boiler, or on the grate at the bottom of the furnace.

3.0 PERMITTED FUEL USAGE

Boiler No. 8 is permitted to burn three fuels: bagasse, bagasse residue, and No. 6 fuel oil. The permitted fuel burning rates are as follows:

Fuel	Utilization Rate	Heating Value (Btu/lb)	Heat Input (MMBtu/hr)
Bagasse	31.5 TPH, dry	8,000	504.0
Bagasse Residue	24.5 TPH, dry	8,900	443.5
No. 6 Fuel Oil	1,667 gal/hr	151,000	250.0

4.0 CO CONTROL METHOD

Good combustion practices (GCP) are to be implemented on Boiler No. 8 in order to minimize CO emissions to the extent practical. The amount of combustion air is one factor affecting bagasse combustion, and field data indicate that excess air levels above 70% at the stack outlet produces, on average, lower CO emission rates. An excess air level of 70% at the stack outlet is approximately equivalent to a flue gas oxygen level of 4% at the outlet of the boiler.

Steam production on the boiler must be maintained at desired levels in order to support the sugar mill activities. At certain times, due primarily to bagasse fuel quality (i.e., moisture content, etc.), excess air levels above 70% may adversely affect boiler operation, primarily steam production rate.

In order to minimize CO emissions without sacrificing proper boiler operation, "good combustion practices" shall be observed at all times. SCGC's goal will be to maintain the flue gas oxygen content at or above 4%, to the extent practical. At times, the flue gas oxygen level may drop below 4%, depending upon fuel characteristics.

SCGC will implement GCP by installing and maintaining a continuous steam flow meter and continuous flue gas oxygen analyzer on Boiler No. 8. The instrument readout will be located in the boiler control room to provide real time data to the boiler operator. The boiler operators will be instructed to make adjustments to the boiler combustion air supply as necessary to maintain the GCP oxygen level, again consistent with meeting steam production demands. The boiler operators will be instructed in the use of the flue gas oxygen meter for combustion control, and in the procedures to undertake to maintain excess air levels.

5.0 CO CONTROL DEVICE

The flue gas oxygen meter for the boiler will consist of a digital readout meter, with the following specifications:

Manufacturer:	Hays Republic Corp.
Model Name:	Digital Excess Oxygen Flow Meter
Model#:	A-10018-A0-A-0-B-0-2-C06-D04
Serial#:	A-10018-A0-11226
Meter Range:	0 - 10%

SCGC will maintain the instruments properly and operate the equipment at all times except during equipment breakdown or malfunction. Any repairs will be performed as expeditiously as possible. Quarterly calibrations of the equipment will be performed, and the results maintained on-site by SCGC.

6.0 PERSONNEL TRAINING

Boiler operators and supervisors will be instructed in the operation of Boiler No. 8, consistent with the requirements to maintain GCP air levels as dictated in this O&M plan.

ATTACHMENT B

CO AIR QUALITY IMPACT ANALYSIS

(Revised 7/7/95)

ATTACHMENT B
CO AIR QUALITY IMPACT ANALYSIS
(Revised 7/7/95)

1.0 METHODOLOGY

1.1 GENERAL MODELING APPROACH AND SELECTION

General Modeling Approach

The general modeling approach used for the SCGC Boiler No. 8 CO analysis follows EPA and FDEP air modeling guidelines. First, the predicted impacts of Boiler No. 8 are analyzed to determine if it alone has a significant impact. The highest predicted concentrations are compared with significant impact levels. If the significant impact levels are exceeded for CO, current policies stipulate that the highest-second highest (HSH) short-term (i.e., 24 hours or less) CO concentrations can be compared with ambient air quality standards (AAQS) when 5 years of meteorological data are used. The HSH concentration is calculated for a receptor field by:

1. Eliminating the highest concentration predicted at each receptor
2. Identifying the second-highest concentration at each receptor
3. Selecting the highest concentration among these second-highest concentrations

This approach is consistent with the development of AAQS, which permit a short-term average concentration to be exceeded once per year at each receptor.

To develop the maximum short-term concentrations, the general modeling approach is divided into screening and refined phases to reduce the computation time required to perform the modeling analysis. The only difference between the two phases is the receptor grid used when predicting concentrations.

Concentrations for the screening phase were predicted using a coarse receptor grid and a 5-year meteorological record. After a final list of maximum annual and short-term average concentrations was developed, the refined phase of the analysis was conducted by predicting concentrations for a refined receptor grid centered on the receptor at which the HSH concentration from the screening phase was produced. Next, the air dispersion model was executed for the entire year during which HSH concentrations were predicted. This approach is used to ensure that valid HSH concentrations are obtained. More detailed descriptions of the

emission inventory and receptor grids used in the screening and refined phases of the analysis are presented in the following sections.

Model Selection

The selection of the appropriate air dispersion model is based on its ability to simulate impacts in areas surrounding the plant site. Within 50 km (31 miles) of the SCGC site, the terrain can be described as simple (i.e., flat to gently rolling). As defined in the EPA modeling guidelines, simple terrain is considered to be an area where the terrain features are all lower in elevation than the top of the stack(s) under evaluation. Therefore, a simple terrain model has been selected to predict maximum ground-level concentrations.

The Industrial Source Complex (ISC2) dispersion modeling system (EPA, 1993) has been selected to evaluate the pollutant emissions from Boiler No. 8 and other modeled sources. This model is contained on EPA's Technology Transfer Network (TTN) Bulletin Board Service. The ISC2 model is applicable to sources located in either flat or rolling terrain where terrain heights do not exceed stack heights.

The ISC2 model consists of two sets of computer codes that are used to calculate short- and long-term ground-level concentrations. The main differences between the two codes are the input format of the meteorological data and the method of estimating the plume's horizontal dispersion.

The first model code, the ISC2 short-term (ISCST2) model, is an extended version of the single-source (CRSTER) model (EPA, 1977). The ISCST2 model is designed to calculate hourly concentrations based on hourly meteorological parameters (i.e., wind direction, wind speed, atmospheric stability, ambient temperature, and mixing heights). The hourly concentrations are processed into non-overlapping, short-term, and annual averaging periods.

The second model code within the ISC2 model is the ISC2 long-term (ISCLT2) model. The ISCLT2 model uses the joint frequencies of occurrences of meteorological parameters to calculate seasonal and/or annual average ground-level concentrations.

In this analysis, the ISCST2 model, Version 93109, was used to calculate both short-term and annual average concentrations. This is the latest approved version of the ISCST2 model. Major features of the ISCST2 model are shown in Table 1-1.

The criteria used to determine when the rural or urban mode (which affects the dispersion parameters) is appropriate are based on land use near the proposed plant's surroundings (Auer, 1978). If the land use is classified as heavy industrial, light-moderate industrial, commercial, or compact residential for more than 50 percent of the area within a 3-km (1.9-mile) radius circle centered on the proposed source, the urban option should be selected. Otherwise, the rural option is more appropriate.

Based on reviews of aerial and U.S. Geological Survey (USGS) topographical maps and a site visit, the land use within a 3-km (1.9-mile) radius of the SCGC mill site is considered to be rural (i.e., very little heavy industrial, light-moderate industrial, commercial, or compact residential land use categories). Therefore, the rural mode was used in the air dispersion model to predict impacts from the SCGC facility and other emission sources considered in the modeling analysis.

For the AAQS analysis, the sources and receptors were assumed to be located in flat terrain (no terrain elevations used).

For modeling analyses that will undergo regulatory review, such as PSD permit applications, the following model features are recommended by EPA (1993) for rural mode and are referred to as the regulatory options in the ISCST2 model:

1. Final plume rise at all receptor locations,
2. Stack-tip downwash,
3. Buoyancy-induced dispersion,
4. Default wind speed profile coefficients for rural or urban option,
5. Default vertical potential temperature gradients,
6. Calm wind processing, and
7. Reducing calculated SO_2 concentrations in urban areas by using a decay half-life of 4 hours (i.e., reduce the SO_2 concentration emitted by 50 percent for every 4 hours of plume travel time).

Table 1-1. Major Features of the ISCST2 Model

ISCST2 Model Features
• Polar or Cartesian coordinate systems for receptor locations
• Rural or one of three urban options which affect wind speed profile exponent, dispersion rates, and mixing height calculations
• Plume rise due to momentum and buoyancy as a function of downwind distance for stack emissions (Briggs, 1969, 1971, 1973, and 1975)
• Procedures suggested by Huber and Snyder (1976); Huber (1977); and Schulman and Scire (1980) for evaluating building wake effects
• Procedures suggested by Briggs (1974) for evaluating stack-tip downwash
• Separation of multiple point sources
• Consideration of the effects of gravitational settling and dry deposition on ambient particulate concentrations
• Capability of simulating point, line, volume and area sources
• Capability to calculate dry deposition
• Variation of wind speed with height (wind speed-profile exponent law)
• Concentration estimates for 1-hour to annual average times
• Terrain-adjustment procedures for elevated terrain including a terrain truncation algorithm
• Consideration of time-dependent exponential decay of pollutants
• The method of Pasquill (1976) to account for buoyancy-induced dispersion
• A regulatory default option to set various model options and parameters to EPA recommended values (see text for regulatory options used)
• Procedure for calm-wind processing
• Wind speeds less than 1 m/s are set to 1 m/s.

Note: ISCST2 = Industrial Source Complex Short-Term.

Source: EPA, 1992a.

In this analysis, the EPA regulatory options were used to address maximum impacts.

1.2 METEOROLOGICAL DATA

Meteorological data used in the ISCST2 model were based on those data recommended and approved for use by FDEP and used in recent PSD permit applications for sources located near the project site. The meteorological data used to determine air quality impacts consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper-air soundings from the National Weather Service (NWS) station at West Palm Beach International Airport. The 5-year period of meteorological data was from 1982 through 1986. The NWS station in West Palm Beach is located approximately 53 km (33 miles) east of the site and is the closest primary weather station to the study area considered to have meteorological data representative of the project site. This station has surrounding topographical features similar to the project site and the most readily available and complete database.

The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling height. The wind speed, cloud cover, and cloud ceiling values were used in the ISCST2 meteorological preprocessor program to determine atmospheric stability using the Turner stability scheme. Based on the temperature measurements at morning and afternoon, mixing heights were calculated from the radiosonde data at West Palm Beach using the Holzworth approach (Holzworth, 1972). Hourly mixing heights were derived from the morning and afternoon mixing heights using the interpolation method developed by EPA (Holzworth, 1972).

The hourly surface data and mixing heights were used to develop a sequential series of hourly meteorological data (i.e., wind direction, wind speed, temperature, stability, and mixing heights). Because the observed hourly wind directions at the NWS stations are classified into one of thirty-six 10-degree sectors, the wind directions were randomized within each sector to account for the expected variability in air flow. These calculations were performed using the EPA RAMMET meteorological preprocessor program.

1.3 EMISSION INVENTORY

1.3.1 SCGC CO Inventory

Stack and operating parameters and CO emission rates for the SCGC boilers were developed from stack test data and permit information supplied by SCGC. The data used in the air dispersion

modeling for the SCGC facility are presented in Table 1-2. Also shown in Table 1-2 are the maximum heat input rates to each boiler and the normal fuel type. Boilers 1 and 2 at SCGC normally burn residue only, while Boilers 3 and 8 normally burn bagasse only. Boiler 4 normally burns about 80 percent residue and 20 percent bagasse, while Boiler 5 normally burns a 50/50 mixture of residue and bagasse.

The SCGC sources modeled reflect Boilers No. 2 and No. 5 stacks raised from their current stack height of 80 ft to a stack height of 150 ft and Boiler No. 3 stack raised from its current stack height of 80 ft to a stack height of 90 ft. SCGC will be implementing the stack height increase in the immediate future.

CO emissions are presented in Table 1-2 for both 1-hour and 8-hour averaging times, consistent with the averaging times associated with the CO AAQS. For Boiler No. 8, the CO emissions for both averaging times is the proposed CO emission rate of 6.0 lb/MMBtu. For all other boilers, the CO emission rate is based on actual CO stack test results available for the boilers. CO test data were obtained for the boilers as part of compliance testing conducted at SCGC for particulate matter emissions. These test data, presented in Appendix A, were obtained while firing the normal fuel mix (bagasse, residue, or bagasse/residue). Based on the test data, actual maximum 1-hour and 8-hour average CO emission rates were determined. These rates were used in the CO modeling analysis and are presented in Table 1-2.

1.3.2 Other CO Emission Sources

For the AAQS analysis, preliminary modeling showed that predicted impacts due to the proposed Boiler No. 8 modification are above the significant impact levels for CO. Therefore, further modeling for CO was conducted. The maximum CO impacts due to Boiler No. 8 are predicted to be greater than the significant impact levels to a distance of approximately 5 km (3.0 mile) from the facility. This distance was used to limit receptor locations and background sources to be modeled.

The emission inventory for CO was developed from available databases, such as FDEP's Air Pollution Inventory System (APIS), previous studies performed by KBN, and air permit data. Emission inventories of background sources were developed for the proposed source's modeling

Table 1–2. CO Emissions and Stack Parameters for SCGC Mill Sources

Boiler	Maximum Heat Input (MMBtu/hr)			CO Emissions – 1 hr			CO Emissions – 8 hr			Stack Parameters									
	Bagasse	Residue	Total	lb/MMBtu	lb/hr	g/sec	lb/MMBtu	lb/hr	g/sec	Number of Stacks[a]	Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Flow (acfm)	Velocity (ft/sec)	Velocity (m/sec)	Temperature (F)	Temperature (K)
1	0.0	251.5	251.5	0.70	176	22.2	0.60	151	19.0	2	80	24.4	4.33	1.32	49,000	55.5	16.90	150	339
2	0.0	251.5	251.5	1.50	377	47.5	1.00	251	31.7	1	150	45.7	6.12	1.87	98,000	55.5	16.90	150	339
3	228.6	0.0	228.6	4.70	1,075	135.4	2.10	480	60.5	1	90	27.4	5.30	1.62	102,000	77.1	23.49	150	339
4	105.7	422.8	528.4	1.10	581	73.2	0.40	211	26.6	1	110	33.5	9.46	2.88	220,000	52.2	15.90	150	339
5	193.7	193.7	387.5	3.00	1,162	146.5	1.00	387	48.8	1	150	45.7	7.54	2.29	140,000	52.3	15.94	150	339
8	504.0	0.0	504.0	6.00	3,024	381.0	6.00	3,024	381.0	1	155	47.2	9.5	2190	191,600	45.1	13.73	150	339
Totals	1032.1	1119.4	2151.5		6,396	805.8		4,505	567.7										

CO emissions computed as the product of maximum heat input rate (MMBtu/hr) x CO emission factor (lb/MMBtu)

Existing stack parameters are:

Blr	No. of Stacks[a]	Height (ft)	Height (m)	Diameter (ft)	Diameter (m)	Flow (acfm)	Velocity (ft/sec)	Velocity (m/sec)	Temperature (F)	Temperature (K)
1	2	80	24.4	4.33	1.32	49,000	55.5	16.90	150	339
2	2	80	24.4	4.33	1.32	49,000	55.5	16.90	150	339
3	1	80	24.4	5.30	1.62	102,000	77.1	23.49	150	339
4	1	110	33.5	9.46	2.88	220,000	52.2	15.90	150	339
5	2	80	24.4	5.33	1.62	70,000	52.3	15.94	150	339
8	1	155	47.2	9.5	2.90	191,600	45.1	13.73	150	339

[a] Where two stacks serve a single boiler, stacks are identical and parameters are shown for each stack.

area and screening area. The modeling area is defined as the significant impact area for the proposed source. The screening area extends 50 km (31 miles) beyond the modeling area.

Within the modeling area, cumulative impact analyses were performed for SCGC Boiler No. 8 and all identified background sources located in the modeling and screening areas.

FDEP has approved a technique for eliminating sources in the modeling analyses if the source's emissions do not meet an emission criterion. The technique is the *Screening Threshold* method, developed by the North Carolina Department of Natural Resources and Community Development, and approved by EPA. The method is designed to objectively eliminate from the emission inventory those sources that are unlikely to have a significant interaction with the source undergoing evaluation. In general, sources that should be considered in the modeling analyses are those with emissions greater than a screening threshold value (in TPY) that is calculated by the following criteria:

$$Q = 20 \times D$$

where Q = the screening threshold value (TPY), and

D = The distance (km) from the proposed facility to the source undergoing evaluation for short-term analysis, or

The distance (km) from the edge of the proposed facility's significant impact area to the source undergoing evaluation for long-term (annual) analysis.

For this analysis, the long-term criterion was used since fewer facilities would be eliminated than with the short-term criterion. Also, the total emissions from a facility were used rather than emissions from individual sources for comparison to the screening threshold value. These methods result in a more conservative approach to produce higher-than-expected concentrations. Those facilities with maximum allowable emissions that are below the calculated *screening threshold* were eliminated from further consideration in the AAQS modeling analyses.

A summary of all facilities, their locations with respect to SCGC, their maximum CO emissions, and the calculated screening threshold are provided in Table 1-3. The existing QO Chemicals facility was the only facility located within the proposed modification's significant impact area

Table 1–3. CO Screening Analysis for the AAQS Inventory for Sugar Cane Growers Cooperative

Facility Name	UTM Coordinates (km) E	UTM Coordinates (km) N	Relative Distance to SCGC (km) X	Relative Distance to SCGC (km) Y	Distance to SCGC Mill (km)	Direction (degrees)	Screening Emission Threshold (TPY) [a]	Maximum Allowable Emissions (TPY)	Included in AAQS Modeling Analysis?
QO CHEMICALS, INC.	534.8	2953.8	−0.1	0.5	0.5	349	[b]	23	YES
U S SUGAR CORP BRYANT	538.8	2968.1	3.9	14.8	15.3	15	206	41,414	YES
OKEELANTA CORP	525.0	2939.4	−9.9	−13.9	17.1	215	241	45,766	YES
OSCEOLA FARMS	544.2	2968.0	9.3	14.7	17.4	32	248	28,969	YES
ATLANTIC SUGAR ASSOCIATION	552.9	2945.2	18.0	−8.1	19.7	114	295	25,979	YES
TALISMAN SUGAR CORPORATION	531.5	2928.4	−3.4	−24.9	25.1	188	403	19,233	YES
U S SUGAR CORP CLEWISTON	505.9	2956.9	−29.0	3.6	29.2	277	484	52,706	YES
PRATT & WHITNEY	567.5	2975.0	32.6	21.7	39.2	56	683	106	NO
PARKWAY ASPHALT	582.9	2951.4	48.0	−1.9	48.0	92	861	33	NO
FLORIDA GAS TRANSMISSION	584.3	2957.0	49.4	3.7	49.5	86	891	28	NO
PALM BEACH CO SW AUTHORITY	585.8	2960.5	50.9	7.2	51.4	82	928	1,562	YES

Note: All facilities with a total maximum allowable CO emissions of more than 20 TPY that are within 55 km of the facility are included in the screening analysis unless the facility is within 5 km of SCGC.

Facility UTM coordinates (km): 534.9 2953.3
Screening area is 55 km from SCGC Mill

[a] Screening emissions threshold is 20 x (Distance to facility − 5), based on North Carolina Screening Method.
[b] Sources within 5 km of the facility are modeled without regard to the screening criteria.

[i.e., 5 km (3.0 mile)]. As a result, it was not subject to the screening analysis and was included in the CO modeling analyses. Those facilities eliminated from the modeling analysis using the screening threshold technique are noted in Table 1-3. For all facilities that were not eliminated, the individual source emissions, stack, and operating parameters for the AAQS modeling analysis were developed.

Summaries of all CO sources, including all the combined sources used in the modeling analysis, are presented in Table 1-4. The CO emissions due to sugar boiler sources used in the modeling analysis are based on a 9.0 lb CO/MMBtu factor. This is a very conservative emission factor based on industry CO test data. Emissions due to other sources are based on FDEP data including current permit limits for QO Chemicals.

1.4 RECEPTOR LOCATIONS

The general modeling approach used screening and refined phases to address compliance with AAQS. Impacts were calculated at ambient air locations only (i.e., beyond areas with restricted access, such as fenced locations and areas patrolled by security guards). Therefore, general grid receptors located on restricted-access property were excluded from the analysis. For the screening phase, concentrations were predicted for the following receptor locations:

1. For determination of the Boiler No. 8 significant impact area and maximum impacts, the initial receptor grid consisted of receptors located at the plant property boundaries and at distances of 1,000, 2,000, 3,000, 4,000, 5,000, 6,000, 8,000, and 10,000 m along 36 radials with each radial spaced at 10-degree increments. This grid was centered on SCGC Boiler No. 8 stack location.
2. For the CO AAQS analysis, 353 receptors were located in radial grids centered on the Boiler No. 8 stack location. These receptors are classified into two main groups:
   a. 36 plant property receptors placed at the nearest plant boundary along 36 radials spaced at 10-degree increments (additional receptors were located near the plant property at the closest distances at which the model could calculate a concentration).
   b. 317 general grid receptors located from the source at distances of 100, 200, 400, 600, 800, 1,000, 2,000, 3,000, 4,000, and 5,000 m along 36 radials with each radial spaced at 10-degree increments.

Table 1-4. Summary of CO Emissions and Stack Parameters for Interacting Sources Included in the Modeling Analysis

APIS #	Facility/Source	Heat Input Rate	CO Emission Rate			Stack Height		Stack Diameter		Stack Temp		Stack Velocity	
		(MMBtu/Hr)	(lb/MMBtu)	(lb/hr)	(g/s)	(m)	(ft)	(m)	(ft)	(K)	(F)	(m/s)	(ft/s)
52FTM500005	Okeelanta												
	Boiler 4	181.42	9.00	1,632.78	205.73	22.90	75	2.29	7.50	333.20	140	7.36	24.15
	Boiler 5	235.51	9.00	2,119.60	267.07	22.90	75	2.29	7.50	333.20	140	12.07	39.60
	Boiler 6	239.95	9.00	2,159.52	272.10	22.90	75	2.29	7.50	334.30	142	8.74	28.68
	Boiler 10	252.05	9.00	2,268.41	285.82	22.90	75	2.29	7.50	334.30	142	10.35	33.96
	Boiler 11	252.05	9.00	2,268.41	285.82	22.90	75	2.29	7.50	341.50	155	9.89	32.45
	Boiler 12	302.45	9.00	2,722.06	342.98	22.90	75	2.29	7.50	329.80	134	8.16	26.77
	Boiler 14	302.45	9.00	2,722.06	342.98	22.90	75	2.29	7.50	333.20	140	8.28	27.17
	Boiler 15	252.05	9.00	2,268.41	285.82	22.90	75	2.29	7.50	332.00	138	10.23	33.56
52FTM500019	Osceola Farms												
	Boiler 2	280.00	9.00	2,520.00	317.52	25.00	82	1.52	5.00	341.00	154	18.10	59.39
	Boiler 3	292.00	3.50	1,021.98	128.77	21.90	72	1.93	6.33	341.00	154	14.50	47.57
	Boiler 4	280.00	9.00	2,520.00	317.52	25.00	82	1.83	6.00	341.00	154	18.80	61.68
	Boiler 5	330.00	9.00	2,970.00	374.22	25.00	82	1.52	5.00	341.00	154	14.90	48.89
	Boiler 6	379.00	6.50	2,463.49	310.40	27.40	90	1.93	6.33	341.00	154	14.90	48.89
52FTM500061	US Sugar Corp, Bryant												
	Boiler 1	385.00	9.00	3,465.00	436.59	19.80	65	1.64	5.38	342.00	156	36.40	119.43
	Boiler 2	385.00	9.00	3,465.00	436.59	19.80	65	1.64	5.38	342.00	156	36.40	119.43
	Boiler 3	385.00	9.00	3,465.00	436.59	19.80	65	1.64	5.38	342.00	156	36.40	119.43
	Boiler 5	671.00	9.00	6,038.97	760.91	42.70	140	2.90	9.51	345.00	161	11.49	37.70
52FTM500016	Atlantic Sugar												
	Boiler 1	214.00	9.00	1,926.03	242.68	18.90	62	1.92	6.30	346.00	163	12.70	41.67
	Boiler 2	214.00	9.00	1,926.03	242.68	18.90	62	1.92	6.30	342.00	156	10.90	35.76
	Boiler 3	260.00	9.00	2,340.00	294.84	21.90	72	1.83	6.00	341.00	154	17.50	57.42
	Boiler 4	275.00	9.00	2,475.00	311.85	18.30	60	1.83	6.00	344.00	159	15.00	49.22
	Boiler 5	252.65	6.50	1,642.22	206.92	27.40	90	1.68	5.51	339.00	150	15.70	51.51
52FTM500073	Talisman Sugar												
	Boiler 4	224.00	9.00	2,016.03	254.02	21.30	70	1.59	5.22	336.00	145	22.90	75.13
	Boiler 5	224.00	9.00	2,016.03	254.02	21.30	70	1.59	5.22	336.00	145	22.90	75.13
	Boiler 6	400.00	9.00	3,600.00	453.60	22.90	75	3.05	10.00	361.00	190	9.10	29.86
52FTM260003	US Sugar Corp, Clewiston												
	Boiler 1	495.60	9.00	4460.40	562.01	22.90	75	1.86	6.10	344.30	160	24.36	79.93
	Boiler 2	495.60	9.00	4460.40	562.01	22.90	75	1.86	6.10	344.30	160	26.76	87.80
	Boiler 3	342.00	9.00	3078.00	387.83	22.90	75	2.29	7.51	341.50	155	14.07	46.16
	Boiler 4	706.60	9.00	6359.40	801.28	45.70	150	2.50	8.20	340.90	154	17.94	58.86
	Boiler 5	140.10	9.00	1260.90	158.87	19.80	65	1.83	6.00	336.50	146	10.69	35.07
	Boiler 6	144.00	9.00	1296.00	163.30	19.80	65	1.83	6.00	340.90	154	10.33	33.89
52FTM500018	QO Chemicals												
	South Superheater	--	--	2.25	0.28	35.05	115	1.22	4.00	1033.20	1400	4.22	13.85
	North Superheater	--	--	2.25	0.28	35.05	115	1.22	4.00	1033.20	1400	4.22	13.85
	Central Superheater	--	--	2.25	0.28	35.05	115	1.22	4.00	588.70	600	4.84	15.88
50WPB500234	Palm Beach County												
	RDF Boiler 1	--	--	178.27	22.46	76.20	250	2.04	6.70	505.40	450	24.99	81.97
	RDF Boiler 2	--	--	178.27	22.46	76.20	250	2.04	6.70	505.40	450	24.99	81.97

A list of the property boundary screening receptors for SCGC is presented in Table 1-5.

After the screening modeling was completed, refined modeling was conducted using a receptor grid centered on the receptor that had the highest annual and highest short-term concentration from the screening analysis. The receptors were located at intervals of 100 m between the distances considered in the screening phase, along 9 radials spaced at 2-degree increments, centered on the radial along which the maximum concentration was produced. For example, if the maximum concentration was produced along the 90-degree radial at a distance of 0.8 km, the refined receptor grid would consist of receptors at the following locations:

Directions (degrees)	Distance (km)
82, 84, 86, 88, 90, 92, 94	0.6, 0.7, 0.8, 0.9, and 1.0 per direction

To ensure that a valid maximum concentration is calculated, concentrations were predicted using the refined grid for the entire year that produced the highest concentration from the screening receptor grid. Modeling refinements may not be performed if the maximum screening receptor is spaced less 100 m.

1.5 BUILDING DOWNWASH EFFECTS

Based on the building dimensions associated with buildings and structures at the plant, all stacks at SCGC (i.e., Boiler Nos. 1 through 5 and 8) will comply with the GEP stack height regulations. However, these stacks will be less than GEP. Therefore, the potential for building downwash to occur was considered in the modeling analysis for these stacks.

The ISC model uses two procedures to address the effects of building downwash. For both methods the direction-specific building dimensions are input for H_b and l_b for 36 radial directions, with each direction representing a 10-degree sector, which uses these parameters to modify the dispersion parameters. The H_b is the building height and l_b is the lesser of the building height or projected width. For short stacks (i.e., physical stack height is less than $H_b + 0.5\ l_b$), the Schulman and Scire (1980) method is used. The features of the Schulman and Scire method are as follows:

Table 1-5. Sugar Cane Growers Cooperative Plant Property Boundary Receptors

Downwind Distance (m)	Radial Direction (deg)	Downwind Distance (m)	Radial Direction (deg)
81	10	760	190
85	20	386	200
92	30	264	210
104	40	205	220
124	50	172	230
241	60	152	240
222	70	140	250
212	80	134	260
209	90	132	270
212	100	134	280
222	110	140	290
241	120	152	300
273	130	124	310
325	140	104	320
418	150	92	330
611	160	85	340
951	170	81	350
937	180	80	360

Note: All receptor locations are with respect to Boiler No.8 stack location.

1. Reduced plume rise as a result of initial plume dilution,
2. Enhanced plume spread as a linear function of the effective plume height, and
3. Specification of building dimensions as a function of wind direction.

For cases where the physical stack is greater than $H_b + 0.5\ l_b$ but less than GEP, the Huber-Snyder (1976) method is used.

The building dimensions considered in the modeling analysis are presented in Table 1-6. The Building Profile Input Program (BPIP), Version 95086, was used to generate building data for model input. A detailed listing of direction-specific building data used in the modeling analysis is given in Appendix B.

1.6 BACKGROUND CONCENTRATIONS

Background concentrations are concentrations due to sources not explicitly included in the modeling analysis. Background concentrations were developed from ambient monitoring data. Existing ambient CO data for the monitoring stations nearest to SCGC are presented in Table 1-7. These stations are located in West Palm Beach about 50 miles east of the facility. Data are presented for the years 1991-1993.

The CO data from these air monitoring stations are not considered to be representative of conditions in Belle Glade. Due to the location of SCGC in Belle Glade, and relatively low population and traffic density for approximately 50 miles in all directions, it is expected that CO concentrations in West Palm Beach will be much higher than near SCGC. Therefore, published data for rural area background values of CO have been reviewed to determine a more representative value. As stated in the 1992 State of Florida Air Quality Report (FDEP, 1993), the background value for CO in areas of low vehicle traffic can be assumed to be 0.5 ppm, or 575 $\mu g/m^3$. These background levels were added to model-predicted concentrations to estimate total air quality levels for comparison to AAQS.

1.7 AAQS COMPLIANCE ANALYSIS

Maximum total air quality CO impacts were compared to the applicable national and state AAQS. The AAQS are 40,000 $\mu g/m^3$ for a 1-hour average, and 10,000 $\mu g/m^3$ for an 8-hour average. Total air quality impacts are based on adding the maximum model-predicted impacts from the

Table 1-6. Dimensions of Building Structures Considered in the Downwash Analysis for SCGC

Facility	Elevation[a] (ft)	Length[b] (ft)	Width[c] (ft)
Boiler No. 8 Building	78	77	49
Boiler Nos. 4 and 5 Building	76	65	93
Boiler Nos. 1, 2, and 3 Building	58	46	155
East and West Mill Building	66	174	228
Boiling House	102	232	50
Quaker Oats	106	77	73
Sugar House No. 1	81	163	558

Note: feet (ft) x 0.305 = meters (m).

[a] Above ground surface.
[b] East-west dimension.
[c] North-south dimension.

Table 1-7. Summary of Ambient Carbon Monoxide Data for Sites Nearest the Sugar Cane Growers Cooperative Mill

SAROAD Site No.	Site Location	Monitoring Method	Period	Number of Observations	1-Hr Second Highest (ppm)	1-Hr Second Highest (ug/m3)	8-Hr Second Highest (ppm)	8-Hr Second Highest (ug/m3)
4760-004-G01	Belvedere Road, West Palm Beach	Continuous	1991	8,119	5	5,750	3	3,450
			1992	8,252	6	6,900	4	4,600
			1993	8,096	5	5,750	3	3,450
4760-005-G01	Okeechobee Road, West Palm Beach	Continuous	1993	3,813 (a)	7	8,050	4	4,600

(a) Note: Monitor operated from July through December.

modeled sources to the non-modeled background concentration. A total of 8 facilities were modeled explicitly in the analysis.

2.0 AIR QUALITY IMPACT ANALYSIS RESULTS

2.1 SCGC BOILER NO. 8 ONLY

Results of the air dispersion modeling analysis for CO emissions from SCGC Boiler No. 8 are presented in Table 2-1. The maximum predicted 1-hour and 8-hour average CO concentrations due to Boiler No. 8 are 4,246 and 1,767 $\mu g/m^3$, respectively. Since the 1-hour and 8-hour maximum concentrations are above the significant impact levels, additional modeling analysis was performed. The distance to which the proposed project's CO impacts are significant was determined to be 5 km.

2.2 AAQS ANALYSIS

The maximum predicted total CO concentrations from the screening analysis for all modeled AAQS sources are presented in Table 2-2. The maximum screening CO concentrations occurred at receptors near the SCGC mill (i.e., downwind distance of 100 m from Boiler No. 8). Therefore, because receptor spacing in this area of the screening receptor grid is less than 100 m, it was not necessary to perform additional refinements. Based upon the modeling analysis results, the maximum total predicted CO concentrations, including the non-modeled background concentration of 575 $\mu g/m^3$, are as follows: 5,401 $\mu g/m^3$, 8-hour average, and 27,998 $\mu g/m^3$, 1-hour average.

Based on these results, the maximum impacts predicted for SCGC together with other emission sources and the non-modeled background concentration are below the AAQS.

Table 2-1. Summary of Maximum CO Concentrations Due to SCGC Boiler No. 8 Only

Averaging Time	Model Year	Maximum Concentration ($\mu g/m^3$)	Receptor Location [a] Distance (m)	Receptor Location [a] Direction (deg)	Period Ending (YYMMDDHH)	Significant Impact Levels ($\mu g/m^3$)	AAQS ($\mu g/m^3$)
8-Hour High	1982	1,759	310	200	82031424		
	1983	1,701	320	104	83020116		
	1984	1,470	300	200	84102808		
	1985	1,584	320	200	85113008		
	1986	1,767	300	200	86110524		
	5 Year Max	1,767				500	10,000
1-Hour High	1982	4,246	320	200	82120702		
	1983	4,021	310	200	83101405		
	1984	3,239	300	200	84031920		
	1985	3,618	290	200	85110920		
	1986	3,704	280	200	86101323		
	5 Year Max	4,246				2,000	40,000

Notes:
m = meter
deg = degrees
YYMMDDHH = year, month, day, hour

[a] Relative to SCGC Boiler No. 8 stack location.

Table 2–2. Summary of Maximum CO Concentrations – AAQS Analysis

Averaging Time	Model Year	Maximum Concentration ($\mu g/m^3$)	Receptor Location		Period Ending (YYMMDDHH)	AAQS ($\mu g/m^3$)
			Distance (m)	Direction (deg)		
8–Hour HSH	1982	4,826	340	100	82111224	
	1983	3,806	330	100	83112008	
	1984	3,870	330	92	84102808	
	1985	4,237	330	92	85030508	
	1986	4,412	330	104	86110524	
	5 Year Max	5,401 [a]				10,000
1–Hour HSH	1982	27,423	340	100	82031422	
	1983	26,698	340	100	83101201	
	1984	26,553	330	92	84031920	
	1985	26,741	340	100	85022521	
	1986	26,479	330	92	86110520	
	5 Year Max	27,998 [a]				40,000

Notes:
[a] 5 Year maximum includes a background CO value of 575 $\mu g/m^3$.
HSH = highest, second highest
m = meter
deg = degrees
YYMMDDHH= year, month, day, hour

REFERENCES

Auer, A.H., 1978. Correlation of Land Use and Cover with Meteorological Anomalies. J. Applied Meteorology, Vol. 17.

Florida Department of Environmental Protection (FDEP). 1993. Air Quality Report 1992. Tallahassee, FL.

Holzworth, G.C., 1972. Mixing Heights, Wind Speeds and Potential for Urban Air Pollution Throughout the Contiguous United States. Pub. No. AP-101. U.S. Environmental Protection Agency.

Huber, A.H. and W.H. Snyder, 1976. Building Wake Effects on Short Stack Effluents. Preprint Volume for the Third Symposium on Atmospheric Diffusion and Air Quality, American Meteorological Society, Boston, Massachusetts.

Schulman, L.L. and J.S. Scire, 1980. Buoyant Line and Point Source (BLP) Dispersion Model User's Guide. Document P-7304B, Environmental Research and Technology, Inc. Concord, Massachusetts.

U.S. Environmental Protection Agency. 1977. User's Manual for Single Source (CRSTER) Model. EPA Report No. EPA-450/2-77-013, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina.

U.S. Environmental Protection Agency. 1992a. User's Guide for the Industrial Source Complex (ISC2) Dispersion Models. Through Addendum A. EPA-450/4-92-008. September.

U.S. Environmental Protection Agency. 1993. Guideline on Air Quality Models (Revised). (Through Supplement B; Appendix W of 40 CFR Part 51). EPA Report No. EPA 450/2-78-027R.

APPENDIX A

SUMMARY OF CO TEST DATA

Table A–1. Summary of CO Emission Tests Performed on Boilers at Sugar Cane Growers Cooperative

Unit	Fuel Type	Test Date	Steam Rate (lb/hr)	Heat Input Rate (MMBtu/hr)	CO Emissions lb/hr	CO Emissions lb/MMBtu
Boiler 1	Residue	11/15/93	124,885	210.97	156.97	0.74
Boiler 1	Residue	11/15/93	123,055	209.87	132.83	0.63
Boiler 1	Residue	11/17/93	122,400	208.02	95.11	0.46
Boiler 1	Residue	11/17/93	134,919	229.38	96.38	0.42
Boiler 1	Residue	11/17/93	132,991	226.13	157.27	0.70
				Number of Runs =	5	5
				MINIMUM =	95.11	0.42
				MEAN =	127.71	0.59
				MAXIMUM =	157.27	0.74
Boiler 2	Residue	11/16/93	119,351	203.64	197.60	0.97
Boiler 2	Residue	11/16/93	122,916	208.94	240.95	1.15
Boiler 2	Residue	11/16/93	128,000	217.58	247.27	1.14
Boiler 2	Residue	11/19/93	127,402	216.54	167.76	0.77
Boiler 2	Residue	11/19/93	131,888	224.23	180.41	0.80
Boiler 2	Residue	11/19/93	126,505	215.08	319.51	1.49
				Number of Runs =	6	6
				MINIMUM =	167.76	0.77
				MEAN =	225.58	1.05
				MAXIMUM =	319.51	1.49
Boiler 3	Bagasse	11/18/93	100,141	190.75	290.70	1.524
Boiler 3	Bagasse	11/18/93	101,077	195.24	92.48	0.474
Boiler 3	Bagasse	11/23/93	100,286	193.73	615.13	3.175
Boiler 3	Bagasse	11/23/93	99,130	191.56	444.58	2.321
Boiler 3	Bagasse	11/23/93	103,235	199.45	995.08	4.989
				Number of Runs =	5	5
				MINIMUM =	92.48	0.47
				MEAN =	487.59	2.50
				MAXIMUM =	995.08	4.99
Boiler 4	Residue	11/24/93	246,000	397.67	76.15	0.19
Boiler 4	Residue	11/24/93	236,620	389.62	224.30	0.58
Boiler 4	Residue	12/02/93	241,277	376.93	57.28	0.15
Boiler 4	Residue	12/02/93	246,522	389.74	43.94	0.11
Boiler 4	Residue	12/02/93	247,333	390.43	43.59	0.11
	Res. + Bag.	12/09/93	207,273	400.45	439.20	1.10
	Res. + Bag.	12/09/93	220,909	426.84	241.60	0.57
				Number of Runs =	7	7
				MINIMUM =	43.59	0.11
				MEAN =	160.87	0.40
				MAXIMUM =	439.20	1.10
Boiler 5	Residue	11/22/93	162,273	247.31	47.41	0.19
Boiler 5	Residue	11/22/93	154,091	234.14	155.87	0.67
Boiler 5	Residue	11/22/93	170,000	256.40	298.11	1.16
Boiler 5	Residue	11/29/93	172,500	254.30	41.44	0.16
Boiler 5	Residue	11/29/93	181,944	271.03	49.18	0.18
Boiler 5	Residue	11/29/93	200,917	302.15	211.90	0.70
	Res. + Bag.	12/10/93	191,518	370.64	1,089.97	2.94
	Res. + Bag.	12/10/93	185,526	358.47	714.36	1.99
				Number of Runs =	8	8
				MINIMUM =	41.44	0.16
				MEAN =	326.03	1.00
				MAXIMUM =	1089.97	2.94

APPENDIX B

DIRECTION-SPECIFIC BUILDING DATA USED IN THE MODELING ANALYSIS

BPIP (Dated: 95086)
DATE : 07/06/95
TIME : 16:53:06
BPIP data for Sugar Cane Growers buildings and stacks 3/9/94

==========
BPIP PROCESSING INFORMATION:
==========

The ST flag has been set for processing for an ISCST2 run.

Inputs entered in METERS will be converted to meters using a conversion factor of 1.0000. Output will be in meters.

UTMP is set to UTMN. The input is assumed to be in a local X-Y coordinate system as opposed to a UTM coordinate system. True North is in the positive Y direction.

Plant north is set to 0.00 degrees with respect to True North.

BPIP data for Sugar Cane Growers buildings and stacks 3/9/94

PRELIMINARY* GEP STACK HEIGHT RESULTS TABLE
(Output Units: meters)

Stack Name	Stack Height	Stack-Building Base Elevation Differences	GEP** EQN1	Preliminary* GEP Stack Height Value
BLR1	24.40	0.00	77.72	77.72
BLR2	45.70	0.00	77.72	77.72
BLR3	27.40	0.00	77.72	77.72
BLR4	33.50	0.00	77.72	77.72
BLR5	45.70	0.00	77.72	77.72
BLR8	47.20	0.00	77.72	77.72

* Results are based on Determinants 1 & 2 on pages 1 & 2 of the GEP Technical Support Document. Determinant 3 may be investigated for additional stack height credit. Final values result after Determinant 3 has been taken into consideration.

** Results were derived from Equation 1 on page 6 of GEP Technical Support Document. Values have been adjusted for any stack-building base elevation differences.

Note: Criteria for determining stack heights for modeling emission limitations for a source can be found in Table 3.1 of the GEP Technical Support Document.

BPIP (Dated: 95086)
DATE : 07/06/95
TIME : 16:53:06

BPIP data for Sugar Cane Growers buildings and stacks 3/9/94

BPIP output is in meters

SO BUILDHGT BLR1	23.77	23.77	23.77	23.77	23.77	23.77
SO BUILDHGT BLR1	23.77	23.77	23.77	23.77	31.09	31.09
SO BUILDHGT BLR1	31.09	31.09	31.09	31.09	23.77	23.17
SO BUILDHGT BLR1	23.77	23.77	24.72	24.72	24.72	24.72
SO BUILDHGT BLR1	24.72	24.72	23.77	23.77	31.09	31.09
SO BUILDHGT BLR1	31.09	31.09	31.09	31.09	23.77	20.12
SO BUILDWID BLR1	25.71	27.16	27.79	27.58	26.53	24.67
SO BUILDWID BLR1	22.06	18.78	14.94	18.78	67.15	74.95
SO BUILDWID BLR1	80.48	83.56	84.10	82.09	25.71	19.81
SO BUILDWID BLR1	25.71	27.16	128.06	147.38	162.22	172.13
SO BUILDWID BLR1	176.81	176.12	14.94	18.78	67.15	74.95
SO BUILDWID BLR1	80.48	83.56	84.10	82.09	25.71	53.04

SO BUILDHGT BLR2	23.77	23.77	23.77	23.77	23.77	23.77
SO BUILDHGT BLR2	23.77	23.77	23.77	23.77	31.09	31.09
SO BUILDHGT BLR2	31.09	31.09	31.09	31.09	23.17	23.17
SO BUILDHGT BLR2	23.77	23.77	24.72	24.72	24.72	24.72
SO BUILDHGT BLR2	24.72	24.72	23.77	23.77	31.09	31.09
SO BUILDHGT BLR2	31.09	31.09	31.09	31.09	23.17	23.17
SO BUILDWID BLR2	25.71	27.16	27.79	27.58	26.53	24.67
SO BUILDWID BLR2	22.06	18.78	14.94	18.78	67.15	74.95
SO BUILDWID BLR2	80.48	83.56	84.10	82.09	24.43	19.81
SO BUILDWID BLR2	25.71	27.16	128.06	147.38	162.22	172.13
SO BUILDWID BLR2	176.81	176.12	14.94	18.78	67.15	74.95
SO BUILDWID BLR2	80.48	83.56	84.10	82.09	24.43	19.81

SO BUILDHGT BLR3	23.77	23.77	23.77	23.77	23.77	23.77
SO BUILDHGT BLR3	23.17	23.17	17.68	17.68	17.68	31.09
SO BUILDHGT BLR3	20.12	20.12	23.17	23.17	32.31	32.31
SO BUILDHGT BLR3	23.77	23.77	24.72	24.72	24.72	24.72
SO BUILDHGT BLR3	24.72	24.72	17.68	17.68	17.68	31.09
SO BUILDHGT BLR3	31.09	31.09	31.09	31.09	23.17	23.17
SO BUILDWID BLR3	25.71	27.16	27.79	27.58	26.53	24.67
SO BUILDWID BLR3	33.41	31.36	47.24	48.96	49.19	74.95
SO BUILDWID BLR3	132.78	139.47	31.33	28.31	26.98	23.47
SO BUILDWID BLR3	25.71	27.16	128.06	147.38	162.22	172.13
SO BUILDWID BLR3	176.81	176.12	47.24	48.96	49.19	74.95
SO BUILDWID BLR3	80.48	83.56	84.10	82.09	24.43	19.81

SO BUILDHGT BLR4	23.77	23.77	24.72	23.77	23.77	23.17
SO BUILDHGT BLR4	23.17	23.17	23.17	23.17	23.17	23.17
SO BUILDHGT BLR4	23.17	23.17	23.17	23.17	32.31	32.31
SO BUILDHGT BLR4	32.31	23.77	24.72	24.72	24.72	24.72
SO BUILDHGT BLR4	24.72	24.72	24.72	24.72	23.17	23.17
SO BUILDHGT BLR4	31.09	31.09	31.09	31.09	31.09	23.17
SO BUILDWID BLR4	25.71	27.16	128.06	27.58	26.53	34.45
SO BUILDWID BLR4	33.41	31.36	28.35	31.36	33.41	34.45
SO BUILDWID BLR4	34.45	33.40	31.33	28.31	26.98	23.47
SO BUILDWID BLR4	26.98	27.16	128.06	147.38	162.22	172.13
SO BUILDWID BLR4	176.81	176.12	170.08	176.12	33.41	34.45
SO BUILDWID BLR4	80.48	83.56	84.10	82.09	77.58	19.81

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SO BUILDHGT BLR5      23.77  23.77  23.77  24.72  23.17  23.17
SO BUILDHGT BLR5      23.17  23.17  23.17  23.17  24.72  23.17
SO BUILDHGT BLR5      23.17  23.17  23.17  23.17  32.31  32.31
SO BUILDHGT BLR5      32.31  23.17  23.17  24.72  24.72  24.72
SO BUILDHGT BLR5      24.72  24.72  24.72  24.72  24.72  23.17
SO BUILDHGT BLR5      31.09  31.09  31.09  31.09  31.09  23.77
SO BUILDWID BLR5      25.71  27.16  27.79 147.38  34.45  34.45
SO BUILDWID BLR5      33.41  31.36  28.35  31.36 176.81  34.45
SO BUILDWID BLR5      34.45  33.40  31.33  28.31  26.98  23.47
SO BUILDWID BLR5      26.98  28.31  31.33 147.38 162.22 172.13
SO BUILDWID BLR5     176.81 176.12 170.08 176.12 176.81  34.45
SO BUILDWID BLR5      80.48  83.56  84.10  82.09  77.58  23.47

SO BUILDHGT BLR8      23.77  23.77  23.77  23.77  23.77  23.77
SO BUILDHGT BLR8      23.77  23.77  23.77  23.77  23.77  23.77
SO BUILDHGT BLR8      23.77  23.77  23.77  23.77  23.77  23.77
SO BUILDHGT BLR8      23.77  23.77  23.77  23.77  23.77  23.77
SO BUILDHGT BLR8      23.77  23.77  23.77  31.09  31.09  31.09
SO BUILDHGT BLR8      31.09  31.09  23.77  23.77  23.77  23.77
SO BUILDWID BLR8      25.71  27.16  27.79  27.58  26.53  24.67
SO BUILDWID BLR8      22.06  18.78  14.94  18.78  22.06  24.67
SO BUILDWID BLR8      26.53  27.58  27.79  27.16  25.71  23.47
SO BUILDWID BLR8      25.71  27.16  27.79  27.58  26.53  24.67
SO BUILDWID BLR8      22.06  18.78  14.94  57.30  67.15  74.95
SO BUILDWID BLR8      80.48  83.56  27.79  27.16  25.71  23.47
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GLADES SUGAR HOUSE

Sugar Cane Growers Cooperative of Florida

POST OFFICE BOX 666 BELLE GLADE, FLORIDA

33430-0666

June 30, 1995

RECEIVED

JUL 5 1995

Bureau of
Air Regulation

Mr. Willard Hanks
Florida Department of Environmental
Protection
Bureau of Air Regulations
2600 Blairstone Rd.
Tallahassee, FL. 32301

Re: Sugar Cane Growers Cooperative of Florida
Waiver of 90 Day Time Limit
Permit No. A050-228196, Boiler No. 8
AC50-250421, Boiler No. 8

Dear Mr. Hanks:

Enclosed is the subject waiver. Please feel free to contact me if you have any questions.

Sincerely,

Jose F. Alvarez
V.P. Planning/Plant Operations

/lm
Enclosure

cc: Gary Perko, HSGS (w/enc)
Arthur Lyall, FDEP/Ft. Myers (w/enc)

Telephone (407) 996-5556 Fax No. (407) 996-4747

WAIVER OF 90 DAY TIME LIMIT
UNDER SECTIONS 120.60 (2) AND 403.0876, FLORIDA STATUTES

Permit Application No.: A050-228196, Boiler No. 8;
AC50-250421, Boiler No. 8

Applicant's Name: Sugar Cane Growers Cooperative of Florida

The undersigned has read Sections 120.60 (2) and 403.0876, Florida Statutes (F.S.), and fully understands the applicant's rights under that section.

With regard to the above referenced permit application, the applicant hereby with full knowledge and understanding, of its rights under Sections 120.60 (2) and 403.0876, F.S.,, waives the right under Sections 120.60 (2) and 403.0876, F.S., to have the application approved or denied by the State of Florida Department of Environmental Protection within the 90 day time period prescribed in Sections 120.60 (2) and 403.0876, F.S.. Said waiver is made freely and voluntarily by the applicant, is in its self-interest, and without any pressure or coercion by anyone employed by the State of Florida Department of Environmental Protection.

This waiver shall expire on the 3rd day of July, 1996.

The undersigned is authorized to make this waiver on behalf of the applicant.

6/30/95
SIGNATURE/DATE

Jose F. Alvarez
NAME (please type or print)

V. P. Planning/Plant Operations
TITLE

HOPPING GREEN SAMS & SMITH
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
(904) 222-7500
FAX (904) 224-8551
FAX (904) 425-3415

Writer's Direct Dial No.
(904) 425-2359

JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
ELIZABETH C. BOWMAN
RICHARD S. BRIGHTMAN
PETER C. CUNNINGHAM
RALPH A. DEMEO
THOMAS M. DEROSE
WILLIAM H. GREEN
WADE L. HOPPING
FRANK E. MATTHEWS
RICHARD D. MELSON
DAVID L. POWELL
WILLIAM D. PRESTON
CAROLYN S. RAEPPLE
GARY P. SAMS
ROBERT P. SMITH
CHERYL G. STUART

KRISTIN M. CONROY
CONNIE C. DURRENCE
JONATHAN S. FOX
JAMES C. GOODLETT
GARY K. HUNTER, JR.
JONATHAN T. JOHNSON
ROBERT A. MANNING
ANGELA R. MORRISON
GARY V. PERKO
KAREN M. PETERSON
MICHAEL P. PETROVICH
DOUGLAS S. ROBERTS
LISA K. RUSHTON
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
CARLOS ALVAREZ
W. ROBERT FOKES

April 14, 1995

RECEIVED
APR 14 1995
Bureau of
Air Regulation

BY HAND DELIVERY

Al Linero, P.E., Administrator
Division of Air Resources Management
Department of Environmental Protection
111 South Magnolia, Suite 4
Tallahassee, FL 32301

RE: Sugar Cane Growers Cooperative of Florida
Request to Revise CO Limit for Boiler No. 8
DEP Permit Nos. AC50-250421/PSD-FL-213 and AO50-228196

Dear Mr. Linero:

On behalf of the Sugar Cane Growers Cooperative of Florida ("Cooperative"), I have enclosed BACT and modeling analyses prepared by KBN Engineering and Applied Sciences, Inc. ("KBN"), concerning carbon monoxide ("CO") emissions from existing Boiler No. 8 at the Cooperative's sugar mill in Belle Glade, Florida. By way of background, the Department requested these analyses in connection with the Cooperative's pending request to revise the CO emission limit for Boiler No. 8 to 6.0 lbs/MBtu. The revised limit was necessitated by the Department's decision to change the CO compliance testing method from Method 3 to Method 10 in the operation permit renewal for Boiler No. 8. The existing CO limit, although adequate for Method 3, requires an upward adjustment due to the lower sensitivity of Method 10. Similar adjustments have been made for other bagasse-fired boilers throughout South Florida.

Because the requested permit revision merely reflects an adjustment to the current CO limit rather than a "modification" of Boiler No. 8, the Cooperative does not necessarily agree that a BACT analysis is required. Nevertheless, in order to expedite the Department's review of the requested permit revision, the Cooperative agreed to submit an updated BACT analysis after adequate time to conduct additional Method 10 testing necessary to evaluate the appropriate CO emission limit. As you can see from the updated BACT analysis provided in Attachment "A" to the enclosed letter from KBN, the requested 6.0 lbs/MMBtu emission limit is supported by the additional Method 10 test data, as well as recent BACT determinations for similar bagasse-fired boilers in South Florida.

Although the revised CO limit involves no physical change to Boiler No. 8, the Cooperative does plan to raise the existing stacks for Boiler Nos. 3 and 5 from 80' to 150' in order to avoid modeled exceedances of the ambient CO standard. As indicated in the modeling analyses provided in Attachment "B" to KBN's letter, based on the requested CO limit for Boiler No. 8 and the actual CO emission rates for the Cooperative's other boilers, maximum predicted impacts are well below both the 1-hour and 8-hour ambient CO standards when the new stack heights are incorporated into the model. The Cooperative has already prepared conceptual designs for the stack height increases and will physically implement the changes in the immediate future. For your review, I have also enclosed a design drawing which graphically depicts the general configuration of the 150' stacks. Since the Cooperative is proceeding expeditiously with the stack height increases, please notify us immediately if the Department has any questions or comments.

As always, we appreciate the Department's continued cooperation in this matter. I will be calling you within the next week or so to schedule a mutually convenient time for a meeting to discuss the requested permit revision with you and your staff. In the meantime, if you have any questions or comments, please do not hesitate to call Jose Alvarez at the Cooperative (407/996-4759), David Buff at KBN (904/336-5600), or me at the above number.

Sincerely,

HOPPING GREEN SAMS & SMITH, P.A.

By: _____
Gary V. Perko

Attorneys for the SUGAR CANE GROWERS COOPERATIVE OF FLORIDA

Enclosure
cc: Willard Hanks (FDEP/BAR)
David Knowles (FDEP/SE Dist)
Jose Alvarez (SCGC)
David Buff (KBN)
Peter Cunningham (HGSS)

cc: Cleve Holladay, DEP
J. Harper, EPA
J. Bunyak, NPS

April 13, 1995

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

Re: Sugar Cane Growers Cooperative of Florida
Revision of CO Limit for Boiler No. 8
AO50-228196

Dear Mr. Linero:

On behalf of Sugar Cane Growers Cooperative (SCGC), please find attached for your review a best available control technology (BACT) analysis and modeling analysis for carbon monoxide (CO) emissions from Boiler No. 8. These documents are in support of SCGC's request to modify the current CO emission limit for Boiler No. 8. I look forward to any questions you or your staff may have concerning this information.

Sincerely,

Mark Aguilar for

David A. Buff, P.E.
Principal Engineer
Florida Registration 19011

SEAL

DAB/lcb

cc: Jose Alvarez
Gary Perko
File (2)

KBN ENGINEERING AND APPLIED SCIENCES, INC.

6241 Northwest 23rd Street, Suite 500, Gainesville, Florida 32653-1500, 904-336-5600 FAX 904-336-6603
5405 West Cypress Street, Suite 215, Tampa, Florida 33607, 813-287-1717 FAX 813-287-1716
1801 Clint Moore Road, Suite 105, Boca Raton, Florida 33487, 407-994-9910, FAX 407-994-9393
7785 Baymeadows Way, Suite 105, Jacksonville, Florida 32256, 904-739-5600 FAX 904-739-7777
1616 'P' Street N.W., Suite 450, Washington, D.C. 20036, 202-462-1100, FAX 202-462-2270

ATTACHMENT A

BEST AVAILABLE CONTROL TECHNOLOGY EVALUATION FOR SUGAR CANE GROWERS COOPERATIVE OF FLORIDA BOILER NO. 8

ATTACHMENT A

BEST AVAILABLE CONTROL TECHNOLOGY EVALUATION FOR SUGAR CANE GROWERS COOPERATIVE OF FLORIDA BOILER NO. 8

1.0 INTRODUCTION

Sugar Cane Growers Cooperative of Florida (SCGC) operates Boiler No. 8 at its Belle Glade sugar mill. Boiler No. 8 is a bagasse fired boiler with a maximum heat input rate of 504 MMBtu/hr, and a maximum steam rate of 264,000 lb/hr. The boiler can also fire bagasse residue and fuel oil.

SCGC received a state construction permit and federal prevention of significant deterioration (PSD) construction permit for Boiler No. 8 in 1981 (AC50-42476; PSD-FL-077). This permit included an emission limit for carbon monoxide (CO) of 0.278 lb/MMBtu heat input. The basis of the emission limit was the U.S. Environmental Protection Agency (EPA) emission factor for bagasse combustion of 2 lb/ton contained in the publication "AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants." This factor of 2 lb/ton today remains listed in the latest version of this document.

The approved compliance test method stated in the original permits for Boiler No. 8 was EPA Reference Method 3. Compliance testing using Method 3 on Boiler No. 8 demonstrated compliance with this emission limit. However, based on recommendations from EPA Region IV, the Florida Department of Environmental Protection (FDEP) has recently required the use of EPA Method 10 for the measurement of CO emission from bagasse boilers. Based on CO test data obtained by Method 10 from bagasse boilers located throughout the sugar industry, the original basis for the CO emission limit has been determined to be invalid. The actual CO emissions from bagasse-fired boilers, based on EPA Method 10, have been found to vary widely, ranging from approximately 1 lb/MMBtu up to 10 lb/MMBtu.

The process of revisions to sugar industry PSD permits was initiated by the FDEP in 1989 following discussions among the FDEP, sugar industry representatives, and EPA Region IV about the need to correct CO emission limits. The corrections were needed to overcome discrepancies

between CO emission levels measured using Method 10 and the emission factors that were thought to reflect accurately the CO emissions from implementation of best available control technology (BACT) as approved in these PSD permits. This process was not designed to substitute new control technology requirements for the FDEP's contemporaneous BACT determination, but rather to collect data during actual operation using Method 10 to provide a basis on which the FDEP could establish a reasonable emission factor for each boiler.

Through this process, several sugar mills have requested modifications of their existing PSD permits to allow for a more appropriate CO emission limit based on measurement by Method 10. CO emission limits within the range of 3.5 to 6.5 lb/MMBtu have been approved by FDEP in these instances, as described below:

1. Osceola Farms received revised limits for Boiler Nos. 3 and 6 in 1988. The limits for both boilers was initially revised to 4.8 lb/MMBtu, but after further testing the Boiler No. 3 limit was revised to 3.5 lb/MMBtu, and Boiler 6 was revised to 6.5 lb/MMBtu.
2. Atlantic Sugar received revised CO limits for Boiler No. 5 in 1992. The limit was revised from 0.27 lb/MMBtu to 6.5 lb/MMBtu.
3. U.S. Sugar has recently been issued a proposed PSD permit for revising the CO emissions limit on Boiler No. 4 at Clewiston. The original CO limit was 0.25 lb/MMBtu. The proposed CO emission limit is 6.5 lb/MMBtu.

In each of these cases, the control technology of good combustion practices was determined to be BACT. These different CO limits for specific boilers is a reflection of the variation in CO emissions primarily due to differences in boiler and furnace design.

In order to determine an appropriate revised CO emission limit for Boiler No. 8, SCGC conducted a CO test program during the 1994-1995 crop season. During this test program, SCGC varied boiler operating parameters, including excess air levels, to determine the effects, if any, upon CO emissions. CO test data from the 1993-1994 crop season were also considered in the analysis. Through this testing program, an appropriate CO emission rate while maintaining acceptable boiler operation is proposed. The proposed CO emission limit is 6.0 lb/MMBtu.

Good combustion techniques are proposed as BACT for CO emissions for SCGC Boiler No. 8. Good combustion techniques have been approved as BACT for all other sugar mill boilers which have undergone PSD new source review. Once the CO emission limit has been revised for SCGC Boiler No. 8, all sugar industry PSD boiler permits with CO emission limits will have been revised to complete the Department's process for correcting the CO emission levels reflected in these permits when first issued.

Presented in the following sections is the identification of alternative CO control techniques (Section 2.0), a discussion of the alternative CO control techniques (Section 3.0), presentation and discussion of CO test data for Boiler No. 8 (Section 4.0), and conclusions of the BACT analysis (Section 5.0).

2.0 IDENTIFICATION OF ALTERNATIVE CONTROL TECHNIQUES

Alternative emission control techniques which have been identified for bagasse boilers consist of the following:

1. Combustion controls,
2. Flue gas recirculation,
3. Catalytic oxidation, and
4. Bagasse drying.

CO emissions are a result of incomplete combustion of carbon in the fuel. Historically, good combustion techniques and control are the only techniques which have been used for controlling CO emissions from bagasse boilers. Good combustion practices can reduce CO by varying degrees, depending on the nature of the bagasse fuel, including high and variable moisture content (average of approximately 50 percent moisture), and the existing boiler designs.

Flue gas recirculation (FGR) is primarily an NO_x control technique where a portion of the flue gas is recirculated back to the combustion zone. However, this technique could theoretically also reduce CO emissions. FGR has not been used to control CO emissions from bagasse-fired boilers in the past.

Catalytic oxidation has been used to reduce CO emissions from primarily natural gas fired boilers and gas-fired combustion turbines. This is a post-combustion control that has been employed in CO nonattainment areas where regulations require the installation of lowest achievable emission rate (LAER). Catalytic oxidation has not been applied to bagasse-fired boilers.

Fuel drying is a technique which attempts to reduce the moisture content of the fuel, thereby improving its combustion characteristics. Improved combustion could lead to lower CO emissions.

3.0 DESCRIPTIONS OF ALTERNATE CONTROL TECHNOLOGIES

3.1 COMBUSTION CONTROLS

Combustion controls involve operating the boiler within the manufacturer's specifications and may include the control of excess air, fuel firing rate, and furnace temperature. Of the available combustion modification techniques, only the use of overfire air is currently used in bagasse boilers. Overfire air is integral to the design of the boilers. This technology is one of the likely reasons for the relatively low NO_x and VOC emissions exhibited from these boilers (on the order of 0.2 to 0.3 lb/MMBtu). NO_x and VOC emissions are of much greater concern than CO emissions in Palm Beach County, which is a nonattainment area for ozone.

In general, bagasse boilers are already operated using maximum overfire air to promote complete combustion. Additional overfire air would not likely reduce CO emissions significantly from current levels. Bagasse boiler vendors have indicated that no decrease in CO emissions would be expected from retrofitting a new bagasse feed system or air distribution system on an existing bagasse boiler.

Moreover, CO emissions from bagasse boilers have been found to be more related to furnace design and capacity than to boiler operation. This is because in general bagasse boilers are already operated with good combustion practices and as efficiently as possible. There is no incentive to operate the boilers in any other manner. Poor operation only means higher emissions of pollutants, and less steam production from a given quantity of fuel.

CO emissions are related to furnace design and capacity since the residence time of flue gases in the boiler affects CO emissions. The longer the flue gas residence time, the more carbon burnout

is obtained and the lower the CO emissions. The design heat release rate (Btu/hr-ft^2) of a boiler is a direct indicator of flue gas residence time. This is true because the quantity of flue gases generated is directly proportional to the amount of fuel that is introduced into the boiler (i.e., Btu/hr), assuming other boiler operating parameters such as excess air are held constant.

Nearly all boilers constructed to date in the sugar industry have been designed and operated based on a high heat release rate. The newest boilers in the industry are PSD boilers and have CO emission limits. A listing of all boilers in the sugar industry which have CO emission limits is presented in Table 3-1. All of these boilers were built prior to 1985, and reflected standard designs from that time. These boilers have heat release rates of 24,000 Btu/hr-ft^3 or greater.

CO emission limits for the PSD boilers range from 3.5 lb/MMBtu to 6.5 lb/MMBtu. In the case of Osceola Boiler No. 3, the heat release rate is very similar to several of the other boilers. However, this boiler was a cell type boiler. The cell type boiler has internal walls in the furnace, forming several "cells." The fuel is combusted in piles formed in the cells. Ash is manually removed from this type boiler. The cell type design is much different than the traveling grate design of the other four operating sugar industry boilers shown in Table 3-1. This is the only distinguishing feature of Osceola Boiler No. 3 that would result in different CO emissions. There is no difference in heat release rate that would indicate different CO emissions.

As shown in Table 3-1, SCGC Boiler No. 8 is very similar to the design of Atlantic Sugar Boiler No. 5. Both these boilers are of the traveling grate design, and have heat release rates of approximately 25,000 Btu/hr-ft^3. In 1992, FDEP revised the CO limit for Atlantic Sugar Boiler No. 5 from 0.25 lb/MMBtu to 6.5 lb/MMBtu.

The designs of the operating sugar industry boilers shown in Table 3-1 do not include the improved residence time characteristics which are being incorporated into the recently permitted but not yet operating sugar industry boilers. This is merely a reflection of improving technologies. It is this improved residence time of the flue gases in the boiler which results in lower CO emissions. However, this does not mean that poor combustion is taking place in the older boilers. If poor combustion were taking place in the boilers, the boilers would not be able

Table 3-1. Design Parameters and EPA Method 10 CO Emissions for Sugar Industry Boilers with CO Limits

Boiler	Manufacturer	Year Installed	Boiler Type	Maximum Steam Rate (lb/hr)	Maximum Heat Input (MMBtu/hr)	Furnace Volume (ft^3)	Heat Release Rate (Btu/hr-ft^3)	CO Emissions Range (lb/MMBtu)	CO Emissions Average (lb/MMBtu)	CO Emissions Limit (lb/MMBtu)
Operating Sugar Industry Boilers										
Atlantic Boiler 5	Erie City	1982	Traveling Grate	130,000	253	9,540	26,520	N/A	N/A	6.5
Osceola Boiler 3	Not Available	1961	Cell	150,000	292	9,000	32,444	0.75-4.24	3.09	3.5
Osceola Boiler 6	Distral S.A.	1981	Traveling Grate	195,000	379	11,604	32,661	3.87-7.31	5.61	6.5
USS Clewiston Blr 4	Foster Wheeler	1985	Traveling Grate	314,757[a]	707[a]	21,245	33,278	1.53-17.49	6.48	6.5[b]
SCGC Boiler 8	Riley Stoker	1981	Traveling Grate	264,000	504	21,000	24,000	0.8-5.4	2.30	6.0 (requested)
Permitted/Not Yet Constructed Boilers										
USS Clewiston Boiler 7	—	—	Vibrating Grate	350,000	738	44,925	16,427	—	—	0.70
Okeelanta Cogen Boilers	ABB/CE	—	Vibrating Grate	455,000	715	40,700	17,568	—	—	0.35
Osceola Cogen Boilers	ABB/CE	—	Vibrating Grate	427,000	665	40,700	16,339	—	—	0.35

[a] Six-hour average.
[b] Limit proposed by FDEP, Clewiston Boiler No. 4 TE&PD, February 7, 1995.

Note: N/A = not available; no test data obtained.
Atlantic Boiler No. 5 was an existing boiler which was transferred from Florida Crystals Refinery in 1982. The original construction date is not known. The boiler was significantly modified by Atlantic Sugar at the time of installation to increase steam production.
U.S. Sugar Clewiston Boiler No. 4 was an existing coal-fired boiler when purchased. U.S. Sugar modified the boiler upon installation to accommodate bagasse fuel.

to achieve the high steam rates that they have demonstrated through years of operation, as reflected in past compliance tests. If too much fuel were being fed to the boilers, the combustion zone temperature would drop dramatically, resulting in a marked decrease in steam production. The very fact that high steam production rates are being achieved in these boilers indicates that very good combustion is taking place in the furnace. However, due to the older furnace design, the flue gas residence time in the furnace is limited; the flue gases are cooled quickly downstream of the boiler, and the unburned carbon in the gas stream cannot combust further.

The new bagasse boilers recently permitted in the sugar industry, as shown in Table 3-1, are designed to achieve very low CO levels (i.e., 0.35 lb/MMBtu). These low levels of CO are achievable through increasing the residence time of the flue gases in the boiler. As discussed previously, the heat release rate is a direct measure of the flue gas residence time within the boiler (i.e., the lower the heat release rate, the longer the residence time). The newer boiler designs are reflected in the low design heat release rates for these boilers, which are approximately 17,000 Btu/hr-ft^3. It is noted that the vendors for the new boilers have stated that the bagasse feed/air distribution system on the new boilers has little or no effect on CO emissions. The low CO emissions result from the increased residence time of the flue gases in the boiler.

It is emphasized that none of the new boilers have yet been constructed or operated. No operating bagasse boiler has achieved a CO emission rate as low as 0.35 lb/MMBtu. The design heat release rate for SCGC Boiler No. 8 is 24,000 Btu/hr-ft^3. Thus, the gas residence time in Boiler No. 8 is much less than that of these new boilers.

3.2 FLUE GAS RECIRCULATION

FGR involves recycling a portion of the flue gas back into the primary combustion zone of the boiler. A portion of the CO in the flue gas could theoretically be combusted as long as the flue gases were injected into a temperature zone that would promote CO combustion. On oil and gas-fired boilers, about 15 to 20 percent of the flue gas can be recirculated based on flame stability considerations. The overall CO reduction achievable is in the range of 15 to 20 percent.

However, FGR has not been employed as a CO control technique for boilers in general, nor for bagasse-fired boilers specifically. In regards to bagasse boilers, the amount of flue gases that could be successfully recirculated is not known. The CO reduction achievable is also not known.

The high particulate loading in the combustion gases and the abrasive nature of the flyash would make FGR very unreliable by greatly increasing wear on the boiler tubes, fans and ductwork. This would lead to increased maintenance costs. In addition, FGR would substantially affect the boiler efficiency by lowering fuel efficiency and increasing the required fan power. A reduction in steam production would result, which is not acceptable based on sugar mill operational considerations. Either sugar production would have to be reduced, or additional boiler capacity would have to be installed to replace the lost steam.

FGR is recognized as being applicable for new boilers, but has not generally been used for retrofit applications, in part due to the difficulty in retrofit applications. Depending upon the configuration of the boiler and available space, retrofitting with FGR may be impractical. In addition, the cost of the duct work, fans, redesign, and installation and operating costs would make this alternative uneconomical.

Based on economic analysis of FGR performed for U.S. Sugar Clewiston Boiler No. 7, FGR is estimated to cost approximately $1.4 million in capital cost and approximately $1.0 million per year in annual operating costs. In addition to this extremely high cost, operational difficulties would be expected with such a retrofit installation and the CO reduction achievable by an FGR system is not known. Potentially no reduction would be realized. Such a system has never been attempted on a bagasse boiler.

3.3 CATALYTIC OXIDATION

Catalytic oxidation involves the installation of a precious metal catalyst operating in a temperature range between 600 and 800°F downstream of the boiler. CO emissions are reduced by allowing the unburned CO to react with O_2 on the catalyst surface. While combustion of CO starts at approximately 300°F, efficiencies above 90 percent are achieved when the catalyst is operated at temperatures above 600°F.

Oxidation catalysts are subject to contamination from a variety of sources including halogens, sulfur compounds, zinc, arsenic, lead, mercury, and particulates. The presence of these contaminants in the flue gas stream render the catalyst ineffective over a period of time, depending upon the contaminant concentrations. The success of oxidation catalysts with natural gas firing is a direct result of the absence of contaminating materials in the combustion gases.

The flue gases of bagasse boilers have both particulate and sulfur present in quantities which would affect catalyst effectiveness.

CO oxidation catalyst system vendors have provided information which indicates no application of a catalytic oxidation system exists for bagasse-fired boilers such as Boiler No. 8. CO oxidation catalyst systems require particulate matter (PM) loading in the gas stream to be less than 0.1 lb/MMBtu and elevated temperature (>500°F). Flue gases from bagasse-fired units such as Boiler No. 8 contain a considerable amount of PM, some of which is relatively large (>100 microns). This is a result of the fibrous nature of bagasse and variability of this fuel.

Based upon the AP-42 emission factor of 15.6 lb/ton for uncontrolled PM emissions from bagasse boilers, the PM in the flue gas stream upstream of the scrubber for Boiler No. 8 would be approximately 980 lb/hr, or about 1.9 lb/MMBtu. Such a high PM loading would plug and de-activate catalyst sites. In addition, a build up of such particles on the catalyst surfaces can cause excessive heat due to continued combustion and could result in the catalyst being irreparably damaged. Although the PM loading in the flue gas stream after the scrubber approaches the necessary 0.1 lb/MMBtu level, the flue gas temperature at this point is too low (i.e., <200°F), and the moisture content is too high (approximately 25 percent) to accommodate a CO catalyst.

Based on the above discussion, a CO oxidation catalyst system is considered technically infeasible for Boiler No. 8. Even if technically feasible, the installation of an oxidation catalyst would require retrofit, including duct work modifications and installation of soot blowers. The cost of such an installation would be considerable.

3.4 FUEL DRYING

Bagasse boilers are already designed to dry the bagasse prior to combustion. This occurs in the boiler as the fuel exits from the feeders and passes down through the boiler and onto the grate or boiler floor. Hot air at approximately 450°F is blown through the grate to dry the bagasse.

There are no known add-on bagasse drying systems currently in use in the United States today. Any such system would have limited ability to reduce moisture content and would be expected to have minimal effect upon CO emissions. As discussed above, the major factor affecting CO emissions is believed to be residence time of the flue gases in the boiler. Due to the unproven

nature of this fuel drying technology, the unavailability of equipment, and the uncertainty of any CO reduction, this alternative is considered technically infeasible.

3.5 SUMMARY

This evaluation of alternative CO control technologies for SCGC Boiler No. 8 demonstrates that combustion controls are the only feasible and economical methods for minimizing CO emissions from a bagasse-fired boiler. The control alternatives of flue gas recirculation, catalytic oxidation, and fuel drying were all analyzed and were found to be technically or economically infeasible, as well as highly uncertain in terms of CO reduction potential. As a result, further BACT analysis for Boiler No. 8 will focus on combustion controls as BACT.

4.0 CO TEST DATA FROM BOILER NO. 8

SCGC conducted a CO emission test program on Boiler No. 8 during the 1993-1994 and 1994-1995 crop seasons. A compilation of the Method 10 CO test results from this program is presented in Table 4-1. The data consist of a total of 52 individual 1-hour or 2-hour CO runs conducted over 10 boiler operating days. These tests were conducted in conjunction with compliance tests for particulate matter (PM) emissions from Boiler No. 8. This is important, since the boiler must be capable of complying with both the PM emission limit and the CO emission limit at the same time.

Boiler operating conditions during the test program ranged from 398 to 500 MMBtu/hr, and from 216,600 lb/hr steam to 258,700 lb/hr steam. This range represents 80 to 100 percent of the maximum boiler design rate of 504 MMBtu/hr and 264,000 lb/hr steam. There are no stack tests available for this boiler at lower heat input rates. This is primarily because compliance tests are required to be performed at 90 to 100 percent of the maximum permitted rate.

During the test program, CO emissions ranged from 0.81 lb/MMBtu to 5.39 lb/MMBtu, with an average of 2.30 lb/MMBtu. The oxygen content of the flue gases ranged from 7.3 percent to 11.8 percent, with an average of 10.1 percent, while excess air levels ranged from 51 percent to 130 percent, with an average of 94 percent.

A review of Table 4-1 indicates that in general the CO emissions from Boiler No. 8 are relatively low (average of 2.3 lb/MMBtu) compared to other bagasse boilers. This is likely a result of the

Table 4-1. Summary of CO Test Data for Boiler No. 8, Sugar Cane Growers Cooperative

Date	Time	Steam Rate (lbs/hr)	Total Heat Input (MMBtu/hr)	CO (lbs/MMBtu)	O2 %	Excess Air (%)
12/03/93	1001-1111	236,582	457.03	5.200	7.80	57.87
12/03/93	1210-1320	255,190	492.98	4.000	7.60	55.99
12/03/93	1430-1536	251,408	485.68	5.390	8.30	64.61
12/03/93	1830-2030			3.700	8.59	69.78 [a]
12/03/93	2030-2230			3.830	8.72	71.59 [a]
12/03/93	2230-2430			3.630	9.07	76.67 [a]
12/04/93	2430-0230			3.020	9.24	79.25 [a]
12/04/93	0230-0430			3.100	8.64	70.47 [a]
12/04/93	0430-0630			2.590	10.12	93.88 [a]
12/04/93	0630-0830			2.330	9.68	86.27 [a]
12/04/93	0830-1030			3.730	8.07	62.90 [a]
12/06/93	0937-1046	258,659	500.06	3.020	7.85	57.39
12/06/93	1222-1334	255,862	494.47	2.540	7.83	57.02
12/06/93	1434-1543	258,072	498.55	3.690	7.32	51.20
12/12/94	1044-1240	216,614	398.17	1.057	11.60	122.30
12/12/94	1422-1527	228,846	424.61	1.059	10.30	95.40
12/12/94	1617-1720	249,200	467.24	2.264	10.10	91.10
12/13/94	0807-0912	234,868	435.09	1.689	11.00	107.70
12/13/94	1000-1127	249,667	467.57	0.816	10.90	106.90
12/13/94	1319-1424	246,892	468.93	1.396	10.40	96.70
12/13/94	1525-1641	255,862	486.76	0.811	10.80	105.10
12/14/94	0903-1011	242,500	458.57	1.730	10.70	103.50
12/14/94	1133-1238	234,535	445.05	1.790	10.80	104.70
12/14/94	1330-1438	252,000	472.28	2.760	9.90	88.40
01/05/95	1204-1407	248,031	458.79	3.871	9.90	87.60
01/05/95	1456-1603	243,000	451.94	2.273	10.20	91.90
01/05/95	1635-1742	242,813	450.91	3.607	10.20	91.90
01/06/95	0942-1050	239,577	448.63	1.434	10.80	104.10
01/06/95	1223-1328	258,197	481.14	2.183	10.10	91.40
01/06/95	1429-1534	253,151	470.69	2.205	10.00	88.90
01/09/95	0931-1036	245,000	455.69	1.701	10.33	94.20
01/09/95	1122-1228	239,167	444.58	1.537	10.46	95.80
01/09/95	1347-1452	241,818	449.74	2.043	10.46	97.10
01/09/95	1640-1740			1.779	11.07	112.61 [a]
01/09/95	1740-1840			1.847	11.53	123.05 [a]
01/09/95	1840-1940			1.844	11.25	116.58 [a]
01/09/95	1940-2040			1.526	11.02	111.54 [a]
01/09/95	2040-2140			2.230	10.90	109.00 [a]
01/09/95	2140-2240			1.365	10.86	108.17 [a]
01/09/95	2240-2340			2.465	10.81	107.14 [a]
01/09/95	2340-2440			1.693	11.77	128.92 [a]
01/10/95	2440-0140			1.402	10.95	110.05 [a]
01/10/95	0140-0240			1.545	10.95	110.05 [a]
01/10/95	0240-0340			1.791	10.58	102.52 [a]
01/10/95	0340-0440			1.869	10.65	103.90 [a]
01/10/95	0440-0540			1.825	10.80	106.93 [a]
01/10/95	0540-0640			1.896	11.02	111.54 [a]
01/10/95	0640-0740			1.888	11.02	111.54 [a]
01/10/95	0740-0840			2.662	10.30	97.17 [a]
01/10/95	0919-1025	243,971	450.08	1.094	10.80	103.30
01/10/95	1212-1316	252,000	468.81	1.500	10.80	103.30
01/10/95	1404-1506	250,147	462.95	1.396	11.10	109.10
			Minimum =	0.811	7.32	51.20
			Average =	2.300	10.11	94.35
			Maximum =	5.390	11.77	128.92

[a] Excess air was calculated using the following formula:
% Excess Air = [(20.9/(20.9-%O2))-1]*100

relatively low heat release rate (24,000 Btu/hr-ft^2) of Boiler No. 8, which results in relatively longer flue gas residence time in the boiler. However, the data also indicate that hourly CO emissions could range up to 5.4 lb/MMBtu. A larger number of CO test runs would invariably lead to higher maximum 1-hour CO emissions, based on the variability of bagasse fuel.

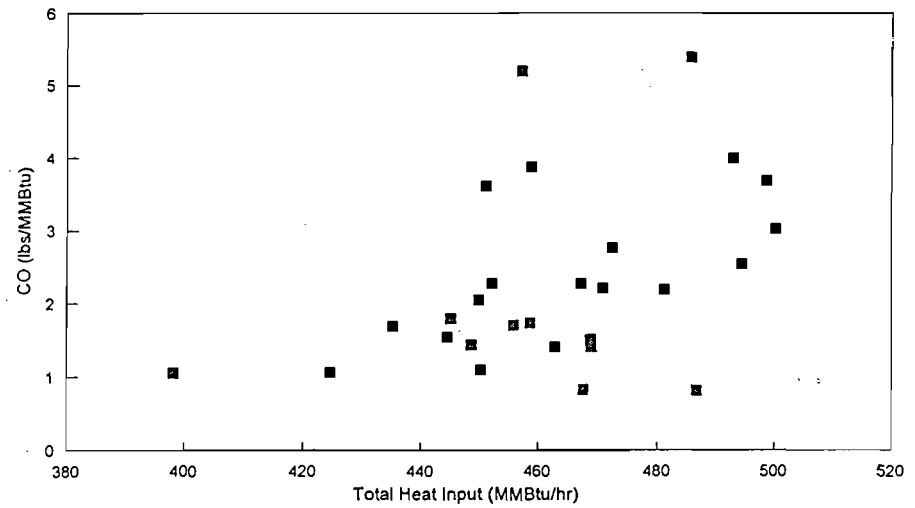
To further understand the relationship between boiler operating parameters and CO emissions, plots of CO emissions versus steam rate, heat input rate, flue gas O_2 content, and excess air were developed. These are presented in Figure 4-1. No relationship between CO emissions and steam rate or heat input rate is indicated from the plots. This indicates that boiler operating load, over the load range during testing (80 percent to 100 percent), does not affect CO emissions.

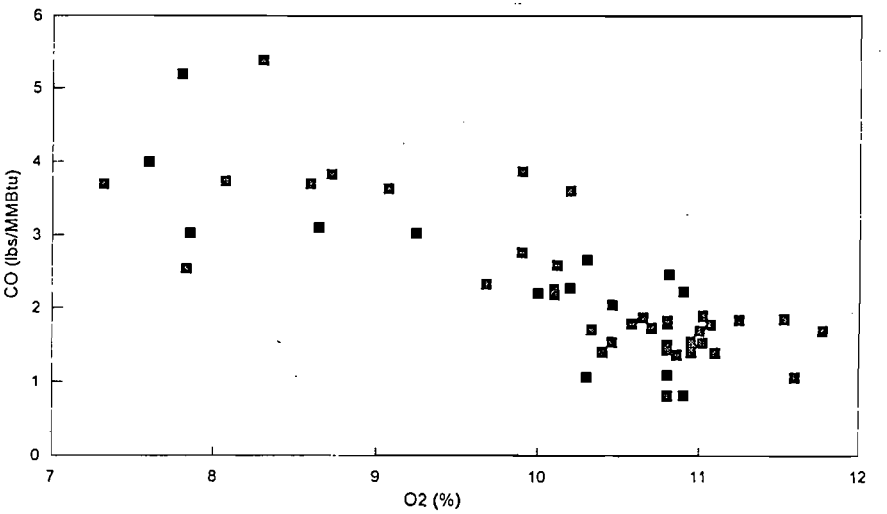
The plots in Figure 4-1 also indicate there is not a significant relationship between CO emissions and flue gas O_2 levels or excess air. Although the general trend indicates a decrease in CO with increasing O_2 and excess air, the data is too variable to conclude there is a relationship between these parameters. The variability in CO emissions at all O_2 levels is large, and high CO emissions could be experienced even at high O_2 levels. Based on evaluation of the CO test data, it is concluded that controlling O_2 or excess air cannot be used as a basis for controlling CO emissions from Boiler No. 8.

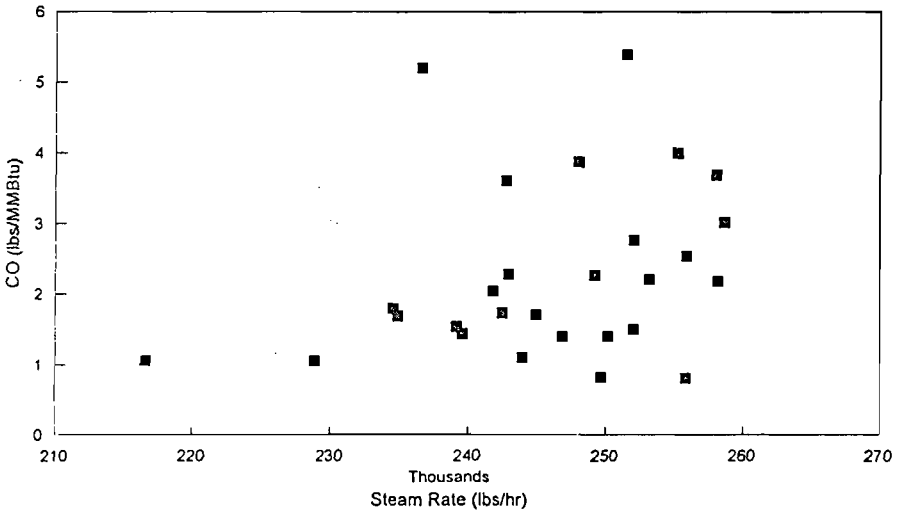
Based on the CO test data from Boiler No. 8, which displayed CO emissions of up to 5.4 lb/MMBtu during the test program, a CO emission limit of 6.0 lb/MMBtu is considered achievable. A lower CO limit may not be achievable due to the variability in CO emissions on a short-term basis, which is a result of the variability of bagasse fuel.

5.0 CONCLUSIONS AND PROPOSED BACT

The evaluation of alternative CO control technologies for SCGC Boiler No. 8 demonstrates that combustion controls are the only feasible and economical methods for minimizing CO emissions from a bagasse-fired boiler. Increasing the residence time of the flue gases in Boiler No. 8 could lead to lower CO emissions. In order to increase the residence time of flue gases in Boiler No. 8, the boiler would have to be derated from its design conditions (i.e., maximum steam production reduced). However, this is unacceptable from a process standpoint since Boiler No. 8 must be operated at or near its maximum to provide the necessary steam to the sugar mill.







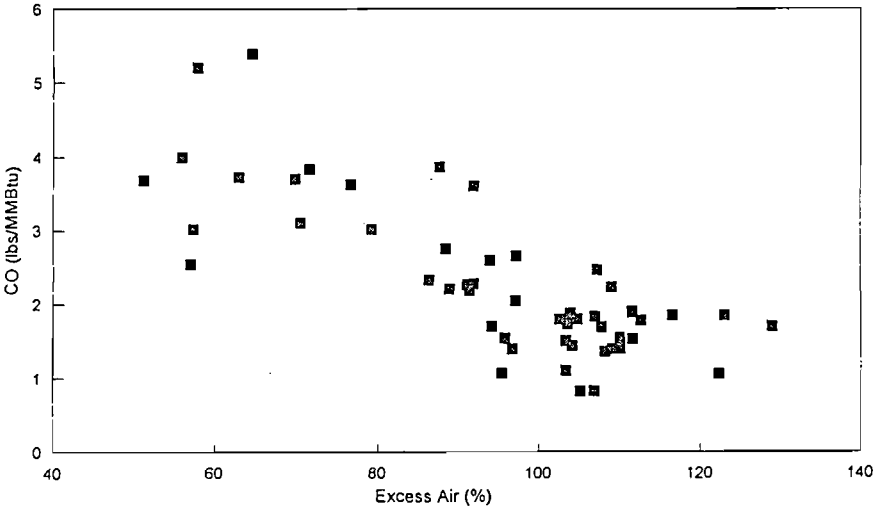


Figure 4-1
Comparison of CO Emissions and Operating Parameters
SCGC Boiler No. 8

SCGC has conducted a test program on Boiler No. 8 in order to determine the effects on CO emissions, if any, of combustion controls (i.e., boiler operating conditions). This program showed that there is no definitive relationship between boiler operating parameters and CO emissions. Based on the test data, SCGC is proposing a BACT CO emission limit of 6.0 lb/MMBtu, using EPA Method 10 testing. Although on average much lower CO emissions are expected (average of 3.0 lb/MMBtu or less), SCGC must meet any revised CO emission limit at all times and under all operating conditions. Based on the variability of the test data and known variability of bagasse fuel, and considering significant penalties for non-compliance, a high CO limit is necessary. BACT is good combustion control to limit CO emissions to the extent practicable.

In implementing "good combustion practices", it is recognized that a bagasse boiler operator's first responsibility is operating the boiler as efficiently as possible to get as complete combustion of the bagasse fuel as possible. This may mean either increasing or decreasing the excess air, as dictated by the fuel characteristics. In either case, operating as efficiently as possible will result in minimizing emissions of PM, CO and volatile organic compounds (VOC).

In requesting that the CO emission limit for Boiler No. 8 be revised, SCGC is not requesting any modification to the existing control technology or requirements. CO emissions will continue to be limited by the implementation of good combustion practices. All previous BACT determinations for CO emissions from bagasse boilers have been based upon the use of good combustion practices, rather than add-on control systems. This includes BACT determinations for CO emissions issued in 1988, 1992 and 1995. SCGC's proposed technology is consistent with all previous determinations. To require add-on control technology or other costly alternatives would be unduly burdensome and unfair to SCGC.

In determining BACT for a specific source, FDEP rules require the FDEP to consider prior BACT determinations for similar sources as well as other factors, including economic impacts of potential control technologies. In that regard, no other existing bagasse boiler in Florida has been required to implement add-on or retrofit technology as BACT for CO emissions. The four other BACT's issued to date for existing bagasse boilers have specified CO limits up to 6.5 lb/MMBtu with the use of good combustion practices. SCGC is requesting the same BACT technology but a somewhat lower limit than these previous BACT determinations. It would be inconsistent with

prior BACT determinations and blatantly unfair to require SCGC to implement costly controls, particularly considering the unproven nature of any such controls on bagasse boilers.

In conclusion, good combustion practices are proposed as BACT for CO emissions from SCGC Boiler No. 8 when firing bagasse, bagasse residue, or oil. Because of its ability to reduce both NO_x and VOC emissions, along with its successful record in the sugar industry, good combustion practices, including overfire air and high excess air rates, are proposed as BACT for CO emissions from SCGC Boiler No. 8.

ATTACHMENT B

CO AIR QUALITY IMPACT ANALYSIS

ATTACHMENT B
CO AIR QUALITY IMPACT ANALYSIS

1.0 METHODOLOGY

1.1 GENERAL MODELING APPROACH AND SELECTION

General Modeling Approach

The general modeling approach used for the SCGC Boiler No. 8 CO analysis follows EPA and FDEP air modeling guidelines. First, the predicted impacts of Boiler No. 8 are analyzed to determine if it alone has a significant impact. The highest predicted concentrations are compared with significant impact levels. If the significant impact levels are exceeded for CO, current policies stipulate that the highest-second highest (HSH) short-term (i.e., 24 hours or less) CO concentrations can be compared with ambient air quality standards (AAQS) when 5 years of meteorological data are used. The HSH concentration is calculated for a receptor field by:

1. Eliminating the highest concentration predicted at each receptor
2. Identifying the second-highest concentration at each receptor
3. Selecting the highest concentration among these second-highest concentrations

This approach is consistent with the development of AAQS, which permit a short-term average concentration to be exceeded once per year at each receptor.

To develop the maximum short-term concentrations, the general modeling approach is divided into screening and refined phases to reduce the computation time required to perform the modeling analysis. The only difference between the two phases is the receptor grid used when predicting concentrations.

Concentrations for the screening phase were predicted using a coarse receptor grid and a 5-year meteorological record. After a final list of maximum annual and short-term average concentrations was developed, the refined phase of the analysis was conducted by predicting concentrations for a refined receptor grid centered on the receptor at which the HSH concentration from the screening phase was produced. Next, the air dispersion model was executed for the entire year during which HSH concentrations were predicted. This approach is used to ensure that valid HSH concentrations are obtained. More detailed descriptions of the

emission inventory and receptor grids used in the screening and refined phases of the analysis are presented in the following sections.

Model Selection

The selection of the appropriate air dispersion model is based on its ability to simulate impacts in areas surrounding the plant site. Within 50 km (31 miles) of the SCGC site, the terrain can be described as simple (i.e., flat to gently rolling). As defined in the EPA modeling guidelines, simple terrain is considered to be an area where the terrain features are all lower in elevation than the top of the stack(s) under evaluation. Therefore, a simple terrain model has been selected to predict maximum ground-level concentrations.

The Industrial Source Complex (ISC2) dispersion modeling system (EPA, 1993) has been selected to evaluate the pollutant emissions from Boiler No. 8 and other modeled sources. This model is contained on EPA's Technology Transfer Network (TTN) Bulletin Board Service. The ISC2 model is applicable to sources located in either flat or rolling terrain where terrain heights do not exceed stack heights.

The ISC2 model consists of two sets of computer codes that are used to calculate short- and long-term ground-level concentrations. The main differences between the two codes are the input format of the meteorological data and the method of estimating the plume's horizontal dispersion.

The first model code, the ISC2 short-term (ISCST2) model, is an extended version of the single-source (CRSTER) model (EPA, 1977). The ISCST2 model is designed to calculate hourly concentrations based on hourly meteorological parameters (i.e., wind direction, wind speed, atmospheric stability, ambient temperature, and mixing heights). The hourly concentrations are processed into non-overlapping, short-term, and annual averaging periods.

The second model code within the ISC2 model is the ISC2 long-term (ISCLT2) model. The ISCLT2 model uses the joint frequencies of occurrences of meteorological parameters to calculate seasonal and/or annual average ground-level concentrations.

In this analysis, the ISCST2 model, Version 93109, was used to calculate both short-term and annual average concentrations. This is the latest approved version of the ISCST2 model. Major features of the ISCST2 model are shown in Table 1-1.

The criteria used to determine when the rural or urban mode (which affects the dispersion parameters) is appropriate are based on land use near the proposed plant's surroundings (Auer, 1978). If the land use is classified as heavy industrial, light-moderate industrial, commercial, or compact residential for more than 50 percent of the area within a 3-km (1.9-mile) radius circle centered on the proposed source, the urban option should be selected. Otherwise, the rural option is more appropriate.

Based on reviews of aerial and U.S. Geological Survey (USGS) topographical maps and a site visit, the land use within a 3-km (1.9-mile) radius of the SCGC mill site is considered to be rural (i.e., very little heavy industrial, light-moderate industrial, commercial, or compact residential land use categories). Therefore, the rural mode was used in the air dispersion model to predict impacts from the SCGC facility and other emission sources considered in the modeling analysis.

For the AAQS analysis, the sources and receptors were assumed to be located in flat terrain (no terrain elevations used).

For modeling analyses that will undergo regulatory review, such as PSD permit applications, the following model features are recommended by EPA (1993) for rural mode and are referred to as the regulatory options in the ISCST2 model:

1. Final plume rise at all receptor locations,
2. Stack-tip downwash,
3. Buoyancy-induced dispersion,
4. Default wind speed profile coefficients for rural or urban option,
5. Default vertical potential temperature gradients,
6. Calm wind processing, and
7. Reducing calculated SO_2 concentrations in urban areas by using a decay half-life of 4 hours (i.e., reduce the SO_2 concentration emitted by 50 percent for every 4 hours of plume travel time).

Table 1-1. Major Features of the ISCST2 Model

ISCST2 Model Features
• Polar or Cartesian coordinate systems for receptor locations
• Rural or one of three urban options which affect wind speed profile exponent, dispersion rates, and mixing height calculations
• Plume rise due to momentum and buoyancy as a function of downwind distance for stack emissions (Briggs, 1969, 1971, 1973, and 1975)
• Procedures suggested by Huber and Snyder (1976); Huber (1977); and Schulman and Scire (1980) for evaluating building wake effects
• Procedures suggested by Briggs (1974) for evaluating stack-tip downwash
• Separation of multiple point sources
• Consideration of the effects of gravitational settling and dry deposition on ambient particulate concentrations
• Capability of simulating point, line, volume and area sources
• Capability to calculate dry deposition
• Variation of wind speed with height (wind speed-profile exponent law)
• Concentration estimates for 1-hour to annual average times
• Terrain-adjustment procedures for elevated terrain including a terrain truncation algorithm
• Consideration of time-dependent exponential decay of pollutants
• The method of Pasquill (1976) to account for buoyancy-induced dispersion
• A regulatory default option to set various model options and parameters to EPA recommended values (see text for regulatory options used)
• Procedure for calm-wind processing
• Wind speeds less than 1 m/s are set to 1 m/s.

Note: ISCST2 = Industrial Source Complex Short-Term.

Source: EPA, 1992a.

In this analysis, the EPA regulatory options were used to address maximum impacts.

1.2 METEOROLOGICAL DATA

Meteorological data used in the ISCST2 model were based on those data recommended and approved for use by FDEP and used in recent PSD permit applications for sources located near the project site. The meteorological data used to determine air quality impacts consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper-air soundings from the National Weather Service (NWS) station at West Palm Beach International Airport. The 5-year period of meteorological data was from 1982 through 1986. The NWS station in West Palm Beach is located approximately 53 km (33 miles) east of the site and is the closest primary weather station to the study area considered to have meteorological data representative of the project site. This station has surrounding topographical features similar to the project site and the most readily available and complete database.

The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling height. The wind speed, cloud cover, and cloud ceiling values were used in the ISCST2 meteorological preprocessor program to determine atmospheric stability using the Turner stability scheme. Based on the temperature measurements at morning and afternoon, mixing heights were calculated from the radiosonde data at West Palm Beach using the Holzworth approach (Holzworth, 1972). Hourly mixing heights were derived from the morning and afternoon mixing heights using the interpolation method developed by EPA (Holzworth, 1972).

The hourly surface data and mixing heights were used to develop a sequential series of hourly meteorological data (i.e., wind direction, wind speed, temperature, stability, and mixing heights). Because the observed hourly wind directions at the NWS stations are classified into one of thirty-six 10-degree sectors, the wind directions were randomized within each sector to account for the expected variability in air flow. These calculations were performed using the EPA RAMMET meteorological preprocessor program.

1.3 EMISSION INVENTORY

1.3.1 SCGC CO Inventory

Stack and operating parameters and CO emission rates for the SCGC boilers were developed from stack test data and permit information supplied by SCGC. The data used in the air dispersion

modeling for the SCGC facility are presented in Table 1-2. Also shown in Table 1-2 are the maximum heat input rates to each boiler and the normal fuel type. Boilers 1 and 2 at SCGC normally burn residue only, while Boilers 3 and 8 normally burn bagasse only. Boiler 4 normally burns about 80 percent residue and 20 percent bagasse, while Boiler 5 normally burns a 50/50 mixture of residue and bagasse.

The SCGC sources modeled reflect Boilers No. 3 and No. 5 stacks raised from their current stack heights of 80 ft to a stack height of 150 ft. SCGC will be implementing the stack height increase in the immediate future.

CO emissions are presented in Table 1-2 for both 1-hour and 8-hour averaging times, consistent with the averaging times associated with the CO AAQS. For Boiler No. 8, the CO emissions for both averaging times is the proposed CO emission rate of 6.0 lb/MMBtu. For all other boilers, the CO emission rate is based on actual CO stack test results available for the boilers. CO test data were obtained for the boilers as part of compliance testing conducted at SCGC for particulate matter emissions. These test data, presented in Appendix A, were obtained while firing the normal fuel mix (bagasse, residue, or bagasse/residue). Based on the test data, actual maximum 1-hour and 8-hour average CO emission rates were determined. These rates were used in the CO modeling analysis and are presented in Table 1-2.

1.3.2 Other CO Emission Sources

For the AAQS analysis, preliminary modeling showed that predicted impacts due to the proposed Boiler No. 8 modification are above the significant impact levels for CO. Therefore, further modeling for CO was conducted. The maximum CO impacts due to Boiler No. 8 are predicted to be greater than the significant impact levels to a distance of approximately 5 km (3.0 mile) from the facility. This distance was used to limit receptor locations and background sources to be modeled.

The emission inventory for CO was developed from available databases, such as FDEP's Air Pollution Inventory System (APIS), previous studies performed by KBN, and air permit data. Emission inventories of background sources were developed for the proposed source's modeling

Table 1-2. CO Emissions and Stack Parameters for SCGC Mill Sources

Boiler	Maximum Heat Input (MMBtu/hr)			CO Emissions - 1 hr			CO Emissions - 8 hr			Stack Parameters								
										Height		Diameter		Flow	Velocity		Temperature	
	Bagasse	Residue	Total	lb/MMBtu	lb/hr	g/sec	lb/MMBtu	lb/hr	g/sec	(ft)	(m)	(ft)	(m)	(acfm)	(ft/sec)	(m/sec)	(F)	(K)
1	0.0	251.5	251.5	0.70	176	22.2	0.60	151	19.0	80	24.4	4.33 [a]	1.32 [a]	49,000 [a]	55.5 [a]	16.90 [a]	150	339
2	0.0	251.5	251.5	1.50	377	47.5	1.00	251	31.7	80	24.4	4.33 [a]	1.32 [a]	49,000 [a]	55.5 [a]	16.90 [a]	150	339
3	228.6	0.0	228.6	4.70	1,075	135.4	2.10	480	60.5	150	45.7	5.30	1.62	102,000	77.1	23.49	150	339
4	105.7	422.8	528.4	1.10	581	73.2	0.40	211	26.6	110	33.5	9.46	2.88	220,000	52.2	15.90	150	339
5	193.7	193.7	387.5	3.00	1,162	146.5	1.00	387	48.8	150	45.7	7.54 [c]	2.30	140,000	52.3	15.93	150	339
8	504.0	0.0	504.0	6.00	3,024	381.0	6.00	3,024	381.0	155	47.2	9.5	2.90	191,600	45.1	13.73	150	339
Totals	1032.1	1119.4	2151.5		6,396	805.8		4,505	567.7									

CO emissions computed as the product of maximum heat input rate (MMBtu/hr) x CO emission factor (lb/MMBtu)

[a] Boiler has two identical stacks; data shown are for each stack.

[b] Existing stack height is 80 ft.

[c] Existing configuration: Boiler has two identical stacks, each 80 ft tall and 5.33 ft in diameter.

area and screening area. The modeling area is defined as the significant impact area for the proposed source. The screening area extends 50 km (31 miles) beyond the modeling area.

Within the modeling area, cumulative impact analyses were performed for SCGC Boiler No. 8 and all identified background sources located in the modeling and screening areas.

FDEP has approved a technique for eliminating sources in the modeling analyses if the source's emissions do not meet an emission criterion. The technique is the *Screening Threshold* method, developed by the North Carolina Department of Natural Resources and Community Development, and approved by EPA. The method is designed to objectively eliminate from the emission inventory those sources that are unlikely to have a significant interaction with the source undergoing evaluation. In general, sources that should be considered in the modeling analyses are those with emissions greater than a screening threshold value (in TPY) that is calculated by the following criteria:

$$Q = 20 \times D$$

where Q = the screening threshold value (TPY), and
D = The distance (km) from the proposed facility to the source undergoing evaluation for short-term analysis, or
The distance (km) from the edge of the proposed facility's significant impact area to the source undergoing evaluation for long-term (annual) analysis.

For this analysis, the long-term criterion was used since fewer facilities would be eliminated than with the short-term criterion. Also, the total emissions from a facility were used rather than emissions from individual sources for comparison to the screening threshold value. These methods result in a more conservative approach to produce higher-than-expected concentrations. Those facilities with maximum allowable emissions that are below the calculated *screening threshold* were eliminated from further consideration in the AAQS modeling analyses.

A summary of all facilities, their locations with respect to SCGC, their maximum CO emissions, and the calculated screening threshold are provided in Table 1-3. The existing QO Chemicals facility was the only facility located within the proposed modification's significant impact area

Table 1–3. CO Screening Analysis for the AAQS Inventory for Sugar Cane Growers Cooperative

Facility Name	UTM Coordinates (km) E	UTM Coordinates (km) N	Relative Distance to SCGC (km) X	Relative Distance to SCGC (km) Y	Distance to SCGC Mill (km)	Direction (degrees)	Screening Emission Threshold (TPY) [a]	Maximum Allowable Emissions (TPY)	Included in AAQS Modeling Analysis?
QO CHEMICALS, INC.	534.8	2953.8	−0.1	0.5	0.5	349	[b]	23	YES
U S SUGAR CORP BRYANT	538.8	2968.1	3.9	14.8	15.3	15	206	41,414	YES
OKEELANTA CORP	525.0	2939.4	−9.9	−13.9	17.1	215	241	45,766	YES
OSCEOLA FARMS	544.2	2968.0	9.3	14.7	17.4	32	248	28,969	YES
ATLANTIC SUGAR ASSOCIATION	552.9	2945.2	18.0	−8.1	19.7	114	295	25,979	YES
TALISMAN SUGAR CORPORATION	531.5	2928.4	−3.4	−24.9	25.1	188	403	19,233	YES
U S SUGAR CORP CLEWISTON	505.9	2956.9	−29.0	3.6	29.2	277	484	52,706	YES
PRATT & WHITNEY	567.5	2975.0	32.6	21.7	39.2	56	683	106	NO
PARKWAY ASPHALT	582.9	2951.4	48.0	−1.9	48.0	92	861	33	NO
FLORIDA GAS TRANSMISSION	584.3	2957.0	49.4	3.7	49.5	86	891	28	NO
PALM BEACH CO SW AUTHORITY	585.8	2960.5	50.9	7.2	51.4	82	928	1,562	YES

Note: All facilities with a total maximum allowable CO emissions of more than 20 TPY that are within 55 km of the facility are included in the screening analysis unless the facility is within 5 km of SCGC.

Facility UTM coordinates (km): 534.9 2953.3
Screening area is 55 km from SCGC Mill

[a] Screening emissions threshold is 20 x (Distance to facility – 5), based on North Carolina Screening Method.
[b] Sources within 5 km of the facility are modeled without regard to the screening criteria.

[i.e., 5 km (3.0 mile)]. As a result, it was not subject to the screening analysis and was included in the CO modeling analyses. Those facilities eliminated from the modeling analysis using the screening threshold technique are noted in Table 1-3. For all facilities that were not eliminated, the individual source emissions, stack, and operating parameters for the AAQS modeling analysis were developed.

Summaries of all CO sources, including all the combined sources used in the modeling analysis, are presented in Table 1-4. The CO emissions due to sugar boiler sources used in the modeling analysis are based on a 9.0 lb CO/MMBtu factor. This is a very conservative emission factor based on industry CO test data. Emissions due to other sources are based on FDEP data including current permit limits for QO Chemicals.

1.4 RECEPTOR LOCATIONS

The general modeling approach used screening and refined phases to address compliance with AAQS. Impacts were calculated at ambient air locations only (i.e., beyond areas with restricted access, such as fenced locations and areas patrolled by security guards). Therefore, general grid receptors located on restricted-access property were excluded from the analysis. For the screening phase, concentrations were predicted for the following receptor locations:

1. For determination of the Boiler No. 8 significant impact area and maximum impacts, the initial receptor grid consisted of receptors located at the plant property boundaries and at distances of 1,000, 2,000, 3,000, 4,000, 5,000, 6,000, 8,000, and 10,000 m along 36 radials with each radial spaced at 10-degree increments. This grid was centered on SCGC Boiler No. 8 stack location.
2. For the CO AAQS analysis, 353 receptors were located in radial grids centered on the Boiler No. 8 stack location. These receptors are classified into two main groups:
    a. 36 plant property receptors placed at the nearest plant boundary along 36 radials spaced at 10-degree increments (additional receptors were located near the plant property at the closest distances at which the model could calculate a concentration).
    b. 317 general grid receptors located from the source at distances of 100, 200, 400, 600, 800, 1,000, 2,000, 3,000, 4,000, and 5,000 m along 36 radials with each radial spaced at 10-degree increments.

Table 1–4. Summary of CO Emissions and Stack Parameters for Interacting Sources Included in the Modeling Analysis

APIS #	Facility/Source	Heat Input Rate (MMBtu/Hr)	CO Emission Rate (lb/MMBtu)	CO Emission Rate (lb/hr)	CO Emission Rate (g/s)	Stack Height (m)	Stack Height (ft)	Stack Diameter (m)	Stack Diameter (ft)	Stack Temp (K)	Stack Temp (F)	Stack Velocity (m/s)	Stack Velocity (ft/s)
52FTM500005	Okeelanta												
	Boiler 4	181.42	9.00	1,632.78	205.73	22.90	75	2.29	7.50	333.20	140	7.36	24.15
	Boiler 5	235.51	9.00	2,119.60	267.07	22.90	75	2.29	7.50	333.20	140	12.07	39.60
	Boiler 6	239.95	9.00	2,159.52	272.10	22.90	75	2.29	7.50	334.30	142	8.74	28.68
	Boiler 10	252.05	9.00	2,268.41	285.82	22.90	75	2.29	7.50	334.30	142	10.35	33.96
	Boiler 11	252.05	9.00	2,268.41	285.82	22.90	75	2.29	7.50	341.50	155	9.89	32.45
	Boiler 12	302.45	9.00	2,722.06	342.98	22.90	75	2.29	7.50	329.80	134	8.16	26.77
	Boiler 14	302.45	9.00	2,722.06	342.98	22.90	75	2.29	7.50	333.20	140	8.28	27.17
	Boiler 15	252.05	9.00	2,268.41	285.82	22.90	75	2.29	7.50	332.00	138	10.23	33.56
52FTM500019	Osceola Farms												
	Boiler 2	280.00	9.00	2,520.00	317.52	25.00	82	1.52	5.00	341.00	154	18.10	59.39
	Boiler 3	292.00	3.50	1,021.98	128.77	21.90	72	1.93	6.33	341.00	154	14.50	47.57
	Boiler 4	280.00	9.00	2,520.00	317.52	25.00	82	1.83	6.00	341.00	154	18.80	61.68
	Boiler 5	330.00	9.00	2,970.00	374.22	25.00	82	1.52	5.00	341.00	154	14.90	48.89
	Boiler 6	379.00	6.50	2,463.49	310.40	27.40	90	1.93	6.33	341.00	154	14.90	48.89
52FTM500061	US Sugar Corp, Bryant												
	Boiler 1	385.00	9.00	3,465.00	436.59	19.80	65	1.64	5.38	342.00	156	36.40	119.43
	Boiler 2	385.00	9.00	3,465.00	436.59	19.80	65	1.64	5.38	342.00	156	36.40	119.43
	Boiler 3	385.00	9.00	3,465.00	436.59	19.80	65	1.64	5.38	342.00	156	36.40	119.43
	Boiler 5	671.00	9.00	6,038.97	760.91	42.70	140	2.90	9.51	345.00	161	11.49	37.70
52FTM500016	Atlantic Sugar												
	Boiler 1	214.00	9.00	1,926.03	242.68	18.90	62	1.92	6.30	346.00	163	12.70	41.67
	Boiler 2	214.00	9.00	1,926.03	242.68	18.90	62	1.92	6.30	342.00	156	10.90	35.76
	Boiler 3	260.00	9.00	2,340.00	294.84	21.90	72	1.83	6.00	341.00	154	17.50	57.42
	Boiler 4	275.00	9.00	2,475.00	311.85	18.30	60	1.83	6.00	344.00	159	15.00	49.22
	Boiler 5	252.65	6.50	1,642.22	206.92	27.40	90	1.68	5.51	339.00	150	15.70	51.51
52FTM500073	Talisman Sugar												
	Boiler 4	224.00	9.00	2,016.03	254.02	21.30	70	1.59	5.22	336.00	145	22.90	75.13
	Boiler 5	224.00	9.00	2,016.03	254.02	21.30	70	1.59	5.22	336.00	145	22.90	75.13
	Boiler 6	400.00	9.00	3,600.00	453.60	22.90	75	3.05	10.00	361.00	190	9.10	29.86
52FTM260003	US Sugar Corp, Clewiston												
	Boiler 1	495.60	9.00	4460.40	562.01	22.90	75	1.86	6.10	344.30	160	24.36	79.93
	Boiler 2	495.60	9.00	4460.40	562.01	22.90	75	1.86	6.10	344.30	160	26.76	87.80
	Boiler 3	342.00	9.00	3078.00	387.83	22.90	75	2.29	7.51	341.50	155	14.07	46.16
	Boiler 4	706.60	9.00	6359.40	801.28	45.70	150	2.50	8.20	340.90	154	17.94	58.86
	Boiler 5	140.10	9.00	1260.90	158.87	19.80	65	1.83	6.00	336.50	146	10.69	35.07
	Boiler 6	144.00	9.00	1296.00	163.30	19.80	65	1.83	6.00	340.90	154	10.33	33.89
52FTM500018	QO Chemicals												
	South Superheater	--	--	2.25	0.28	35.05	115	1.22	4.00	1033.20	1400	4.22	13.85
	North Superheater	--	--	2.25	0.28	35.05	115	1.22	4.00	1033.20	1400	4.22	13.85
	Central Superheater	--	--	2.25	0.28	35.05	115	1.22	4.00	588.70	600	4.84	15.88
50WPB500234	Palm Beach County												
	RDF Boiler 1	--	--	178.27	22.46	76.20	250	2.04	6.70	505.40	450	24.99	81.97
	RDF Boiler 2	--	--	178.27	22.46	76.20	250	2.04	6.70	505.40	450	24.99	81.97

A list of the property boundary screening receptors for SCGC is presented in Table 1-5.

After the screening modeling was completed, refined modeling was conducted using a receptor grid centered on the receptor that had the highest annual and highest short-term concentration from the screening analysis. The receptors were located at intervals of 100 m between the distances considered in the screening phase, along 9 radials spaced at 2-degree increments, centered on the radial along which the maximum concentration was produced. For example, if the maximum concentration was produced along the 90-degree radial at a distance of 0.8 km, the refined receptor grid would consist of receptors at the following locations:

Directions (degrees)	Distance (km)
82, 84, 86, 88, 90, 92, 94	0.6, 0.7, 0.8, 0.9, and 1.0 per direction

To ensure that a valid maximum concentration is calculated, concentrations were predicted using the refined grid for the entire year that produced the highest concentration from the screening receptor grid. Modeling refinements may not be performed if the maximum screening receptor is spaced less 100 m.

1.5 BUILDING DOWNWASH EFFECTS

Based on the building dimensions associated with buildings and structures at the plant, all stacks at SCGC (i.e., Boiler Nos. 1 through 5 and 8) will comply with the GEP stack height regulations. However, these stacks will be less than GEP. Therefore, the potential for building downwash to occur was considered in the modeling analysis for these stacks.

The ISC model uses two procedures to address the effects of building downwash. For both methods the direction-specific building dimensions are input for H_b and l_b for 36 radial directions, with each direction representing a 10-degree sector, which uses these parameters to modify the dispersion parameters. The H_b is the building height and l_b is the lesser of the building height or projected width. For short stacks (i.e., physical stack height is less than $H_b + 0.5\ l_b$), the Schulman and Scire (1980) method is used. The features of the Schulman and Scire method are as follows:

Table 1–5. Sugar Cane Growers Cooperative Plant Property Boundary Receptors

Downwind Distance (m)	Radial Direction (deg)	Downwind Distance (m)	Radial Direction (deg)
81	10	760	190
85	20	386	200
92	30	264	210
104	40	205	220
124	50	172	230
241	60	152	240
222	70	140	250
212	80	134	260
209	90	132	270
212	100	134	280
222	110	140	290
241	120	152	300
273	130	124	310
325	140	104	320
418	150	92	330
611	160	85	340
951	170	81	350
937	180	80	360

Note: All receptor locations are with respect to Boiler No.8 stack location.

1. Reduced plume rise as a result of initial plume dilution,
2. Enhanced plume spread as a linear function of the effective plume height, and
3. Specification of building dimensions as a function of wind direction.

For cases where the physical stack is greater than $H_b + 0.5\ l_b$ but less than GEP, the Huber-Snyder (1976) method is used.

The building dimensions considered in the modeling analysis are presented in Table 1-6. The Building Profile Input Program (BPIP), Version 95039, was used to generate building data for model input. A detailed listing of direction-specific building data used in the modeling analysis is given in Appendix B.

1.6 BACKGROUND CONCENTRATIONS

Background concentrations are concentrations due to sources not explicitly included in the modeling analysis. Background concentrations were developed from ambient monitoring data. Existing ambient CO data for the monitoring stations nearest to SCGC are presented in Table 1-7. These stations are located in West Palm Beach about 50 miles east of the facility. Data are presented for the years 1991-1993.

The CO data from these air monitoring stations are not considered to be representative of conditions in Belle Glade. Due to the location of SCGC in Belle Glade, and relatively low population and traffic density for approximately 50 miles in all directions, it is expected that CO concentrations in West Palm Beach will be much higher than near SCGC. Therefore, published data for rural area background values of CO have been reviewed to determine a more representative value. As stated in the 1992 State of Florida Air Quality Report (FDEP, 1993), the background value for CO in areas of low vehicle traffic can be assumed to be 0.5 ppm, or 575 $\mu g/m^3$. These background levels were added to model-predicted concentrations to estimate total air quality levels for comparison to AAQS.

1.7 AAQS COMPLIANCE ANALYSIS

Maximum total air quality CO impacts were compared to the applicable national and state AAQS. The AAQS are 40,000 $\mu g/m^3$ for a 1-hour average, and 10,000 $\mu g/m^3$ for an 8-hour average. Total air quality impacts are based on adding the maximum model-predicted impacts from the

Table 1-6. Dimensions of Building Structures Considered in the Downwash Analysis for SCGC

Facility	Elevation[a] (ft)	Length[b] (ft)	Width[c] (ft)
Boiler No. 8 Building	78	77	49
Boiler Nos. 4 and 5 Building	76	65	93
Boiler Nos. 1, 2, and 3 Building	58	46	155
East and West Mill Building	66	174	228
Boiling House	102	232	50
Quaker Oats	106	77	73
Sugar House No. 1	81	163	558

Note: feet (ft) x 0.305 = meters (m).

[a] Above ground surface.
[b] East-west dimension.
[c] North-south dimension.

Table 1-7. Summary of Ambient Carbon Monoxide Data for Sites Nearest the Sugar Cane Growers Cooperative Mill

SAROAD Site No.	Site Location	Monitoring Method	Period	Number of Observations	1-Hr Second Highest (ppm)	1-Hr Second Highest (ug/m3)	8-Hr Second Highest (ppm)	8-Hr Second Highest (ug/m3)
4760-004-G01	Belvedere Road, West Palm Beach	Continuous	1991	8,119	5	5,750	3	3,450
			1992	8,252	6	6,900	4	4,600
			1993	8,096	5	5,750	3	3,450
4760-005-G01	Okeechobee Road, West Palm Beach	Continuous	1993	3,813 (a)	7	8,050	4	4,600

(a) Note: Monitor operated from July through December.

modeled sources to the non-modeled background concentration. A total of 8 facilities were modeled explicitly in the analysis.

2.0 AIR QUALITY IMPACT ANALYSIS RESULTS

2.1 SCGC BOILER NO. 8 ONLY

Results of the air dispersion modeling analysis for CO emissions from SCGC Boiler No. 8 are presented in Table 2-1. The maximum predicted 1-hour and 8-hour average CO concentrations due to Boiler No. 8 are 4,246 and 1,767 $\mu g/m^3$, respectively. Since the 1-hour and 8-hour maximum concentrations are above the significant impact levels, additional modeling analysis was performed. The distance to which the proposed project's CO impacts are significant was determined to be 5 km.

2.2 AAQS ANALYSIS

The maximum predicted total CO concentrations from the screening analysis for all modeled AAQS sources are presented in Table 2-2. The maximum screening CO concentrations occurred at receptors near the SCGC mill (i.e., downwind distance of 100 m from Boiler No. 8). Therefore, because receptor spacing in this area of the screening receptor grid is less than 100 m, it was not necessary to perform additional refinements. Based upon the modeling analysis results, the maximum total predicted CO concentrations, including the non-modeled background concentration of 575 $\mu g/m^3$, are as follows: 5,131 $\mu g/m^3$, 8-hour average, and 23,901 $\mu g/m^3$, 1-hour average.

Based on these results, the maximum impacts predicted for SCGC together with other emission sources and the non-modeled background concentration are below the AAQS.

Table 2-1. Summary of Maximum CO Concentrations due to SCGC Boiler No. 8 Only

Averaging Time	Model Year	Maximum Concentration ($\mu g/m^3$)	Receptor Location [a]		Period Ending (YYMMDDHH)	Significant Impact Levels ($\mu g/m^3$)	AAQS ($\mu g/m^3$)
			Distance (m)	Direction (deg)			
8-Hour High	1982	1,759	310	200	82031424		
	1983	1,701	320	104	83020116		
	1984	1,470	300	200	84102808		
	1985	1,584	320	200	85113008		
	1986	1,767	300	200	86110524		
	5 Year Max	1,767				500	10,000
1-Hour High	1982	4,246	320	200	82120702		
	1983	4,021	310	200	83101405		
	1984	3,239	300	200	84031920		
	1985	3,618	290	200	85110920		
	1986	3,704	280	200	86101323		
	5 Year Max	4,246				2,000	40,000

Notes:
m = meter
deg = degrees
YYMMDDHH= year, month, day, hour

[a] Relative to SCGC Boiler No. 8 stack location.

Table 2–2. Summary of Maximum CO Concentrations – AAQS Analysis

Averaging Time	Model Year	Maximum Concentration ($\mu g/m^3$)	Receptor Location		Period Ending (YYMMDDHH)	AAQS ($\mu g/m^3$)
			Distance (m)	Direction (deg)		
8–Hour HSH	1982	4,556	340	100	82012124	
	1983	3,305	330	92	83100624	
	1984	3,976	350	100	84102108	
	1985	4,113	340	100	85022624	
	1986	4,170	320	104	86110608	
	5 Year Max	5,131 [a]				10,000
1–Hour HSH	1982	21,532	350	100	82101320	
	1983	21,111	350	100	83012619	
	1984	23,326	350	100	84101805	
	1985	19,898	340	85	85112720	
	1986	22,644	350	100	86030523	
	5 Year Max	23,901 [a]				40,000

Notes:

[a] 5 Year maximum includes a background CO value of 575 $\mu g/m^3$.

HSH = highest, second highest

m = meter

deg = degrees

YYMMDDHH= year, month, day, hour

REFERENCES

Auer, A.H., 1978. Correlation of Land Use and Cover with Meteorological Anomalies. J. Applied Meteorology, Vol. 17.

Florida Department of Environmental Protection (FDEP). 1993. Air Quality Report 1992. Tallahassee, FL.

Holzworth, G.C., 1972. Mixing Heights, Wind Speeds and Potential for Urban Air Pollution Throughout the Contiguous United States. Pub. No. AP-101. U.S. Environmental Protection Agency.

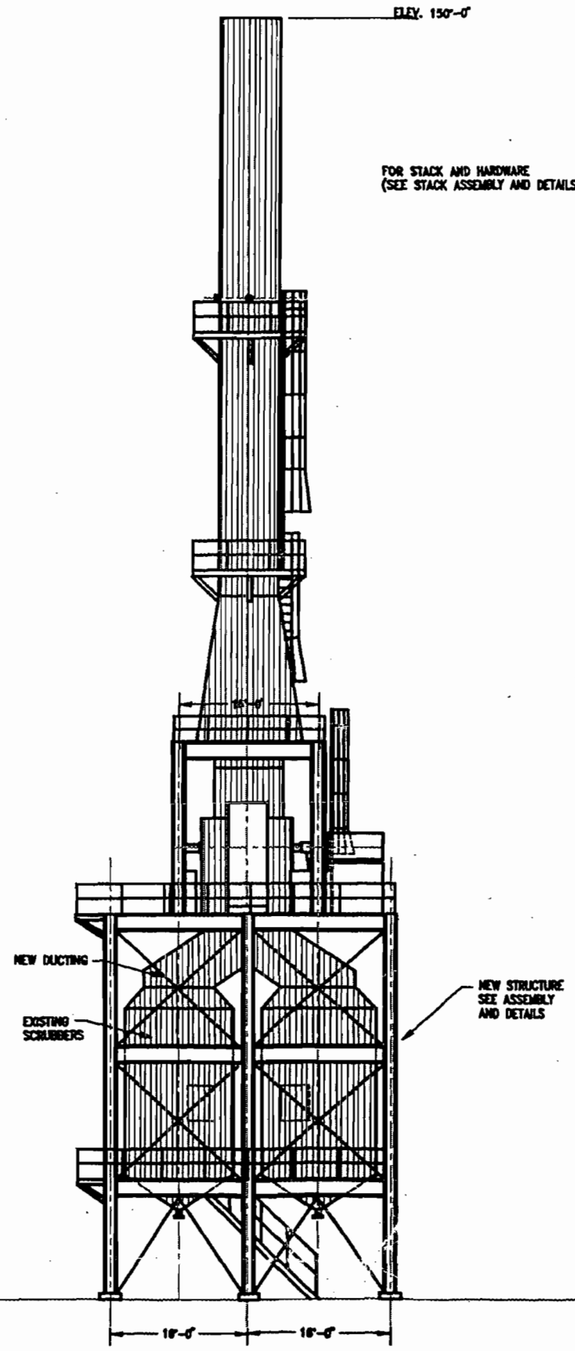
Huber, A.H. and W.H. Snyder, 1976. Building Wake Effects on Short Stack Effluents. Preprint Volume for the Third Symposium on Atmospheric Diffusion and Air Quality, American Meteorological Society, Boston, Massachusetts.

Schulman, L.L. and J.S. Scire, 1980. Buoyant Line and Point Source (BLP) Dispersion Model User's Guide. Document P-7304B, Environmental Research and Technology, Inc. Concord, Massachusetts.

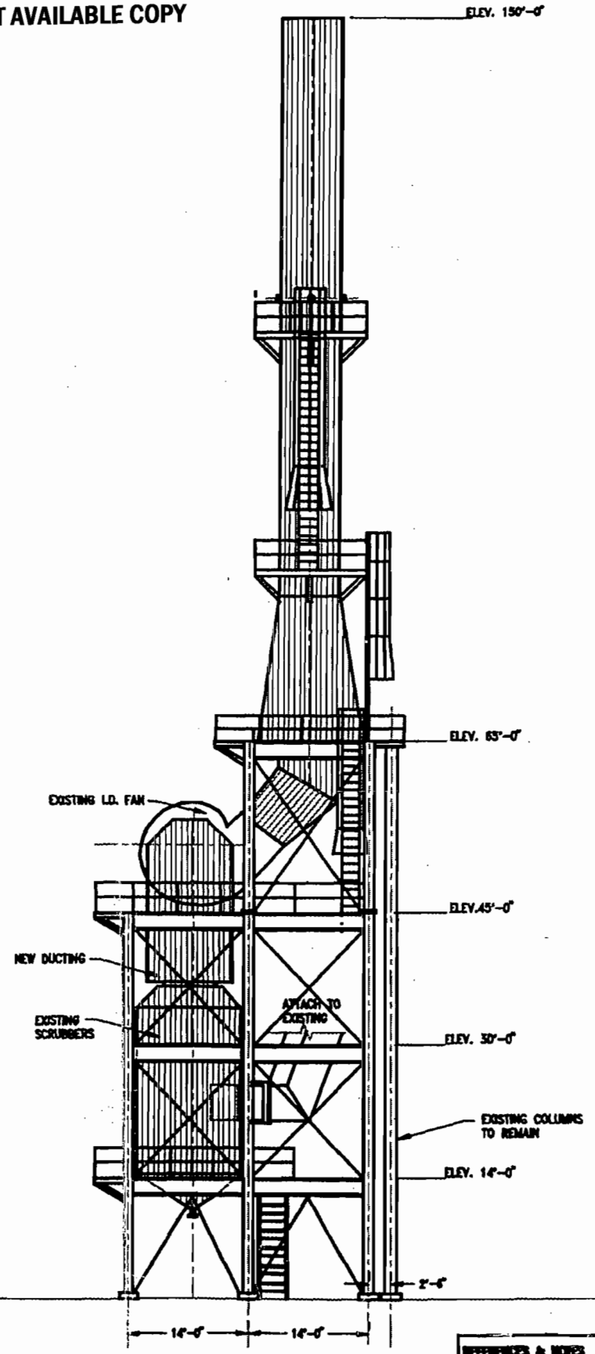
U.S. Environmental Protection Agency. 1977. User's Manual for Single Source (CRSTER) Model. EPA Report No. EPA-450/2-77-013, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina.

U.S. Environmental Protection Agency. 1992a. User's Guide for the Industrial Source Complex (ISC2) Dispersion Models. Through Addendum A. EPA-450/4-92-008. September.

U.S. Environmental Protection Agency. 1993. Guideline on Air Quality Models (Revised). (Through Supplement B; Appendix W of 40 CFR Part 51). EPA Report No. EPA 450/2-78-027R.



VIEW LOOKING EAST



VIEW LOOKING NORTH

SCRUBBER-STACK LAYOUT

NO SCALE

REFERENCES & NOTES	DATE	REVISION DESCRIPT.	BY

SUGAR CANE GROWERS COOPERATIVE OF FLORIDA
BELLE GLADE, FLORIDA

TITLE TYPICAL STACK GENERAL ARRANGEMENT FOR ALL BOILERS

DESCRIPTION

PROJECT | APPROP. NO. | DRAWING NO. DEPT BOIL/HS BOILER 3600.395-12-1D

DATE

DRWN. APPROV.

PLOT: 1/8"=1'
LETTERING: 1/2", 1/8"

3/31 John
al
As b/a also you were absent and unavailable to ask, I said OK as to this. Clair

HOPPING GREEN SAMS & SMITH
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
(904) 222-7500
FAX (904) 224-8551
FAX (904) 425-3415

Writer's Direct Dial No.
(904) 425-2359

JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
ELIZABETH C. BOWMAN
RICHARD S. BRIGHTMAN
PETER C. CUNNINGHAM
RALPH A. DEMEO
THOMAS M. DEROSE
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LISA K. RUSHTON
R. SCOTT RUTH
JULIE R. STEINMEYER

OF COUNSEL
CARLOS ALVAREZ
W. ROBERT FOKES

March 31, 1995

VIA HAND DELIVERY

RECEIVED
MAR 31 1995
Bureau of
Air Regulation

Clair H. Fancy, Chief
Bureau of Air Regulation
Division of Air Resources Management
Department of Environmental Protection
111 South Magnolia, Suite 4
Tallahassee, FL 32301

RE: Sugar Cane Growers Cooperative of Florida
Boiler No. 8 and CO emissions
DEP Permit No. AO50-228196

Dear Mr. Fancy:

By letter dated December 20, 1994, we advised Mr. John Brown of your staff that the Sugar Cane Growers Cooperative of Florida would be submitting BACT and CO modeling analyses for Boiler No. 8 by April 1, 1995. I am now writing to confirm our telephone conversation of earlier today in which you stated that the Department does not object if the submittal is deferred until April 14, 1995.

As always, we appreciate your cooperation in this matter.

Sincerely,

Gary V. Perko

cc: John Brown (DEP)
Jose Alvarez (SCGC)
David Buff (KBN)
Peter Cunningham (HGSS)

Is your RETURN ADDRESS completed on the reverse side?

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

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

Consult postmaster for fee.

3. Article Addressed to:

Jose F. Alvarez
Sugar Cane Growers
P O Box 666
Belle Glade, FL 33430

4a. Article Number
P872562547

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

7. Date of Delivery
11-18-94

5. Signature (Addressee)
Venter Hollis

6. Signature (Agent)

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

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

P 872 562 547

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Jose F. Alvarez	
Street and No. P O Box 666	
P.O., State and ZIP Code Belle Glade, FL 33430	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, JUNE 1991

Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

November 14, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jose F. Alvarez
Vice President of Planning & Plant Operation
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430

Dear Mr. Alvarez:

Re: Boiler No. 8 and CO Emission Issues

Your May 6, 1994 application for permit to increase the carbon monoxide (CO) emissions from existing Boiler No. 8 remains incomplete. The Department has requested a Best Available Control Technology determination recommendation and modeling for CO (carbon monoxide). In an attempt to satisfy these issues, you requested time to obtain additional CO test data on this boiler during this coming season. The request is tentatively acceptable, but is contingent upon Departmental approval of a test plan and schedule. Therefore, please submit to the Department's Bureau of Air Regulation and South District offices a proposed test plan and schedule.

It is important to note that any CO emissions above 0.28 lb/MMBtu from Boiler No. 8 are in violation of the current permit. The Department would like to resolve this matter as expeditiously as possible and supports acquiring quality data for evaluation and permitting purposes.

If you have any questions on this matter, please write to me or call Willard Hanks at (904) 488-1344.

Sincerely,

John C. Brown, Jr., P.E.
Administrator
Air Permitting and Standards

JCB/WH/bjb

cc: David Knowles, SD
Jim Pennington, BAR

GLADES SUGAR HOUSE

Sugar Cane Growers Cooperative of Florida

POST OFFICE BOX 666 BELLE GLADE, FLORIDA

June 14, 1994

RECEIVED

JUN 21 1994

Bureau of
Air Regulation

VIA CERTIFIED MAIL #P505-436-861
RETURN RECEIPT REQUESTED.

Mr. Ronald D. Blackburn, Acting Dir.of Dist. Manager
Florida Department of Environmental Protection
2295 Victoria Ave. - Suite 364
Fort Myers, FL 33901

RE: WAIVER FOR BOILER #8 - DEP #A050-228196.

Dear Mr. Blackburn:

As per your letter dated June 7, 1994, attached find a new Waiver for the indicated time to allow us to complete the PSD Permit application requirements of a modeling and BACT determination.

Thank you for your cooperation and please call me if you have any questions at 407-996-4759.

Sincerely,

Jose F. Alvarez
VP-Planning and Plant Operations

JFA:mg

Enc.

cc: Mr. Clair Fancy, DEP-Tall.

Zip Code 33430-0666
Telephone (407) 996-5556

Fax No. (407) 996-4747
TWX (510) 951-7392

WAIVER OF 90 DAY TIME LIMIT
UNDER SECTIONS 120.60(2) and 403.0876, FLORIDA STATUTES

License (Permit, Certification) Application No. A050-228196, Boiler No. 8

Applicant's Name: Sugar Cane Growers Cooperative of Florida

The undersigned has read Sections 120.60(2) and 403.0876, Florida Statutes (F.S.), and fully understands the applicant's rights under that section.

With regard to the above referenced license (permit, certification) application, the applicant hereby with full knowledge and understanding of its rights under Sections 120.60(2) and 403.0876, F.S., waives the right under Sections 120.60(2) and 403.0876, F.S., to have the application approved or denied by the State of Florida Department of Environmental Protection within the 90 day time period prescribed in Sections 120.60(2) and 403.0876, F.S.. Said waiver is made freely and voluntarily by the applicant, is in its self-interest, and without any pressure or coercion by anyone employed by the State of Florida Department of Environmental Protection.

This waiver shall expire on the 3rd day of JULY 1995.

The undersigned is authorized to make this waiver on behalf of the applicant.

Jose Alvarez 6/14/94
SIGNATURE / DATE

JOSE F. ALVAREZ
Name (please type or print)

VP/PLANNING & PLANT OPERATIONS

Section 120.60, Florida Statutes

(2) When an application for a license is made as required by law, the agency shall conduct the proceedings required with reasonable dispatch and with due regard to the rights and privileges of all affected parties or aggrieved persons. Within 30 days after receipt of an application for a license, the agency shall examine the application, notify the applicant of any apparent errors or omissions, and request any additional information the agency is permitted by law to require. Failure to correct an error or omission or to supply additional information shall not be grounds for denial of the license unless the agency timely notified the applicant within this 30 day period. The agency shall notify the applicant if the activity for which he seeks a license is exempt from the licensing requirement and return any tendered application fee within 30 days after receipt of the original application or within 10 days after receipt of the timely requested additional information or correction of errors or omissions. Every application for license shall be approved or denied within 90 days after receipt of the original application or receipt of the timely requested additional information or correction of errors or omissions unless a shorter period of time for agency action is provided by law. The 90-day or shorter time period shall be tolled by the initiation of a proceeding under Section 120.57 and shall resume 10 days after the recommended order is submitted to the agency and the parties. Any application for a license not approved or denied within the 90-day period or shorter time period within 15 days after conclusion of a public hearing held on the application, or within 45 days after the recommended order is submitted to the agency and the parties, whichever is latest, shall be deemed approved and, subject to the satisfactory completion of an examination, if required as prerequisite to licensure, the license shall be issued. The Public Service Commission, when issuing a license, and any other agency, if specifically exempted by law, shall be exempt from the time limitations within this subsection. Each agency, upon issuing or denying a license, shall state with particularity the grounds or basis for the issuance or denial of same, except where issuance is a ministerial act. On denial of a license application on which there has been no hearing, the denying agency shall inform the applicant of any right to a hearing pursuant to Section 120.57.

Section 403.0876, Florida Statutes

Permits; processing. ---Within 30 days after receipt of an application for a permit under this chapter, the department shall review the application and shall request submittal of all additional information the department is permitted by law to require. If the applicant believes any departmental request for additional information is not authorized by law or departmental rule, the applicant may request a hearing pursuant to S.. 120.57.

Within 30 days after receipt of such additional information, the department shall review it and may request only that information needed to clarify such additional information or to answer new questions raised by or directly related to such additional

information. If the applicant believes the request of the department for such additional information is not authorized by law or departmental rule, the department, at the applicant's request, shall proceed to process the permit application. Permits shall be approved or denied within 90 days after receipt of the original application, the last item of timely requested additional material, or the applicant's written request to begin processing the permit application.

P 872 562 691

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	Mr. Jose F. Alvarez
Street and No.	P. O. Box 666
P.O., State and ZIP Code	Belle Glade, FL 33430-0666
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	Mailed: 5/20/94 AC 50-250421/PSD-FL-213

PS Form **3800**, JUNE 1991

Is your RETURN ADDRESS completed on the reverse side?

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

RECEIVED
MAY 27 1994
Bureau of Air Regulation

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

3. Article Addressed to:
Mr. Jose F. Alvarez
VP/Planning & Plant Operations
Sugar Cane Growers Cooperative of Florida
P. O. Box 666
Belle Glade, Florida 33430-0666

4a. Article Number
P 872 562 691

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

7. Date of Delivery
5-24-94

5. Signature (Addressee)

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

6. Signature (Agent)
Vanessa Hollan

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

May 19, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jose F. Alvarez
VP/Planning & Plant Operations
Sugar Cane Growers Cooperative of Florida
P. O. Box 666
Belle Glade, Florida 33430-0666

Dear Mr. Alvarez:

Re: File No. AC 50-250421/PSD-FL-213

The Department acknowledges receipt of a $7500 application fee to modify boiler No. 8 at your sugar mill in Belle Glade, Florida.

We still need the Best Available Control Technology recommendation and modeling for carbon monoxide requested in our April 26, 1994, letter to you to complete the application. The Department will resume processing your application after receipt of this information.

Sincerely,

John C. Brown, Jr., P.E.
Administrator
Air Permitting and Standards

JCB/WH/bjb

cc: David Knowles, SD
Jeff Koerner, PBCHD
Jewell Harper, EPA
John Bunyak, NPS

Florida Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

May 11, 1994

Mr. John Bunyak, Chief
Policy, Planning and Permit Review Branch
National Park Service-Air Quality Division
P. O. Box 25287
Denver, CO 80225

Dear Mr. Bunyak:

RE: Sugar Cane Growers Cooperative of Florida
Boiler No. 8
Palm Beach County, PSD-FL-213

The Department has received the above referenced PSD application package. Please review this package and forward your comments to the Department's Bureau of Air Regulation by May 31, 1994. The Bureau's FAX number is (904)922-6979.

If you have any questions, please contact Willard Hanks or Cleve Holladay at (904)488-1344 or write to me at the above address.

Sincerely,

Patty Adams

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

CHF/pa

Enclosures

0003993

GLADES SUGAR HOUSE

Sugar Cane Growers Cooperative of Florida

POST OFFICE BOX 666 BELLE GLADE, FLORIDA

May 4, 1994

CERTIFIED MAIL NO. P-505-436-859
RETURN RECEIPT REQUESTED

Mr. J. C. Brown, Jr., P.E.
Administrator Air Permitting and Standard
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Fl. 32399-2400

RE: BOILER # 8, CO EMISSIONS #A050-228196.

Dear Mr. Brown:

As requested in your letter dated April 26, 1994, attached you will find a check for $7,500.00 (Check #100885) to cover the processing fee and seven (7) additional copies of the application.

We will submit the BACT determination and the modeling as soon as they are available.

Sincerely,

Jose F. Alvarez
VP/Planning & Plant Operations

JFA:mg

cc: David Knowles, SD-Ft. Myers
Jeff Koerner, PBCHD-WPB

Green file

Zip Code 33430-0666
Telephone (407) 996-5556

Fax No. (407) 996-4747
TWX (510) 951-7392

INVOICE DATE	INVOICE NO.	PURCHASE ORDER NUMBER	INVOICE AMOUNT	DISCOUNT	AMOUNT PAID
5/02/94	000000010	000000	7,500.00	.00	7,500.00

SUGAR CANE GROWERS COOPERATIVE OF FLORIDA

TOTAL PAGE ➡	7,500.00	TOTAL PAGE ➡	7,500.00
TOTAL PAID ➡	7,500.00	TOTAL PAID ➡	7,500.00

To BANK OF BELLE GLADE
BELLE GLADE, FLORIDA

[redacted]

SUGAR CANE GROWERS COOPERATIVE OF FLORIDA
"GLADES SUGAR HOUSE"
BELLE GLADE, FLORIDA 33430-0666

0003993
100885

	DATE		AMOUNT
03874	5/03/94	SEVEN THOUSAND FIVE HUNDRED DOLLARS ONLY	****7,500.00

PAY TO THE ORDER OF

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
2600 BLAIR STONE ROAD
TALLAHASSEE FL 32399-2400

SUGAR CANE GROWERS COOPERATIVE OF FLORIDA
GENERAL ACCOUNT

AUTHORIZED SIGNATURE

AUTHORIZED SIGNATURE

[redacted]

P 872 563 624

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Mr. Jose F. Alvarez	
Street and No. Post Office Box 666	
P.O. State and ZIP Code Belle Glade, FL 33430	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 4/26/94 Sugar Cane Growers Coop., Boiler No. 8, CO Emissions	

PS Form **3800**, JUNE 1991

Is your RETURN ADDRESS completed on the reverse side?

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

RECEIVED
MAY 5 1994
Bureau of Air Regulation

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

3. Article Addressed to:
Mr. Jose F. Alvarez
Vice President of Planning & Plant Operation
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430

4a. Article Number
P 872 563 624

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

7. Date of Delivery 4-29-94

5. Signature (Addressee)

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

6. Signature (Agent) Venton Hollad

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

April 26, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jose F. Alvarez
Vice President of Planning & Plant Operation
Sugar Cane Growers Cooperative of Florida
Post Office Box 666
Belle Glade, Florida 33430

Dear Mr. Alvarez:

Re: Boiler No. 8, CO emissions

The Department has received your March 25, 1994, letter requesting the allowable carbon monoxide emissions from boiler No. 8 at your Belle Glade sugar mill be increased from 511 to 4,129.2 TPY. When your permit was issued, the Department accepted your carbon monoxide (CO) emission estimate of 0.28 lb/MMBtu (511 TPY) and incorporated as a standard in the Best Available Control Technology (BACT) determination and permits for boiler No. 8. Your Reference Method 10 test results confirm that the actual CO emissions are significantly greater than the standard. An increase in CO emissions of 100 TPY or more is subject to the Prevention of Significant Deterioration regulations. Therefore, the BACT and permits for this boiler must be modified to show additional air pollution control equipment and/or a new CO emission standard. Therefore, additional information is needed before the Department can process your request. Please provide the following:

1. The PSD application processing fee of $7,500, and seven additional copies of the application.

2. A Best Available Control Technology determination. The "top-down" determination should include the use of oxidation catalyst, modification of the fuel/combustion air fuel system, and any other equipment or method that has the potential to significantly reduce the CO emissions.

3. A modeling analysis for CO. The estimated CO emissions based on your tests from the bagasse boilers at the sugar mills shall be used in this analysis. Modeling is needed to insure that this large emission increase of CO by the industry will not cause an exceedance of the ambient air quality standards of 10,000 ug/m^3 (8 hr. avg.) or 40,000 ug/m^3 (1 hr. avg.).

The Department will resume processing your application after receipt of the requested information.

Sincerely,

John C. Brown, Jr., P.E.
Administrator
Air Permitting and Standards

JCB/WH/bjb

cc: David Knowles, SD
Jeff Koerner, PBCHD

GLADES SUGAR HOUSE

Sugar Cane Growers Cooperative of Florida

POST OFFICE BOX 666 BELLE GLADE, FLORIDA

March 25, 1994

CERTIFIED MAIL NO. P-505-436-856
RETURN RECEIPT REQUESTED

Mr. Clair Fancy, Chief Bureau Air Regulation
Division of Air Resources Management
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Fl. 32399-2400

RECEIVED
MAR 29 1994
Bureau of
Air Regulation

RE: **LICENSE PERMIT #A050-228196.**

Dear Mr. Fancy:

Enclosed is an application to modify the construction permit for the referenced boiler to reflect changes in Carbon Monoxide emissions associated with a FDEP change in the operating permit from Method 3 to Method 10.

Sugar Cane Growers Cooperative applied for a waiver for operating Permit A050-228196. This waiver was requested to allow the Cooperative enough time to conduct Carbon Monoxide testing using Method 10 and modify the limit of CO in the PSD permit. The current method in the operating permit for testing CO is Method 3 which has a much lower sensitivity than Method 10. The latter reflects actual emissions much more accurately. The emission limit for CO in the PSD permit although adequate for Method 3, has to be modified for the sensitivity of Method 10. Other sugar mills in Florida have requested a revision of the CO limit when FDEP changed the method of CO testing.

Also enclosed is a source test report for CO using Method 10 and it forms the basis for the CO emission limit revision.

A copy of the application is being submitted to our FDEP regional office in Fort Myers. Please feel free to call me at 407-996-5556 if you have any questions.

Sincerely,

Jose F. Alvarez
Vice President of Planning & Plant Operations

JFA:mg
Encls.
cc: FDEP - Ft. Myers, w/enclosures
P.B.County Health Unit - WPB, w/enclosures

Zip Code 33430-0666
Telephone (407) 996-5556

Fax No. (407) 996-4747
TWX (510) 951-7392

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form #
Form Title
Effective Date
DER Application No.
Filed in the DER

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Stationary Steam Boiler [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [ ] Construction [ ] Operation [X] Modification of testing

COMPANY NAME: Sugar Cane Growers Cooperative of Florida COUNTY: Palm Beach

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. 8 with Joy Type D Turbulaire Scrubber.

SOURCE LOCATION: Street West Sugar House Road City Belle Glade, FL

UTM: East 534.9 KM North 2953.3 KM

Latitude 26 ° 42 ' 06 "N Longitude 80 ° 38 ' 57 "W

APPLICANT NAME AND TITLE: Sugar Cane Growers Cooperative of Florida c/o Enrique R. Arias Executive Vice Pres.

APPLICANT ADDRESS: Airport Road, Belle Glade, Fl 33430

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Sugar Cane Growers Cooperativ of Florida.

I certify that the statements made in this application for a modification of 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: Enrique R. Arias

Enrique R. Arias, Executive Vice President
Name and Title (Please Type)

Date: 3/25/94 Telephone No. (407) 996-5556

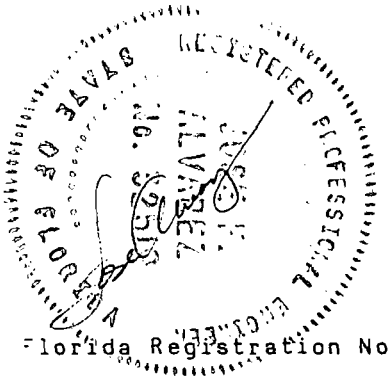
B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

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)

Northwest District 160 Governmental Center Pensacola, Florida 32501-5794
Northeast District 3426 Bills Rd. Jacksonville, Florida 32207
Central District 3319 Maguire Blvd. Suite 232 Orlando, Florida 32803-3767
Southwest District 4520 Oak Fair Blvd. Tampa, Florida 33610-7347
South District 2269 Bay St. Fort Myers, Florida 33901-2896
Southeast District 1900 S. Congress Ave., Suite A West Palm Beach, Florida 33406

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 _____

Jose F. Alvarez
Name (Please Type)

Sugar Cane Growers Cooperative of Florida
Company Name (Please Type)

P. O. Box 666, Belle Glade, FL 33430
Mailing Address (Please Type)

Florida Registration No. 32519 Date: 3/22/94 Telephone No. (407) 996-5556

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 I

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

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.)

N/A

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

SEE ATTACHMENT II

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 39 ;

if power plant, hrs/yr _____; if seasonal, describe: Crop season operations may last a maximum of 184 days, while off-season operations may last a maximum of 120 days with a total possible combined maximum of 273 days, equivalent to 6,552 hrs. or 39 weeks.

F. If this is a new source or major modification, answer the following questions. (Yes or No)

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? YES

   a. If yes, for what pollutants? NOx & VOC's

   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:

N/A

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): N/A

2. Product Weight (lbs/hr): 264,000 lbs. steam/hr rated capacity

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

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	
Particulate	75.6	83.5	0.20 lb/MM BTU 17-2.10(b)b	75.6	1121.4	4091	
Sulfur Dioxide	343.5	157.9	NA	*	387.9	1415	
Nitrogen Oxides	123	195.8	NA	123	123	449	
Hydrocarbons	140	2.2	NA	140	140	511	
Carbon Monoxide	3024.0	4129.2	NA	Note "A"	3024.0	11030.0	

[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).

* 14 tons/day for all boilers from units 1 through 8.

** NOTE: Heading should read "lbs/hr".

Note "A" : Carbon Monoxide is the only emission changed. All other emissions are as per permit conditions.

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)
Joy Turbulaire Type D, Impingement Scrubber	Particulate	90% +	See Attachment B in 1981 Construction Permit	
Joy Turbulaire Type D, Impingement Scrubber	SO_2	40%	N/A	See Attachment C in 1981 Construction Permit

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr**	max./hr**	
Bagasse (Dry Basis)	7.5 tons	31.5 tons	504.0
Bagasse-Residue (Dry Basis	18.3 tons	24.9 tons	443.5
No. 6 Fuel Oil	64 gals	1,667 gals	250.0

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

Fuel Analysis: SEE ATTACHMENT III

Percent Sulfur: ______ Percent Ash: ______

Density: ______ lbs/gal Typical Percent Nitrogen: ______

Heat Capacity: ______ BTU/lb ______ BTU/gal

Other Fuel Contaminants (which may cause air pollution): Unknown

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

Annual Average ______ Maximum ______

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

Liquid and solid wastes generated by the scrubbers are sent to settling ponds.

**The Avg/hr consumption figures are based on the 1987 calendar year operation. The max/hr consumption and heat input figures represent the maximum potential if each fuel is burned separately. All in accordance with the provisions of our existing operating permits.

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

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

N/A

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: N/A

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

N/A

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

N/A

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

[ ] Yes [ ] No

Contaminant	Rate or Concentration

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

[ ] Yes [ ] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration

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

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). N/A

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: N/A

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

A. Company Monitored Data N/A

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

3. Meteorological Data Used for Air Quality Modeling N/A

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)_____

4. Computer Models Used N/A

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.

5. Applicants Maximum Allowable Emission Data N/A

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

6. Emission Data Used in Modeling N/A

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.

7. Attach all other information supportive to the PSD review.

8. 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.

9. 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.

ATTACHMENT I

Original Construction Permit No. A050-147870 specified Method 3 as the appropriate Method for "CO" testing. A renewal application for the operating permit was submitted on 2/26/93. In response to the permit renewal, DEP requested to change the method of testing "CO" from Method 3 to Method 10. It has been determined that in similar sugar mill boilers when the Method 10 was applied for CO emissions, the original allowable emissions are too low for the sensitivity of Method 10. Although emissions did not increase, Method 10 reflects actual emission much more accurately than Method 3. Since Boiler No. 8 had no data for "CO" emissions using Method 10, a waiver was requested until July 1, 1994 so that Sugar Cane Growers Cooperative of Florida (SCGC) could test Boiler No. 8 using Method 10. The boiler was tested on December 3 and December 8, 1993. See attached results.

ATTACHMENT II

Boiler No. 8 Previous Permits, Order and Notices:

1) Air Construction State Permit Application, AC#50-42476 dated 5/21/1981.

2) Notice on PSD-FL-077 dated 5/21/1981.

3) DER Permit A050-68945 dated 5/9/1983; expiration date 5/9/1988.

4) DER Permit A050-14780 dated 5/9/1988; expiration date 5/9/1993.

5) DER letter dated 3/25/93.

6) A twelve month Waiver was filed by SCGC for establishing new "CO" emission limits. License Permit Application No. A050-228196 dated 7/1/93; expiration date 7/1/1994.

PROPOSED BOILER NO. 8
EMISSION ESTIMATES

FUEL USAGE CALCULATIONS

Rated Steam Capacity = 264,000 lb/hr
Btu requirements per lb steam = 1,050 Btu/lb

Boiler efficiencies: Bagasse - 55%
Residue - 62.5%
Oil - 80 %

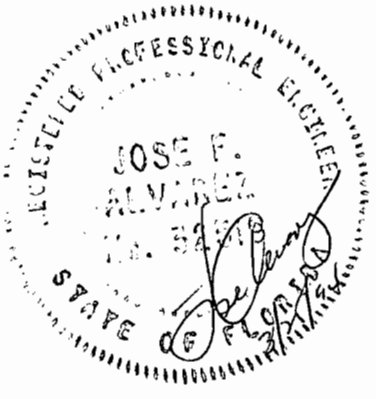
System SO_2 Reduction: Bagasse - 40%
Residue - 40%
Oil - 0%

Fuel Analysis:

	Bagasse	Residue	No. 6 Fuel Oil
Btu/lb	8,000 (dry)	8,900 (dry)	17,500
lbs/gal	--	--	8.1
% S	0.1 (dry)	0.4 (dry)	1.0
% N	0.3 (dry)	0.4 (dry)	0
% Ash	0.3-0.5 (dry)	1.9-3.8 (dry)	0.1
% H_2O	55	40	0.2

Bagasse Burning: 264,000 lb/hr steam x 1,050 Btu/lb ÷ 0.55 = 504.0 x 10^6 Btu/hr
504.0 x 10^6 Btu/hr ÷ 8,000 Btu/lb = 63,000 lb/hr dry bagasse
63,000 lb/hr x 1 ton/2,000 lb = 31.5 ton/hr

Residue Burning: 264,000 lb/hr steam x 1,050 Btu/lb ÷ 0.625 = 443.5 x 10^6 Btu/hr
443.5 x 10^6 Btu/hr ÷ 8,900 Btu/lb = 49,834 lb/hr ton dry residue
49,834 lb/hr x 1ton/2,000 lb = 24.9 ton/hr



EMISSION CALCULATIONS

BURNING 100-PERCENT RESIDUE

Carbon Monoxide

Factor = 3.5 lb/MM Btu from test results using EPA Method 10.
443.5 MM Btu x 3.5 lb/MM Btu = 1552.3 lb/hr

BURNING 100-PERCENT BAGASSE

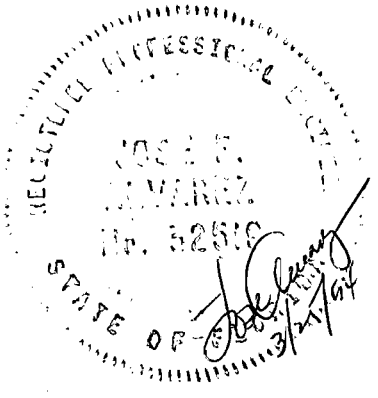
Carbon Monoxide

6.0 lb/MM Btu factor from results of test using EPA Method 10
504 MM Btu/hr x 6.0 lb/MM Btu = 3,024 lb/hr

MAXIMUM EMISSIONS CALCULATIONS

Carbon Monoxide

Maximum emissions when burning bagasse = 3,024 lb/hr



ACTUAL EMISSIONS CALCULATIONS

Actual emissions calculations are based on the fuel usage as per the Annual Operating Report for the calendar year 1993.

Actual emissions for carbon monoxide calculated using the annual reports actual fuel usage and proposed emission factors for CO are as follows:

Carbon Monoxide

Crop Season:

7.5 ton/hr residue x 2,000 lb/1 ton residue x 8,900 Btu/lb x 3.5 lb/MM Btu x 24 x 184 ÷ 10^6 ÷ 2,000 = 1031.5 tons/yr

14.1 ton/hr bagasse x 2,000 lb/1 ton bagasse x 8,000 Btu/lb x 6.0 lb/MM Btu x 24 x 184 ÷10^6 ÷ 2,000 = 2,988.4 tons/yr

100 gals oil/hr x 8.1 lb/gal x 17,500 Btu/lb x 3.5 lb/MM Btu x 24 x 184 ÷ 10^6 ÷ 2,000 = 109.3 tons/yr

Total CO Emissions = 1031.5 + 2,988.4 + 109.3 = 4,129.2

POTENTIAL EMISSIONS CALCULATIONS

Potential emissions for other airborne contaminants are based on permit allowable emissions. For carbon monoxide the calculation is as follows:

Worst-case fuel is Bagasse

3,024 lb/hr x 24 hr/day x 304 day/yr x 1 ton/2,000 lb = 11,030 ton/yr

SOURCE TEST REPORT
for
OXIDES OF NITROGEN, CARBON MONOXIDE, AND NON-METHANE VOLATILE ORGANIC COMPOUND EMISSIONS

IMPINGEMENT WET SCRUBBER OUTLET
BOILER NUMBER 8

DECEMBER 3, 1993
DECEMBER 6, 1993

Prepared for:

SUGAR CANE GROWERS
COOPERATIVE OF FLORIDA
AIRPORT ROAD
BELLE GLADE, FLORIDA 33430-0666

Prepared by:

AIR CONSULTING AND ENGINEERING, INC.
2106 N.W. 67TH PLACE, SUITE 4
GAINESVILLE, FLORIDA 32606
(904) 335-1889

236-93-14

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ACE
AIR CONSULTING
& ENGINEERING, INC.

2106 N.W. 67th Place • Suite 4 • Gainesville, Florida • 32606
(904) 335-1889 FAX (904) 335-1891

REPORT CERTIFICATION

To the best of my knowledge, all applicable field and analytical procedures comply with Florida Department of Environmental Protection requirements and all test data and plant operating data are true and correct.

Dagmar Fick

Date

1.0 INTRODUCTION

On December 3 and 6, 1993, Air Consulting and Engineering, Inc. (ACE), conducted Oxides of Nitrogen (NO_X), Carbon Monoxide (CO), and Non-methane Volatile Organic Compound (VOC) emission testing on the Wet Scrubber Outlet of Boiler 8 at Sugar Cane Growers Cooperative of Florida (Sugar Cane Growers) located in Belle Glade, Florida.

United States Environmental Protection Agency (EPA) Method 5 (particulate), EPA Method 7E (NO_X), EPA Method 10 (CO), and EPA Method 25A (VOC) in conjunction with EPA Method 18 were utilized for the emission testing.

A Thermo Electron Model 10AR chemiluminescent NO_X analyzer, a Thermo Electron Model 48 CO analyzer, a Ratfisch RS55 hydrocarbon analyzer, and a Byron 301 were used for the testing.

Ms. Carmen Baez and Mr. Blas Marin of Sugar Cane Growers coordinated testing.

2.0 SUMMARY AND DISCUSSION OF RESULTS

Table 1 summarizes the gaseous emission results.

NOx, CO, and Non-Methane VOC emissions averaged 0.18, 4.86, and 0.10 pounds per million BTU (lbs/MMBTU) on the December 3, 1993 test and 0.18, 3.08, and 0.059 lbs/MMBTU on the December 6, 1993 test.

All flow data was taken from the concurrently conducted particulate runs.

Complete emission data, field data sheets, and strip chart copies are presented in Appendices A, B, and C, respectively.

Gaesous emission data and boiler operating data are presented in Appendix D.

Table 1 Gaseous Emission Summary
Boiler Number 8 Scrubber Outlet
Sugar Cane Growers Cooperative of Florida
Belle Glade, Florida

Run Number	Time	Flow Rate SCFMD	NOx Emissions ppm	NOx Emissions lbs/Hr	NOx Emissions lbs/MMBTU	CO Emissions ppm	CO Emissions lbs/Hr	CO Emissions lbs/MMBTU	Non-Methane VOC Emissions ppm	Non-Methane VOC Emissions lbs/Hr	Non-Methane VOC Emissions lbs/MMBTU
December 3, 1993											
1	1001-1111	105591	102	77.16	0.17	5165	2377.63	5.20	233	46.01	0.10
2	1210-1320	111576	113	94.28	0.19	3829	1944.17	4.00	186	40.51	0.08
3	1430-1536	116467	105	83.93	0.17	5465	2658.32	5.39	253	52.79	0.11
AVERAGE	---	111211	107	85.12	0.18	4820	2326.71	4.86	224	46.44	0.10
December 6, 1993 (PM Compliance)											
1	0937-1046	112117	110	88.79	0.18	3092	1512.56	3.02	139	29.15	0.059
2	1222-1334	114419	112	91.78	0.19	2514	1254.04	2.54	120	25.68	0.052
3	1434-1543	114928	102	84.32	0.17	3671	1839.32	3.69	152	32.67	0.066
AVERAGE	---	113821	108	88.30	0.18	3092	1535.31	3.08	137	29.17	0.059

3.0 PROCESS DESCRIPTION AND OPERATION

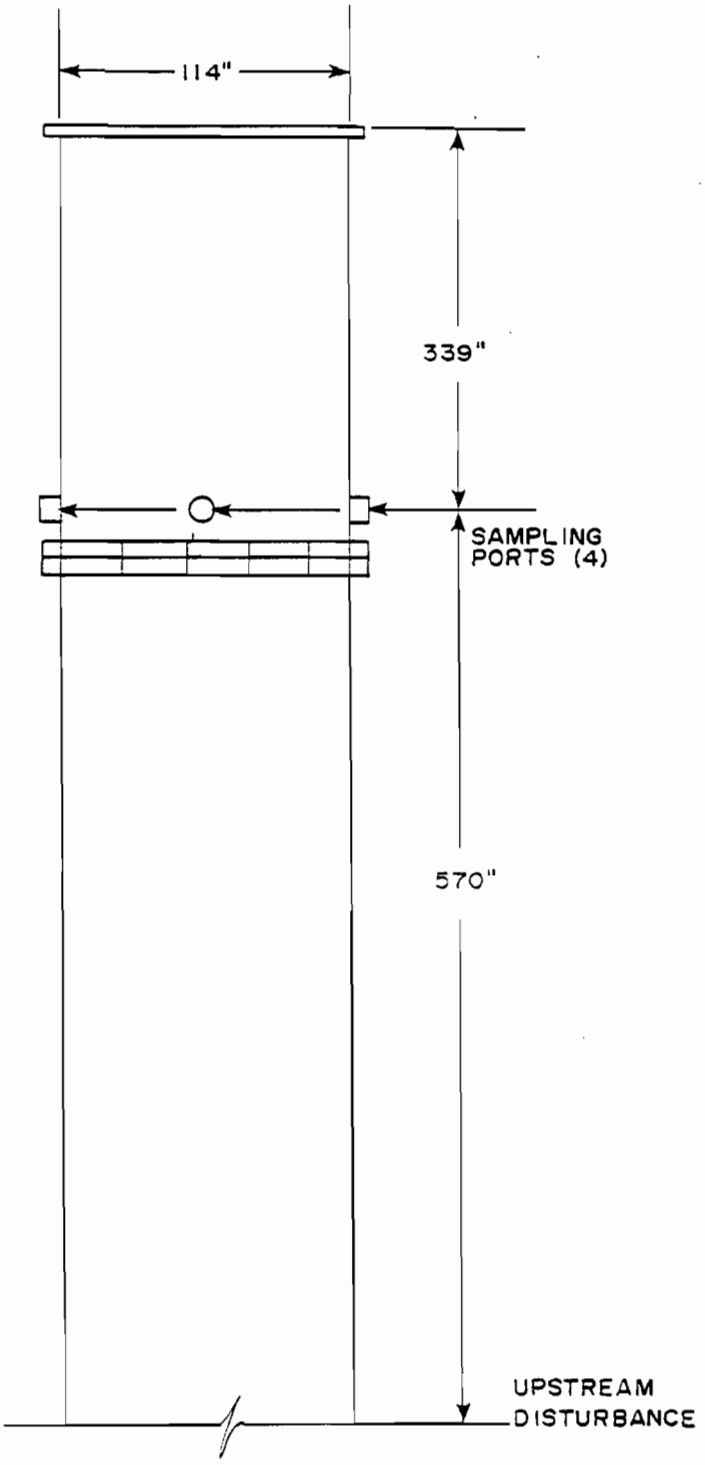
The Number 8 Boiler at Sugar Cane Growers is a spreader stoker design firing Bagasse fuel for the current sugar season. Supplemental oil firing was also utilized for the emissions test.

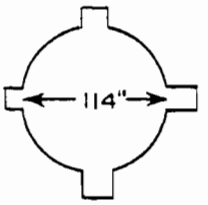
Oil meters, steam integrators, and other production monitoring devices were rigorously calibrated prior to the production season.

4.0 SAMPLING POINT LOCATION

The sampling location (Figure 1) is a single scrubber outlet stack, 114" in diameter. The stack has four sample ports 90 degrees apart. The ports are located 570" from an upstream disturbance and 339" from the outlet.

Twenty-four test points were sampled on each stack for each test run. The traverse points were located as shown in Figure 1. The stack configuration is such that there was no reason to evaluate the presence of cyclonic flow.





TRAVERSE POINT NUMBER	INCHES INSIDE STACK WALL
1	2.9
2	9.3
3	16.7
4	25.8
5	39.0

NOTE: NOT TO SCALE

FIGURE 1.
SAMPLING POINT LOCATION
BOILER NO. 8
SUGARCANE GROWERS COOP. OF FLORIDA

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and
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5.0 FIELD AND ANALYTICAL PROCEDURES

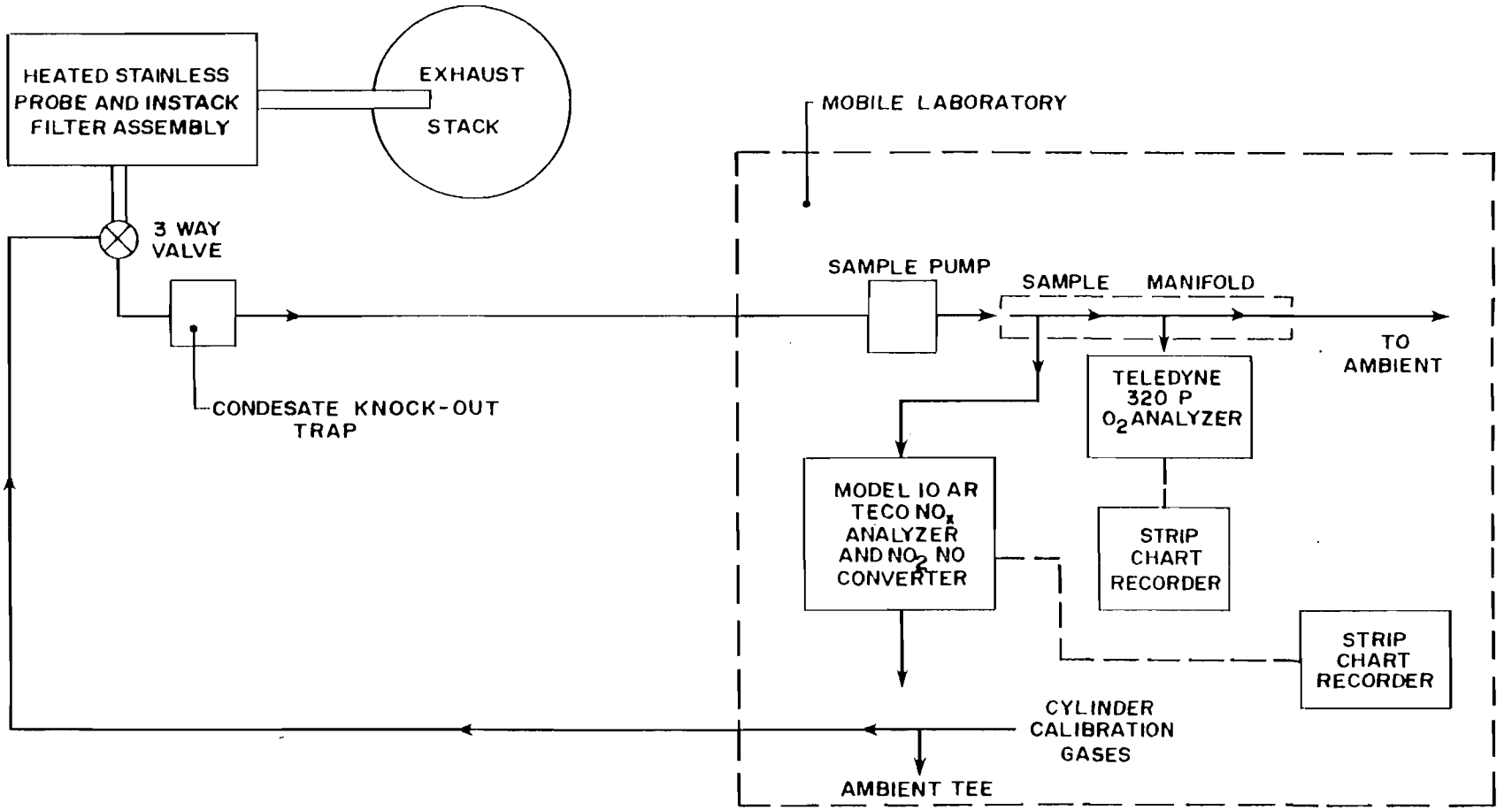
5.1 Determination of Nitrogen Oxides Emissions From Stationary Sources (Instrumental Analyzer Procedure)--EPA Method 7E

The sampling system is shown in Figure 2. A sample was drawn from the stack at a rate of approximately 2 SCFH. A stainless steel probe and filter assembly was followed by a three-way stainless steel valve. The sample was pumped through a non-heated 1/4" O.D. TEFLON sampling line and condensate trap housed in an ice bath. Calibration gases were introduced at the sampling interface (the three way valve) through another 1/4" O.D. TEFLON line that was not heated. The sample pump delivered gases to a manifold system where one stream was sent to a Thermo Electron Model 10 AR Chemiluminescent Analyzer, converted to nitric oxide, reacted with ozone, and a chemiluminescent response measured by a photomultiplier. A second stream was delivered to a Teledyne 320P O_2 analyzer. A third stream was dumped to the ambient air. All instrument responses were recorded on strip chart recorders. The sampling system yields NO_x and O_2 concentrations on a dry gas basis.

All calibration gases were certified NBS traceable.

5.2 Determination of Carbon Monoxide Emissions from Stationary Source --EPA Method 10

The sampling system is shown in Figure 3. A sample was drawn from the stack at a rate of approximately 2 SCFH. A stainless steel probe assembly was followed by a three-way stainless steel valve. The sample was pumped through an ice-cooled condensate trap followed by a 1/4" O.D. TEFLON sampling line.



SOURCE: ACE, Inc.

FIGURE 2
EPA METHOD 7E SAMPLING SCHEMATIC

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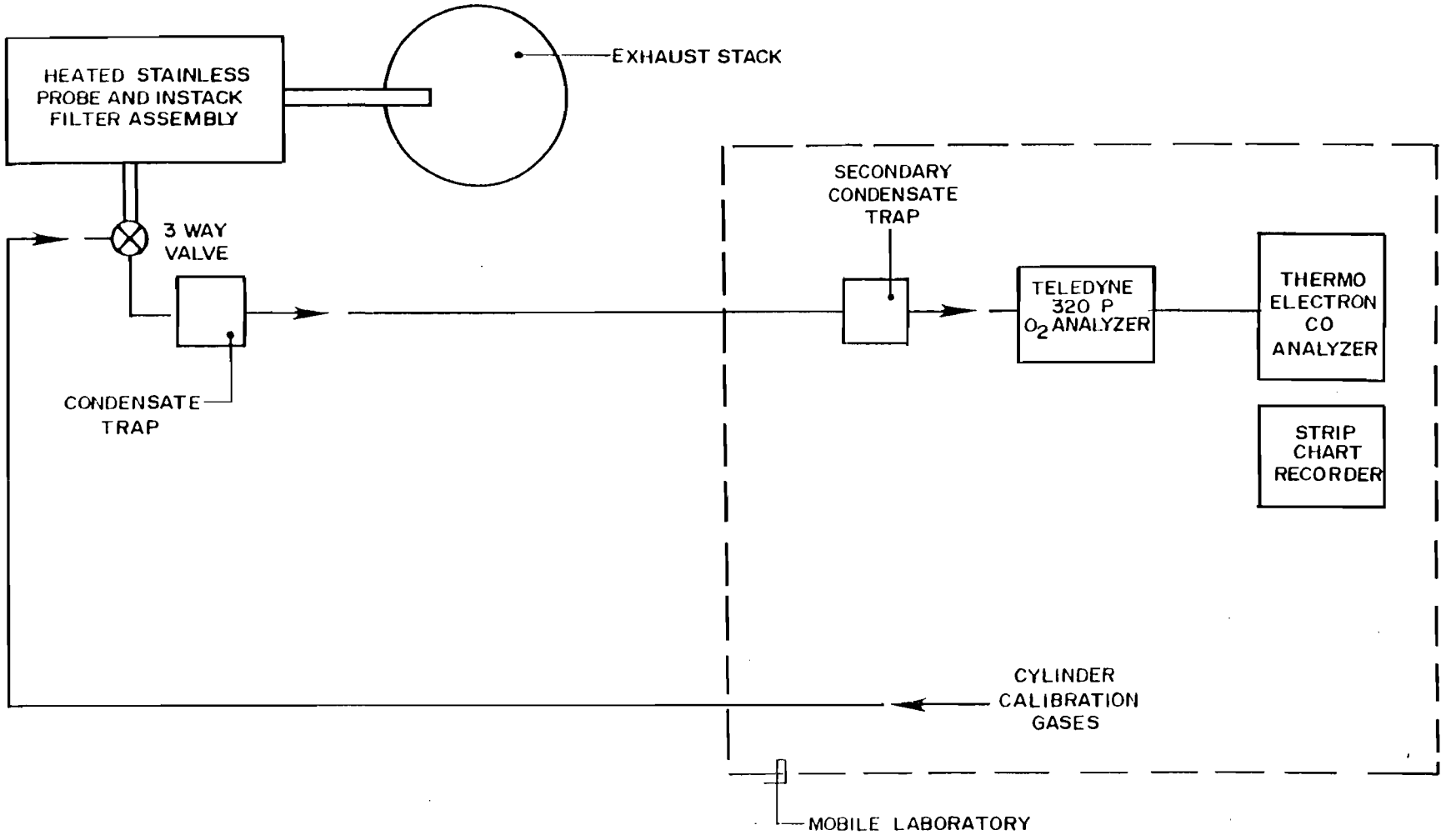

FIGURE 3
EPA METHOD 10 SAMPLING SCHEMATIC

AIR CONSULTING and ENGINEERING

Calibration gases were introduced at the sampling interface (the three way valve) through another 1/4" O.D. TEFLON line. The sample pump delivered gases to a manifold system where one flow is divided between a Teledyne 320P O_2 analyzer and a Thermo Electron Model 48 CO analyzer (NDIR with gas filter correlation). Excess flow is dumped to ambient. All instrument responses were recorded on strip chart recorders. The sampling system yields O_2, and CO, concentrations on a dry gas basis.

Calibration gases consisted of CO, and O_2 standards in nitrogen. All calibration gases were certified NBS traceable, Protocol 1.

5.3 Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer--EPA Method 25A

A Byron Model 215 Total Hydrocarbon Analyzer with a Flame Ionization Detector (FID) was utilized for EPA Method 25A testing. This instrument is a semicontinuous dual source analyzer that draws continuous samples from incinerator inlet and outlet test locations. Heat traced sample lines are used to deliver gases at 275°F to the heated FID detector via two interval sample loops. Sample loop contents are delivered to the FID on alternating one minute intervals. Combustion and carrier air are supplied by a Byron 25 ultra pure air system.

The instrument was calibrated on NBS traceable EPA Protocol 1 propane in air cylinder gases injected at the sampling interface via a three-way valve (Figure 4). A record of accuracy demonstration as well as drift checks is provided in Appendix F. The inlet source integrator was calibrated to match propane calibration gas peak height response. Analyzer results are reported as ppm carbon by multiplying the response as propane by a factor of 3.0.

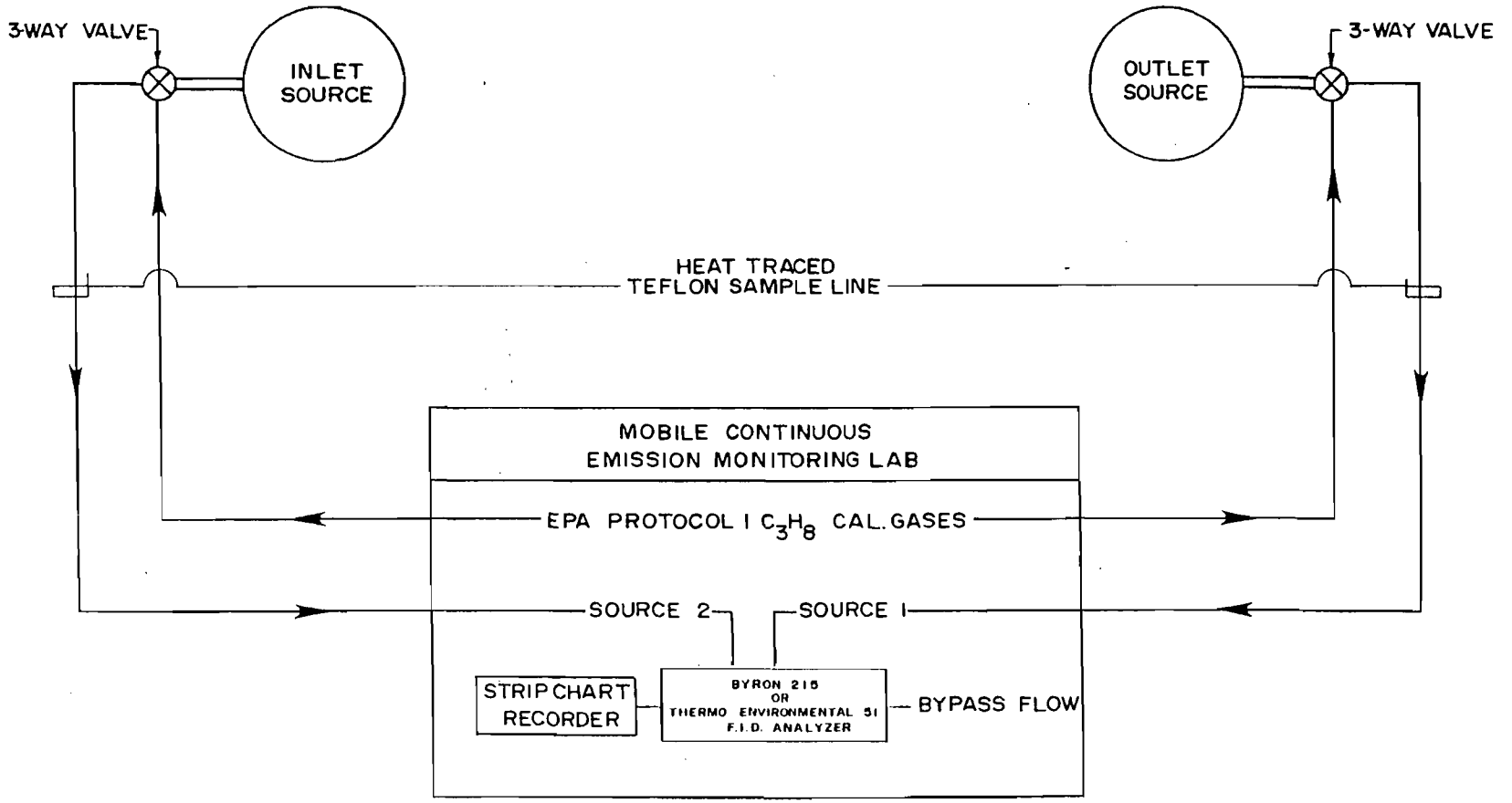

FIGURE 4

EPA 25A SAMPLING TRAIN

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5.4 Measurements of Gaseous Organic Compound Using GC Analyzer--EPA Method 18

Gaseous volatile organic compound samples were collected in 100 liter aluminized mylar bags. All bags were leaked checked before field use.

Bag samples were taken concurrently with the three one-hour VOC (EPA Method 25A) runs. The samples were then analyzed the same day for methane concentrations on a Byron 301 VOC analyzer. The Byron was calibrated with certified methane standards. The methane concentration is then subtracted from the total VOC concentration (EPA Method 25A) yielding total gaseous non methane organics (TGNMO).

APPENDIX A

COMPLETE EMISSION DATA WITH SAMPLE CALCULATIONS

DECEMBER 3, 1993

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COMPLETE EMISSION DATA

BEST AVAILABLE COPY

PLANT: SUGAR CANE GROWERS COOPERATIVE OF FLORIDA
SOURCE: NUMBER 8 BOILER
DATE: 12-03-93

RUN NO.:	1P	IMPINGER ml	353
BEGIN TIME:	1001	SILICA GEL gms.	9.5
END TIME:	1111	PERCENT O2	7.8
TOTAL RUN TIME:	60.00 min.	PERCENT. CO2	11.6
BAROMETRIC PRESSURE:	30.35 "Hg	"F" FACTOR	N/A
STACK PRESSURE:	30.35 "Hg.		
NOZZLE DIAMETER:	0.275 inches	PARTICULATE	
METER CORR. FACTOR:	0.995	----------	
FINAL METER:	818.393 cubic ft.	FILTER mg.	0.0
INITIAL METER:	781.500 cubic ft.	WASH mg.	0.0
STACK AREA:	70.880 sq. ft.		

PORT-POINT	VELOCITY HEAD	SQUARE RT. VEL. HEAD	ORIF. DIFF.	STACK TEMP.	METER TEMP.
1-1	0.580	0.762	1.750	161	72
1-2	0.540	0.735	1.630	160	73
1-3	0.550	0.742	1.660	162	73
1-4	0.390	0.624	1.180	160	74
1-5	0.380	0.616	1.150	157	75
2-1	0.480	0.693	1.450	159	75
2-2	0.510	0.714	1.540	160	77
2-3	0.500	0.707	1.510	160	77
2-4	0.400	0.632	1.210	160	78
2-5	0.320	0.566	0.970	160	79
3-1	0.460	0.678	1.390	160	80
3-2	0.500	0.707	1.510	159	81
3-3	0.500	0.707	1.510	159	82
3-4	0.380	0.616	1.150	161	84
3-5	0.350	0.592	1.060	159	85
4-1	0.460	0.678	1.390	160	85
4-2	0.560	0.748	1.690	161	86
4-3	0.470	0.686	1.420	160	87
4-4	0.320	0.566	0.970	159	88
4-5	0.340	0.583	1.030	157	89
AVERAGES	----------	0.668	1.358	160	80

RUN 1

NOZZLE AREA(SQ.FT.):	0.0004125		
AVG. VELOCITY HEAD :	0.45 "H20	VOL. FLOW ACFM :	179757
AVG. STACK TEMP.:	160 F	VOL. FLOW SCFMD :	105591
AVG. METER TEMP.:	80 F		
AVG. ORIFICE DIFFERENTIAL:	1.36 "H20	PARTICULATE DATA :	
METER STANDARD CUBIC FEET:	36.528	----------	
% H20 VAPOR:	32.0	POUNDS PER HOUR:	0.000
GAS MOL. WT. DRY:	30.17	POUNDS PER SCF :	0.0000000
GAS MOL. WT. WET:	26.27	GRAINS/SCF:	0.000
% EXCESS AIR:	57.87	GRAINS/SCF @ 8% O2	0.000
AVG. STACK VEL.(FPS)	42.27	GRAINS/SCF @50% EA	0.000
MMBTU INPUT:	446.54	POUNDS PER MMBTU:	0.000
PERCENT ISOKINETIC :	99.08	LBS/MMBTU"F"FACTOR	0.000

COMPLETE EMISSION DATA

PLANT: SUGAR CANE GROWERS COOPERATIVE OF FLORIDA
SOURCE: NUMBER 8 BOILER
DATE: 12-03-93

RUN NO.:	2		IMPINGER ml	315
BEGIN TIME:	1210		SILICA GEL gms.	8.0
END TIME:	1320		PERCENT O2	7.6
TOTAL RUN TIME:	60.00	min.	PERCENT CO2	12.2
BAROMETRIC PRESSURE:	30.35	"Hg	"F" FACTOR	N/A
STACK PRESSURE:	30.35	"Hg.		
NOZZLE DIAMETER:	0.275	inches	PARTICULATE	
METER CORR. FACTOR:	0.995			
FINAL METER:	858.210	cubic ft.	FILTER mg.	0.0
INITIAL METER:	818.734	cubic ft.	WASH mg.	0.0
STACK AREA:	70.880	sq. ft.		

PORT-POINT	VELOCITY HEAD	SQUARE RT. VEL. HEAD	ORIF. DIFF.	STACK TEMP.	METER TEMP.
1-1	0.530	0.728	1.600	162	86
1-2	0.590	0.768	1.780	162	86
1-3	0.520	0.721	1.570	161	86
1-4	0.430	0.656	1.300	160	87
1-5	0.380	0.616	1.150	158	87
2-1	0.440	0.663	1.430	162	88
2-2	0.500	0.707	1.630	163	89
2-3	0.500	0.707	1.630	162	90
2-4	0.470	0.686	1.530	162	91
2-5	0.320	0.566	1.040	161	92
3-1	0.520	0.721	1.700	164	92
3-2	0.580	0.762	1.890	163	93
3-3	0.450	0.671	1.470	162	94
3-4	0.390	0.624	1.270	164	95
3-5	0.390	0.624	1.270	164	96
4-1	0.540	0.735	1.760	167	97
4-2	0.540	0.735	1.760	165	97
4-3	0.500	0.707	1.630	166	97
4-4	0.360	0.600	1.170	165	96
4-5	0.350	0.592	1.140	162	95
AVERAGES	----------	0.679	1.486	163	91

RUN 2

NOZZLE AREA(SQ.FT.):	0.0004125			
AVG. VELOCITY HEAD :	--------	0.46 "H20	VOL. FLOW ACFM :	181742
AVG. STACK TEMP.:	---------	163 F	VOL. FLOW SCFMD :	111576
AVG. METER TEMP.:	---------	92 F		
AVG. ORIFICE DIFFERENTIAL:	---	1.49 "H20	PARTICULATE DATA :	
METER STANDARD CUBIC FEET:	---	38.255		
% H2O VAPOR:	:--------	28.6	POUNDS PER HOUR:	0.000
GAS MOL. WT. DRY:	---------	30.26	POUNDS PER SCF :	0.000000
GAS MOL. WT. WET:	---------	26.75	GRAINS/SCF:	0.000
% EXCESS AIR:	---------	55.99	GRAINS/SCF @ 8% O2	0.000
AVG. STACK VEL.(FPS)	---------	42.73	GRAINS/SCF @50% EA	0.000
MMBTU INPUT:	---------	446.54	POUNDS PER MMBTU:	0.000
PERCENT ISOKINETIC :	---------	98.20	LBS/MMBTU"F"FACTOR	0.000

AIR CONSULTING and ENGINEERING
COMPLETE EMISSION DATA

PLANT: SUGAR CANE GROWERS COOPERATIVE OF FLORIDA
SOURCE: NUMBER 8 BOILER
DATE: 12-03-93

RUN NO.:	3P		IMPINGER ml	302
BEGIN TIME:	1430		SILICA GEL gms.	8.0
END TIME:	1536		PERCENT O2	8.3
TOTAL RUN TIME:	60.00	min.	PERCENT CO2	11.6
BAROMETRIC PRESSURE:	30.35	"Hg	"F" FACTOR	N/A
STACK PRESSURE:	30.35	"Hg.		
NOZZLE DIAMETER:	0.275	inches	PARTICULATE	
METER CORR. FACTOR:	0.995		---	
FINAL METER:	899.150	cubic ft.	FILTER mg.	0.0
INITIAL METER:	858.515	cubic ft.	WASH mg.	0.0
STACK AREA:	70.880	sq. ft.		

PORT-POINT	VELOCITY HEAD	SQUARE RT. VEL. HEAD	ORIF. DIFF.	STACK TEMP.	METER TEMP.
1-1	0.560	0.748	1.740	167	90
1-2	0.640	0.800	1.980	166	91
1-3	0.580	0.762	1.800	166	91
1-4	0.510	0.714	1.580	165	91
1-5	0.360	0.600	1.120	166	91
2-1	0.540	0.735	1.670	166	93
2-2	0.650	0.806	2.020	165	93
2-3	0.600	0.775	1.860	166	94
2-4	0.420	0.648	1.300	164	94
2-5	0.340	0.583	1.050	165	95
3-1	0.540	0.735	1.670	166	96
3-2	0.620	0.787	1.920	166	97
3-3	0.520	0.721	1.610	165	98
3-4	0.430	0.656	1.330	165	99
3-5	0.330	0.574	1.020	162	99
4-1	0.520	0.721	1.610	162	100
4-2	0.490	0.700	1.520	162	101
4-3	0.520	0.721	1.610	162	101
4-4	0.530	0.728	1.640	162	102
4-5	0.220	0.469	1.020	161	103
AVERAGES	---	0.699	1.553	164	96

RUN 0

NOZZLE AREA(SQ.FT.):	0.0004125			
AVG. VELOCITY HEAD :	---	0.49 "H20	VOL. FLOW ACFM :	186905
AVG. STACK TEMP.:	---	164 F	VOL. FLOW SCFMD :	116467
AVG. METER TEMP.:	---	96 F		
AVG. ORIFICE DIFFERENTIAL:	---	1.55 "H20	PARTICULATE DATA :	
METER STANDARD CUBIC FEET:	---	39.098	---	
% H20 VAPOR:	---	27.3	POUNDS PER HOUR:	0.000
GAS MOL. WT. DRY:	---	30.19	POUNDS PER SCF :	0.0000000
GAS MOL. WT. WET:	---	26.85	GRAINS/SCF:	0.000
% EXCESS AIR:	---	64.61	GRAINS/SCF @ 8% O2	0.000
AVG. STACK VEL.(FPS)	---	43.95	GRAINS/SCF @50% EA	0.000
MMBTU INPUT:	---	446.54	POUNDS PER MMBTU:	0.000
PERCENT ISOKINETIC :	---	96.15	LBS/MMBTU"F"FACTOR	0.000

DECEMBER 6, 1993

AIR CONSULTING & ENGINEERING, INC.

PARTICULATE EMISSION RESULTS

PLANT:	SUGAR CANE GROWERS OF FLORIDA
SOURCE:	BOILER 8 SCRUBBER OUTLET
LOCATION:	BELLE GLADE, FLORIDA
DATE:	12/6/1993
RUN:	1
TIME:	0937-1046

TOTAL TIME	60	MIN.	PROBE WASH	9.2	MG
BAROMETRIC PRESS.	30.25	IN.HG	FILTER	107.2	MG
STACK PRESS.	30.25	IN.HG	TOTAL	116.4	MG
STACK AREA	70.882	SQFT			
STACK TEMP.	173	F			
Y FACTOR	0.995		OXYGEN	7.85	%
NOZZLE DIAMETER	0.275	IN	CARBON DIOXIDE	10.60	%
NOZZLE AREA	0.000412	SQFT	NITROGEN	81.55	%
AVG.SQRT VEL.HEAD	0.676	IN.H2O	EXCESS AIR	57.38639	%
ORIFICE DIFF.	1.390	IN.H2O			
METER TEMP.	80.00	F			
METER VOLUME	37.148	CUBFT			
CONDENSATE VOL	290.8	ML			

VOLUME WATER VAPOR	13.688	SCF
VOLUME STD. DRY GAS	36.648	SCF
TOTAL SAMPLE VOLUME	50.336	SCF
PERCENT MOISTURE	27.193	
PERCENT DRY AIR	72.807	
MOLECULAR WGT.DRY FLUE GAS	30.010	
MOLECULAR WGT. WET FLUE GAS	26.744	
SPECIFIC GRAVITY FLUE GAS	0.927	
CP	0.84	

VELOCITY FLUE GAS	42.93540	FPS
ACTUAL VOLUMETRIC FLOW RATE	182600.8	ACFM
ACTUAL VOLUMETRIC FLOW RATE DRY	132946.1	ACFMD
STD. VOLUMETRIC FLOW RATE DRY	112116.5	SCFMD
EMISSION CONCENTRATION	0.0489	GR/DSCF
EMISSION RATE	47.005	LB/HR
PERCENT ISOKINETIC	93.6	%

AIR CONSULTING & ENGINEERING, INC.

PARTICULATE EMISSION DATA

PLANT: SUGAR CANE GROWERS COOPERATIVE OF FLORIDA
SOURCE: BOILER 8 SCRUBBER OUTLET
LOCATION: BELLE GLADE, FLORIDA
DATE: 12/6/1993
RUN: 1

TRAVERS POINT NUMBER	VEL. HEAD IN.H2O	SQRT VEL. HEAD	STACK TEMP. F	ORIFICE PRES.DIFF IN.H2O	METER TEMP. F
1-1	0.580	0.762	165	1.74	68
1-2	0.540	0.735	167	1.62	70
1-3	0.550	0.742	169	1.50	71
1-4	0.430	0.656	172	1.29	71
1-5	0.380	0.616	167	1.14	72
2-1	0.500	0.707	165	1.50	76
2-2	0.500	0.707	169	1.50	77
2-3	0.500	0.707	170	1.50	77
2-4	0.360	0.600	173	1.08	78
2-5	0.470	0.686	177	1.50	77
3-1	0.650	0.806	177	1.95	80
3-2	0.580	0.762	173	1.74	81
3-3	0.510	0.714	180	1.53	83
3-4	0.410	0.640	175	1.23	84
3-5	0.130	0.361	160	0.39	85
4-1	0.510	0.714	182	1.53	86
4-2	0.410	0.640	181	1.23	87
4-3	0.480	0.693	180	1.44	88
4-4	0.430	0.656	184	1.29	89
4-5	0.380	0.616	181	1.14	90
AVERAGES		0.676	173	1.39	80

AIR CONSULTING & ENGINEERING, INC.

PARTICULATE EMISSION RESULTS

PLANT:	SUGAR CANE GROWERS OF FLORIDA
SOURCE:	BOILER 8 SCRUBBER OUTLET
LOCATION:	BELLE GLADE, FLORIDA
DATE:	12/6/1993
RUN:	2
TIME:	1222-1334

TOTAL TIME	60	MIN.	PROBE WASH	3.7	MG
BAROMETRIC PRESS.	30.25	IN.HG	FILTER	114.5	MG
STACK PRESS.	30.25	IN.HG	TOTAL	118.2	MG
STACK AREA	70.882	SQFT			
STACK TEMP.	169	F			
Y FACTOR	0.995		OXYGEN	7.83	%
NOZZLE DIAMETER	0.275	IN	CARBON DIOXIDE	10.50	%
NOZZLE AREA	0.000412	SQFT	NITROGEN	81.67	%
AVG.SQRT VEL.HEAD	0.681	IN.H2O	EXCESS AIR	57.02475	%
ORIFICE DIFF.	1.410	IN.H2O			
METER TEMP.	91.00	F			
METER VOLUME	38.238	CUBFT			
CONDENSATE VOL	281.1	ML			

VOLUME WATER VAPOR	13.231	SCF
VOLUME STD. DRY GAS	36.972	SCF
TOTAL SAMPLE VOLUME	50.204	SCF
PERCENT MOISTURE	26.355	
PERCENT DRY AIR	73.645	
MOLECULAR WGT.DRY FLUE GAS	29.993	
MOLECULAR WGT. WET FLUE GAS	26.832	
SPECIFIC GRAVITY FLUE GAS	0.930	
CP	0.84	

VELOCITY FLUE GAS	43.04515	FPS
ACTUAL VOLUMETRIC FLOW RATE	183067.5	ACFM
ACTUAL VOLUMETRIC FLOW RATE DRY	134819.4	ACFMD
STD. VOLUMETRIC FLOW RATE DRY	114419.3	SCFMD
EMISSION CONCENTRATION	0.0492	GR/DSCF
EMISSION RATE	48.285	LB/HR
PERCENT ISOKINETIC	92.6	%

AIR CONSULTING & ENGINEERING, INC.

PARTICULATE EMISSION DATA

PLANT: SUGAR CANE GROWERS COOPERATIVE OF FLORIDA
SOURCE: BOILER 8 SCRUBBER OUTLET
LOCATION: BELLE GLADE, FLORIDA
DATE: 12/6/1993
RUN: 2

TRAVERS POINT NUMBER	VEL. HEAD IN.H2O	SQRT VEL. HEAD	STACK TEMP. F	ORIFICE PRES.DIFF IN.H2O	METER TEMP. F
1-1	0.520	0.721	164	1.56	85
1-2	0.600	0.775	169	1.80	85
1-3	0.560	0.748	168	1.68	85
1-4	0.420	0.648	168	1.26	86
1-5	0.360	0.600	168	1.08	87
2-1	0.630	0.794	169	1.89	88
2-2	0.630	0.794	170	1.89	88
2-3	0.500	0.707	171	1.50	88
2-4	0.500	0.707	171	1.50	89
2-5	0.400	0.632	168	1.20	90
3-1	0.430	0.656	170	1.29	91
3-2	0.500	0.707	168	1.50	92
3-3	0.450	0.671	170	1.35	93
3-4	0.410	0.640	170	1.23	93
3-5	0.340	0.583	167	1.02	94
4-1	0.420	0.648	166	1.26	95
4-2	0.500	0.707	170	1.50	95
4-3	0.530	0.728	170	1.59	96
4-4	0.350	0.592	170	1.05	97
4-5	0.320	0.566	169	0.96	97
AVERAGES		0.681	169	1.41	91

AIR CONSULTING & ENGINEERING, INC.

PARTICULATE EMISSION RESULTS

PLANT:	SUGAR CANE GROWERS OF FLORIDA
SOURCE:	BOILER 8 SCRUBBER OUTLET
LOCATION:	BELLE GLADE, FLORIDA
DATE:	12/6/1993
RUN:	3
TIME:	1434-1543

TOTAL TIME	60	MIN.	PROBE WASH	7.7	MG
BAROMETRIC PRESS.	30.25	IN.HG	FILTER	125.4	MG
STACK PRESS.	30.25	IN.HG	TOTAL	133.1	MG
STACK AREA	70.882	SQFT			
STACK TEMP.	164	F			
Y FACTOR	0.995		OXYGEN	7.32	%
NOZZLE DIAMETER	0.275	IN	CARBON DIOXIDE	10.80	%
NOZZLE AREA	0.000412	SQFT	NITROGEN	81.88	%
AVG.SQRT VEL.HEAD	0.686	IN.H2O	EXCESS AIR	51.20198	%
ORIFICE DIFF.	1.570	IN.H2O			
METER TEMP.	93.00	F			
METER VOLUME	40.335	CUBFT			
CONDENSATE VOL	304.3	ML			

VOLUME WATER VAPOR	14.323	SCF
VOLUME STD. DRY GAS	38.874	SCF
TOTAL SAMPLE VOLUME	53.197	SCF
PERCENT MOISTURE	26.925	
PERCENT DRY AIR	73.075	
MOLECULAR WGT.DRY FLUE GAS	30.021	
MOLECULAR WGT. WET FLUE GAS	26.784	
SPECIFIC GRAVITY FLUE GAS	0.929	
CP	0.84	

VELOCITY FLUE GAS	43.22731	FPS
ACTUAL VOLUMETRIC FLOW RATE	183842.3	ACFM
ACTUAL VOLUMETRIC FLOW RATE DRY	134342.6	ACFMD
STD. VOLUMETRIC FLOW RATE DRY	114928.3	SCFMD
EMISSION CONCENTRATION	0.0527	GR/DSCF
EMISSION RATE	51.942	LB/HR
PERCENT ISOKINETIC	96.9	%

AIR CONSULTING & ENGINEERING, INC.

PARTICULATE EMISSION DATA

PLANT: SUGAR CANE GROWERS COOPERATIVE OF FLORIDA
SOURCE: BOILER 8 SCRUBBER OUTLET
LOCATION: BELLE GLADE, FLORIDA
DATE: 12/6/1993
RUN: 3

TRAVERS POINT NUMBER	VEL. HEAD IN.H2O	SQRT VEL. HEAD	STACK TEMP. F	ORIFICE PRES.DIFF IN.H2O	METER TEMP. F
1-1	0.510	0.714	162	1.68	89
1-2	0.580	0.762	160	1.91	89
1-3	0.500	0.707	163	1.65	89
1-4	0.450	0.671	162	1.49	90
1-5	0.400	0.632	161	1.32	90
2-1	0.490	0.700	165	1.62	91
2-2	0.560	0.748	165	1.85	91
2-3	0.500	0.707	165	1.65	92
2-4	0.500	0.707	165	1.65	92
2-5	0.220	0.469	135	0.73	92
3-1	0.510	0.714	171	1.68	93
3-2	0.510	0.714	167	1.68	93
3-3	0.510	0.714	168	1.68	93
3-4	0.460	0.678	167	1.52	94
3-5	0.370	0.608	167	1.22	95
4-1	0.570	0.755	169	1.88	95
4-2	0.550	0.742	167	1.82	96
4-3	0.510	0.714	168	1.68	96
4-4	0.410	0.640	167	1.35	97
4-5	0.380	0.616	156	1.25	97
AVERAGES		0.686	164	1.57	93

APPENDIX B

FIELD DATA SHEETS

Mill	Source	Permit No/Date PSD for	CO REQ	CO IN PERMIT	TEST RESULTS/date TEST METHOD
US Sugar	52 FTM 26000 301	Boiler #1 494 mmBtu/hr US Sugar			177 TPY est (220 pot.) based AP42 no actual reported (no test req'd)
	2	2 494 mmBtu/hr	184	222	179.9 TPY est, 192 (no CO test req'd)
	3	3 267 mmBtu/hr			
	4	5 140 mmBtu/hr			
	5	6 140 mmBtu/hr			
	(9)				
	52 FTM 50000 503	Bagasse Boiler #4 est 1 TPY CO/est 82.27 TPY CO/no test req'd			
Okeelanta	4	5			
	5	6			
	9	10			
	10	11			
	11	12			
	12	14			
	13	15			
	14	16			
	1601	1 — 52 TPY est / 90.52 TPY est / no CO test req'd			
Atlantic Sugar	2				
	3				
	4				
	5				
	1901	1 — boiler #1 67 TPY est / 28. TPY est — / no test req'd			
Osceola Farms	2				
	3				
	4				
	5				
	6				
	2001	1 — boiler #1 72. TPY est / 74.3 TPY est / no test req'd			
Sugar Cane Growers	2				
	3				
	4				
	5				
	6				
	7 (illegible)				
	8				
	9				
	6101	1 Boiler #1 124 TPY est / 130.8 TPY est / no test			
Sugar Mill of US Sugar	2				
	3				
	5				
	7304	5 — Boiler No. 4 60 TPY est (59.3 TPY pot.)			
	" 5				

The Petition shall contain the following information:

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

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 position taken by it in this amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the request/application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this amendment in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

DAP Production

Pollutant		Main Stack	R/G Stack	Plant Total
Fluorides	lbs/TP_2O_5	--	--	0.06
	lbs/hr	1.60	1.16	2.76
	TPY	7.0	5.1	12.1
Particulate Matter	lbs/hr	10.6	5.5	16.1
	TPY	46.5	24.2	70.7
Ammonia*	lbs/hr	5.2	**128.7**	**133.9**
	TPY	22.7	**563.7**	**586.4**

~~*24-hour average~~

***Ammonia emission estimates (24-hour averages) listed in these tables are for inventory purposes only. Should the ammonia emissions exceed the listed estimates, the permittee shall model the maximum ammonia emissions to show that the Acceptable Ambient Concentration for ammonia is not being exceeded and submit a report on these results to the Southwest District.**

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. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the applicant of the amendment request/application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. 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.

" 6

Talisman

AIROIL

DECEMBER 3, 1993

STACK SAMPLING FIELD DATA SHEET

ACE AIR CONSULTING & ENGINEERING, INC.
2106 N. W. 67th PLACE · Suites 9 & 10
GAINESVILLE, FLORIDA · 32606

TEST ID 35C8APIA
PAGE 1 OF 2

PLANT SUGAR CANE GROWERS CO-OP
SOURCE BOILER #8
PLANT LOCATION BELLE GLADE, FL
TYPE OF SAMPLING TRAIN EPA-5
TYPE OF SAMPLES P.M
DATE 12-03-93 RUN NO. 1
TIME START 1001 TIME END 1111
SAMPLE TIME 3 / 20 (min/pt)= 60 Total min
ASSUMED MOISTURE 30 % FDA 0.70
NOMOGRAPH C_p 3.02 PITOT CORR. 0.84
P_b 30.35 "Hg P_s 30.35 "Hg
WEATHER CLEAR TEMP. 73 °F
METER BOX NO. 6 H 1.81 Y .995
NOZZLE CAL. .275 , .275 , .275 = .275
STACK DIMENSIONS 114"
STACK AREA 10.88 ft.² EFFECTIVE 10.84 ft.²
STACK HEIGHT _____ ft.
STACK DIAMETER: UPSTRM. _____ DNSTRM. _____
PORT SIZE 6 in. NIPPLE LENGTH 8 in.
U CORD LENGTH 200'
REMARKS: _____

MAT'L PROCESSING RATE _____
GAS METER READINGS: FINAL 818.393 ft.³
INITIAL 781.505 ft.³
NET 36.888 ft.³
FILTER NO. 4886 IMP. VOL. GAIN _____ ml.
SIL GEL NO. 29 WT. GAIN _____ ml.
TOTAL CONDENSATE _____ ml.

ORSAT

	1	2	3	4	AVG.
% CO_2					11.6
% O_2					7.8
% CO					
% N_2					

F_O = _____ F_O RANGE = _____
ORSAT ANALYZER _____

LEAK CHECKS
PRE 0.003 cfm 14 "Hg POST 0.002 cfm 10 "Hg
METER BOX/PUMP OK GAS SAMPLE SYST. _____
ORSAT BAG _____
PITOT TUBE NO. 73 PRE-TEST OK
POST-TEST(+) 0.0 @ 4" / 15 H_2O/Sec
POST-TEST(−) 0.0 @ / 15 H_2O/Sec
PYROMETER NO. ATK-3
BOX OPERATOR MCFARLAND PROBE HOLDER ROBERTS

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (FT.³)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O) CALC.	METER ORIFICE PRESS. DIFF. ("H_2O) ACTUAL	STACK GAS TEMP. (°F)	SAMPLE BOX TEMP. (°F)	LAST IMPINGER TEMP. F	DRY GAS METER TEMP. (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
1-1		1001	781.505	.58	1.75	1.75	161	247	66	72	3
2		1004	783.68	.54	1.63	1.63	160	256	62	73	3
3		1007	785.55	.55	1.66	1.66	162	259	61	73	3
4		1010	788.19	.39	1.18	1.18	160	258	62	74	3
5		1013	789.45	.38	1.15	1.15	157	258	61	75	3

AIR CONSULTING & ENGINEERING, INC.

TEST ID 35C8APIP

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (ft^3)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O)		STACK GAS TEMP. (°F)	SAMPLE BOX TEMP. (°F)	LAST IMPINGER TEMP. (°F)	DRY GAS METER TEMP. (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
					CALC.	ACTUAL					
2-1		1021	791.044	.48	1.45	1.45	159	254	66	75	4
2		1024	792.90	.51	1.54	1.54	160	260	62	77	4
3		1027	794.81	.50	1.51	1.51	160	260	60	77	4
4		1030	796.73	.40	1.21	1.21	160	261	60	78	4
5		1033	798.52	.32	.97	.97	160	265	61	79	4
3-1		1038	800.090	.46	1.39	1.39	160	246	65	80	5
2		1041	801.94	.50	1.51	1.51	159	240	60	81	5
3		1044	803.90	.50	1.51	1.51	159	241	60	82	6
4		1047	805.78	.38	1.15	1.15	161	241	60	84	6
5		1050	807.58	.35	1.06	1.06	159	244	60	85	5
4-1		1056	809.270	.46	1.39	1.39	160	262	65	85	6
2		1059	811.15	.56	1.69	1.69	161	263	61	86	8
3		1102	813.20	.47	1.42	1.42	160	259	61	87	8
4		1105	815.14	.32	.97	.97	159	260	62	88	6
5		1108	816.77	.34	1.03	1.03	157	262	62	89	6

STACK SAMPLING FIELD DATA SHEET

ACE AIR CONSULTING & ENGINEERING, INC.
2106 N. W. 67th PLACE · Suites 9 & 10
GAINESVILLE, FLORIDA · 32606

TEST ID 35C8AP2B
PAGE 1 OF 2

PLANT Sugar Cane Growers Co-Op
SOURCE Boiler #8
PLANT LOCATION Belle Glade
TYPE OF SAMPLING TRAIN EPA-5
TYPE OF SAMPLES PM
DATE 12-03-93 RUN NO. 2
TIME START 1210 TIME END 1320
SAMPLE TIME 3 / 20 (min/pt)= 60 Total min
ASSUMED MOISTURE 30 % FDA .70
NOMOGRAPH C_p 3.02 PITOT CORR. .84
P_b 30.35 "Hg P_g 30.35 "Hg
WEATHER Pt. Cldy TEMP. 80 °F
METER BOX NO. 6 H 1.81 Y .995
NOZZLE CAL. .275 .275 .275 = .275
STACK DIMENSIONS 114
STACK AREA 10.88 ft.² EFFECTIVE 10.88 ft.²
STACK HEIGHT _____ ft.
STACK DIAMETER: UPSTRM. _____ DNSTRM. _____
PORT SIZE 6 in. NIPPLE LENGTH 8 in.
U CORD LENGTH 200'
REMARKS: _____

MAT'L PROCESSING RATE _____
GAS METER READINGS: FINAL 858.210 ft.³
INITIAL 818.734 ft.³
NET 39.476 ft.³
FILTER NO. 4887 IMP. VOL. GAIN 315 ml.
SIL GEL NO. 76 WT. GAIN _____ ml.
TOTAL CONDENSATE _____ ml.

ORSAT

	1	2	3	4	AVG.
% CO_2					12.2
% O_2					8.6
% CO					
% N_2					

F_O = _____ F_O RANGE = _____
ORSAT ANALYZER _____

LEAK CHECKS
PRE 0.004 cfm 14 "Hg POST 0.00 cfm 11 "Hg
METER BOX/PUMP OK GAS SAMPLE SYST. _____
ORSAT BAG _____
PITOT TUBE NO. 73 PRE-TEST OK
POST-TEST(+) 0.0 @ 5 / 15 H_2O/Sec
POST-TEST(−) 0.0 @ 4 / 15 H_2O/Sec
PYROMETER NO. ATK-3
BOX OPERATOR McFarland PROBE HOLDER Roberts

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (FT.³)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O) CALC.	METER ORIFICE PRESS. DIFF. ("H_2O) ACTUAL	STACK GAS TEMP (°F)	SAMPLE BOX TEMP (°F)	LAST IMPINGER TEMP F	DRY GAS METER TEMP (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
1-1		1210	818.734	.53	1.60	1.60	162	267	65	86	3
2		1213	820.91	.59	1.78	1.78	162	269	62	86	3
3		1216	822.99	.52	1.57	1.57	161	270	61	86	3
4		1219	825.01	.43	1.30	1.30	160	265	60	87	3
5		1222	826.90	.38	1.15	1.15	158	263	60	87	3

AIR CONSULTING & ENGINEERING, INC.

TEST ID 3SC8AP2

PAGE 2 OF 2

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING ($ft.^3$)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O)		STACK GAS TEMP (°F)	SAMPLE BOX TEMP (°F)	LAST IMPINGER TEMP (°F)	DRY GAS METER TEMP (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
					CALC.	ACTUAL					
2-1	Cf=3.26	1228	828.653	.44	1.43	1.43	162	257	67	88	4
2		1231	830.54	.50	1.63	1.63	163	259	63	89	4
3		1234	832.52	.50	1.63	1.63	162	263	61	90	5
4		1237	834.57	.47	1.53	1.53	162	270	61	91	4
5		1240	836.57	.32	1.04	1.04	161	260	61	92	4
3-1		1246	838.225	.52	1.70	1.70	164	266	68	92	6
2		1249	840.27	.58	1.89	1.89	163	265	62	92	6
3		1252	843.18	.45	1.47	1.47	162	268	64	94	6
4		1255	844.65	.39	1.27	1.27	164	265	64	95	6
5		1258	846.45	.39	1.27	1.27	164	270	64	96	6
4-1		1305	848.297	.54	1.76	1.76	167	269	68	97	8
2		1308	850.33	.54	1.76	1.76	165	273	63	97	8
3		1311	852.49	.50	1.63	1.63	166	269	61	97	8
4		1314	854.59	.36	1.17	1.17	165	264	60	98	8
5		1317	856.44	.35	1.14	1.14	162	261	60	98	7

STACK SAMPLING FIELD DATA SHEET

ACE AIR CONSULTING & ENGINEERING, INC.
2106 N. W. 67th PLACE · Suites 9 & 10
GAINESVILLE, FLORIDA · 32606

TEST ID 3SC8AP3
PAGE 1 OF 2

PLANT Sugar Cane Growers Coop. of Fla.
SOURCE Boiler #8
PLANT LOCATION Belle Glade, Florida
TYPE OF SAMPLING TRAIN EPA-5
TYPE OF SAMPLES P.M.
DATE 12-03-93 RUN NO. 3
TIME START 1430 TIME END 1536
SAMPLE TIME 3.0 / 20 (min/pt)= 60 Total min
ASSUMED MOISTURE 30 % FDA .70
NOMOGRAPH C_f ~~3.0~~ 3.1 PITOT CORR. .84
P_b 30.35 "Hg P_s 30.35 "Hg
WEATHER Pthy cldy TEMP. 85 °F
METER BOX NO. 6 H 1.81 Y .995
NOZZLE CAL. .275 .275 .275 = .275
STACK DIMENSIONS 114"
STACK AREA 70.88 ft.² EFFECTIVE 70.88 ft.²
STACK HEIGHT _____ ft.
STACK DIAMETER: UPSTRM. _____ DNSTRM. _____
PORT SIZE _____ In. NIPPLE LENGTH _____ In.
U CORD LENGTH 200'
REMARKS: _____

MAT'L PROCESSING RATE _____
GAS METER READINGS: FINAL 899.150 ft.³
INITIAL 858.515 ft.³
NET 40.635 ft.³
FILTER NO. 4888 IMP. VOL. GAIN 302 ml.
SIL GEL NO. _____ WT. GAIN _____ ml.
TOTAL CONDENSATE _____ ml.

ORSAT

	1	2	3	4	AVG.
% CO_2					11.6
% O_2					8.3
% CO					
% N_2					

F_O = _____ F_O RANGE = _____
ORSAT ANALYZER _____

LEAK CHECKS
PRE 0.004 cfm 15 "Hg POST 0.00 cfm 10 "Hg
METER BOX/PUMP OK GAS SAMPLE SYST. OK
ORSAT BAG OK
PITOT TUBE NO. 73 PRE-TEST OK
POST-TEST(+) 0.0 @ 5" 15 H_2O/Sec
POST-TEST(−) 0.0 @ 5" 15 H_2O/Sec
PYROMETER NO. ATK-3
BOX OPERATOR Southreaux PROBE HOLDER McFarland

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (FT.³)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O) CALC.	METER ORIFICE PRESS. DIFF. ("H_2O) ACTUAL	STACK GAS TEMP. (°F)	SAMPLE BOX TEMP. (°F)	LAST IMPINGER TEMP. F	DRY GAS METER TEMP. (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
1-1		1433	861.24	.56	1.74	1.74	167	257	62	90	3.0
2		1436	862.84	.64	1.98	1.98	166	238	61	91	3.0
3		1439	864.45	.58	1.80	1.80	166	235	61	91	3.0
4		1442	866.41	.51	1.58	1.58	165	237	63	91	4.0
5		1445	868.73	.36	1.12	1.12	166	252	63	91	4.6
		~~1448~~									

AIR CONSULTING & ENGINEERING, INC.

TEST ID 3SC8AP3

PAGE 2 OF 2

Run #3 12-03-93 SCGC Boiler #8

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (ft^3)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O)		STACK GAS TEMP (°F)	SAMPLE BOX TEMP (°F)	LAST IMPINGER TEMP (°F)	DRY GAS METER TEMP (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
					CALC.	ACTUAL					
2-1		1448	871.14	.54	1.67	1.67	166	265	63	93	3.0
2		1451	872.74	.65	2.02	2.02	165	270	63	93	5.0
3		1454	875.03	.60	1.86	1.86	166	273	63	94	5.0
4		1457	877.01	.42	1.30	1.30	164	273	63	94	5.0
5		1500	878.78	.34	1.05	1.05	165	274	64	95	5.0
3-1		1505	880.70	.54	1.67	1.67	166	258	64	96	5.0
2		1508	882.99	.62	1.92	1.92	166	259	64	97	6.0
3		1511	885.21	.52	1.61	1.61	165	237	64	98	6.0
4		1514	886.95	.43	1.33	1.33	165	235	64	99	6.0
5		1517	888.22	.33	1.02	1.02	162	234	64	99	5.0
4-1		1521	890.99	.52	1.61	1.61	162	259	65	100	7.0
2		1524	893.11	.49	1.52	1.52	162	259	65	101	7.0
3		1527	895.16	.52	1.61	1.61	162	259	65	101	7.0
4		1530	897.28	.53	1.64	1.64	162	263	65	102	8.0
5		1533	899.150	.33	1.02	1.02	161	260	65	103	6.0

DECEMBER 6, 1993

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STACK SAMPLING FIELD DATA SHEET

ACE AIR CONSULTING & ENGINEERING, INC.
2106 N. W. 67th PLACE · Suites 9 & 10
GAINESVILLE, FLORIDA · 32606

TEST ID 3SC8RG1
PAGE 1 OF 2

PLANT Sugar Cane Growers Coop
SOURCE Boiler #8
PLANT LOCATION Belle Glade FL
TYPE OF SAMPLING TRAIN EPA Mm-5
TYPE OF SAMPLES PM
DATE 12-6-93 RUN NO. 1
TIME START 0937 TIME END 1046
SAMPLE TIME 3 120 (min/pt) = 60 Total min
ASSUMED MOISTURE 30 % FDA 0.70
NOMOGRAPH C_f 3.00 PITOT CORR. 0.84
P_b 30.25 "Hg P_g 30.25 "Hg
WEATHER Clear TEMP. 60's °F
METER BOX NO. 6 H 1.81 Y 0.985
NOZZLE CAL. 0.275 0.275 0.275 = 0.275
STACK DIMENSIONS 114"
STACK AREA 70.88 ft² EFFECTIVE 70.88 ft²
STACK HEIGHT ~ 80 ft
STACK DIAMETER: UPSTRM. _____ DNSTRM. _____
PORT SIZE _____ In. NIPPLE LENGTH _____ In.
U CORD LENGTH 200'
REMARKS:
Stellar Jordan

MAT'L PROCESSING RATE _____
GAS METER READINGS: FINAL 936.648 ft³
INITIAL 899.500 ft³
NET 37.148 ft³
FILTER NO. 4889 IMP. VOL. GAIN 280 ml.
SIL GEL NO. 151 WT. GAIN 10.8 ml.
TOTAL CONDENSATE 290.8 ml.

ORSAT

	1	2	3	4	AVG.
% CO_2					10.6
% O_2					7.85
% CO					
% N_2					

F_O = _____ F_O RANGE = _____
ORSAT ANALYZER _____

LEAK CHECKS
PRE 0.000 cfm 15 "Hg POST 0.000 cfm 10 "Hg
METER BOX/PUMP OK GAS SAMPLE SYST. OK
ORSAT BAG OK
PITOT TUBE NO. 73 PRE-TEST OK
POST-TEST(+) 5.2 / 15 H_2O/Sec
POST-TEST(−) 6.7 / 15 H_2O/Sec
PYROMETER NO. ATK-3
BOX OPERATOR Barney PROBE HOLDER Rogers

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (FT.³)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O) CALC.	METER ORIFICE PRESS. DIFF. ("H_2O) ACTUAL	STACK GAS TEMP. (°F)	SAMPLE BOX TEMP. (°F)	LAST IMPINGER TEMP. F	DRY GAS METER TEMP. (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
1-1		0937	899.500 0.58	0.58	1.74	1.74	165	271	62	68	4.0
2		0940	901.81	0.54	1.62	1.62	167	271	60	70	4.0
3		0945	904.0	0.50	1.50	1.50	169	269	61	71	4.0
4		0950	905.63	0.43	1.29	1.29	172	263	62	71	4.0
5		0955	907.45	0.38	1.14	1.14	167	269	62	72	4.0
		1000	909.45	0.38							

AIR CONSULTING & ENGINEERING, INC.

TEST ID 35C8RC1

PAGE 2 OF 2

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (ft^3)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O)		STACK GAS TEMP (°F)	SAMPLE BOX TEMP (°F)	LAST IMPINGER TEMP (°F)	DRY GAS METER TEMP (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
					CALC.	ACTUAL					
2-1		0938 0954	909.34	0.50	1.50	1.50	165	269	61	76	4.0
2		1001 0957	913.53	0.50	1.50	1.50	169	262	61	77	4.0
3		1004 1007	916.59 914.52	0.50	1.50	1.50	170	263	61	77	4.0
4		1007 1010	916.52 919.30	0.56 0.80	1.68 1.80	1.68 1.80	173 174	266	62	78	4.0
5		1010 1013	913.0	0.47	1.41	1.50	172	267	61	77	4.0
		1013									
3-1		1014	918.27	0.65	1.95	1.95	177	254	63	80	6.0
2		1017	920.41	0.58	1.74	1.74	173	270	64	81	6.0
3		1020	922.49	0.51	1.53	1.53	180	271	62	83	6.5
4		1023	924.52	0.41	1.23	1.23	175	272	63	84	6.0
5		1026	926.48	0.13	0.39	0.39	160	268	63	85	4.0
		1029									
4-1		1031	927.36	0.51	1.53	1.53	182	271	*67	86	7.0
2		1034	929.34	0.41	1.23	1.23	181	271	67	87	6.0
3		1037	931.21	0.48	1.44	1.44	180	265	67	88	7.0
4		1040	933.11	0.43	1.29	1.29	184	265	67	89	7.5
5		1043	934.90	0.38	1.14	1.14	181	257	67	90	7.5
5-1											
2											
3											
4											
5											

*Impinger outlet temp was most probably 55°F or below. Temperature outlet temp was actually reading (erroneously) about 75°F GPK 10-05-93

Thermocouple ... was replaced on ...

STACK SAMPLING FIELD DATA SHEET

ACE AIR CONSULTING & ENGINEERING, INC.
2106 N. W. 67th PLACE · Suites 9 & 10
GAINESVILLE, FLORIDA · 32606

TEST ID 3SC8RC2
PAGE 1 OF 2

PLANT Sugar Cane Growers Coop
SOURCE Boiler #8
PLANT LOCATION Belle Glade Fl.
TYPE OF SAMPLING TRAIN EPA M-5
TYPE OF SAMPLES Run
DATE 12-6-93 RUN NO. 2
TIME START 1222 TIME END 1339
SAMPLE TIME 3 / 20 (min/pt) = 60 Total min
ASSUMED MOISTURE 30 % FDA 0.70
NOMOGRAPH C_f 3.00 PITOT CORR. 0.84
P_b 30.25 "Hg P_g 30.25 "Hg
WEATHER Clear TEMP. 70 °F
METER BOX NO. 6 H 1.81 Y 0.995
NOZZLE CAL. 0.225 0.225 0.225 = 0.225
STACK DIMENSIONS 144"
STACK AREA 20.88 ft² EFFECTIVE 20.88 ft²
STACK HEIGHT ≈ 80 ft
STACK DIAMETER: UPSTRM. _____ DNSTRM. _____
PORT SIZE _____ In. NIPPLE LENGTH _____ In.
U CORD LENGTH 200'
REMARKS: _____

MAT'L PROCESSING RATE _____
GAS METER READINGS: FINAL 975.353 ft³
INITIAL 937.115 ft³
NET 38.238 ft³
FILTER NO. 4890 IMP. VOL. GAIN 228 ml.
SIL GEL NO. 39 WT. GAIN 3.1 ml.
TOTAL CONDENSATE 281.1 ml.

ORSAT

	1	2	3	4	AVG.
% CO_2					10.5
% O_2					7.83
% CO					
% N_2					

F_O = _____ F_O RANGE = _____
ORSAT ANALYZER _____

LEAK CHECKS
PRE 0.007 cfm 16 "Hg POST 0.008 cfm 11 "Hg
METER BOX/PUMP ✓ GAS SAMPLE SYST. ✓
ORSAT BAG ✓
PITOT TUBE NO. 73 PRE-TEST ✓
POST-TEST(+) 22 / 15 H_2O/Sec
POST-TEST(−) 29 / 15 H_2O/Sec
PYROMETER NO. ATK-3
BOX OPERATOR Shirley PROBE HOLDER Russell

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (FT³)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O) CALC.	METER ORIFICE PRESS. DIFF. ("H_2O) ACTUAL	STACK GAS TEMP (°F)	SAMPLE BOX TEMP (°F)	LAST IMPINGER TEMP F	DRY GAS METER TEMP (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
1-1		1222	937.115 0.52	0.52	1.56	1.56	164	259	58	85	3.0
2		1235	939.30	0.60	1.80	1.80	169	257	57	85	3.0
3		1248	941.41	0.56	1.68	1.68	165	257	57	85	3.0
4		1301	943.60	0.42	1.26	1.26	168	247	57	86	2.5
5		1314	945.35	0.36	1.08	1.08	168	245	63	87	2.0
		1327									

AIR CONSULTING & ENGINEERING, INC.

TEST ID 35C-8RC2

PAGE 2 OF 2

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (ft^3)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O)		STACK GAS TEMP. (°F)	SAMPLE BOX TEMP. (°F)	LAST IMPINGER TEMP. (°F)	DRY GAS METER TEMP. (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
					CALC.	ACTUAL					
2-1		1247	947.00	0.63	1.89	1.89	169	255	66	88	4.0
2		1255	949.13	0.63	1.89	1.89	170	261	63	88	4.0
3		1248	951.20	0.50	1.50	1.50	171	263	60	88	4.0
4		1251	953.19	0.50	1.50	1.50	171	269	62	89	4.0
5		1254	955.15	0.40	1.20	1.20	168	271	63	90	4.0
		1257									
3-1		1300	956.94	0.43	1.29	1.29	170	249	67	91	4.0
2		1303	959.03	0.50	1.50	1.50	168	229	62	92	4.0
3		1306	960.14	0.45	1.35	1.35	170	237	60	93	4.5
4		1309	962.56	0.41	1.23	1.23	170	254	60	93	4.5
5		1312	964.41	0.34	1.02	1.02	167	259	59	94	4.0
		1315									
4-1		1319	966.12	0.42	1.26	1.26	166	273	67	95	4.0
2		1322	968.01	0.50	1.50	1.50	170	273	59	95	5.0
3		1325	969.92	0.53	1.59	1.59	170	273	59	96	5.0
4		1328	972.13	0.35	1.05	1.05	170	265	60	97	5.0
5		1331	973.72	0.32	0.96	0.96	169	267	61	97	5.0

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STACK SAMPLING FIELD DATA SHEET

ACE AIR CONSULTING & ENGINEERING, INC.
2106 N. W. 67th PLACE · Suites 9 & 10
GAINESVILLE, FLORIDA · 32606

TEST ID 5356BK3
PAGE 1 OF 2

PLANT Sugar Cane Growers Co-op
SOURCE Boiler #5
PLANT LOCATION Belle Glade Fl.
TYPE OF SAMPLING TRAIN EPA RM 5
TYPE OF SAMPLES Pm
DATE 12-6-93 RUN NO. 3
TIME START 1434 TIME END 1543
SAMPLE TIME 5 / 20 (min/pt) = 60 Total min
ASSUMED MOISTURE 30 % FDA 0.70
NOMOGRAPH C_f 5.80 PITOT CORR. 0.84
P_b 30.25 "Hg P_g 30.25 "Hg
WEATHER Partly Cldy TEMP. 75 °F
METER BOX NO. 6 H 1.81 Y 0.995
NOZZLE CAL. 0.275 0.275 0.275 = 0.275
STACK DIMENSIONS 144
STACK AREA 70.88 ft² EFFECTIVE 70.58 ft²
STACK HEIGHT ~80 ft
STACK DIAMETER: UPSTRM. _____ DNSTRM. _____
PORT SIZE _____ in. NIPPLE LENGTH _____ in.
U CORD LENGTH 200'
REMARKS: _____

MAT'L PROCESSING RATE _____
GAS METER READINGS: FINAL 1016.035 ft³
INITIAL 975.700 ft³
NET 1016.035 40.335 ft³
FILTER NO. 4891 IMP. VOL. GAIN 302 ml.
SIL GEL NO. 12 WT. GAIN 2.3 ml.
TOTAL CONDENSATE 304.3 ml.

ORSAT

	1	2	3	4	AVG.
% CO_2					10.8
% O_2					7.32
% CO					
% N_2					

F_O = _____ F_O RANGE = _____
ORSAT ANALYZER _____

LEAK CHECKS
PRE 0.000 cfm 16 "Hg POST 0.014 cfm 14 "Hg
METER BOX/PUMP ✓ GAS SAMPLE SYST. ✓
ORSAT BAG ✓
PITOT TUBE NO. 73 PRE-TEST ✓
POST-TEST(+) 6.6 / 15 H_2O/Sec
POST-TEST(−) 6.4 / 15 H_2O/Sec
PYROMETER NO. ATK 3
BOX OPERATOR Buetley PROBE HOLDER Roberts

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (FT.³)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O) CALC.	METER ORIFICE PRESS. DIFF. ("H_2O) ACTUAL	STACK GAS TEMP (°F)	SAMPLE BOX TEMP (°F)	LAST IMPINGER TEMP F	DRY GAS METER TEMP (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
1-1		1434	975.700	0.51	1.63	1.63	162	260	61	89	2.0
2		1457	977.88	0.55	1.91	1.91	160	265	55	87	2.0
3		1520	980.21	0.50	1.65	1.65	163	272	56	88	2.0
4		1543	982.12	0.45	1.49	1.49	162	269	55	90	3.0
5		1527	984.16	0.40	1.32	1.32	161	269	54	90	3.0

AIR CONSULTING & ENGINEERING, INC.

TEST ID _____

PAGE 2 OF 2

PORT AND TRAVERSE POINT NUMBER	DISTANCE FROM INSIDE STACK WALL /COMMENTS	CLOCK TIME	GAS METER READING (ft^3)	STACK VELOCITY HEAD	METER ORIFICE PRESS. DIFF. ("H_2O)		STACK GAS TEMP (°F)	SAMPLE BOX TEMP (°F)	LAST IMPINGER TEMP (°F)	DRY GAS METER TEMP (°F)	VACUUM ON SAMPLE TRAIN ("Hg)
					CALC.	ACTUAL					
2-1		1452	986.11	0.49	1.62	1.62	165	264	59	91	4.0
2		1455	987.91	0.56	1.85	1.85	165	230	53	91	4.0
3		1458	990.11	0.50	1.65	1.65	165	236	57	92	5.0
4		1501	992.15	0.520	1.65	1.65	165	235	57	92	5.0
5		1504	994.26	0.22	0.75	0.73	135	238	58	92	2.5
		1507									
3-1		1510	995.72	0.51	1.68	1.68	171	265	61	93	6.0
2		1513	997.13	0.51	1.68	1.68	167	280	58	93	6.0
3		1516	999.82	0.51	1.65	1.64	168	271	58	93	6.0
4		1519	1.83	0.46	1.52	1.52	167	265	59	94	8.0
5		1522	4.06	0.37	1.22	1.22	167	266	58	95	8.0
		1525									
4-1		1528	5.77	0.57	1.88	1.88	169	265	61	95	8.0
2		1531	8.03	0.51	1.82	1.82	167	251	57	96	9.5
3		1534	10.04	0.51	1.68	1.68	168	257	58	96	9.5
4		1537	12.19	0.41	1.35	1.35	167	247	59	97	9.5
5		1540	14.13	0.38	1.25	1.25	156	248	59	97	9.5

APPENDIX C

STRIP CHART COPIES

DECEMBER 3, 1993

Ⓐ

94% x 500 = 470 ppm CH_4

Run #2
Boiler 8 12-03-94

Run 2
TOT VOC (Rafpitch)
240.86 ppm

90 30 70 60 50 40 30 20 10 0

NON-METHANE HYDROCARBON
(NOT RECORDED)

206 ppm C_3H_8 (Rafpitch)
x 3
678 ppm C

Bag Sample - Run 1-P Boiler #8

89% 500 = 445 ppm CH_4

Switched CH_4 to
500 ppm Range

75 ppm CH_4

10 20 30 40 50 60 70 80 90 100

75 ppm CH_4 250 ppm Range

350 ppm C_3H_8 500 ppm Range

12-03-93
Boiler #8 - P

START

BAG #2 2080 HRS

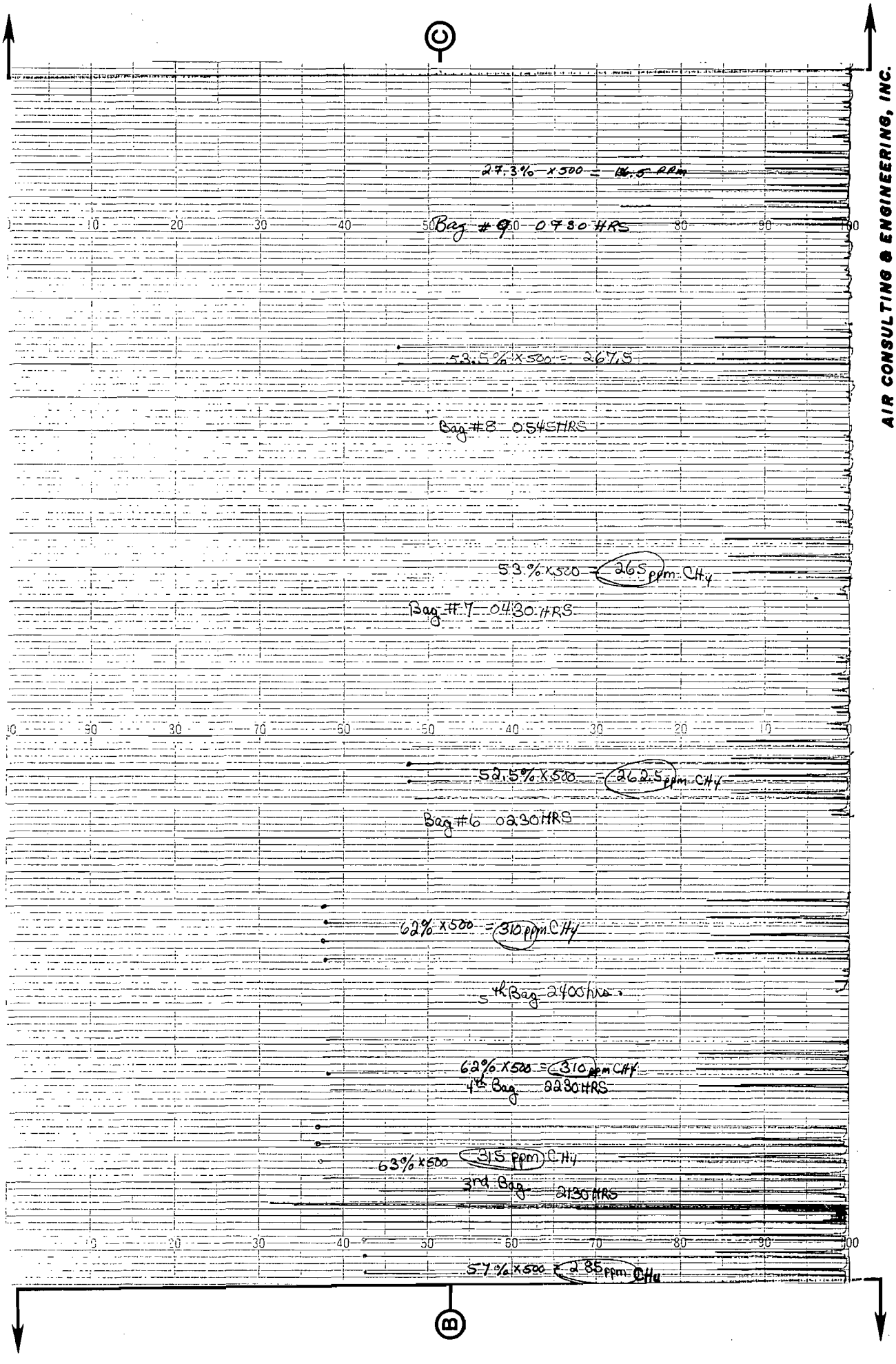
62.5% x 500 = (312.5) CH_4

END BAG 1 1930 HRS

BAG SAMPLE
Run #3 12-03-93 Boiler #8
65% 500 325 CH_4

Ratfish
Bag SAMPLE
172 ppm

4.5 ppm CH_4 cal



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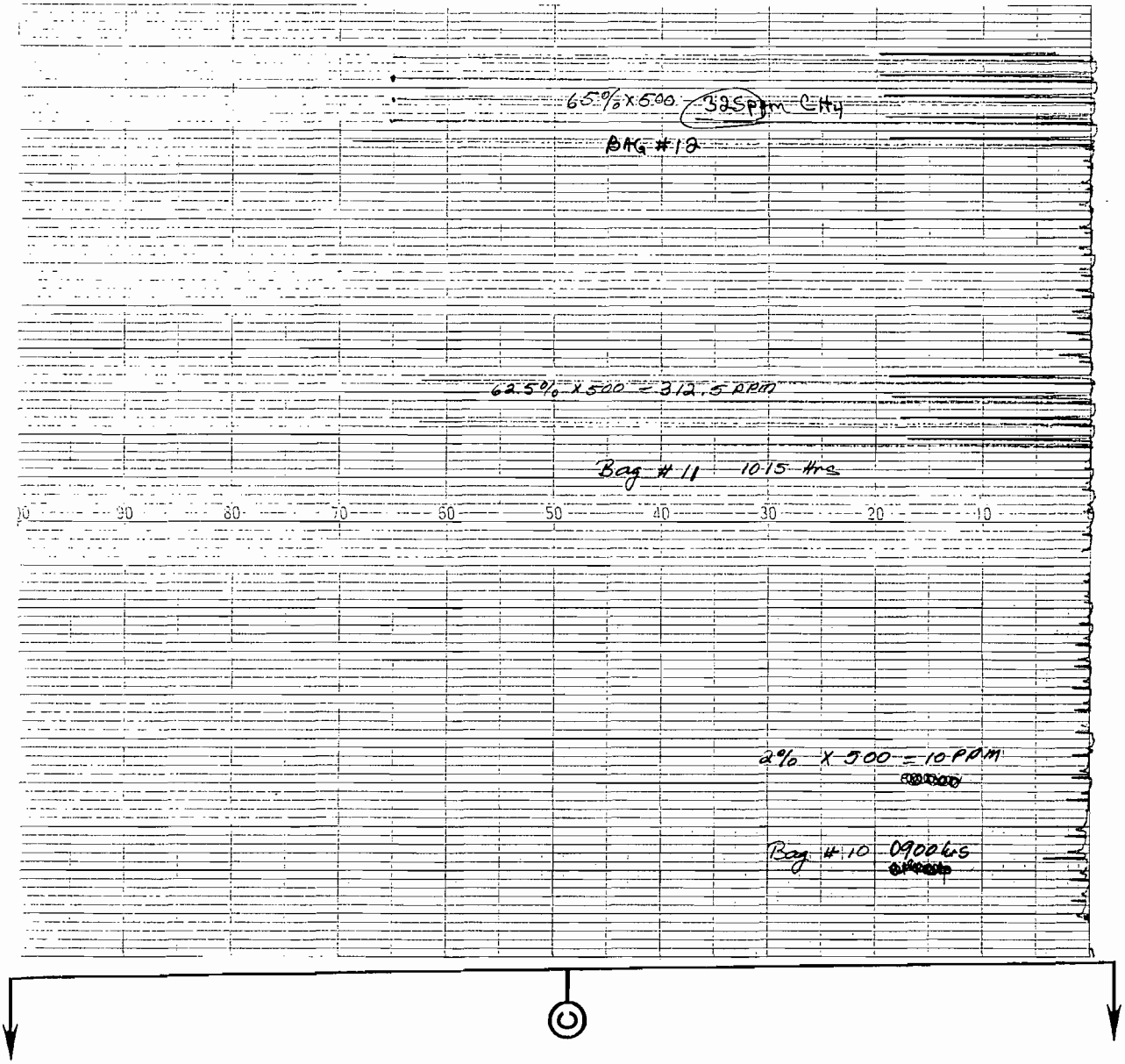
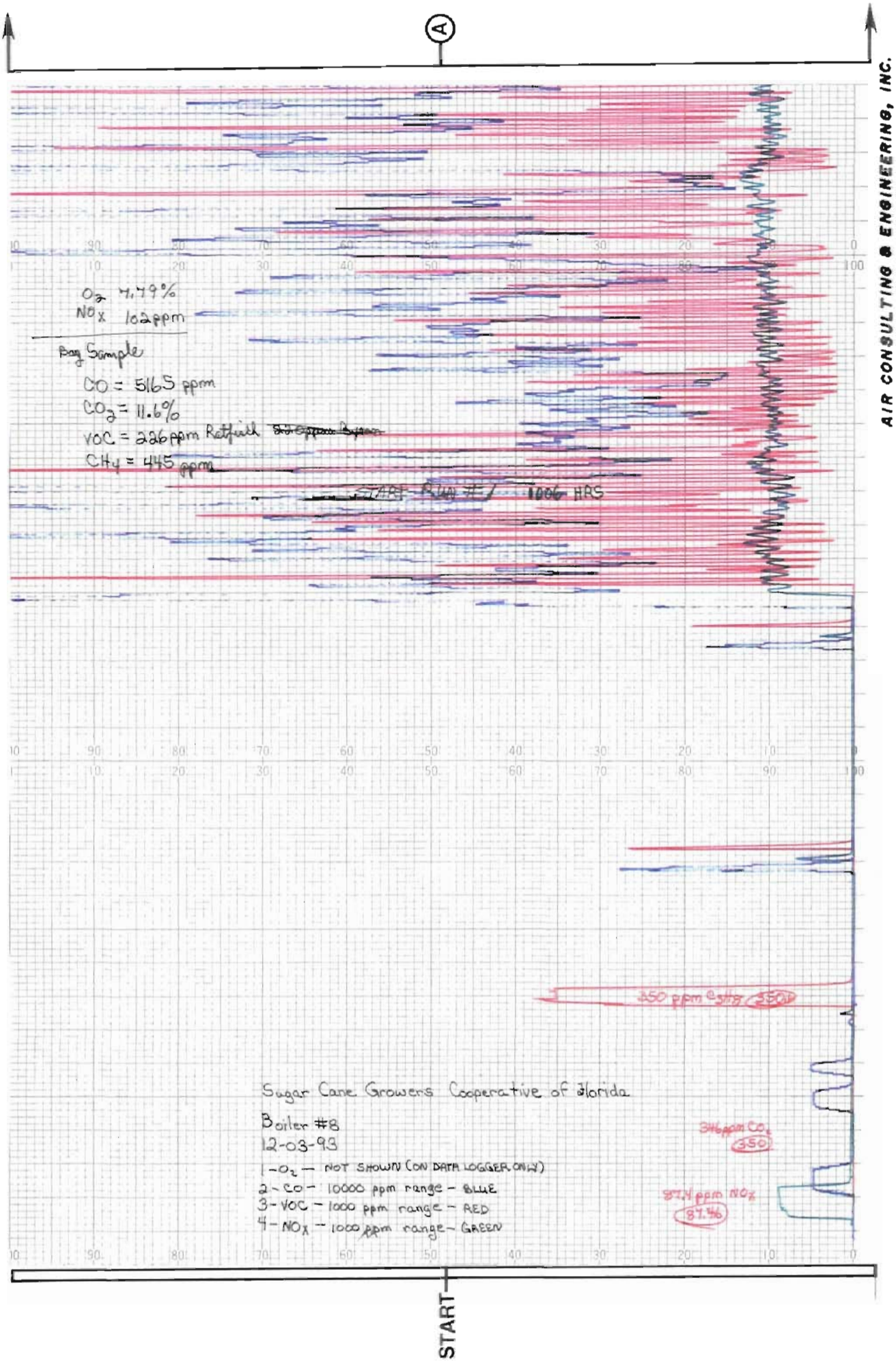
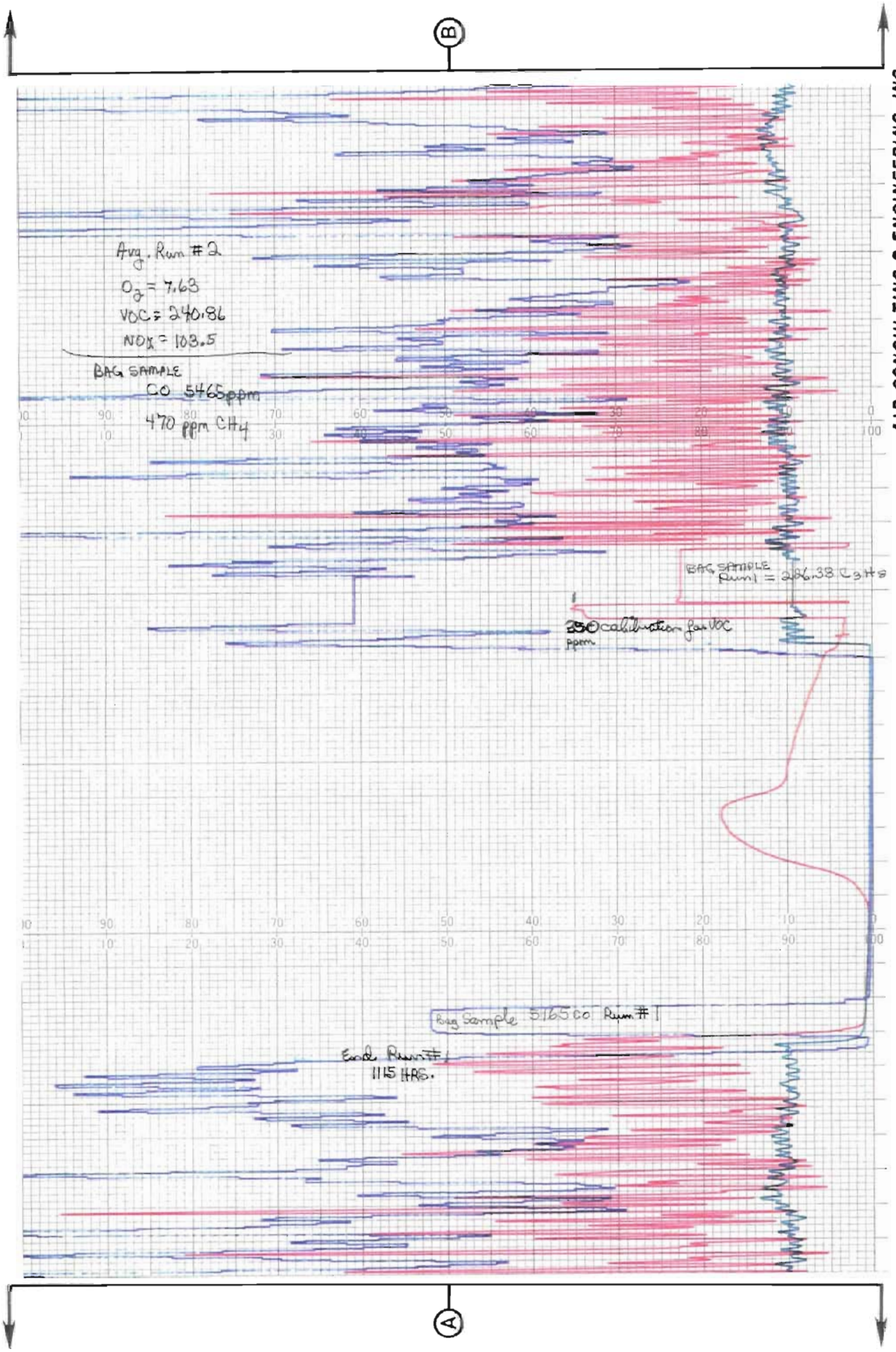
end

AIR CONSULTING & ENGINEERING, INC.





AIR CONSULTING & ENGINEERING, INC.



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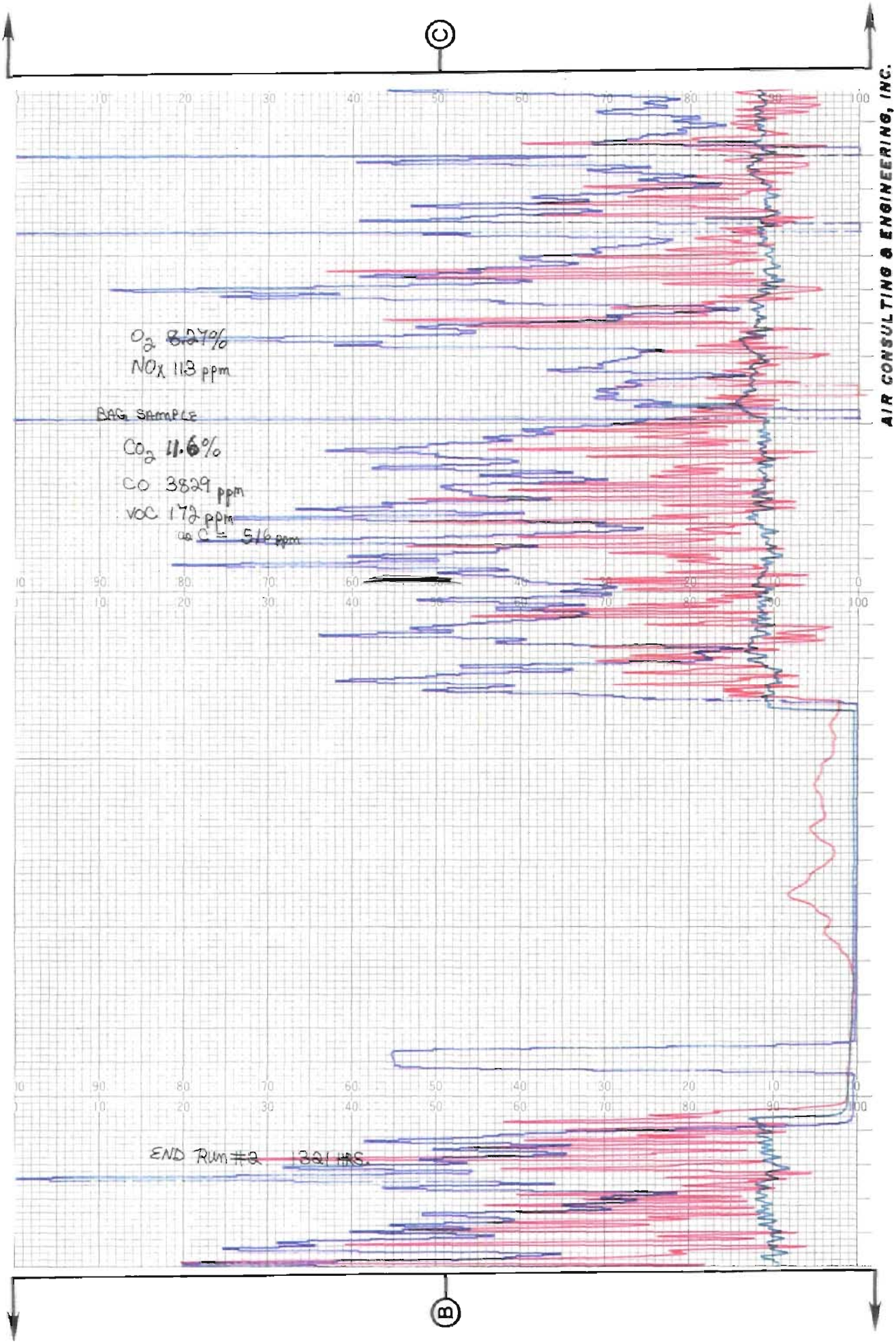
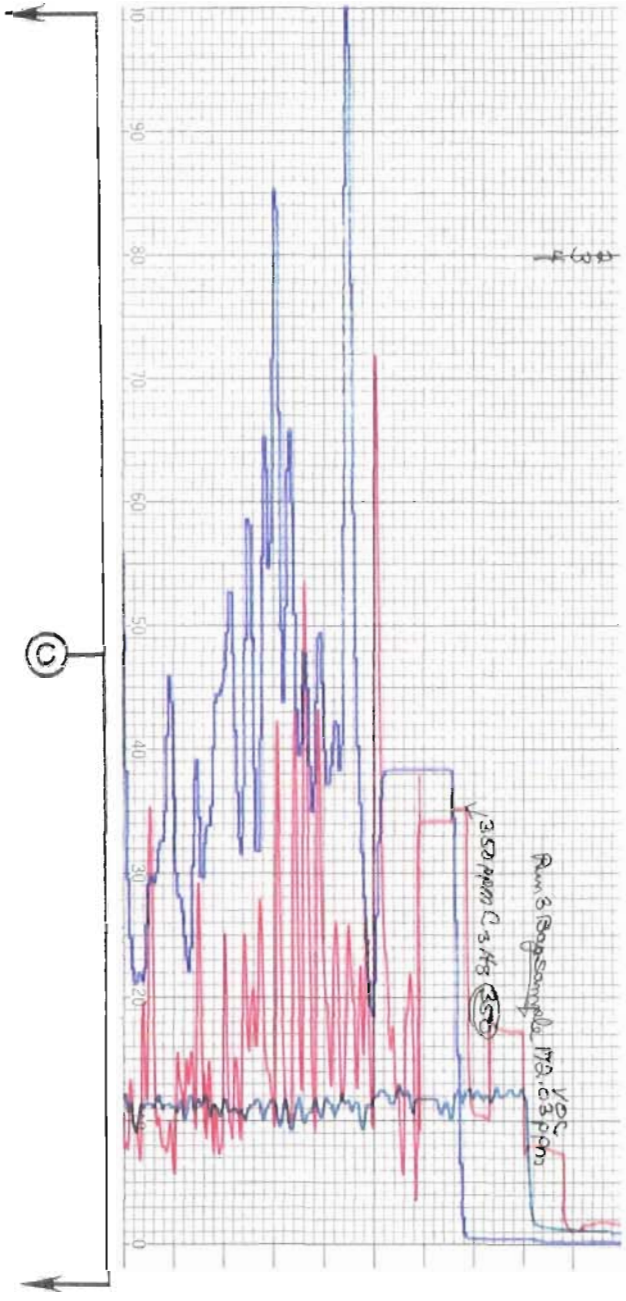
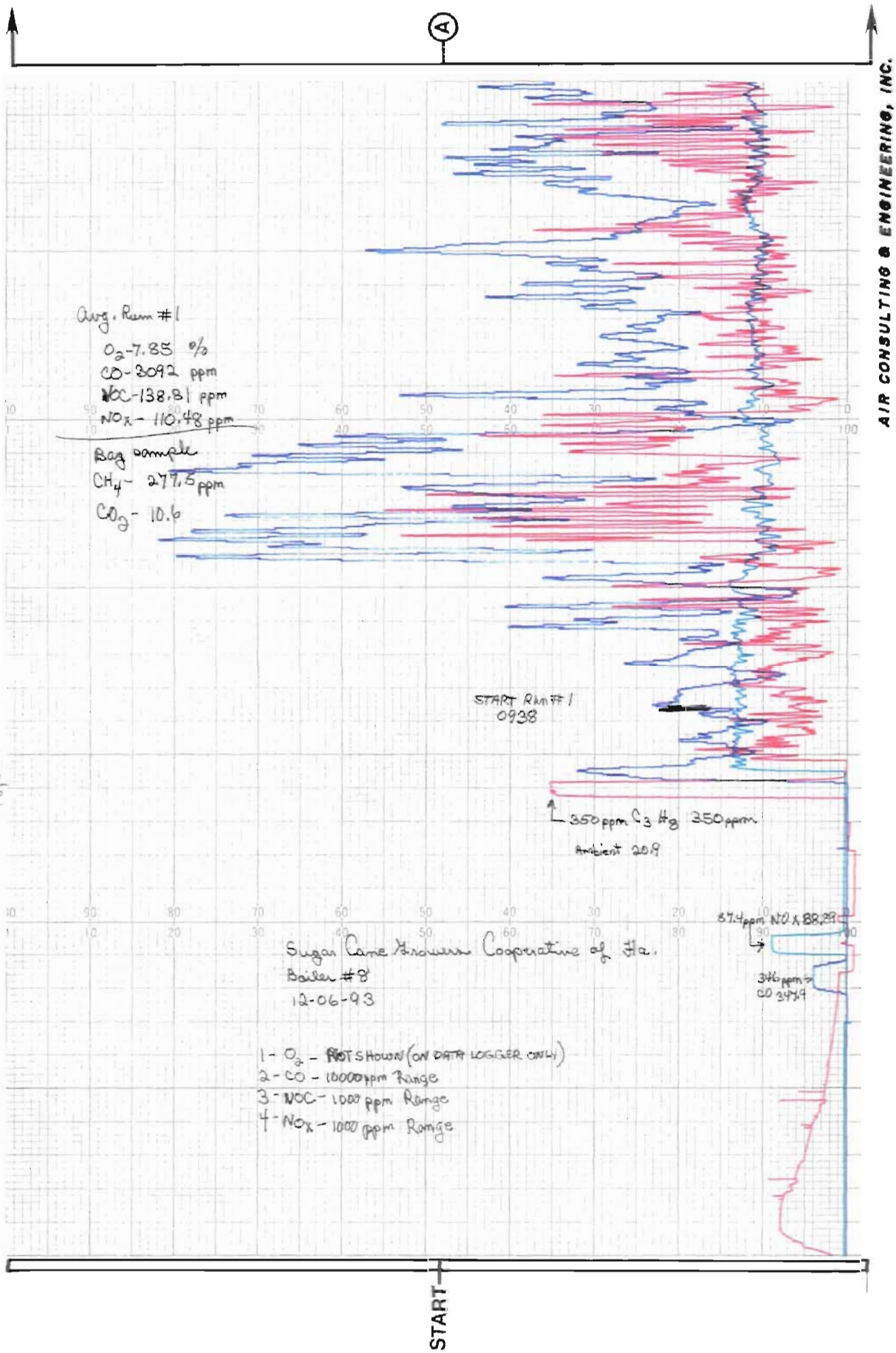

C
B
O_2 8.27%
NOx 113 ppm
BAG SAMPLE
CO_2 11.6%
CO 3829 ppm
VOC 172 ppm
as C = 516 ppm
END Run #2 381 HRS.
AIR CONSULTING & ENGINEERING, INC.



end

DECEMBER 6, 1993



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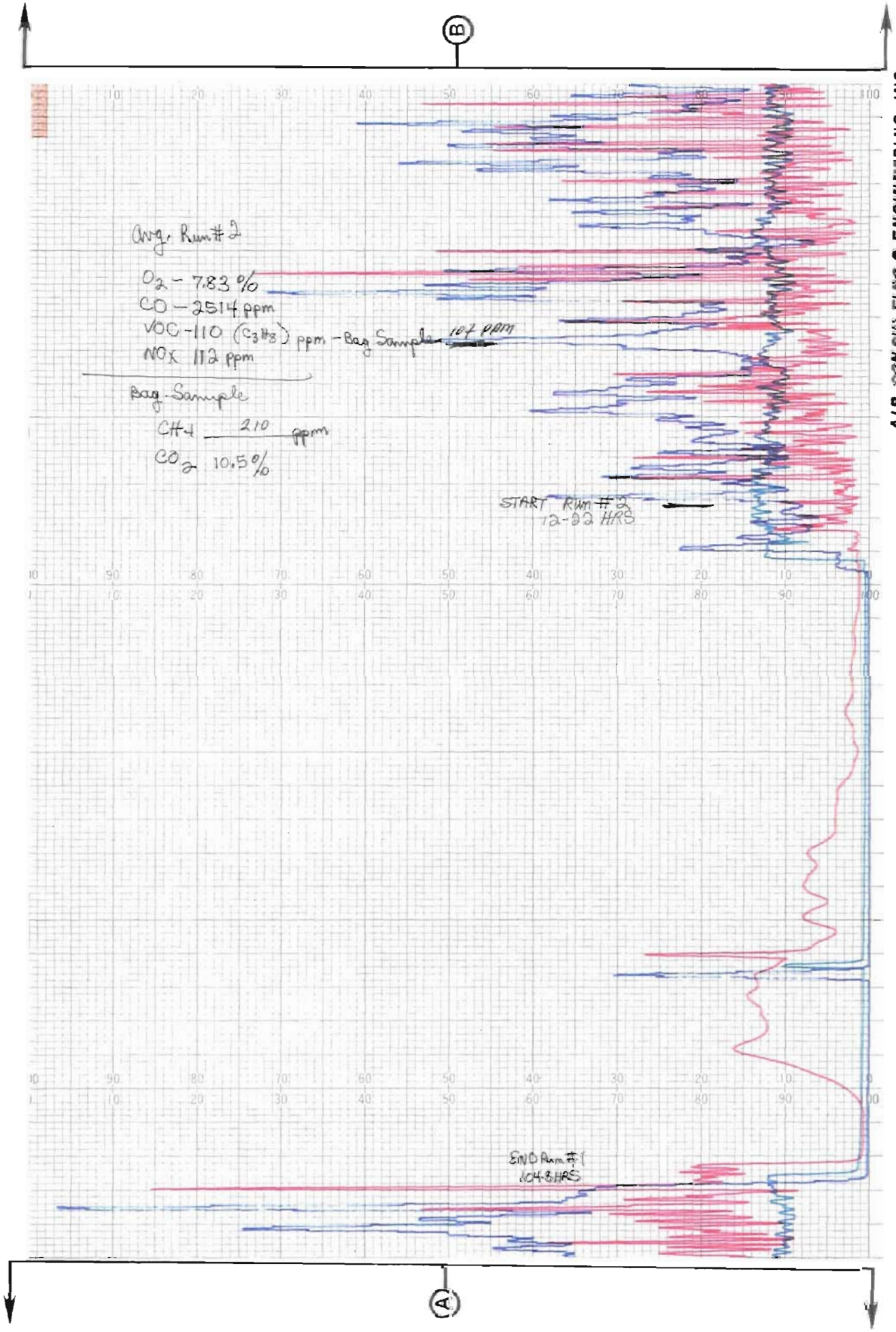

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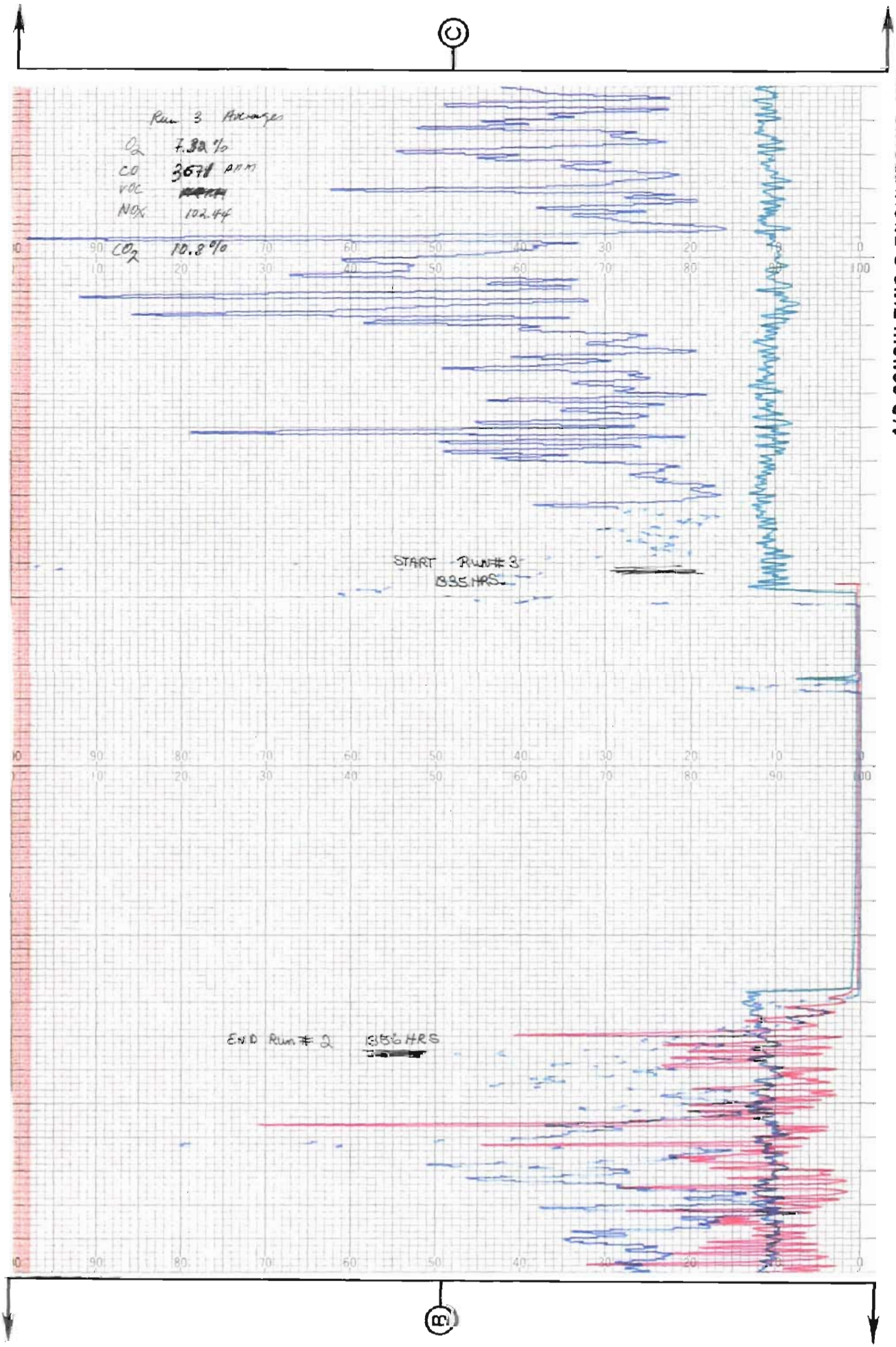


AIR CONSULTING & ENGINEERING, INC.

End sample
VOC
152ppm
3.2e ppm
CH4
15 ft
end

APPENDIX D

GASEOUS EMISSION SUMMARY AND BOILER OPERATING DATA

DECEMBER 3, 1993

AIR CONSULTING & ENGINEERING, INC.
Complete Emission Data

PLANT: SUGAR CANE GROWERS COOPERATIVE — DATE: 12-03-93
LOCATION: BELLE GLADE, FLORIDA — RUN NUMBER 1P
SOURCE: NUMBER 8 BOILER, SCRUBBER OUTLET — TIME: 0958-1117

TIME INTERVAL	79	MINUTES
OIL:		
FINAL OIL	9849	
BEGIN OIL	9512	
FACTOR	1	
STEAM:		
FINAL STEAM	114548	
BEGIN STEAM	114459	
FACTOR	3500	
TEMPERATURE	580	DEGREES F
PRESSURE	430	PSIG
	445	PSIA
FEEDWATER:		
TEMPERATURE	260	DEGREES F
PRESSURE	600	PSIG
	615	PSIA
HEAT INPUT:		
STEAM	1291.1	BTU/LB
FEEDWATER	228.6	BTU/LB
NET STEAM	1062.5	BTU/LB
STEAM RATE	236582	LB/HR
BOILER EFFICIENCY	55.0	%
TOTAL FUEL HEAT INPUT	457.03	MMBTUH
STEAM CALIBRATION FACTOR	1.00	
OIL	255.95	GPH
OIL	150000	BTU/GAL
TOTAL HEAT INPUT (OIL)	38.39	MMBTUH
TOTAL HEAT INPUT (NON-OIL)	416.64	MMBTUH
ALLOWABLES:		
ALLOWABLE EMISSION (OIL)	0.10	LB/MMBTU PM
ALLOWABLE EMISSION (NON-OIL)	0.15	LB/MMBTU
TOTAL ALLOWABLE EMISSION	66.64	LB/HR
TOTAL ACTUAL EMISSION	0.00	LB/HR
TOTAL ALLOWABLE EMISSION	0.146	LB/MMBTU
TOTAL ACTUAL EMISSION	0.000	LB/MMBTU

SCFMD: 105591.00

GASEOUS EMISSIONS

	PPM	LB/HR	LB/TON	LB/MMBTU
NOx:	102	77.16	1.94	0.17
CO:	5165	2377.63	59.69	5.20
TOTAL HC as C3H8:	226	163.61	4.11	0.36
TOTAL HC as C:	678	133.86	3.36	0.29
METHANE as C:	445	87.85	2.21	0.19

PLANT: SUGAR CANE GROWERS COOPERATIVE — DATE: 12-03-93
LOCATION: BELLE GLADE, FLORIDA — RUN NUMBER 3P
SOURCE: NUMBER 8 BOILER, SCRUBBER OUTLET — TIME: 1425-1536

TIME INTERVAL	71	MINUTES
OIL:		
FINAL OIL	668	
BEGIN OIL	442	
FACTOR	1	
STEAM:		
FINAL STEAM	114859	
BEGIN STEAM	114774	
FACTOR	3500	
TEMPERATURE	580	DEGREES F
PRESSURE	430	PSIG
	445	PSIA
FEEDWATER:		
TEMPERATURE	260	DEGREES F
PRESSURE	600	PSIG
	615	PSIA
HEAT INPUT:		
STEAM	1291.1	BTU/LB
FEEDWATER	228.6	BTU/LB
NET STEAM	1062.5	BTU/LB
STEAM RATE	251408	LB/HR
BOILER EFFICIENCY	55.0	%
TOTAL FUEL HEAT INPUT	485.68	MMBTUH
STEAM CALIBRATION FACTOR	1.00	
OIL	190.99	GPH
OIL	150000	BTU/GAL
TOTAL HEAT INPUT (OIL)	28.65	MMBTUH
TOTAL HEAT INPUT (NON-OIL)	457.03	MMBTUH
ALLOWABLES:		
ALLOWABLE EMISSION (OIL)	0.10	LB/MMBTU
ALLOWABLE EMISSION (NON-OIL)	0.15	LB/MMBTU
TOTAL ALLOWABLE EMISSION	71.42	LB/HR
TOTAL ACTUAL EMISSION	0.00	LB/HR
TOTAL ALLOWABLE EMISSION	0.147	LB/MMBTU
TOTAL ACTUAL EMISSION	0.000	LB/MMBTU

SCFMD: 116467.00

GASEOUS EMISSIONS

	PPM	LB/HR	LB/TON	LB/MMBTU
NOx:	113	94.28	2.17	0.19
CO:	3829	1944.17	44.71	4.00
TOTAL HC as C3H8:	172	137.35	3.16	0.28
TOTAL HC aS C:	516	112.37	2.58	0.23
METHANE as C:	330	71.86	1.65	0.15
VOC as C: (FACTOR =)	0.361	40.51	0.93	0.08

PLANT: SUGAR CANE GROWERS COOPERATIVE DATE: 12-03-93
LOCATION: BELLE GLADE, FLORIDA RUN NUMBER 2P
SOURCE: NUMBER 8 BOILER, SCRUBBER OUTLET TIME: 1206-1325

TIME INTERVAL	79	MINUTES
OIL:		
FINAL OIL	253	
BEGIN OIL	7	
FACTOR	1	
STEAM:		
FINAL STEAM	114703	
BEGIN STEAM	114607	
FACTOR	3500	
TEMPERATURE	580	DEGREES F
PRESSURE	430	PSIG
	445	PSIA
FEEDWATER:		
TEMPERATURE	260	DEGREES F
PRESSURE	600	PSIG
	615	PSIA
HEAT INPUT:		
STEAM	1291.1	BTU/LB
FEEDWATER	228.6	BTU/LB
NET STEAM	1062.5	BTU/LB
STEAM RATE	255190	LB/HR
BOILER EFFICIENCY	55.0	%
TOTAL FUEL HEAT INPUT	492.98	MMBTUH
STEAM CALIBRATION FACTOR	1.00	
OIL	186.84	GPH
OIL	150000	BTU/GAL
TOTAL HEAT INPUT (OIL)	28.03	MMBTUH
TOTAL HEAT INPUT (NON-OIL)	464.96	MMBTUH
ALLOWABLES:		
ALLOWABLE EMISSION (OIL)	0.10	LB/MMBTU
ALLOWABLE EMISSION (NON-OIL)	0.15	LB/MMBTU
TOTAL ALLOWABLE EMISSION	72.55	LB/HR
TOTAL ACTUAL EMISSION	0.00	LB/HR
TOTAL ALLOWABLE EMISSION	0.147	LB/MMBTU
TOTAL ACTUAL EMISSION	0.000	LB/MMBTU

SCFMD: 111576.00

GASEOUS EMISSIONS

	PPM	LB/HR	LB/TON	LB/MMBTU
NOx:	105	83.93	1.90	0.17
CO:	5465	2658.32	60.08	5.39
TOTAL HC as C3H8:	241	184.36	4.17	0.37
TOTAL HC aS C:	723	150.84	3.41	0.31
METHANE as C:	470	98.04	2.22	0.20
VOC as C: (FACTOR =)	0.350	52.79	1.19	0.11

BOILER OPERATION PARAMETERS

PLANT Sugar Cane Growers Co-op BOILER NUMBER 8

DATE 12-03-93 RUN NUMBER 1 OIL METER FACTOR 1

STEAM INTEGRATOR FACTOR 3500

OPERATOR SIGNATURE _____

SCRUBBER(S) PRESS.DROP ____,___
SCRUBBER(S) GPM _____,_____
SCRUBBER(S)H2O LEVEL _____,____
Ph(if applicable) _____,_____

INITIAL INTEGRATOR 114459 FINAL INTEGRATOR 114548

01@9512 01@9849

TIME	OIL	STEAM			FEEDWATER	
	METER READING	LBS.FLOW	TEMP.	PRESSURE	TEMP.	PRESSURE
0958						
0958		248000	~80	430	260	600
10:13		230000	~80	427	260	600
10:28		244000	~80	432	260	600
10:43		236000	~80	431	260	600
10:58		241000	~80	430	260	600
11:13		241000	580	430	260	600
1117				430		
	68 19 49					

BOILER OPERATION PARAMETERS

PLANT Sugar Cane Growers Coop BOILER NUMBER 8

DATE 12-03-93 RUN NUMBER 2 OIL METER FACTOR 1

STEAM INTEGRATOR FACTOR 3500 SCRUBBER(S) PRESS.DROP ____,___

SCRUBBER(S) GPM _____,_____

OPERATOR SIGNATURE _____ SCRUBBER(S)H2O LEVEL _____,____

Ph(if applicable) _____,_____

INITIAL INTEGRATOR 114607 FINAL INTEGRATOR 114703

011(S)0007 011(F)0253

TIME	OIL	STEAM			FEEDWATER	
	METER READING	LBS.FLOW	TEMP.	PRESSURE	TEMP.	PRESSURE
1206		242000	580	435	260	600
1221		241000	580	430	260	600
1236		245000	580	435	260	600
1256		246000	580	425	260	600
1311		245000	580	420	260	600
1326						
1325						

BOILER OPERATION PARAMETERS

PLANT Sugar Cane Growers Coop. of Fl. BOILER NUMBER 8

DATE 12-03-93 RUN NUMBER 3-P OIL METER FACTOR 1

STEAM INTEGRATOR FACTOR 3500 SCRUBBER(S) PRESS.DROP ____, ____

SCRUBBER(S) GPM _____, _____

OPERATOR SIGNATURE _____ SCRUBBER(S)H2O LEVEL _____, ____

Ph(if applicable) _____, _____

INITIAL INTEGRATOR 114774 FINAL INTEGRATOR 114859

0:1 @ 0442 0:1 @ 0668

TIME	OIL	STEAM			FEEDWATER	
	METER READING	LBS. FLOW	TEMP.	PRESSURE	TEMP.	PRESSURE
2:25		240,000	580	435	260	600
2:40		238 000	580	425	260	600
2:55		242 000	580	435	260	600
3:10		245000	580	430	260	600
3:25		245000	580	430	260	600
3:36						

DECEMBER 6, 1993

AIR CONSULTING & ENGINEERING, INC.

GASEOUS EMISSIONS

PLANT:	SUGAR CANE GROWERS COOPERATIVE	DATE:	12/6/1993
LOCATION:	BELLE GLADE, FLORIDA	RUN:	1
SOURCE:	BOILER NUMBER 8 - SCRUBBER OUTLET	TIME:	0937-1046

	F-FACTOR	13457.34	DSCF/MMBTU
	FLOW RATE	112208.9	SCFMD
	RESIDUE (DRY)	8900	BTU/LB
	BAGASSE (DRY)	8000	BTU/LB
	MOISTURE	51.95	%
	NON-OIL HEAT INPUT	470.3135	MMBTU/HR
NOX:			
	PARTS PER MILLION	110.48	PPM
	POUNDS PER MILLION BTU	0.1775	LB/MMBTU
	POUNDS PER TON	1.45	LB/TON
	EMISSION RATE	88.79	LB/HR
CO:	PARTS PER MILLION	3092.00	PPM
	POUNDS PER MILLION BTU	3.0234	LB/MMBTU
	POUNDS PER TON	24.73	LB/TON
	EMISSION RATE	1512.56	LB/HR
METHANE:			
	PARTS PER MILLION	277.5	PPM
VOC:			
	PART PER MILLION	138.81	PPM
	PPM AS CARBON	416.43	PPM
NONMETHANE VOC:			
	PART PER MILLION	138.93	PPM
	POUNDS PER MILLION BTU	0.0583	LB/MMBTU
	POUNDS PER TON	0.48	LB/TON
	EMISSION RATE	29.15	LB/HR

AIR CONSULTING & ENGINEERING, INC.

GASEOUS EMISSIONS

PLANT:	SUGAR CANE GROWERS COOPERATIVE	DATE:	12/6/1993
LOCATION:	BELLE GLADE, FLORIDA	RUN:	2
SOURCE:	BOILER NUMBER 8 - SCRUBBER OUTLET	TIME:	1222-1334

	F-FACTOR	13894.87	DSCF/MMBTU
	FLOW RATE	114419.3	SCFMD
	RESIDUE (DRY)	8900	BTU/LB
	BAGASSE (DRY)	8000	BTU/LB
	MOISTURE	51.95	%
	NON-OIL HEAT INPUT	464.6719	MMBTU/HR
NOX:			
	PARTS PER MILLION	112.00	PPM
	POUNDS PER MILLION BTU	0.1858	LB/MMBTU
	POUNDS PER TON	1.52	LB/TON
	EMISSION RATE	91.78	LB/HR
CO:	PARTS PER MILLION	2514.00	PPM
	POUNDS PER MILLION BTU	2.5381	LB/MMBTU
	POUNDS PER TON	20.75	LB/TON
	EMISSION RATE	1254.04	LB/HR
METHANE:			
	PARTS PER MILLION	210	PPM
VOC:			
	PART PER MILLION	110	PPM
	PPM AS CARBON	330	PPM
NONMETHANE VOC:			
	PART PER MILLION	120	PPM
	POUNDS PER MILLION BTU	0.0520	LB/MMBTU
	POUNDS PER TON	0.42	LB/TON
	EMISSION RATE	25.68	LB/HR

AIR CONSULTING & ENGINEERING, INC.

GASEOUS EMISSIONS

PLANT:	SUGAR CANE GROWERS COOPERATIVE	DATE:	12/6/1993
LOCATION:	BELLE GLADE, FLORIDA	RUN:	3
SOURCE:	BOILER NUMBER 8 - SCRUBBER OUTLET	TIME:	1434-1543

	F-FACTOR	13838.26	DSCF/MMBTU
	FLOW RATE	114928.3	SCFMD
	RESIDUE (DRY)	8900	BTU/LB
	BAGASSE (DRY)	8000	BTU/LB
	MOISTURE	51.95	%
	NON-OIL HEAT INPUT	469.8138	MMBTU/HR
NOX:			
	PARTS PER MILLION	102.44	PPM
	POUNDS PER MILLION BTU	0.1692	LB/MMBTU
	POUNDS PER TON	1.38	LB/TON
	EMISSION RATE	84.32	LB/HR
CO:	PARTS PER MILLION	3671.00	PPM
	POUNDS PER MILLION BTU	3.6911	LB/MMBTU
	POUNDS PER TON	30.10	LB/TON
	EMISSION RATE	1839.32	LB/HR
METHANE:			
	PARTS PER MILLION	310	PPM
VOC:			
	PART PER MILLION	154	PPM
	PPM AS CARBON	462	PPM
NONMETHANE VOC:			
	PART PER MILLION	152	PPM
	POUNDS PER MILLION BTU	0.0656	LB/MMBTU
	POUNDS PER TON	0.53	LB/TON
	EMISSION RATE	32.67	LB/HR

AIR CONSULTING & ENGINEERING, INC.
Complete Emission Data

PLANT:	SUGAR CANE GROWERS COOPERATIVE	DATE:	12-06-93
LOCATION:	BELLE GLADE, FLORIDA	RUN NUMBER	1
SOURCE:	NUMBER 8 BOILER, SCRUBBER OUTLET	TIME:	0932-1054

TIME INTERVAL	82	MINUTES
OIL:		
FINAL OIL	5973	
BEGIN OIL	5702	
FACTOR	1	
STEAM:		
FINAL STEAM	119694	
BEGIN STEAM	119593	
FACTOR	3500	
TEMPERATURE	580	DEGREES F
PRESSURE	423	PSIG
	438	PSIA
FEEDWATER:		
TEMPERATURE	260	DEGREES F
PRESSURE	600	PSIG
	615	PSIA
HEAT INPUT:		
STEAM	1291.9	BTU/LB
FEEDWATER	228.6	BTU/LB
NET STEAM	1063.3	BTU/LB
STEAM RATE	258659	LB/HR
BOILER EFFICIENCY	55.0	%
TOTAL FUEL HEAT INPUT	500.06	MMBTUH
STEAM CALIBRATION FACTOR	1.00	
OIL	198.29	GPH
OIL	150000	BTU/GAL
TOTAL HEAT INPUT (OIL)	29.74	MMBTUH
TOTAL HEAT INPUT (NON-OIL)	470.31	MMBTUH
ALLOWABLES:		
ALLOWABLE EMISSION (OIL)	.10	LB/MMBTU
ALLOWABLE EMISSION (NON-OIL)	.15	LB/MMBTU
TOTAL ALLOWABLE EMISSION	73.52	LB/HR
TOTAL ACTUAL EMISSION	47.01	LB/HR
TOTAL ALLOWABLE EMISSION	0.147	LB/MMBTU
TOTAL ACTUAL EMISSION	0.094	LB/MMBTU

AIR CONSULTING & ENGINEERING, INC.
Complete Emission Data

PLANT:	SUGAR CANE GROWERS COOPERATIVE	DATE:	12-06-93
LOCATION:	BELLE GLADE, FLORIDA	RUN NUMBER	2
SOURCE:	NUMBER 8 BOILER, SCRUBBER OUTLET	TIME:	1218-1345

TIME INTERVAL	87	MINUTES
OIL:		
FINAL OIL	6772	
BEGIN OIL	6484	
FACTOR	1	
STEAM:		
FINAL STEAM	119885	
BEGIN STEAM	119779	
FACTOR	3500	
TEMPERATURE	580	DEGREES F
PRESSURE	428	PSIG
	443	PSIA
FEEDWATER:		
TEMPERATURE	260	DEGREES F
PRESSURE	600	PSIG
	615	PSIA
HEAT INPUT:		
STEAM	1291.5	BTU/LB
FEEDWATER	228.6	BTU/LB
NET STEAM	1062.9	BTU/LB
STEAM RATE	255862	LB/HR
BOILER EFFICIENCY	55.0	%
TOTAL FUEL HEAT INPUT	494.47	MMBTUH
STEAM CALIBRATION FACTOR	1.00	
OIL	198.62	GPH
OIL	150000	BTU/GAL
TOTAL HEAT INPUT (OIL)	29.79	MMBTUH
TOTAL HEAT INPUT (NON-OIL)	464.67	MMBTUH
ALLOWABLES:		
ALLOWABLE EMISSION (OIL)	.10	LB/MMBTU
ALLOWABLE EMISSION (NON-OIL)	.15	LB/MMBTU
TOTAL ALLOWABLE EMISSION	72.68	LB/HR
TOTAL ACTUAL EMISSION	48.29	LB/HR
TOTAL ALLOWABLE EMISSION	0.147	LB/MMBTU
TOTAL ACTUAL EMISSION	0.098	LB/MMBTU

AIR CONSULTING & ENGINEERING, INC.
Complete Emission Data

PLANT:	SUGAR CANE GROWERS COOPERATIVE	DATE:	12-06-93
LOCATION:	BELLE GLADE, FLORIDA	RUN NUMBER	3
SOURCE:	NUMBER 8 BOILER, SCRUBBER OUTLET	TIME:	1429-1552

TIME INTERVAL	83	MINUTES
OIL:		
FINAL OIL	7308	
BEGIN OIL	7043	
FACTOR	1	
STEAM:		
FINAL STEAM	120035	
BEGIN STEAM	119933	
FACTOR	3500	
TEMPERATURE	580	DEGREES F
PRESSURE	431	PSIG
	446	PSIA
FEEDWATER:		
TEMPERATURE	260	DEGREES F
PRESSURE	600	PSIG
	615	PSIA
HEAT INPUT:		
STEAM	1291.1	BTU/LB
FEEDWATER	228.6	BTU/LB
NET STEAM	1062.5	BTU/LB
STEAM RATE	258072	LB/HR
BOILER EFFICIENCY	55.0	%
TOTAL FUEL HEAT INPUT	498.55	MMBTUH
STEAM CALIBRATION FACTOR	1.00	
OIL	191.57	GPH
OIL	150000	BTU/GAL
TOTAL HEAT INPUT (OIL)	28.73	MMBTUH
TOTAL HEAT INPUT (NON-OIL)	469.81	MMBTUH
ALLOWABLES:		
ALLOWABLE EMISSION (OIL)	.10	LB/MMBTU
ALLOWABLE EMISSION (NON-OIL)	.15	LB/MMBTU
TOTAL ALLOWABLE EMISSION	73.35	LB/HR
TOTAL ACTUAL EMISSION	51.94	LB/HR
TOTAL ALLOWABLE EMISSION	0.147	LB/MMBTU
TOTAL ACTUAL EMISSION	0.104	LB/MMBTU

BOILER OPERATION PARAMETERS

PLANT Sugar Cane Growers Coop. of Fla. BOILER NUMBER 8

DATE 12-06-93 RUN NUMBER 1 OIL METER FACTOR 1

STEAM INTEGRATOR FACTOR 3500 SCRUBBER(S) PRESS.DROP ____, ___

SCRUBBER(S) GPM _____, _____

OPERATOR SIGNATURE _____ SCRUBBER(S)H2O LEVEL _____, ____

PH(if applicable) _____, _____

INITIAL INTEGRATOR 115593 FINAL INTEGRATOR 119694

oil @ 5702 oil @ 5973

TIME	OIL	STEAM			FEEDWATER	
	METER READING	LBS. FLOW	TEMP.	PRESSURE	TEMP.	PRESSURE
0932		237000	580	431	260	600
0947		247000	580	428	260	600
10:02		237000	580	387	260	600
10:17		238000	580	435	260	600
10:32		256000	580	425	260	600
10:47		234000	580	432	260	600
1054						

BOILER OPERATION PARAMETERS

PLANT Sugar Cane Growers Coop. of Fla. BOILER NUMBER 8

DATE 12-06-93 RUN NUMBER 35002 OIL METER FACTOR 1

STEAM INTEGRATOR FACTOR 3500 SCRUBBER(S) PRESS.DROP____,___

SCRUBBER(S) GPM_____,_____

OPERATOR SIGNATURE_____ SCRUBBER(S)H2O LEVEL_____,____

Ph(if applicable)_____,_____

INITIAL INTEGRATOR 119779 FINAL INTEGRATOR 119885

@ oil 6484 oil finish 6742

TIME	OIL	STEAM			FEEDWATER	
	METER READING	LBS.FLOW	TEMP.	PRESSURE	TEMP.	PRESSURE
1215		241000	580	420	260	600
1233		242000	580	435	260	600
1248		242000	580	425	260	600
103		245000	580	430	260	600
118		242000	580	425	260	600
133		243000	580	435	260	600
145						

BOILER OPERATION PARAMETERS

PLANT Sugar Cane Growers Co-op of Fla. BOILER NUMBER 8

DATE 12-6-93 RUN NUMBER 3 OIL METER FACTOR 1

STEAM INTEGRATOR FACTOR 3500

OPERATOR SIGNATURE _____

SCRUBBER(S) PRESS. DROP ____, ____
SCRUBBER(S) GPM _____, _____
SCRUBBER(S) H2O LEVEL _____, _____
Ph(if applicable) _____, _____

INITIAL INTEGRATOR 119933 FINAL INTEGRATOR 120035

Oil (S) 7043 Oil (F) 7308

TIME	OIL	STEAM			FEEDWATER	
	METER READING	LBS. FLOW	TEMP.	PRESSURE	TEMP.	PRESSURE
2:29		235000	550	435	260	600
2:44		240000	550	435	260	600
2:59		240000	550	430	260	600
3:14		236000	550	430	260	600
3:29		250000	550	435	260	600
3:44		246000	550	420	260	600
3:52						

DECEMBER 3-4, 1993
16 HOUR CONTINUOUS MONITORING

Time: start 1830	O_2 %	CO ppm	VOC ppm C_3H_8	NO_x ppm	CH_4 ppm	CO_2 %	Int. 11507
1845	8.93	3897	218	105	—	—	
1900	8.22	3625	193	113	—	—	
1915	8.61	3411	178	117	—	—	
1930	8.29	3482	182	114	313	11.4	
1945	8.65	4042	206	117	—	—	
2000	8.81	3219	171	121	—	—	
2015	8.99	3794	194	118	—	—	
2030	8.89	2740	142	121	285	10.2	
2045	8.85	2840	154	117	—	—	
2100	8.36	3172	156	112	—	—	
2115	8.82	3994	221	109	—	—	
2130	8.76	4137	214	113	315	10.8	
2145	8.32	3866	204	118	—	—	
2200	8.43	3632	178	117	—	—	
2215	8.30	3470	179	119	—	—	
2230	8.68	4109	219	112	310	11.8	
2245	8.59	3329	181	118	—	—	
2300	8.63	4554	216	113	—	—	
2315	8.56	3043	163	120	—	—	
2330	8.83	2254	125	124	—	—	
2345	8.50	4134	213	111	—	—	
2400	8.27	4747	234	105	310	11.6	
2415	Calibration						
2430	9.30	2180	113	131	—	—	
2445	9.42	2153	107	121	—	—	

Time	O_2 %	CO ppm	VOC ppm	NOX ppm	CH_4 ppm	CO_2 %
0100	8.83	3436	174	113	—	11.1
0115	9.04	3176	149	110	—	—
0130	9.30	3706	184	102	—	—
0145	9.50	2828	141	122	—	—
0200	9.61	2556	123	124	—	—
0215	9.48	2237	107	130	—	—
0230	9.18	2946	144	122	263	11.2
0245	9.19	2404	119	126	—	—
0300	8.66	2618	128	120	—	—
0315	8.16	3085	161	119	—	—
0330	8.16	3112	160	118	—	—
0345	9.08	3125	152	107	—	—
0400	8.64	4041	199	107	—	—
0415	8.66	2929	146	113	—	—
0430	9.12	2314	116	122	265	10.8
0445	8.60	2177	117	123	—	—
0500	8.64	3218	168	112	—	—
0515	8.72	3662	176	115	—	—
0530	8.65	3140	159	118	—	—
0545	8.96	3033	152	105	268	11.0
0600	11.02	2042	86	93	—	—
0615	12.53	992	40	78	—	—
0630	11.59	1535	83	80	—	—
0645	10.42	2312	96	89	—	—
0700	8.57	2216	104	126	—	9.6

Steam milk dam Rate Dawn

10.82

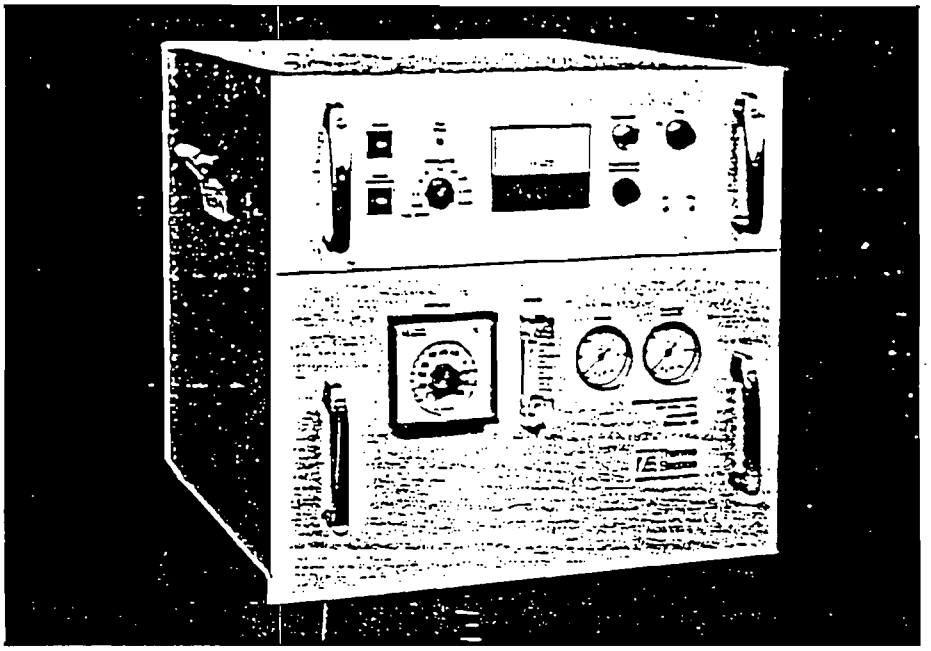
Time	O_2 %	CO ppm	VOC ppm	NO_x ppm	CH_4 ppm	CO_2 %	
0715	9.58	1210	53	126	—	—	
0730	10.38	931	38	121	136.5		
0745	10.61	2064	100	105	—	—	
0800	10.22	1627	81	119	—	—	
0815	8.74	2999	158	118	—	—	
0830	8.97	4456	196	102	-	—	
0845	8.41	2662	140.84	130	—	280 ppm CH4	
0900	9.21	3624	201	106	10		
0915	8.86	4026	OFF SCALE <99999	116	250 —	—	
0930	8.64	3792	189	111	—	—	
0945	7.67	3861	198	117	—	—	
1000	7.97	3688	185	111	—	—	
1015	8.18	2499	139	141	312.5		
1030	7.49	4298	OFF SCALE —	121	—	250 230	
1045	7.97	5811	OFF SCALE —	90.8	—	—	1040 1162
1100	8.00	2750	178	140	325		
1115							
1130							
1145							
1200							
1215							
1230							
1245							
1300							

APPENDIX E

QUALITY ASSURANCE

Thermo Electron CORPORATION
Environmental Instruments Division

Chemiluminescent NO/NO_x Analyzer



Model 10

For Continuous Source Gas Monitoring

Thermo Electron's Model 10 NO/NO_x Analyzer is based on the chemiluminescent reaction between nitric oxide (NO) and ozone (O_3) according to the reaction:

$$NO + O_3 \rightarrow NO_2 + O_2 + h\nu$$

Light emission results when the electronically excited NO_2 molecules revert to their ground state.

A front panel mode switch provides for either a direct readout of the NO concentration in the sample being analyzed ("NO" mode) or the total NO_x concentration ("NO_x" mode). When the Model 10 is placed in the "NO_x" mode, the sample stream passes through a NO_x-to-NO converter prior to entering the reaction chamber for subsequent analysis.

Key Features

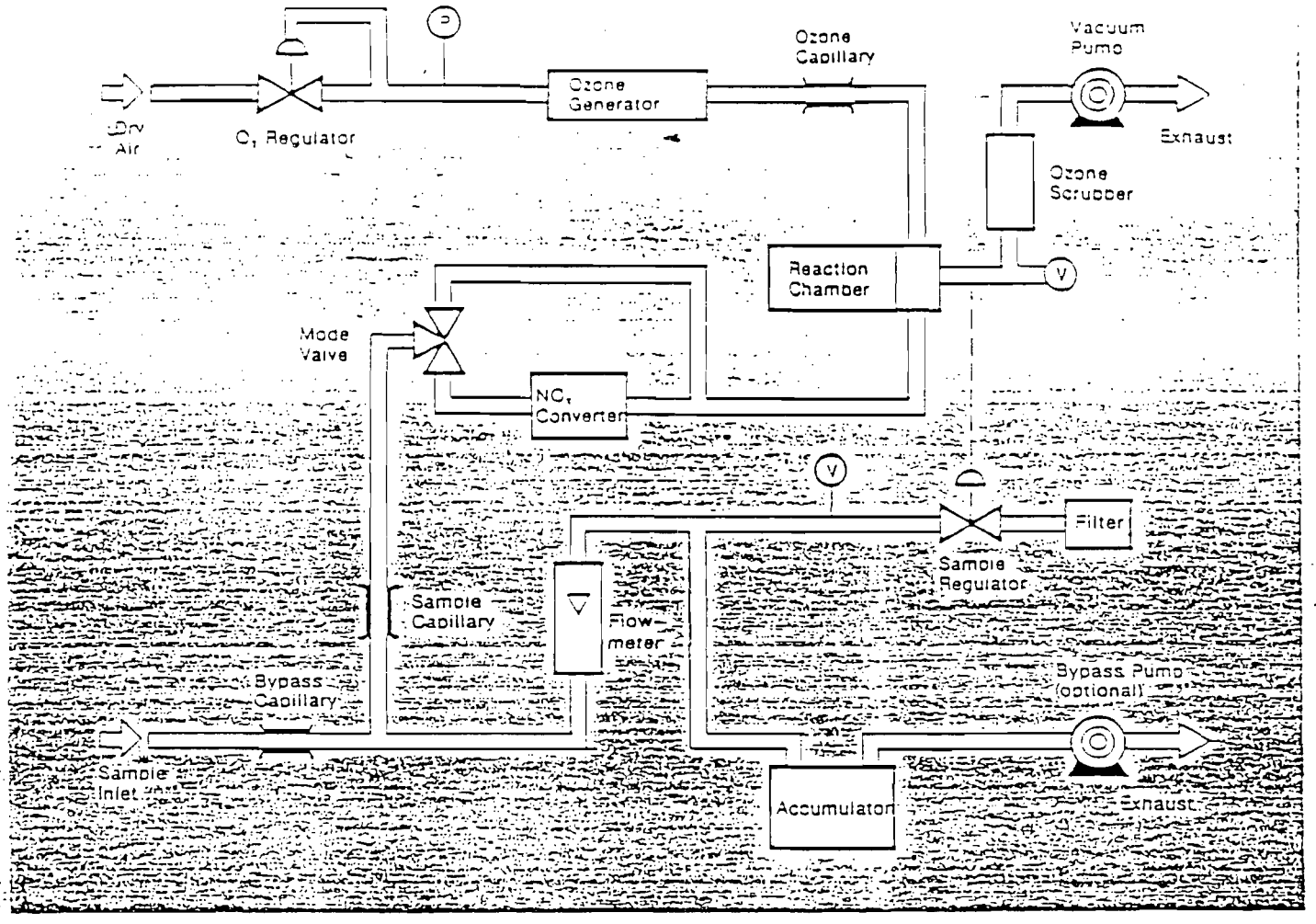
- Selective detection of NO or NO_x
- Eight ranges, from 2.5 to 10,000 ppm FS
- Continuous monitoring with rapid response
- Linear on all ranges
- Field proven reliability
- Insensitive to changes in sample flow

Model 10 Specifications*

Ranges	0–2.5 ppm 0–250 ppm 0–10 ppm 0–1000 ppm 0–25 ppm 0–2500 ppm 0–100 ppm 0–10,000 ppm
Minimum Detectable Concentration	.05 ppm
Noise	Less than 1% of FS
Reproducibility	1% of FS
Operating Temperature Extremes	0–40°C
Response Time (0–90%)	–1.5 second NO mode –1.7 second NO_x mode
Zero Stability	± 1 ppm in 24 hours
Span Stability	± 1% in 24 hours
Linearity	± 1% from 0.05 to 10,000 ppm**
Power Requirements	1000 watts, 115 ± 10 volts, 60 Hz standard. Also available in 115V 50 Hz, and 210 ± 15 volts, 50 Hz versions
Physical Dimensions	19" wide x 17" high x 20" deep
Instrument Weight	75 lbs. (including pump)
Outputs	Two standard outputs supplied: 1) 0–10V; 2) Field selectable from 0–10V, 5V, 1V, 100mV or 10mV. (ma options available.)

*Specifications are typical and subject to change without notice.

**With O_2 Feed. With dry air, linearity to 2000 ppm.



As illustrated in the above diagram, sample gas enters the Model 10, flows through the bypass capillary, and divides. Most of the sample flows through the flowmeter, accumulator, bypass pump, and exhausts. Only a small amount of sample flows through the sample capillary for analysis. The bypass pump in conjunction with the sample regulator maintain a constant pressure differential across the sample capillary, thus maintaining constant sample flow for analysis. This plumbing network makes the analyzer insensitive to pressure fluctuation in the sample inlet.

From the sample capillary, the sample to be analyzed is either directed through the NO_x to NO converter or around it, depending on the choice of the operator. In the reaction chamber the sample reacts with ozone to produce the light emission and is exhausted. The ozone is produced internally from dry air entering through the oxygen regulator and ozonator. The light emission is sensed by the photomultiplier tube and amplified.

Options

10-001 Bypass pump assembly includes pump, shock tray, accumulator, tubing, and fittings.

Accessory Instruments

Model 700 Heated Capillary Module
Model 606H Heated Particulate Filter
Model 800 Sample Gas Conditioner
Model 900 Sample Gas Conditioner

Thermo Electron
CORPORATION
Environmental Instruments Division
108 South Street
Hopkinton, MA 01748
Telephone 617 435-6021
Telex 948035

Printed in USA 3/84 5M

QUALITY ASSURANCE MEASUREMENTS

Determination of Response Time

With the probe positioned at a suitable location in the stack, the analyzers were stabilized with a zero calibration gas (ambient air for NO_x and high level NO_x/N_2 for the O_2 monitor). The three way valve was then switched to the sample position and the time necessary for the monitoring system to reach stable response was measured. The system was then stabilized with the high level calibration gas for O_2 (ambient air), and a similar test performed. After three repetitions of this test, all six responses for each monitor were evaluated and the slowest response time recorded became the documented response time. All subsequent testing was performed at 1-minute per test point plus the documented response time.

Calibration Check

NBS calibration gases were utilized for testing. The span range for this test was 1500 ppm. Three NO_x/NO calibration gases were used. One 11.8 O_2/N_2 gas was utilized. Ambient air was used for the O_2 span gas and for the NO_x zero gas. One of the NO/N_2 calibration gases was used as the O_2 analyzer zero gas. With these gases, monitor accuracy was demonstrated by calibrating the instruments using zero and high level calibration gases. Each of the other gases were then inserted. Acceptable responses for these gases are ≤2% of span (30 ppm).

NO_2-NO Converter

Before arriving at the test site, NO_2-NO converter test was conducted by filling a Tedlar bag approximately 50% with the high level NO/N_2 gas. The remainder of the bag was then filled with ambient air and immediately attached to the NO_x analyzer while in the NO_x mode. The analyzer output was recorded for 30 minutes during which time the stable response must not drift over 2% [redacted] of span to be considered acceptable.

Interference Test

Manufacturer's certification of interference response to SO_2, CO, CO_2, and O_2 is submitted with the test report.

SPECIFICATION
FOR
TELEDYNE ANALYTICAL INSTRUMENTS
MODEL 320P-4
PORTABLE OXYGEN ANALYZER
(WITH BUILT-IN PUMP)

Ranges:	0—5, 0—10, 0—25% O_2
Sensitivity:	0—5% of Full Scale
Accuracy:	±1% of full scale at constant temperature; ±5% of reading or ±1% of full scale, whichever is greater, throughout the operating temperature range.
Operating Temperature:	30—125° F.
Response Time:	Class B-1, 90% in less than 5 seconds.
Signal Output:	Internal, high resolution meter External, 0—100 mv DC full Scale
Micro-Fuel Cell:	Class B-1, Life is dependent upon duty cycle (e.g. 2.5 years, assuming 10% duty cycle in air). continuous duty in air 6 months.
Power Requirements:	2 NiCad rechargeable batteries. Batteries fully charged provide 1 month's continuous operation. Charging time overnight (14 hours). Charger built-in requires 115VAC, 50-60 Hz, power.

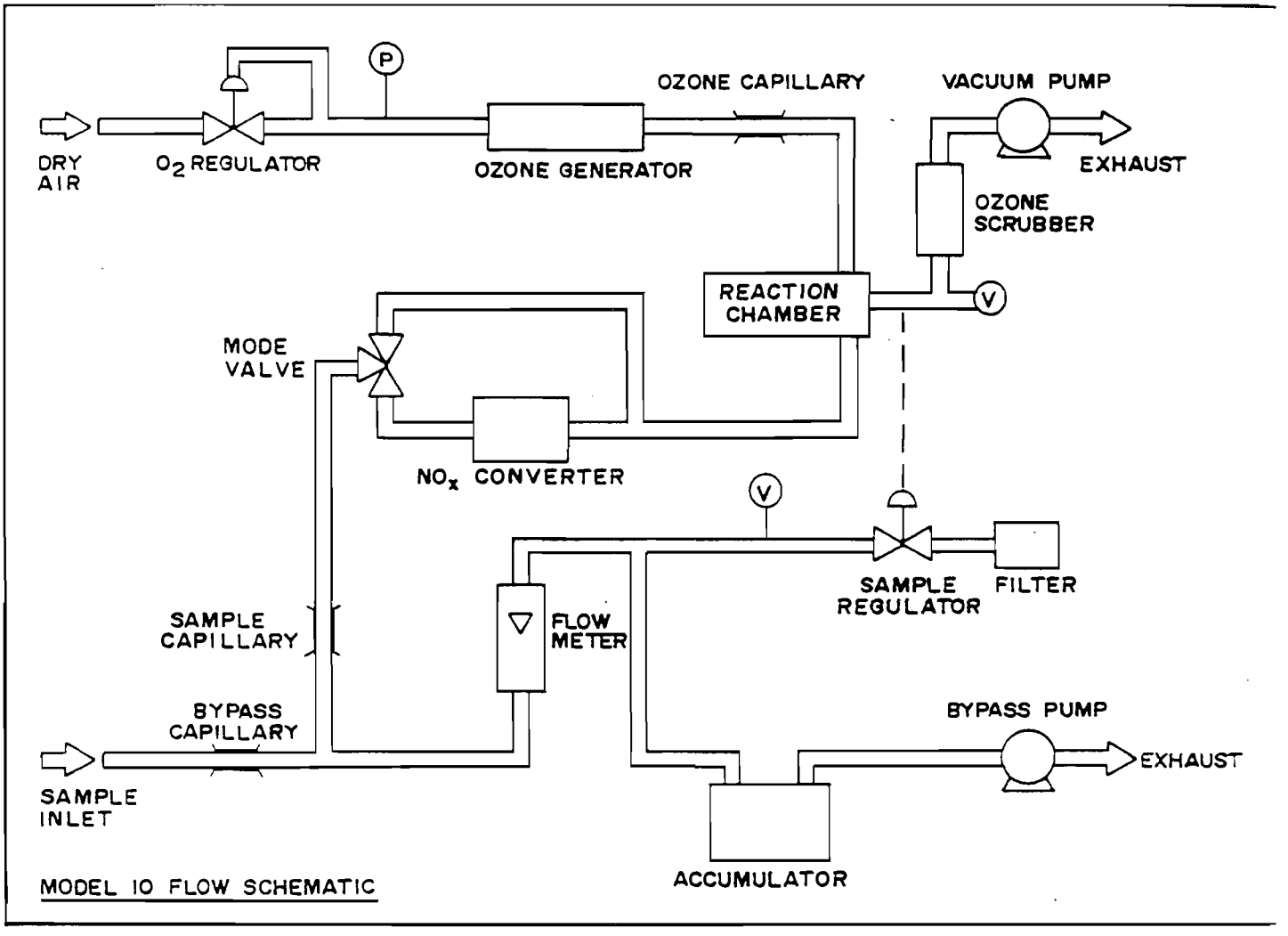
PUMP SPECIFICATION

Type:	Diaphragm
Duty:	Designed for Intermittant use.
Flow Rate:	3 to 4 scfh (about 1500 - 2000 cc/min) 5 VDC supplied by Amplifier batteries. (30 - 40 hrs. per charge)
Max. Vacuum:	60" water column

NOTE: TELEDYNE DOES NOT PUBLISH INTERFERENCE DATA BUT ACCORDING TO MR. JEFF BURKS OF CORPORATE ENGINEERING, THE B-1 FUEL CELL HAS NO INTERFERENCE, SO_2, NO_x, CO_2, AND CO EFFECT ONLY CELL LIFE, NOT ACCUR

NO_m – NO

CONVERTER CHECK



As illustrated in the above diagram, sample gas enters the Model 10, flows through the bypas capillary, and divides. Most of the sample flows through the flowmeter, accumulator, bypass pump, and exhausts. Only a small amount of sample flows through the sample capillary for analysis. The bypass pump in conjunction with the sample regulator maintain a constant pressure differential across the sample capillary, thus maintaining constant sample flow for analysis. This plumbing network makes the analyzer insensitive to pressure fluctuation in the sample inlet.

From the sample capillary, the sample to be analyzed is either directed through the NO_x to NC converter or around it, depending on the choice of the operator. In the reaction chamber the sample reacts with ozone to produce the light emission and is exhausted. The ozone is produced internally from dry air entering through the oxygen regulator and ozonator. The light emission is sensed by the photomultiplier tube and amplified.

Options

10-001 Bypass pump assembly includes pump, shock tray, accumulator, tubing, and fittings

Accessory Instruments

Model 700 Heated Capillary Module
Model 606H Heated Particulate Filter
Model 800 Sample Gas Conditioner
Model 900 Sample Gas Conditioner

Thermo Electron CORPORATION

Instruments Division

Gas Filter Correlation CO Analyzer

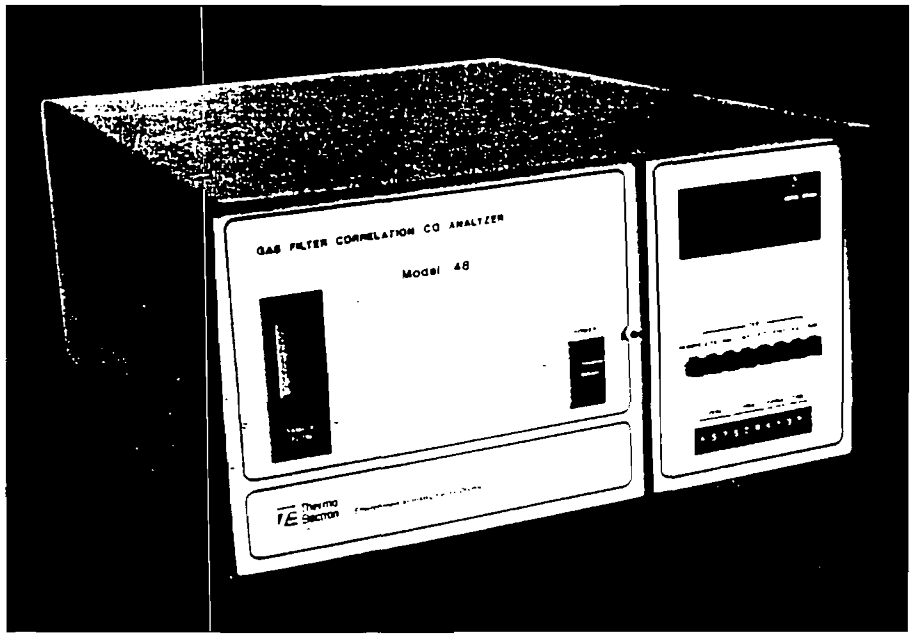
Model 48

For Continuous Ambient Air Monitoring

Thermo Electron's Microprocessor Based Model 48 Ambient CO Analyzer provides unequaled ease of operation, reliability, precision and specificity. The unique Gas Filter Correlation principle of operation offers the significant advantages of unequaled specificity and sensitivity and increased resistance to shock and vibration.

Key Features

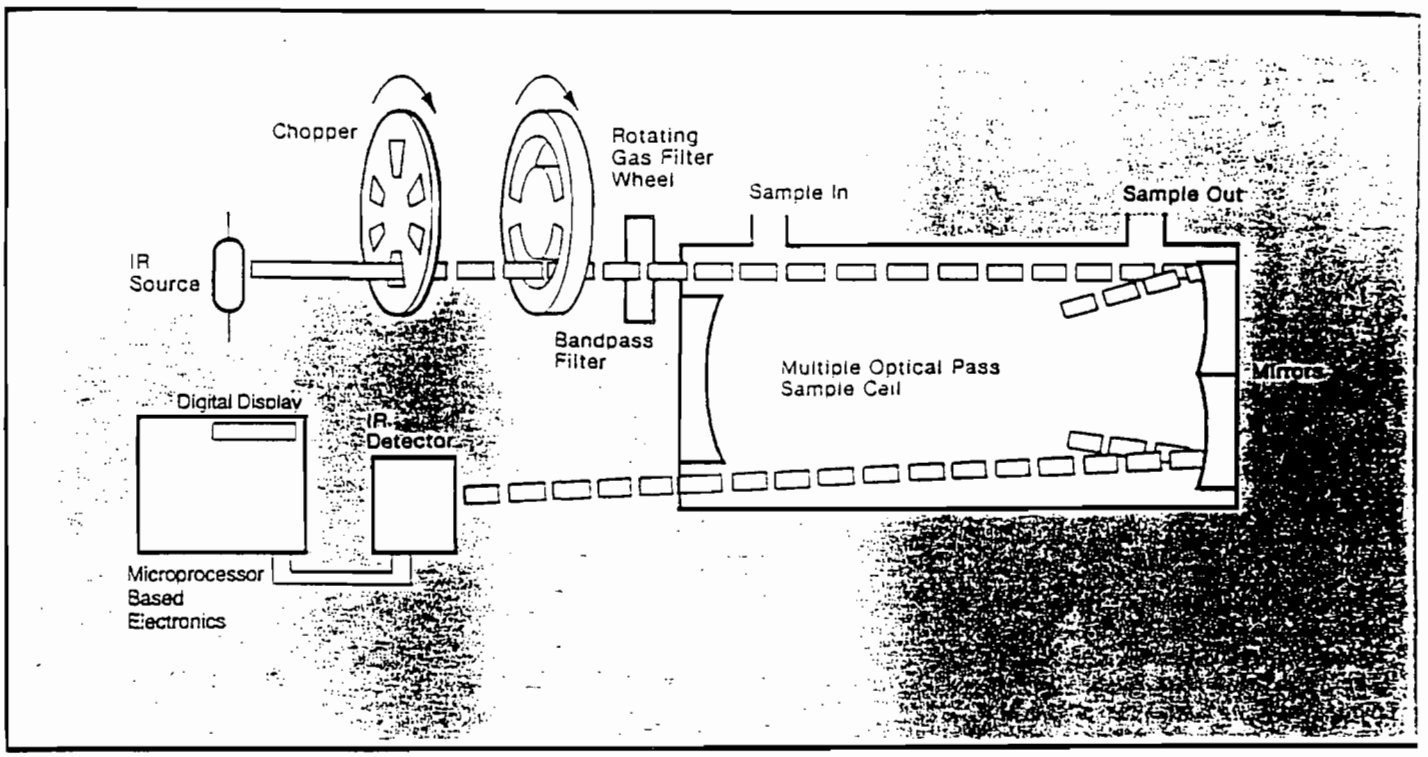
- Microprocessor Based
- Automatic pressure and temperature correction
- Dual fully independent outputs standard
- Hourly average output standard
- Lower ranges, wide dynamic range (suitable for both ambient and source)
- Highly specific to CO
- Long term zero and span stability
- Vibration and shock resistant
- Powerful diagnostics made possible by microprocessor
- Linear through all ranges
- Unaffected by changes in flow
- Self-aligning optics
- U.S.A.—EPA reference method RFCA-0981-054, range 0-50ppm time constant — 30 seconds



Model 48 Specifications

Ranges	0-1, 0-2, 0-5, 0-10, 0-20, 0-50*, 0-100, 0-200, 0-500, 0-1000 ppm
Zero Noise	0.05 ppm RMS — With time constant = 30 seconds
Minimum Detectable Limit	0.10 ppm
Zero Drift, 24 Hours	±0.2 ppm
Span Drift, 24 hours	±1% Full Scale
Rise/Fall Times (0-95%) (at 1 lpm flow, 30 second integration time)	1 minute
Precision	±0.1 ppm
Linearity	±1%
Flow Rate	1 lpm standard
Rejection Ratio	Negligible interference from water and CO₂
Operating Temperature	Performance specifications maintained over the range 15–35° C (may be operated safely over the range 5–45° C)
Power Requirements	100 Watts: 105–125 VAC, 60Hz; 220-240VAC 50Hz
Physical Dimensions	17″ wide × 8¾″ high × 23″ deep
Weight	45 lbs.
Dual Outputs (standard)	Selectable to 0-10mV, 0-100mV 0-1V, 0-5V, 0-10V; digital display; 1 hour integrated value. Other outputs available upon request (4-20ma, IEEE-488)

* [illegible] Register Tuesday February [illegible] [illegible] federal specifications. Performance [illegible]



Principle of Operation

The basic components of a Gas Correlation System are illustrated in the above diagram. Radiation from an infrared source is chopped and then passed through a gas filter which alternates between CO and N_2 due to Rotation of the filter wheel. The radiation then passes through a narrow bandpass filter and a multiple optical pass sample cell where absorption by the sample gas occurs. The IR radiation exits the sample cell and falls on a solid state IR detector.

The CO gas filter acts to produce a reference beam which cannot be further affected by CO in the sample chamber. The N_2 side of the filter wheel is transparent to IR radiation and therefore produces a measure beam which *can* be absorbed by CO. The chopped detector signal is modulated by the alternation between the two gas filters with an amplitude proportional to the concentration of CO in the sample chamber. Other gases do not cause modulation of the detector signal since they absorb the reference and measure beams equally. Thus, the Gas Filter Correlation System responds solely to CO.

Options

48–001 — Particulate Filter

48–002 — Rack Mounts

48–003 — Remote activation of zero and span solenoids.

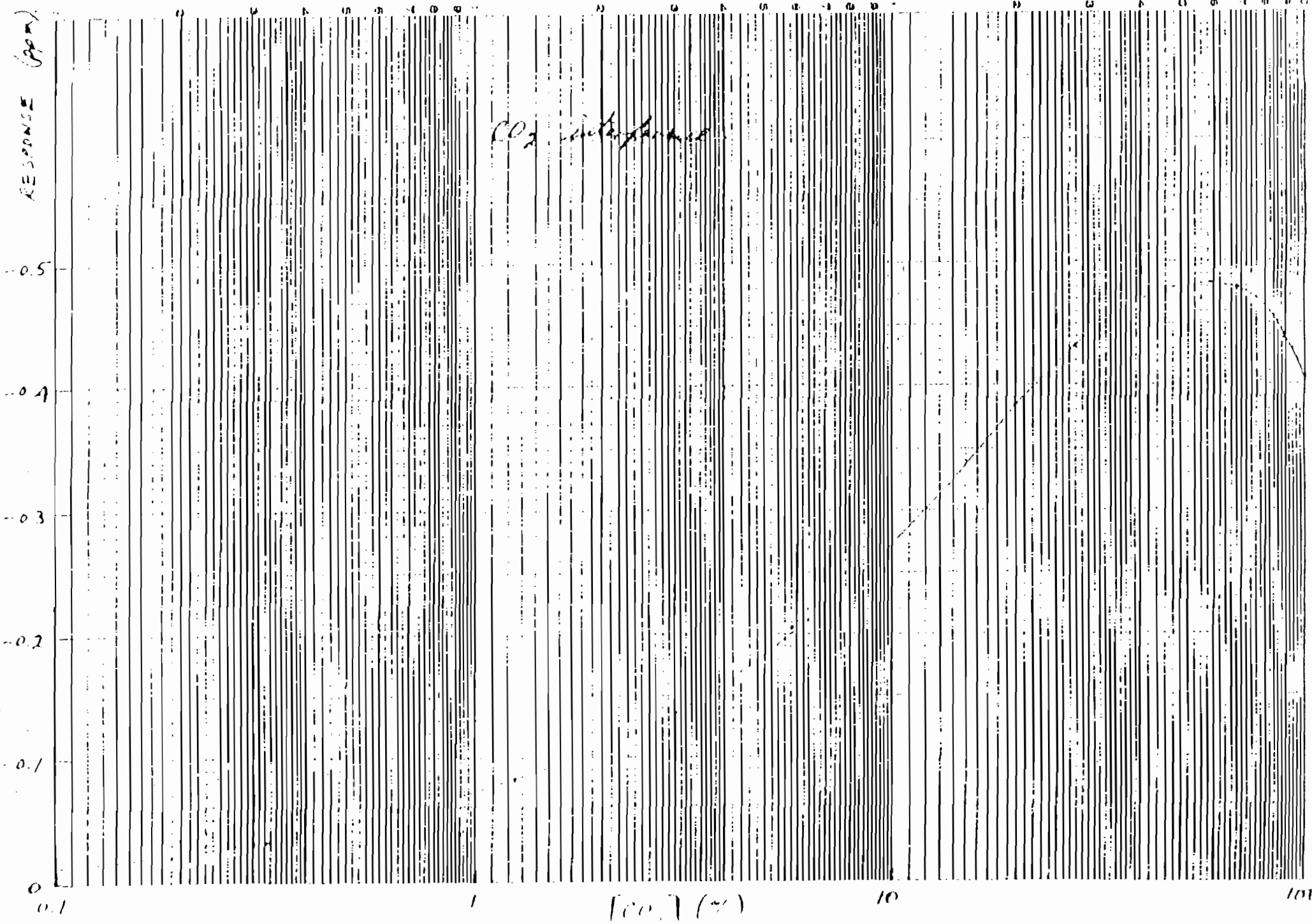
Thermo Electron
CORPORATION

Instruments Division

108 South Street
Hopkinton, Massachusetts 01748
Telephone (617) 435-5321
Telex 948325

Printed in U.S.A. — 1/83

MODEL 48 (Baseline unit). 4/29/87.



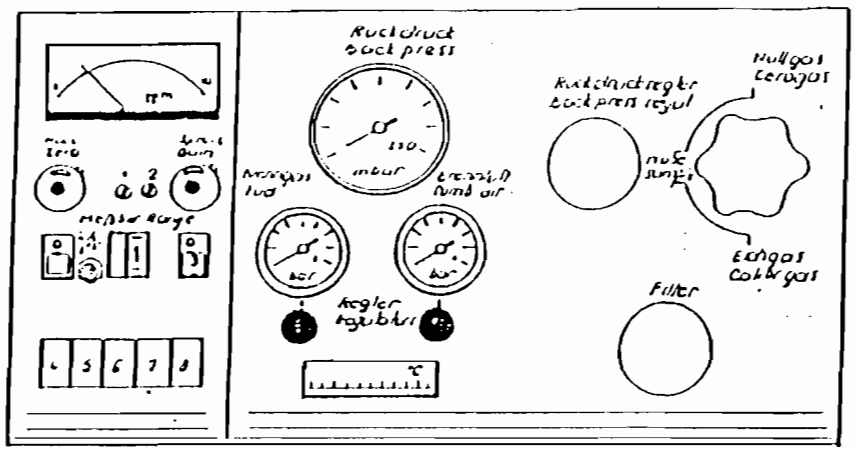
SPECIFICATION
FOR
TELEDYNE ANALYTICAL INSTRUMENTS
MODEL 320P-4
PORTABLE OXYGEN ANALYZER
(WITH BUILT-IN PUMP)

Ranges:	0—5, 0—10, 0—25% O_2
Sensitivity:	0—5% of Full Scale
Accuracy:	±1% of full scale at constant temperature; ±5% of reading or ±1% of full scale, whichever is greater, throughout the operating temperature range.
Operating Temperature:	30—125° F.
Response Time:	Class B-1, 90% in less than 5 seconds.
Signal Output:	Internal, high resolution meter External, 0—100 mv DC full Scale
Micro-Fuel Cell:	Class B-1, Life is dependent upon duty cycle (e.g. 2.5 years, assuming 10% duty cycle in air), continuous duty in air 6 months.
Power Requirements:	2 NiCad rechargeable batteries. Batteries fully charged provide 1 month's continuous operation. Charging time overnight (14 hours). Charger built-in requires 115VAC, 50-60 Hz. power.

PUMP SPECIFICATION

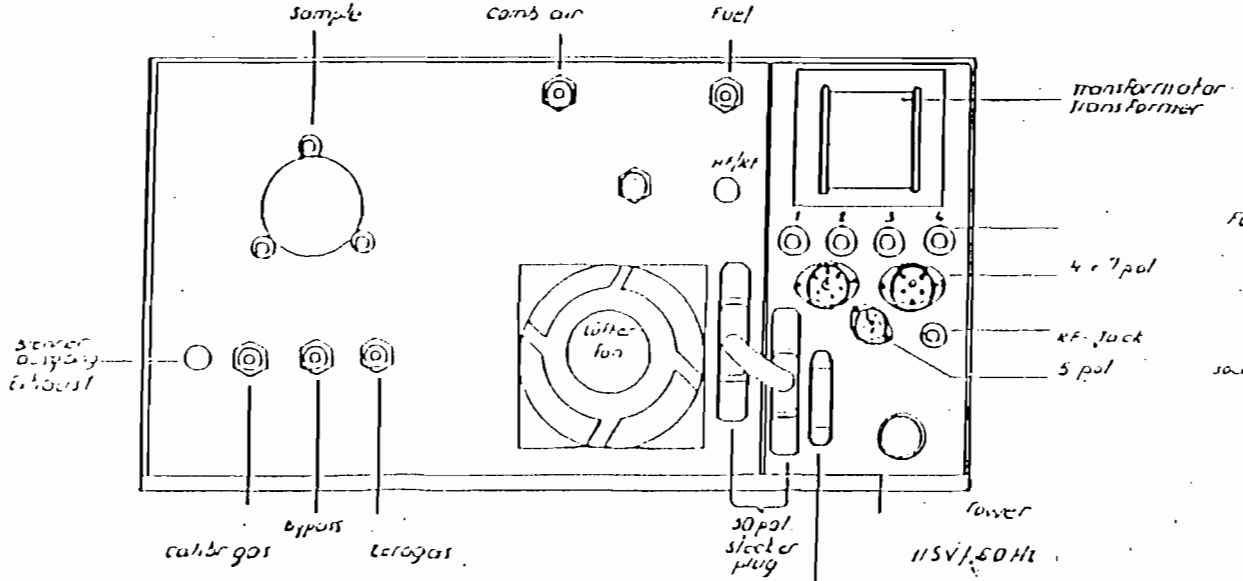
Type:	Diaphragm
Duty:	Designed for Intermittant use.
Flow Rate:	3 to 4 scfh (about 1500 - 2000 cc/min) 6 VDC supplied by Amplifier batteries. (30 - 40 hrs. per charge)
Max. Vacuum:	60" water column

NOTE: TELEDYNE DOES NOT PUBLISH INTERFERENCE DATA BUT ACCORDING TO MR. JEFF BURNS OF CORPORATE ENGINEERING, THE B-1 FUEL CELL HAS NO INTERFERENCE, SO_2, NO_x, CO_2, AND CO EFFECT ONLY CELL LIFE, NOT ACCURACY



NOTE: PULL HANDLE OUT BEFORE ROTATING

1 Potentiometer Temp Ofen
potentiometer temp oven
2 Potentiometer Temp Sonde
potentiometer temp sample line
3 Temperatur Sonde
Temperature sample line
4 Netzschalter
Power switch
5 Pumpe
pump
6 Ofenheizer
heater oven
7 Sondenheizer
heater sample line
8 Zündung
Ignition



Ratfisch

FLAMMEN IONISATIONS DETEKTOR
FLAME IONISATION DETECTOR

TOTAL HYDROCARBON ANALYZER (FLAME IONIZATION)

SERIAL NO.: 4/5/90 WORK ORDER NO.:

Mains: 115V/60Hz
Recorder Output: 0-10V/4-20mA

Measuring Ranges:

I	= 0- 10	PPM C1
II	= 0- 100	PPM C1
III	= 0- 1000	PPM C1
IV	= 0- 10,000	PPM C1

Special Options:

Pressure Adjustment:

H2	0.4 bar (before optimizing)
Comb. air	0.8 bar
Sample	200 mbar

Oven Temperature: 160C

NATIONAL SPECIALTY GASES
630 UNITED DRIVE
DURHAM, NC 27713
(919) 544-3772

CERTIFICATE OF ANALYSIS-EPA PROTOCOL MIXTURES

REFERENCE #:88-25016 CYLINDER #:CC98076 CYL. PRESSURE:2000PSIG

EXPIRATION DATE: 6-24-95 LAST ANALYSIS DATE: 6-24-93

CUSTOMER: CRYOTECH P.O.# 947
METHOD: EPA PROTOCOL # 13.0.4G-1

STANDARD:

SRM #:1684B

CYL #:CLM2223

CONC.:95.2PPM

INSTRUMENT:
BECKMAN
COMPONENT: CHEMILUMINESCENT

MODEL #: 951A

SERIAL #: 0101572

LAST CAL.: 4-2-93

COMPONENT:	NO		REPLICATE CONC.	
MEAN CONC:	82.7PPM	DATE:	6-17-93	DATE: 6-24-93
			83.1PPM	82.2PPM
			82.8PPM	82.5PPM
			83.2PPM	82.3PPM

COMPONENT:	NO2		REPLICATE CONC.	
MEAN CONC:	0.02PPM	DATE:		DATE:

COMPONENT:		REPLICATE CONC.	
MEAN CONC:	DATE:		DATE:

BALANCE GAS:N2

NATIONAL SPECIALTY GASES
630 UNITED DRIVE
DURHAM, NC 27713
(919) 544-3772

CERTIFICATE OF ANALYSIS-EPA PROTOCOL MIXTURES

REFERENCE #: 88-21592 CYLINDER #: CC103288 CYL. PRESSURE: 2000PSIG

EXPIRATION DATE: 6-28-94 LAST ANALYSIS DATE: 12-28-92

CUSTOMER: CRYOTECH P.O.# 392
METHOD: EPA PROTOCOL # 3.0.4.G-1

STANDARD:

SRM #: 1680B

CYL #: FF34074

CONC.: 477 PPM

INSTRUMENT:

BECKMAN
COMPONENT: NDIR

MODEL #: 865

SERIAL #: 0103409

LAST CAL.: 10-1-92

COMP: CO
MEAN CONC: 347PPM

REPLICATE CONC.

DATE: 12-18-92	DATE: 12-28-92
347PPM	347PPM
346PPM	348PPM
347PPM	346PPM

COMP:
MEAN CONC:

REPLICATE CONC.
DATE: DATE:

COMP:
MEAN CONC:

REPLICATE CONC.
DATE: DATE:

BALANCE GAS: N2

NATIONAL SPECIALTY GASES
630 UNITED DRIVE
DURHAM, NC 27713
(919) 544-3772

CERTIFICATE OF ANALYSIS-EPA PROTOCOL MIXTURES

REFERENCE #:88-25654 CYLINDER #:CC100098 CYL. PRESSURE:2000PSIG

EXPIRATION DATE: 7-28-96 LAST ANALYSIS DATE:7-28-93

CUSTOMER: CRYOTECH P.O.# 1120
METHOD: EPA PROTOCOL # 13.0.4.G-1

STANDARD:

SRM #:2643A

CYL #:SX20245

CONC.:99.1PPM

INSTRUMENT:

COMPONENT: BECKMAN THC

MODEL #: 400

SERIAL #: 1003052

LAST CAL.: 7-2-93

COMPONENT:	PROPANE	REPLICATE CONC.	
MEAN CONC:	83.9PPM	DATE: 7-28-93	DATE:
		84.0PPM	
		83.9PPM	
		83.8PPM	

COMPONENT:		REPLICATE CONC.	
MEAN CONC:		DATE:	DATE:

COMPONENT:		REPLICATE CONC.	
MEAN CONC:		DATE:	DATE:

BALANCE GAS:AIR

CONTINUOUS MONITOR ACCURACY CERTIFICATION

PLANT: Seagas Cane Growers Coop.

SOURCE: Boiler 3

DATE: 11/23/93

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AIR CONSULTING & ENGINEERING, INC.
2106 N.W. 67th PLACE·Suites 9 & 8
GAINESVILLE, FLORIDA·32606
(904)335-1889

NO_x CALIBRATION GAS	MONITOR VALUE ppm	DIFFERENCE ppm	% SPAN
~~449~~ 87.4	86.95	0.45	0.005

~~O2~~ C_3H_8 CALIBRATION GAS	MONITOR VALUE ppm	DIFFERENCE ppm	% SPAN
83.9	82.29	1.61	0.16

CO CALIBRATION GAS	MONITOR VALUE ppm	DIFFERENCE ppm	% SPAN
346	341	5	0.05

APPENDIX F

PROJECT PARTICIPANTS

PROJECT PARTICIPANTS

AIR CONSULTING AND ENGINEERING, INC.

Gerard Gauthreaux
Field Testing
Post Test Calibration

Thomas E. Bartley
Field Testing

Dorothy C. Roberts
Field Testing

Dagmar Fick
Laboratory Analysis
Computer Analysis
Report Preparation

Candace V. Taylor
Document Production

SUGAR CANE GROWERS

Carmen Baez
Test Coordinator

Blas Marin
Test Coordinator

FDEP

Sterling Jordan
Test Observer