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PSD PERMIT APPLICATION
FOR
UNITED STATES SUGAR CORPORATION

CLEWISTON BOILER NO. 4 & SUGAR REFINERY

Prepared For:

United States Sugar Corporation
Clewiston, Florida

RECEIVED
JUN 25 1999
BUREAU OF
AIR REGULATION

Prepared By:

Golder Associates Inc.
6241 NW 23rd Street, Suite 500
Gainesville, Florida 32653-1500

June 1999
9937515Y/F2

Golder Associates Inc.

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Golder Associates

June 24, 1999 993-7515

Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399

Attention: Clair Fancy, Chief Bureau of Air Quality

RE: U.S. Sugar Corporation, Clewiston, Florida
PSD Permit Application

Dear Mr. Fancy:

On behalf of United States Sugar Corporation, (US Sugar), Golder Associates Inc. (Golder) is submitting to the Florida Department of Environmental Protection (FDEP) a Prevention of Significant Deterioration (PSD) permit application. This application is presented in support of US Sugar's intent to modify operations at their facility located in Clewiston, Florida. Specifically, US Sugar is proposing to increase the annual hours of operation and steam production for existing Boiler No. 4. US Sugar is also proposing to modify their existing sugar refinery by increasing the annual hours of operation for some units, installing three new sugar conditioning silos, and installing several powdered sugar/starch bins.

The existing sugar refinery was construction under Permit No. 0510003-004-AC. New Source Review under PSD regulations was not required for construction of the sugar refinery because potential emissions were below significant emission rates. However, the proposed modifications to the sugar refinery described in this application will result in potential emissions of particulate matter (PM) for the entire sugar refinery above the PM significant emission rate of 15 TPY. As such, PSD review for the refinery was triggered and it was considered a new facility for the purposes of this application.

Enclosed, we have provided four copies of the permit application and a check for the application fee of $7,500. Your attention to this matter is greatly appreciated as the requested modifications to the operation of Boiler No. 4 is critical to US Sugar's upcoming crop season. If you have any questions concerning this application, please call David Buff or myself from Golder at (352) 336-5600 or Don Griffin from US Sugar at (941) 902-2711.

Sincerely,

GOLDER ASSOCIATES INC.

Scott A. McCann

Scott A. McCann, P.E.
Senior Engineer

SAM/arz

Enclosures

cc: D. Buff, Golder
D. Griffin, US Sugar
B. Wehrum, Latham & Watkins

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PART A

APPLICATION FOR AIR PERMIT
LONG FORM

Department of
Environmental Protection

DIVISION OF AIR RESOURCES MANAGEMENT

APPLICATION FOR AIR PERMIT - LONG FORM

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

This section of the Application for Air Permit form identifies the facility and provides general information on the scope and purpose of this application. This section also includes information on the owner or authorized representative of the facility (or the responsible official in the case of a Title V source) and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department using ELSA, this section of the Application for Air Permit must also be submitted in hard-copy.

Identification of Facility Addressed in This Application

Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility site name, if any; and the facility's physical location. If known, also enter the facility identification number.

1. Facility Owner/Company Name: United States Sugar Corporation	
2. Site Name: U.S. Sugar Clewiston Mill	
3. Facility Identification Number: 0510003 [ ] Unknown	
4. Facility Location Information: Street Address or Other Locator: W.C. Owens Ave. & S.R. 832 City: Clewiston County: Hendry Zip Code: 33440	
5. Relocatable Facility? [ ] Yes [x] No	6. Existing Permitted Facility? [x] Yes [ ] No

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	June 25, 1999
2. Permit Number:	0510003-009-AC
3. PSD Number (if applicable):	PSD-FL-272
4. Siting Number (if applicable):	

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:

   Murray T. Brinson, Vice President

2. Owner/Authorized Representative or Responsible Official Mailing Address:

Organization/Firm: **United States Sugar Corporation**
Street Address: **111 Ponce DeLeon Ave.**
City: **Clewiston** State: **FL** Zip Code: **33440**

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:

Telephone: **(941) 983-8121** Fax: **(941) 902-2729**

4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

Murray D. Brinson
Signature

6/24/99
Date

* Attach letter of authorization if not currently on file.

Scope of Application

This Application for Air Permit addresses the following emissions unit(s) at the facility. An Emissions Unit Information Section (a Section III of the form) must be included for each emissions unit listed.

Emissions Unit ID		Description of Emissions Unit	Permit Type
Unit #	Unit ID		
1R	009	Boiler No.4	AC1A
2R		Sugar Processing Operation	AC1A

See individual Emissions Unit (EU) sections for more detailed descriptions.
Multiple EU IDs indicated with an asterisk (*). Regulated EU indicated with an "R".

Purpose of Application and Category

Check one (except as otherwise indicated):

Category I: All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: ______________________________

[ ] Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed: ______________________________

[ ] Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: ______________________________

Operation permit to be renewed: ______________________________

[ ] Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. Also check Category III.

Operation permit to be revised/corrected: ______________________________

____

[ ] Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit. Give reason for the revision e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit to be revised: ______________________________

Reason for revision: ______________________________

____

Category II: All Air Construction Permit Applications Subject to Processing Under Rule 62-210.300(2)(b),F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s): ____________________

____

[ ] Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed: ____________________

[ ] Air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g.; to address one or more newly constructed or modified emissions units.

Operation permit to be revised: ____________________

Reason for revision: ____________________

____

Category III: All Air Construction Permit Applications for All Facilities and Emissions Units.

This Application for Air Permit is submitted to obtain:

[x] Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

Current operation permit number(s), if any: ____________________

____

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s): ____________________

____

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Application Processing Fee

Check one:

[x] Attached - Amount: $ $ 7,500.00   [ ] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations: **Increase maximum annual heat input for Boiler No. 4 from 2.713 * 10^12 Btu/yr to 2.880 * 10^12 lb/yr, with no restriction on operating hours. Expand existing sugar processing operation.**
2. Projected or Actual Date of Commencement of Construction : **1 Aug 1999**
3. Projected Date of Completion of Construction : **1 Jun 2000**

Professional Engineer Certification

1. Professional Engineer Name: **David A. Buff** Registration Number: **19011**
2. Professional Engineer Mailing Address: Organization/Firm: **Golder Associates Inc.** Street Address: **6241 NW23rd St, Suite 500** City: **Gainesville** State: **FL** Zip Code: **32653-1500**
3. Professional Engineer Telephone Numbers: Telephone: **(352) 336-5600** Fax: **(352) 336-6603**

4. Professional Engineer's Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ] if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X] if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ] if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

REGISTERED FLORIDA ENGINEER · DAVID A. BUFF · No. 19011 · STATE OF FLORIDA

David A. Buff — 6/9/99

Signature (seal) — Date

* Attach any exception to certification statement.

Application Contact

1. Name and Title of Application Contact: **Murray T. Brinson, Vice President**
2. Application Contact Mailing Address: Organization/Firm: **United States Sugar Corporation** Street Address: **111 Ponce DeLeon Av PO Dr 1207** City: **Clewiston** State: **FL** Zip Code: **33440**
3. Application Contact Telephone Numbers: Telephone: **(941) 983-8121** Fax: **(941) 902-2729**

Application Comment

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates:
   Zone: 17 East (km): 506.1 North (km): 2956.9

2. Facility Latitude/Longitude:
   Latitude (DD/MM/SS): 26 / 44 / 6 Longitude: (DD/MM/SS): 80 / 56 / 19

3. Governmental Facility Code:	4. Facility Status Code:	5. Facility Major Group SIC Code:	6. Facility SIC(s):
0	A	20	2061, 2062

7. Facility Comment (limit to 500 characters):
   See Attachment UC-FA-7.

Facility Contact

1. Name and Title of Facility Contact:
   Murray T. Brinson, Vice President

2. Facility Contact Mailing Address:
   Organization/Firm: United States Sugar Corporation
   Street Address: 111 Ponce DeLeon Av PO Dr 1207
   City: Clewiston State: FL Zip Code: 33440

3. Facility Contact Telephone Numbers:
   Telephone: (941) 983-8121 Fax: (941) 902-2729

Facility Regulatory Classifications

1. Small Business Stationary Source? [ ] Yes [x] No [ ] Unknown
2. Title V Source? [x] Yes [ ] No
3. Synthetic Non-Title V Source? [ ] Yes, [x] No
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)? [x] Yes [ ] No
5. Synthetic Minor Source of Pollutants Other than HAPs? [ ] Yes [x] No
6. Major Source of Hazardous Air Pollutants (HAPs)? [ ] Yes [x] No
7. Synthetic Minor Source of HAPs? [ ] Yes [x] No
8. One or More Emissions Units Subject to NSPS? [x] Yes [ ] No
9. One or More Emissions Units Subject to NESHAP? [ ] Yes [x] No
10. Title V Source by EPA Designation? [ ] Yes [x] No
11. Facility Regulatory Classifications Comment (limit to 200 characters): **See Attachment UC-FI-11**

B. FACILITY REGULATIONS

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

Not Applicable

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

Title V Core List, effective date 3/25/97, and additional applicable requirements attached.

Title V Core List Effective:03/25/97

[**Note:** The Title V Core List is intended to simplify the completion of the "List of Applicable Regulations" that apply facility-wide (see Subsection II.B. of DEP Form No. 62-210.900(1), Application for Air Permit - Long Form. The Title V Core List is a list of rules to which all Title V Sources are presumptively subject. The Title V Core List may be referenced in its entirety, or with specific exceptions. The Department may periodically update the Title V Core List.

Requirements that apply to emissions units must be identified in Subsection III.B. of DEP Form No. 62-210.900(1), Application for Air Permit - Long Form.

Applicants must identify all "applicable requirements" in order to claim the "permit shield" described at Rule 62-213.460, F.A.C.]

Federal: ***(description)***

40 CFR 61: National Emission Standards for Hazardous Air Pollutants (NESHAP)
40 CFR 61, Subpart M: NESHAP for Asbestos.

~~40 CFR 82: Protection of Stratospheric Ozone.~~
~~40 CFR 82, Subpart B: Servicing of Motor Vehicle Air Conditioners (MVAC).~~
~~40 CFR 82, Subpart F: Recycling and Emissions Reduction.~~

State: ***(description)***

CHAPTER 62-4, F.A.C.: PERMITS, effective 10-16-95

62-4.030, F.A.C.: General Prohibition.
62-4.040, F.A.C.: Exemptions.
62-4.050, F.A.C.: Procedure to Obtain Permits; Application
62-4.060, F.A.C.: Consultation.
62-4.070, F.A.C.: Standards for Issuing or Denying Permits; Issuance; Denial.
62-4.080, F.A.C.: Modification of Permit Conditions.
62-4.090, F.A.C.: Renewals.
62-4.100, F.A.C.: Suspension and Revocation.
62-4.110, F.A.C.: Financial Responsibility.
62-4.120, F.A.C.: Transfer of Permits.
62-4.130, F.A.C.: Plant Operation - Problems.
62-4.150, F.A.C.: Review
62-4.160, F.A.C.: Permit Conditions.
62-4.210, F.A.C.: Construction Permits.
62-4.220, F.A.C.: Operation Permit for New Sources.

CHAPTER 62-103, F.A.C.: RULES OF ADMINISTRATIVE PROCEDURE, effective 12-31-95

62-103.150, F.A.C.: Public Notice of Application and Proposed Agency Action.
62-103.155, F.A.C.: Petition for Administrative Hearing; Waiver of Right to Administrative Proceeding

Title V Core List

Effective:03/25/97

CHAPTER 62-210, F.A.C.: STATIONARY SOURCES - GENERAL REQUIREMENTS, effective 03-21-96

62-210.300, F.A.C.: Permits Required.
62-210.300(1), F.A.C.: Air Construction Permits.
62-210.300(2), F.A.C.: Air Operation Permits.
62-210.300(3), F.A.C.: Exemptions.
62-210.300(3)(a), F.A.C.: Full Exemptions.
62-210.300(3)(b), F.A.C.: Temporary Exemption.

62-210.300(5), F.A.C.: Notification of Startup.
62-210.300(6), F.A.C.: Emissions Unit Reclassification.

62-210.350, F.A.C.: Public Notice and Comment.
62-210.350(3), F.A.C.: Additional Public Notice Requirements for Sources Subject to Operation Permits for Title V Sources.

62-210.360, F.A.C.: Administrative Permit Corrections.

62-210.370(3), F.A.C.: Annual Operating Report for Air Pollutant Emitting Facility.

62-210.650, F.A.C.: Circumvention.

62-210.900, F.A.C.: Forms and Instructions.
62-210.900(1) Application for Air Permit - Long Form, Form and Instructions.
62-210.900(5) Annual Operating Report for Air Pollutant Emitting Facility, Form and Instructions.

CHAPTER 62-213, F.A.C.: OPERATION PERMITS FOR MAJOR SOURCES OF AIR POLLUTION, effective 03-20-96

62-213.205, F.A.C.: Annual Emissions Fee.
62-213.400, F.A.C.: Permits and Permit Revisions Required.
62-213.410, F.A.C.: Changes Without Permit Revision.
62-213.412, F.A.C.: Immediate Implementation Pending Revision Process.
62-213.420, F.A.C.: Permit Applications.
62-213.430, F.A.C.: Permit Issuance, Renewal, and Revision.
62-213.440, F.A.C.: Permit Content.
62-213.460, F.A.C.: Permit Shield.

62-213.900, F.A.C.: Forms and Instructions.
62-213.900(1) Major Air Pollution Source Annual Emissions Fee Form, Form and Instructions.

Title V Core List

Effective:03/25/97

CHAPTER 62-256, F.A.C.: OPEN BURNING AND FROST PROTECTION FIRES, effective 11-30-94

CHAPTER 62-257, F.A.C: ASBESTOS NOTIFICATION AND FEE, effective 03/24/96

~~**CHAPTER 62-281, F.A.C: MOTOR VEHICLE AIR CONDITIONING REFRIGERANT RECOVERY AND RECYCLING,** effective 03-07-96~~

CHAPTER 62-296, F.A.C.: STATIONARY SOURCES - EMISSION STANDARDS, effective 03-13-96

62-296.320(2), F.A.C.: Objectionable Odor Prohibited.
62-296.320(3), F.A.C.: Industrial, Commercial, and Municipal Open Burning Prohibited
62-296.320(4)(c), F.A.C.: Unconfined Emissions of Particulate Matter

Identification of Additional Applicable Requirements

Applicable Requirements, as defined in Rule 62-210.200(29), but not identified in the attached Core List, are included in this attachment entitled "**Identification of Additional Applicable Requirements**". Only those rules, regulations, and ordinances specifically identified on the Title V Core List (effective date 3/25/97) or herein, apply to this facility.

FACILITY

<u>State</u>

62-210.700(1), F.A.C.:	Excess Emissions
62-210.700(4), F.A.C.:	Excess Emissions
62-210.700(6), F.A.C.:	Excess Emissions
62-256.300, F.A.C.:	Open Burning - Prohibitions
62-256.400, F.A.C.:	Open Burning - Agricultural and Silvicultural Fires
62-256.500, F.A.C.:	Open Burning - Land Clearing
62-256.600, F.A.C.:	Open Burning - Industrial, Commercial, Municipal and Research Open Burning
62-296.320(4)(b), F.A.C.:	General VE Standards

C. FACILITY POLLUTANTS

Facility Pollutant Information

1. Pollutant Emitted		2. Pollutant Classification
PM	Particulate Matter - Total	A
SO2	Sulfur Dioxide	A
NOx	Nitrogen Oxides	A
VOC	Volatile Organic Compounds	A
CO	Carbon Monoxide	A
PM10	Particulate Matter - PM10	A
SAM	Sulfuric Acid Mist	A
PB	Lead - Total	B

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Detail Information:

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hr)	(tons/yr)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters): **N/A**		

Facility Pollutant Detail Information:

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hr)	(tons/yr)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters): **N/A**		

E. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location: [x] Attached, Document ID: UC-FE-1 [ ] Not Applicable [ ] Waiver Requested
2. Facility Plot Plan: [x] Attached, Document ID: UC-FE-2 [ ] Not Applicable [ ] Waiver Requested
3. Process Flow Diagram(s): [x] Attached, Document ID(s): UC-FE-3 [ ] Not Applicable [ ] Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: [ ] Attached, Document ID: ______ [x] Not Applicable [ ] Waiver Requested
5. Fugitive Emissions Identification: [ ] Attached, Document ID: ______ [x] Not Applicable [ ] Waiver Requested
6. Supplemental Information for Construction Permit Application: [x] Attached, Document ID: PSD Report [ ] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

7. List of Proposed Exempt Activities: [ ] Attached, Document ID: ______ [ ] Not Applicable
8. List of Equipment/Activities Regulated under Title VI: [ ] Attached, Document ID: ______ [ ] Equipment/Activities On site but Not Required to be Individually Listed [ ] Not Applicable
9. Alternative Methods of Operation: [ ] Attached, Document ID: ______ [ ] Not Applicable
10. Alternative Modes of Operation (Emissions Trading): [ ] Attached, Document ID: ______ [ ] Not Applicable

11. Identification of Additional Applicable Requirements: [ ] Attached, Document ID: ____________________ [ ] Not Applicable
12. Compliance Assurance Monitoring Plan: [ ] Attached, Document ID: ____________________ [ ] Not Applicable
13. Risk Management Plan Verification: [ ] Plan Submitted to Implementing Agency - Verification Attached Document ID: ____________________ [ ] Plan to be Submitted to Implementing Agency by Required Date [ ] Not Applicable
14. Compliance Report and Plan [ ] Attached, Document ID: ____________________ [ ] Not Applicable
15. Compliance Statement (Hard-copy Required) [ ] Attached, Document ID: ____________________ [ ] Not Applicable

ATTACHMENT UC-FA-7

FACILITY COMMENT

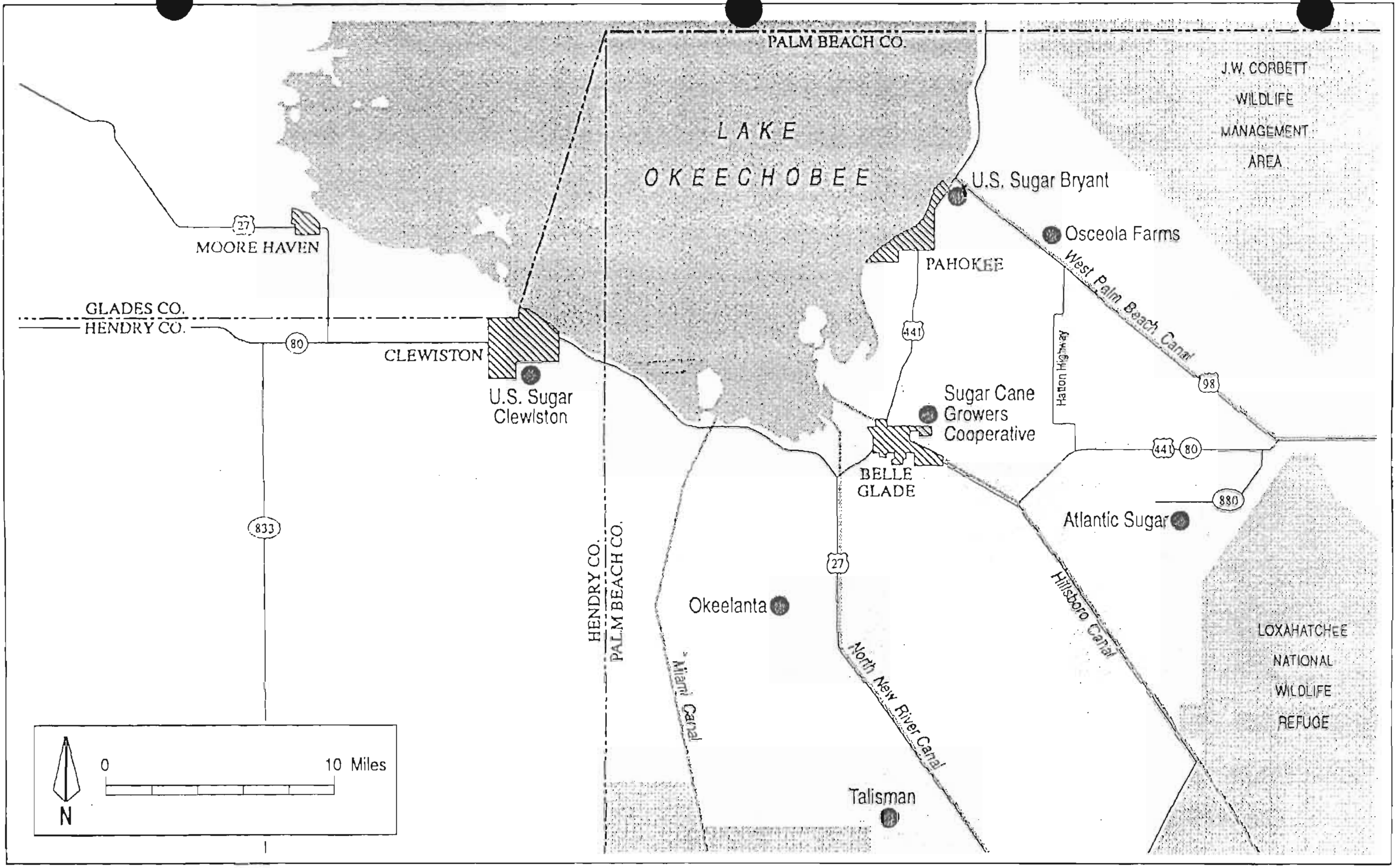
ATTACHMENT UC-FA-7

Operations at U.S. Sugar Corporation Clewiston sugar mill involve raw sugar manufacturing from sugar cane and raw sugar refining. In reference to the facility flow diagram (Attachment UC-FE-3), based on historical agricultural crop seasons, up to 30,000 tons of cane can be processed per day. U.S. Sugar has the ability to transfer sugar cane and other products between the Bryant and Clewiston mills based on agricultural, processing, logistical, and other considerations.

As set forth in the Boiler No. 4 construction permit amendment, the total No. 6 fuel oil consumption for Boiler Nos. 1, 2, 3, and 4 located at the facility shall not exceed 88,000 gallons (gal) during any 24-hour period, or 16,200 gal during any 3-hour period.

ATTACHMENT UC-FE-1

AREA MAP



Attachment UC-FE-1
Location of U.S. Sugar Mill, Clewiston, Florida

Source: KBN, 1995.

Golder Associates

ATTACHMENT UC-FE-2

FACILITY PLOT PLAN

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one:

[x] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

[x] This Emissions Unit information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): **Boiler No.4**		
2. Emissions Unit Identification Number: [ ] No Corresponding ID [ ] Unknown **009**		
3. Emissions Unit Status Code: **A**	4. Acid Rain Unit? [ ] Yes [x] No	5. Emissions Unit Major Group SIC Code: **20**
6. Emissions Unit Comment (limit to 500 characters): **Traveling grate boiler fired by carbonaceous fuel and No.6 residual fuel oil.**		

Emissions Unit Control Equipment Information

A.

1. Description (limit to 200 characters): Joy Turbulaire Impingement Scrubber, size 200, Type D.
2. Control Device or Method Code: 1

B.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

C.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date:	
2. Long-term Reserve Shutdown Date:	
3. Package Unit: Manufacturer:	Model Number:
4. Generator Nameplate Rating:	MW
5. Incinerator Information: Dwell Temperature: Dwell Time: Incinerator Afterburner Temperature:	 °F seconds °F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:	633	mmBtu/hr
2. Maximum Incineration Rate:	lbs/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:	300,000	lb/hr of steam
5. Operating Capacity Comment (limit to 200 characters): **Max 1-hr avg. Max 6-hr avg firing is 600 MMBtu/hr, producing 285,000 lb/hr steam. Max fuel oil firing = 225 MMBtu/hr. Annual heat input cap = 2,88 x 10^12 Btu/yr.**		

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:

24 hours/day	7 days/week
52 weeks/yr	8,760 hours/yr

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

Not Applicable

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

62-212.400, F.A.C.: Prevention of Significant Deterioration
62-296.410(2)(b), F.A.C.: Carbonaceous Fuel burning equipment
62-296.410(3), F.A.C.: Carbonaceous Fuel burning equipment
62-297.310(1), F.A.C.: General Compliance Test Procedures
62-297.310(2)(b), F.A.C.: General Compliance Test Procedures
62-297.310(3), F.A.C.: General Compliance Test Procedures
62-297.310(4), F.A.C.: General Compliance Test Procedures
62-297.310(5), F.A.C.: General Compliance Test Procedures
62-297.310(6), F.A.C.: General Compliance Test PRocedures
62-297.310(7)(a)10., F.A.C. General Compliance Test Procedures
62-297.310(7)(a)3., F.A.C.: General Compliance TEst Procedures
62-297.310(7)(a)4., F.A.C.: General Compliance Test Procedures
62-297.310(7)(a)5., F.A.C.: General Compliance Test Procedures
62-297.310(7)(a)9., F.A.C.: General Compliance Test Procedures
62-297.310(8), F.A.C.: General Compliance Test Procedures
62-297.401(1), F.A.C.: EPA Test Method 1
62-297.401(10), F.A.C.: EPA Test Method 10
62-297.401(2), F.A.C.: EPA Test Method 2
62-297.401(25)(a), F.A.C.: EPA Test Method 25A
62-297.401(25), F.A.C.: EPA Test Method 25
62-297.401(3), F.A.C.: EPA Test Method 3
62-297.401(4), F.A.C.: EPA Test Method 4
62-297.401(5), F.A.C.: EPA Test Method 5
62-297.401(6)(c), F.A.C.: EPA Test Method 6C
62-297.401(6), F.A.C.: EPA Test Method 6
62-297.401(7)(e), F.A.C.: EPA Test Method 7E
62-297.401(7), F.A.C.: EPA Test Method 7
62-297.401(9), F.A.C.: EPA Test Method 9

E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: BLR4 (Boiler No. 4)	
2. Emission Point Type Code: [x] 1 [ ] 2 [ ] 3 [ ] 4	
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:	
5. Discharge Type Code: [ ] D [ ] F [ ] H [ ] P [ ] R [x] V [ ] W	
6. Stack Height:	150 feet
7. Exit Diameter:	8.2 feet
8. Exit Temperature:	160 °F

9. Actual Volumetric Flow Rate:	**266,800** acfm	
10. Percent Water Vapor:	%	
11. Maximum Dry Standard Flow Rate:	dscfm	
12. Nonstack Emission Point Height:	feet	
13. Emission Point UTM Coordinates: Zone: East (km):	North (km):	
14. Emission Point Comment (limit to 200 characters): **Stack parameters based on historic stack test data, ratioing to 285,000 lb/hr steam (max 6-hr avg).**		

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters):

   External combustion boilers; Industrial; Bagasse; All boiler sizes.

2. Source Classification Code (SCC):

   1-02-011-01

3. SCC Units:

   Tons Burned

4. Maximum Hourly Rate:

   87.92

5. Maximum Annual Rate:

   400,000

6. Estimated Annual Activity Factor:

7. Maximum Percent Sulfur:

8. Maximum Percent Ash:

9. Million Btu per SCC Unit:

   7

10. Segment Comment (limit to 200 characters):

    Based on 3,600 Btu/lb wet bagasse and 633 MMBtu/hr heat input rate. Annual rate based on equivalent of 200 days operation at 600 MMBtu/hr.

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **External combustion boilers; Industrial; Residual oil; Grade 6 oil**	
2. Source Classification Code (SCC): **1-02-004-01**	
3. SCC Units: **Thousand Gallons Burned**	
4. Maximum Hourly Rate: **1.5**	5. Maximum Annual Rate: **500**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: **2.5**	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: **150**	
10. Segment Comment (limit to 200 characters): **Max hourly and annual rates based on permit specific conditions.**	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	001		EL
PM10	001		NS
SO2	001		EL
NOx			EL
CO			EL
VOC			EL
PB			NS

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: PM
2. Total Percent Efficiency of Control: %
3. Potential Emissions: 95 lb/hour 216 tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr
6. Emission Factor: 0.15 lb/MMBtu Reference: Permit Condition
7. Emissions Method Code: [x] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): See Tables 2-1 and 2-2
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Max emissions representative of carbonaceous fuel firing. Annual emissions based on heat input rate of 2,880,000 MMBtu/yr.

Emissions Unit Information Section 1 of 2

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 0.15 lb/MMBtu	
4. Equivalent Allowable Emissions: 95 lb/hour	216 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 5	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Permit limit, relating to carbonaceous fuel firing. Annual emissions based on heat input rate of 2,880,000 MMBtu/yr.	

B.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 0.1 lb/MMBtu	
4. Equivalent Allowable Emissions: 22.5 lb/hour	3.75 tons/year
5. Method of Compliance (limit to 60 characters): EPA Method 5	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Rule 62-296.410(2)(b), F.A.C. for fuel oil firing. Limited to 500,000 gal/yr fuel oil.	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **PM10**			
2. Total Percent Efficiency of Control:		%	
3. Potential Emissions:	**88.3** lb/hour		**201.6** tons/year
4. Synthetically Limited? [x] Yes [ ] No			
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ____ to ____ tons/yr			
6. Emission Factor: **0.14 lb/mmBtu** Reference: **Test Data**			
7. Emissions Method Code: [x] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5			
8. Calculation of Emissions (limit to 600 characters): **See Tables 2-1 and 2-2**			
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Max emissions representative of carbonaceous fuel firing. Annual emissions based on heat input rate of 2,880,000 MMBtu/yr.**			

Emissions Unit Information Section 1 of 2

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: SO2
2. Total Percent Efficiency of Control: %
3. Potential Emissions: 665.7 lb/hour 335.2 tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ____________ to ____________ tons/yr
6. Emission Factor: 2.5 %S Reference: Fuel Sulfur Limit
7. Emissions Method Code: [ ] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [x] 5
8. Calculation of Emissions (limit to 600 characters): See Tables 2-1 and 2-2
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Max hourly emissions representative of combined carbonaceous fuel and fuel oil firing.

Emissions Unit Information Section 1 of 2

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **2.5 % Sulfur Oil**	
4. Equivalent Allowable Emissions: **665.7** lb/hour	**335.2** tons/year
5. Method of Compliance (limit to 60 characters): **EPA Method 6 or 6C**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Applies to total combined carbonaceous fuel and fuel oil firing.**	

B.

1. Basis for Allowable Emissions Code: **OTHER**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **0.166 lb/MMBtu**	
4. Equivalent Allowable Emissions: **105.1** lb/hour	**252.2** tons/year
5. Method of Compliance (limit to 60 characters): **EPA Method 6 or 6C**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Applies to carbonaceous fuel firing only.**	

Emissions Unit Information Section 1 of 2

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: OTHER	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 2.5 %S fuel oil	
4. Equivalent Allowable Emissions: 615 lb/hour	102.4 tons/year
5. Method of Compliance (limit to 60 characters): Fuel Analysis	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Based on max heat input of 225 MMBtu/hr from fuel oil firing and assumes no removal in wet scrubber. Annual emission based on 500,000 gal/yr.	

B.

1. Basis for Allowable Emissions Code:	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	
4. Equivalent Allowable Emissions: lb/hour	tons/year
5. Method of Compliance (limit to 60 characters):	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: NOx

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 158.3 lb/hour 362.3 tons/year

4. Synthetically Limited? [x] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor: 47 lb/1000 gal

   Reference: AP-42

7. Emissions Method Code:

   [ ] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [x] 5

8. Calculation of Emissions (limit to 600 characters):

   See Tables 2-1 and 2-2

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   Max annual emissions representative of combined carbonaceous fuel firing and No.6 fuel oil firing.

Emissions Unit Information Section 1 **of** 2

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.25 lb/MMBtu**
4. Equivalent Allowable Emissions: **158.3** lb/hour **362.3** tons/year
5. Method of Compliance (limit to 60 characters): **Operation and Maintenance Plan**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Proposed permit limit, relating to carbonaceous fuel firing.**

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **CO**
2. Total Percent Efficiency of Control: %
3. Potential Emissions: **4,114.5** lb/hour **9,360** tons/year
4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr
6. Emission Factor: **6.5 lb/MMBtu** Reference: **Permit Condition**
7. Emissions Method Code: [ ] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [x] 5
8. Calculation of Emissions (limit to 600 characters): **See Tables 2-1 and 2-2**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Max emissions representative of carbonaceous fuel firing. Annual emissions based on heat input rate of 2,880,000 MMBtu/yr.**

Emissions Unit Information Section 1 of 2

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **6.5 lb/MMBtu**	
4. Equivalent Allowable Emissions: **4,114.5** lb/hour	**9,360** tons/year
5. Method of Compliance (limit to 60 characters): **EPA Method 10**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **Allowable based on current permit limit. Annual emissions based on heat input rate of 2,880,000 MMBtu/yr.**	

B.

1. Basis for Allowable Emissions Code:	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	
4. Equivalent Allowable Emissions: lb/hour	tons/year
5. Method of Compliance (limit to 60 characters):	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: VOC		
2. Total Percent Efficiency of Control: %		
3. Potential Emissions:	949.5 lb/hour	2,160 tons/year
4. Synthetically Limited? [x] Yes [ ] No		
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/yr		
6. Emission Factor: 1.5 lb/MMBtu Reference: Proposed Limit		
7. Emissions Method Code: [ ] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [x] 5		
8. Calculation of Emissions (limit to 600 characters): See Tables 2-1 and 2-2		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Max emissions representative of carbonaceous fuel firing. Annual emissions based on heat input rate of 2,880,000 MMBtu/yr.		

Emissions Unit Information Section 1 of 2

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **1.5 lb/MMBtu**
4. Equivalent Allowable Emissions: **949.5** lb/hour **2,160** tons/year
5. Method of Compliance (limit to 60 characters): **EPA Method 9**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitations: Visible Emissions Limitation 1 of 1

1.	Visible Emissions Subtype: VE20
2.	Basis for Allowable Opacity: [ ] Rule [x] Other
3.	Requested Allowable Opacity Normal Conditions: 20 % Exceptional Conditions: 40 % Maximum Period of Excess Opacity Allowed: 2 min/hour
4.	Method of Compliance: EPA Method 9
5.	Visible Emissions Comment (limit to 200 characters): Previous BACT determination for Boiler No. 4.

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment (limit to 200 characters):

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)

<u>Continuous Monitoring System</u> Continuous Monitor 1 of 2

1. Parameter Code: PRS	2. Pollutant(s):
3. CMS Requirement: [ ] Rule [X] Other	
4. Monitor Information: Monitor Manufacturer: Custom Design Model Number:	Serial Number:
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): **Existing permit condition requires monitoring of scrubber pressure drop. Parameter monitored to insure proper operation of the scrubber.**	

<u>Continuous Monitoring System</u> Continuous Monitor 2 of 2

1. Parameter Code: FLOW	2. Pollutant(s):
3. CMS Requirement: [ ] Rule [X] Other	
4. Monitor Information: Monitor Manufacturer: ITT Barton Model Number: Flowco F500	Serial Number: See Comment
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): **Existing permit condition requires monitoring of oil flow. No serial no. or installation date provided because meters are routinely replaced to ensure optimum performance.**	

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION (Regulated and Unregulated Emissions Units)

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

   If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

   [x] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[x] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:			
	PM	[x] C	[ ] E	[ ] Unknown
	SO_2	[x] C	[ ] E	[ ] Unknown
	NO_2	[x] C	[ ] E	[ ] Unknown
4.	Baseline Emissions:			
	PM	lb/hour		tons/year
	SO_2	lb/hour		tons/year
	NO_2			tons/year
5.	PSD Comment (limit to 200 characters):			

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements for All Applications

1.	Process Flow Diagram [X] Attached, Document ID: UC-EU1-L1 [ ] Not Applicable [ ] Waiver Requested
2.	Fuel Analysis or Specification [X] Attached, Document ID: UC-EU1-L2 [ ] Not Applicable [ ] Waiver Requested
3.	Detailed Description of Control Equipment [X] Attached, Document ID: UC-EU1-L3 [ ] Not Applicable [ ] Waiver Requested
4.	Description of Stack Sampling Facilities [ ] Attached, Document ID: ____ [X] Not Applicable [ ] Waiver Requested
5.	Compliance Test Report [ ] Attached, Document ID: ____ [X] Not Applicable [ ] Previously Submitted, Date: ____
6.	Procedures for Startup and Shutdown [X] Attached, Document ID: UC-EU1-L6 [ ] Not Applicable
7.	Operation and Maintenance Plan [X] Attached, Document ID: UC-EU1-L7 [ ] Not Applicable
8.	Supplemental Information for Construction Permit Application [X] Attached, Document ID: Part B [ ] Not Applicable
9.	Other Information Required by Rule or Statute [ ] Attached, Document ID: ____ [X] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10.	Alternative Methods of Operation [ ] Attached, Document ID: ____________ [ ] Not Applicable
11.	Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID: ____________ [ ] Not Applicable
12.	Identification of Additional Applicable Requirements [ ] Attached, Document ID: ____________ [ ] Not Applicable
13.	Compliance Assurance Monitoring Plan [ ] Attached, Document ID: ____________ [ ] Not Applicable
14.	Acid Rain Permit Application (Hard Copy Required) [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: ____________ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: ____________ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: ____________ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: ____________ [ ] Not Applicable

ATTACHMENT UC-EU1-F10

SEGMENT COMMENT

ATTACHMENT UC-EU1-F10

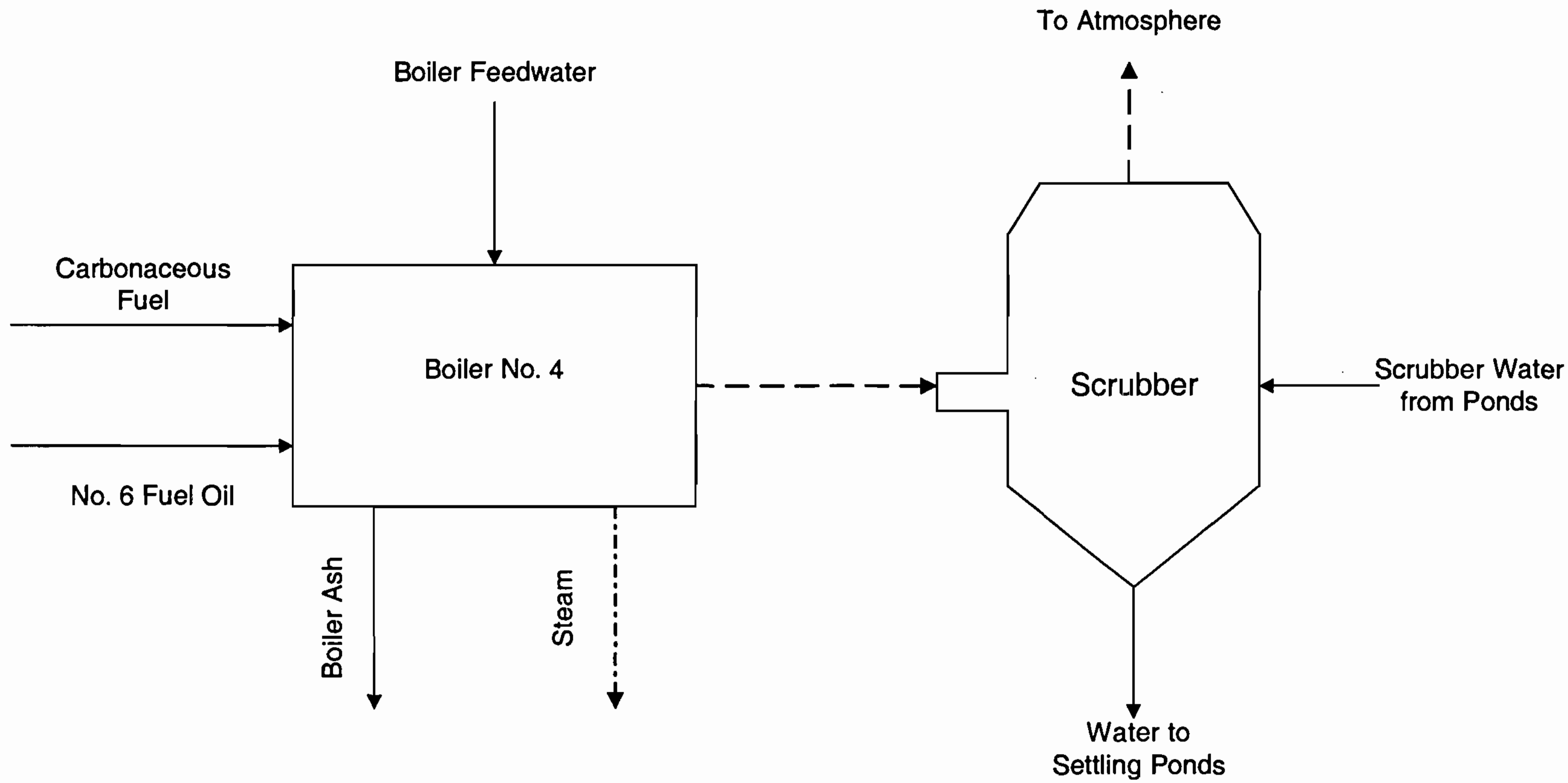
SEGMENT COMMENT

Million Btu per SCC Unit = 7.2 (rounded to 7). Maximum hourly rate based on max heat input rate of 633 MMBtu/hr and wet bagasse heating value of 3,600 Btu/lb. Maximum annual usage rate based on total annual heat input cap of 2.88×10^{12} Btu/yr steam:

$$2.88 \times 10^{12} \text{ Btu/yr} \times \text{lb}/3{,}600 \text{ Btu} \times \text{ton}/2{,}000 \text{ lb} = 400{,}000 \text{ tons/yr bagasse}$$

ATTACHMENT UC-EU1-L1

PROCESS FLOW DIAGRAM



Attachment UC-EU1-L1
Process Flow Diagram
U.S. Sugar Corporation
Clewiston Mill, Florida

Process Flow Legend	
Solid/Liquid	——→
Gas	- - - -→
Steam	-·-·-→

Boiler No. 4

Filename: 9937515Y/F2/WP/UCEU4L1A.VSD

Date: 06/23/99

Golder Associates

ATTACHMENT UC-EU1-L2

FUEL ANALYSIS OR SPECIFICATION

ATTACHMENT UC-EU1-L2

Boiler No. 4 Fuel Analysis

Parameter	Carbonaceous Fuel (a)	No. 6 Fuel Oil (b) (2.5% max S)
Density (lb/gal)	--	8.2
Approximate Heating Value (Btu/lb)	3,600 (c)	18,300
Approximate Heating Value (Btu/gal)	--	150,000
Ultimate Analysis (dry basis):		
Carbon	48.48%	84.7%
Hydrogen	6.01%	11.02%
Nitrogen	0.33%	0.18%
Oxygen	43.65%	0.38%
Sulfur	0.01% - 0.40%	2.5%
Ash/Inorganic	0.2% - 8.6%	0.02%
Moisture	50% - 55%	--

Note: All values represent average fuel characteristics.

Footnotes:
(a) Source: sugar industry fuel analysis averages.
(b) Source: Perry's Chemical Engineers' Handbook. Sixth Edition, 1984.
(c) Wet basis for bagasse.

ATTACHMENT UC-EU1-L3

DETAILED DESCRIPTION OF CONTROL EQUIPMENT

ATTACHMENT UC-EU1-L3

Control Equipment Parameters and Particulate Removal Efficiency Derivation for Boiler No.4 Wet Collection System at U. S. Sugar Clewiston Mill

Boiler No.4 52FTM26000304				
Manufacturer and Model No.		1 Joy Turbulaire Wet Impingement Scrubber Type-D, Size 200		
Outlet Gas Temp (F)			160	(a)
Outlet Gas Flow Rate (ACFM)			280,800	(a)
Pressure Drop Across Device (inches of H2O) - Avg.			10.0	(b)
Scrubbant Flow Rate (gal/min) - Normal			500	(b)
Scrubbant Supply Pressure (psi) - Normal			50	(b)
Average Scrubbant pH			8.0	(b)
Max Permitted Heat Inputs (MMBtu/hr) : Carbonaceous fuel			633	
Max Carbonaceous Fuel Consumption (lb carbonaceous fuel/hr)			175,833	(c)
Uncontrolled Particulate Emission Rate (lb particulates/ton carbonaceous fuel)			15.6	(d)
Permitted Particulate Emission Rate (lb particulates/MMBtu)			0.15	(e)
Pollutants	Inlet Loading ^(lb/hr)	Outlet Loading (lb/hr)	Control Efficiency (%)	
Particulate Matter	1372	95	93	

Note: Scrubber parameters represent typical values.

(a) Average values obtained from stack test data.
(b) Represent average values from daily records.
(c) Calculated using an average carbonaceous fuel heating value of 3,600 Btu/lb and the permitted heat input rate.
(d) AP-42 table 1.8-2 uncontrolled emission factor of 15.6 lb/ton.
(e) From permit specific condition.

Sample calculations:

Inlet loading (lb/hr) = (uncontrolled particulate emission rate X max carbonaceous fuel consumption) / 2000 lb/ton

Outlet loading (lb/hr) = (permitted particulate emission rate X max permitted heat input rate)

Control efficiency (%) = [(inlet loading - outlet loading) / inlet loading] X 100

ATTACHMENT UC-EU1-L6

PROCEDURES FOR STARTUP AND SHUTDOWN

ATTACHMENT UC-EU1-L6

Startup and Shutdown Procedure

During startup and shutdown of the boilers, excess PM, SO2, NOx, CO and VOC emissions for more than 2 hours in a 24-hour period are possible. Pursuant to Rule 62-210.700(1), F.A.C., the following procedures and precautions are taken to minimize the magnitude and duration of excess emissions during startup and shutdown of Boiler No. 4. Boiler room foreman and operating personnel have received proper training on emissions control procedures.

Cold Startup (approximately 4 to 5 hours)

1. Feed solid fuel into boiler combustion chamber.
2. Start fire in combustion chamber using a propane torch designed for that purpose.
3. As boiler heats up and starts to make steam, continuously observe the boiler and scrubber water levels, and stack plume.
4. Light a burner at the lowest rate, continue to observe the stack plume and adjust if necessary, by adjusting fuel, atomizing steam, and air to obtain proper combustion.
5. Feed carbonaceous fuel from the mill to the boiler slowly at first; as the furnace gets hotter and the carbonaceous fuel is burning better, decrease fuel oil until burners can be turned off.
6. Continue to observe the stack plume, the scrubber water level, and the carbonaceous fuel level, making adjustments to drafts, fuel, and scrubber to maintain optimum operating conditions.

Hot Startup (approximately 1 hour)

1. This type of startup is applicable when the boiler has been shutdown for a short period of time and is still hot.
2. Check the boiler and scrubber water levels, circulating pump and spray nozzles, and make sure they are functioning properly.
3. Light a burner, continue to observe the stack plume, water levels, and burners.
4. As the carbonaceous fuel fire gets hot enough to meet steam demand, reduce the burner fuel until it can be turned off. Adjust the dampers to get optimum carbonaceous fuel firing.
5. Continue to observe the stack plume, scrubber water level, and carbonaceous fuel level, making adjustments to drafts, fuel, and scrubber to maintain optimum operating conditions.

Shutdown

1. Stop fuel flow to the boiler, reduce forced draft, distributor air, overfire air, and induced draft.
2. Continue to observe the stack plume and water levels and make adjustments to maintain safe and optimum operating conditions.

ATTACHMENT UC-EU1-L7

OPERATION AND MAINTENANCE PLAN

UNITED STATES SUGAR CORPORATION

CLEWISTON MILL

OPERATION AND MAINTENANCE GUIDELINES

FOR

BOILER NO. 4 AND EMISSIONS CONTROLS

PREPARATION FOR OPERATIONS

1. Prior to each harvest season, the boiler proper, its air duct work, air heaters and scrubber are properly cleaned, inspected and repaired.

2. All refractory and boiler casing will be inspected and repaired where needed.

3. Outside of boiler tubes will have loose scale removed and boiler will be cleaned of loose scale, sand and other debris.

4. Boiler grates will be inspected and cleaned as well as being checked for mechanical operation.

5. All fans and fan drives will be inspected and repaired as needed.

6. All pumps and pump drives will be inspected and repaired as needed.

7. All oil burners will be cleaned and inspected as well as related oil piping, atomizing steam and air registers.

8. Prior to each harvest season, the skirt level of the scrubber is identified and marked on the outside so that a permanent reference is available.

9. Operational sight glasses are maintained on the scrubber so accurate water level readings can be obtained at all times to ensure that the water level is maintained at the level necessary to allow optimum scrubber efficiency.

10. Prior to each harvest season, all instruments for boiler operation and control are inspected, repaired and calibrated as required. This is recorded by the instrument shop in its repair log.

BOILER OPERATION AND CONTROLS

This manual is to be used as a maintenance and operations log for the boiler and scrubber for the purpose of monitoring and periodically recording certain specific parameters as set forth by the Florida Department of Environmental Protection in Permit No. AC26-248809/PSD-FL-217 and in these operation and maintenance guidelines.

The senior most experienced boiler supervisor instructs other boiler room supervisors, boiler operators, and other appropriate personnel in proper boiler and scrubber operations so as to minimize stack emissions, including carbon monoxide (CO), particulate matter (PM), nitrogen oxides (NO2), sulfur dioxide (SO2) and volatile organic compounds (VOCs). This instructional program is presented prior to each harvest season and is included in the orientation and training provided to new boiler room employees. The training will impress upon supervisors and operators the importance of proper boiler operation in order to minimize emissions.

SCRUBBER (PARTICULATE CONTROL)

The boiler is equipped with one Joy-type turbulaire water impingement scrubber with water spray nozzles operating in an internal atmosphere of negative draft gas flow. The normal operating control parameters for the scrubber should be maintained and the pressure drop should be operated at 90% or above (and not less than 75%) of that used in the most recent compliance test for particulate matter emissions.

1. The static pressure drop of the scrubber is monitored in inches of water, using provided manometers, and is logged once per shift (every 8 hours). Readings are also reported on the appropriate daily report, which is signed and filed in the superintendents office. (All instruments are checked and cleaned before readings are taken, and any problems are reported to the

supervisor and corrected.)

2. The scrubber is equipped with quick disconnect couplings on the nozzles.

   A. All scrubber nozzles are visually checked for plugging and the water flow is verified once per week.

   B. Any plugged or defective nozzles are cleaned or replaced within 24 hours of discovery.

   C. Nozzle conditions, (plugged, clean or replaced) and time of inspection are logged by location.

3. The scrubber has a primary and a secondary water pumping system. Both systems are monitored at least once per day and any unusual findings are logged and problems are corrected.

4. Scrubber water supply strainers are backwashed twice per shift and the time and any observations are logged.

5. Once per shift, near mid-shift, scrubber water supply requirements are verified, and the scrubber water supply pressure and flow are recorded in a log book which is kept in the Boiler Room Office.

6. All scrubber equipment (water control instruments, circulating pumps, monitoring gauges, piping and valves, etc.) are properly maintained and inspected each shift. Times, dates and any unusual observations are logged.

7. The "pH" level of the scrubber discharge effluent is checked twice per shift by the water plant operator. Findings are recorded on the daily report and filed on a daily basis.

8. Records of the scrubber pressure drop readings and of the "pH" measurement of the scrubber discharge effluent will be retained for 5 years.

<u>CO AND VOC CONTROLS</u>

CO emissions are to be minimized by the proper application of Good Combustion Practices (GCP). To provide reasonable assurance that GCP are being employed:

A. The boiler operator will maintain steam rate at optimal or desired rate by controlling feed of bagasse fuel into the boiler. Combustion air to the boiler will be maintained at the highest possible level (resulting in the highest possible excess air) in order to promote good combustion.

B. The boiler operator will periodically (at least once per hour) view the stack video monitor to visually confirm that good combustion is taking place. (Individual stack plumes are monitored continuously through a closed circuit television system.) If an abnormal plume is observed, the operator will immediately take corrective action. The boiler operator will log the occurrence and duration of all such events in the boiler operation log, along with the corrective action taken. These records will be kept for a period of at least two years.

C. Bagasse moisture content will be maintained at or below 55%.

MISCELLANEOUS

1. Several times per shift, the boiler grates and feeders are examined for proper distribution and any necessary operational changes are made. Any unusual observations are logged once per shift.

2. Once per day, on the day shift, the boiler will be given a walk-around inspection with the following items being checked and repaired as needed and in coordination with the production schedule.

    A. Fans
    B. Pumps
    C. Casing
    D. Ducting
    E. Scrubber

3. On every shift burners are inspected and cleaned if dirty.

4. On every shift, precautions will be taken as necessary to control visible emissions of fugitive matter (dust and bagasse, etc.)

5. Boiler stack emissions compliance testing is conducted once per harvest season and is to be completed prior to March 1.

REVISED 5/96

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III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one:

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

[X] This Emissions Unit information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
   Sugar Processing Operation

2. Emissions Unit Identification Number: [x] No Corresponding ID [ ] Unknown

3. Emissions Unit Status Code: **C**	4. Acid Rain Unit? [ ] Yes [x] No	5. Emissions Unit Major Group SIC Code: **20**

6. Emissions Unit Comment (limit to 500 characters):
   This emission unit represents the sugar processing operation(refinery), which produces bulk and bagged sugar.

Emissions Unit Control Equipment Information

A.

1. Description (limit to 200 characters): **Baghouses(15)**
2. Control Device or Method Code: **18**

B.

1. Description (limit to 200 characters): **Off Gas Afterburner**
2. Control Device or Method Code: **99**

C.

1. Description (limit to 200 characters): **Venturi wet scrubber**
2. Control Device or Method Code: **53**

Emissions Unit Control Equipment Information

A.

1. Description (limit to 200 characters): **Process Enclosed**
2. Control Device or Method Code: **54**

B.

1. Description (limit to 200 characters): **Impingement Plate scrubber**
2. Control Device or Method Code: **55**

C.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

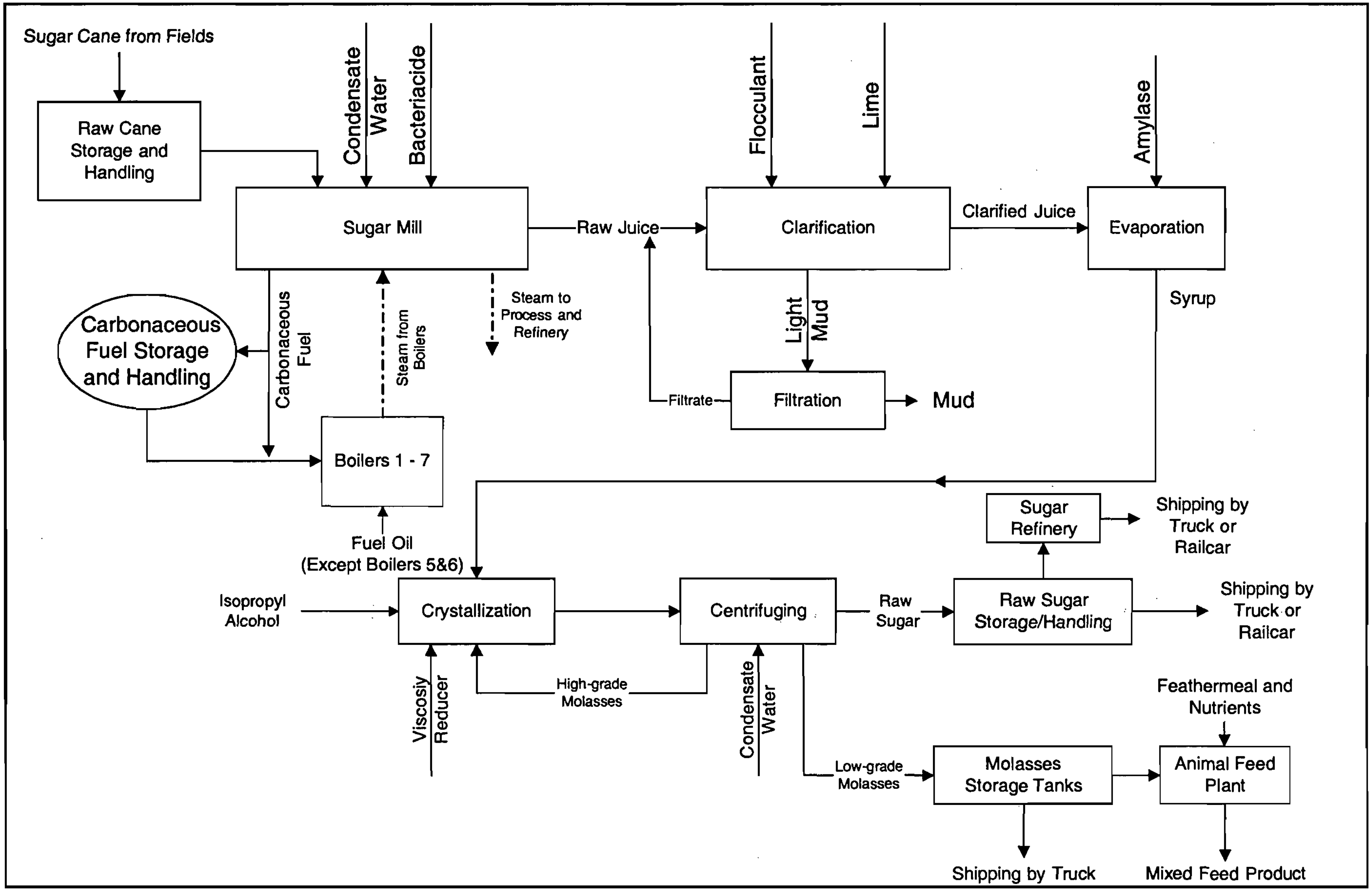
ATTACHMENT UC-FI-11

FACILITY REGULATORY CLASSIFICATION COMMENT

ATTACHMENT UC-FI-11

FACILITY REGULATORY CLASSIFICATIONS COMMENT

Emission factors for HAPs from bagasse boilers are not currently available. Future testing may indicate the facility is a major source of HAPs.



Attachment UC-FE-3
Process Flow Diagram
U.S. Sugar Corporation
Clewiston Mill, Florida

Process Flow Legend
Solid/Liquid
Gas
Steam

Clewiston Sugar Mill Facility

Filename: 9937515Y/F2/WP/UCFE3A.VSD

Date: 06/23/99

Golder Associates

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date:		
2. Long-term Reserve Shutdown Date:		
3. Package Unit: Manufacturer:	Model Number:	
4. Generator Nameplate Rating:	MW	
5. Incinerator Information: Dwell Temperature: Dwell Time: Incinerator Afterburner Temperature:	 °F 0.5 seconds 1,600 °F	

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:		mmBtu/hr
2. Maximum Incineration Rate:	lbs/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:	803,000	TPY sugar
5. Operating Capacity Comment (limit to 200 characters): Max production rate refers to bulk and bagged sugar.		

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:			
24	hours/day	7	days/week
52	weeks/yr	8,760	hours/yr

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

<u>Rule Applicability Analysis</u> (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

Not Applicable

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

62-210.700(1). F.A.C.: Excess Emissions
62-210.700(4). F.A.C.: Excess Emissions
62-210.700(5). F.A.C.: Excess Emissions
62-210.700(6). F.A.C.: Excess Emissions
62-212.300, F.A.C.: General Preconstruction Review Requirements
62-296.320(4)(a), F.A.C.: Process Weight Table
62-296.320(4)(b), F.A.C.: General Visible Emissions Standards
62-296.320(4)(c), F.A.C.: Unconfined Emissions of PM
62-296.401(1), F.A.C.: Incinerators <50 TPD
62-297.310(2)(b), F.A.C.: General Compliance Test Requirements
62-297.310(4)(a)2., F.A.C.: General Compliance Test Requirements
62-297.310(5), F.A.C.: General Compliance Test REquirements
62-297.310(7)(a)1., F.A.C.: General Compliance Test Requirements
62-297.310(7)(a)3., F.A.C.: General Compliance Test Requirements
62-297.310(7)(a)4.a., F.A.C.: General Compliance Test Requirements
62-297.310(7)(a)9., F.A.C.: General Compliance Test Requirements
62-297.310(7)(c), F.A.C.: General Compliance Test Requirements
62-297.310(8), F.A.C.: General Compliance Test REquirements
62-297.620(4), F.A.C.: Exceptions and Alternate Procedures

E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:		
2. Emission Point Type Code: [ ] 1 [ ] 2 [x] 3 [ ] 4		
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): **See Part B**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: [ ] D [ ] F [ ] H [ ] P [ ] R [x] V [ ] W		
6. Stack Height:	75	feet
7. Exit Diameter:	7.3	feet
8. Exit Temperature:	115	°F

9. Actual Volumetric Flow Rate:	**113,000**	acfm
10. Percent Water Vapor:	**5**	%
11. Maximum Dry Standard Flow Rate:	**94,488**	dscfm
12. Nonstack Emission Point Height:		feet
13. Emission Point UTM Coordinates: Zone: East (km): North (km):		
14. Emission Point Comment (limit to 200 characters): **Stack parameters represent sugar dryer baghouse stack. See Part B, Table 2-8 for list of all stacks and their parameters in this emissions unit.**		

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 1 of 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **Food and Agriculture - Sugar cane processing, general**	
2. Source Classification Code (SCC): **3-02-015-01**	
3. SCC Units: **Tons Sugar Produced**	
4. Maximum Hourly Rate: **100**	5. Maximum Annual Rate: **803,000**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment (limit to 200 characters): **Max hourly & annual rates refer to the amount of sugar produced by the fluidized bed drying system and loaded via the bulk shipment facility.**	

Segment Description and Rate: Segment 2 of 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **Food and Agriculture - Sugar Cane Processing, Other Not Classified.**	
2. Source Classification Code (SCC): **3-02-015-99**	
3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **85**	5. Maximum Annual Rate: **730,000**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment (limit to 200 characters): **Max hourly and max annual rates based on 2,000 TPD, and refer to the amount of sugar that could be processed through the packaging operations.**	

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 3 of 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **In-Process Fuel Use; Distillate Oil; General**	
2. Source Classification Code (SCC): **3-90-005-89**	
3. SCC Units: **1000 Gallons Burned**	
4. Maximum Hourly Rate: **0.09**	5. Maximum Annual Rate: **788**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: **0.03**	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: **135**	
10. Segment Comment (limit to 200 characters): **Max Annual Rate: 788.4(rounded to 788). Max rates refer to the amount of No. 2 fuel oil burned in the granular carbon regeneration furnace and the afterburner.**	

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters):	
2. Source Classification Code (SCC):	
3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment (limit to 200 characters):	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	018	054	EL
PM10	018	054	EL
VOC	099	053	NS
SO2	053	055	NS
NOX			NS
CO			NS

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **PM**

2. Total Percent Efficiency of Control: %

3. Potential Emissions: **5.47** lb/hour **24** tons/year

4. Synthetically Limited? [ ] Yes [X] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor: **See Part B**

   Reference:

7. Emissions Method Code:

   [ ] 0 [ ] 1 [X] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   Part B, Table 2-3

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

   See Part B for complete calculations and description of control equipment

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **24 TPY**
4. Equivalent Allowable Emissions: **5.47** lb/hour **24** tons/year
5. Method of Compliance (limit to 60 characters): **Annual VE test using EPA Method 9**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **See emissions calcs. shown in Part B, Table 2-3. We request that the permit include provisions to accommodate periodic, unavoidable control equipment malfunctions (e.g., broken bags).**

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **PM10**		
2. Total Percent Efficiency of Control: %		
3. Potential Emissions:	**5.47** lb/hour	**24** tons/year
4. Synthetically Limited? [ ] Yes [X] No		
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr		
6. Emission Factor: Reference: **See Part B, Tbl 2-3**		
7. Emissions Method Code: [ ] 0 [ ] 1 [X] 2 [ ] 3 [ ] 4 [ ] 5		
8. Calculation of Emissions (limit to 600 characters): **See Part B, Table 2-3**		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **See Part B for complete calculations and descriptions of control equipment.**		

Emissions Unit Information Section 2 of 2
Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:
   OTHER

2. Future Effective Date of Allowable Emissions:

3. Requested Allowable Emissions and Units:
   24 TPY

4. Equivalent Allowable Emissions: **5.47** lb/hour **24** tons/year

5. Method of Compliance (limit to 60 characters):
   Annual VE Test using EPA Method 9

6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):
   See emissions calcs. shown in Part B, Table 2-3. We request that the permit include provisions to accommodate periodic, unavoidable control equipment malfunctions (e.g., broken bags).

B.

1. Basis for Allowable Emissions Code:

2. Future Effective Date of Allowable Emissions:

3. Requested Allowable Emissions and Units:

4. Equivalent Allowable Emissions: lb/hour tons/year

5. Method of Compliance (limit to 60 characters):

6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **VOC**

2. Total Percent Efficiency of Control: %

3. Potential Emissions: lb/hour **21.1** tons/year

4. Synthetically Limited? [ ] Yes [x] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: **See Pt.B,Tbl:2-4,5,6**

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Part B, Tables 2-4, 2-5, and 2-6

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

Emissions Unit Information Section 2 of 2

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **SO2**

2. Total Percent Efficiency of Control: %

3. Potential Emissions: **0.49** lb/hour **2.15** tons/year

4. Synthetically Limited? [ ] Yes [X] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: **See pt.B,tbl:2-4,2-6**

7. Emissions Method Code:

   [ ] 0 [ ] 1 [X] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Part B Tables 2-4 and 2-6

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

Emissions Unit Information Section 2 of 2

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hour	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hour	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: NOX

2. Total Percent Efficiency of Control: %

3. Potential Emissions: 3.22 lb/hour 13.88 tons/year

4. Synthetically Limited? [ ] Yes [x] No

5. Range of Estimated Fugitive/Other Emissions:

   [ ] 1 [ ] 2 [ ] 3 ________ to ________ tons/yr

6. Emission Factor:

   Reference: See Pt.B,Tbl:2-4,2-6

7. Emissions Method Code:

   [ ] 0 [ ] 1 [x] 2 [ ] 3 [ ] 4 [ ] 5

8. Calculation of Emissions (limit to 600 characters):

   See Part B, Tables 2-4 and 2-6

9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

Emissions Unit Information Section 2 of 2

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **CO**
2. Total Percent Efficiency of Control: %
3. Potential Emissions: **3.03** lb/hour **13.21** tons/year
4. Synthetically Limited? [ ] Yes [X] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/yr
6. Emission Factor: Reference: **See Pt.B,Tbl:2-4,2-6**
7. Emissions Method Code: [ ] 0 [ ] 1 [X] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **See Part B, Tables 2-4 and 2-6**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitations: Visible Emissions Limitation 1 of 3

1.	Visible Emissions Subtype: **VE05**
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: 5 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: **EPA Method 9**
5.	Visible Emissions Comment (limit to 200 characters): **Rule 62-297.620(4), F.A.C. This limit applies to the baghouse exhaust stacks and is used to demonstrate compliance in lieu of a PM stack test.**

Visible Emissions Limitations: Visible Emissions Limitation 2 of 3

1.	Visible Emissions Subtype: **VE20**
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: 20 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: **EPA Method 9**
5.	Visible Emissions Comment (limit to 200 characters): **Rule 62-296.320(4)(b), F.A.C.**

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitations: Visible Emissions Limitation 3 of 3

1.	Visible Emissions Subtype: VE05
2.	Basis for Allowable Opacity: [x] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: 5 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: EPA Method 9
5.	Visible Emissions Comment (limit to 200 characters): **Rule 62-296.401(1), F.A.C. This limit applies to the granular carbon regeneration furnace afterburner exhaust stack.**

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment (limit to 200 characters):

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)

Continuous Monitoring System Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: [ ] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Model Number: Serial Number:	
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters):	

Continuous Monitoring System Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: [ ] Rule [ ] Other	
4. Monitor Information: Monitor Manufacturer: Model Number: Serial Number:	
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters):	

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

   If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

   [x] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[X] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:			
	PM	[X] C	[ ] E	[ ] Unknown
	SO_2	[X] C	[ ] E	[ ] Unknown
	NO_2	[X] C	[ ] E	[ ] Unknown
4.	Baseline Emissions:			
	PM	0 lb/hour	0 tons/year	
	SO_2	0 lb/hour	0 tons/year	
	NO_2		0 tons/year	
5.	PSD Comment (limit to 200 characters):			

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements for All Applications

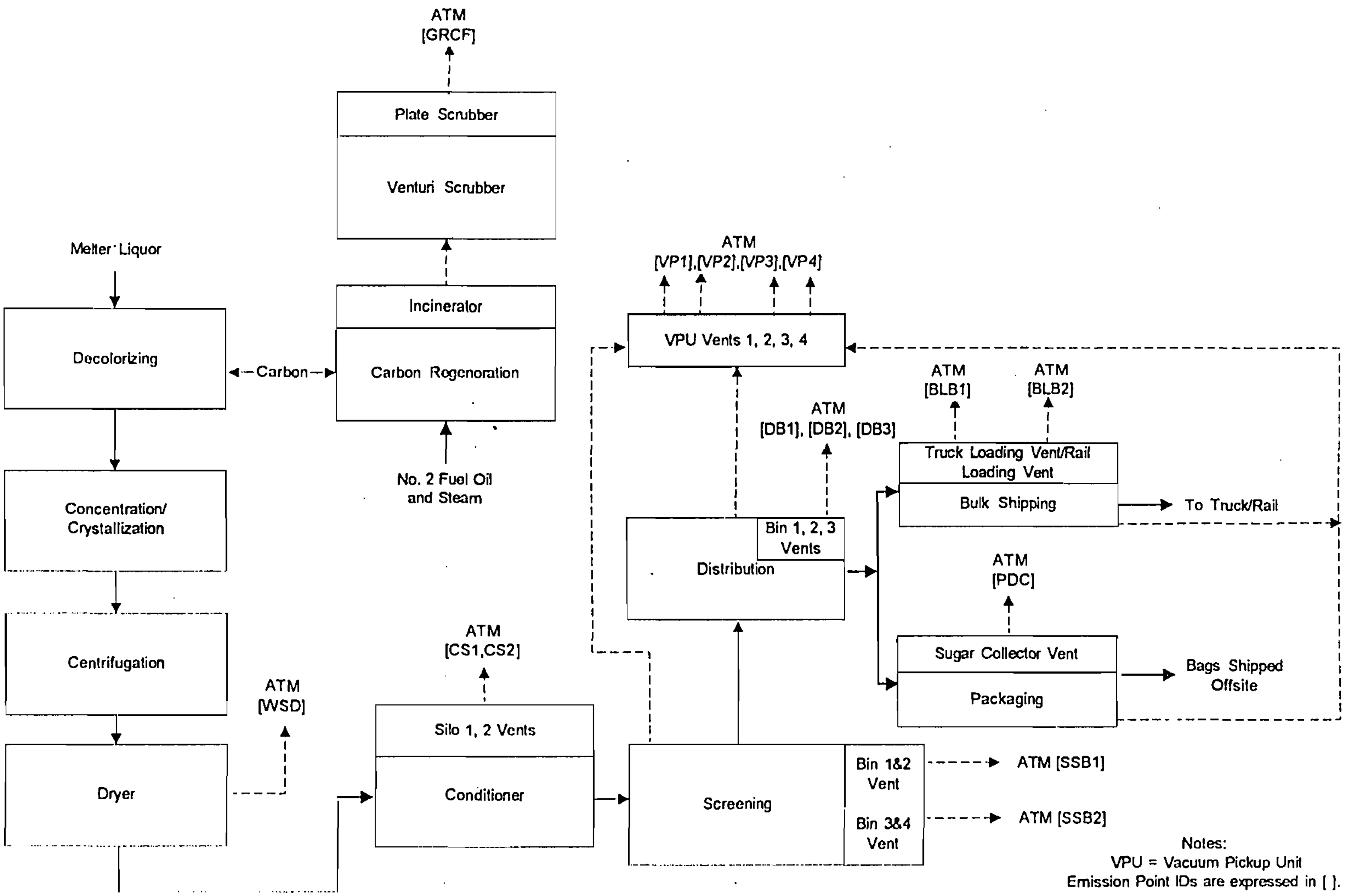
1.	Process Flow Diagram [X] Attached, Document ID: Att. UC-EU2-L1 [ ] Not Applicable	 [ ] Waiver Requested
2.	Fuel Analysis or Specification [X] Attached, Document ID: Att. UC-EU2-L2 [ ] Not Applicable	 [ ] Waiver Requested
3.	Detailed Description of Control Equipment [X] Attached, Document ID: Att. UC-EU2-L3 [ ] Not Applicable	 [ ] Waiver Requested
4.	Description of Stack Sampling Facilities [ ] Attached, Document ID: ________ [X] Not Applicable	 [ ] Waiver Requested
5.	Compliance Test Report [ ] Attached, Document ID: ________ [ ] Previously Submitted, Date: ________	 [X] Not Applicable
6.	Procedures for Startup and Shutdown [ ] Attached, Document ID: ________	 [X] Not Applicable
7.	Operation and Maintenance Plan [ ] Attached, Document ID: ________	 [X] Not Applicable
8.	Supplemental Information for Construction Permit Application [X] Attached, Document ID: Part B	 [ ] Not Applicable
9.	Other Information Required by Rule or Statute [ ] Attached, Document ID: ________	 [X] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10.	Alternative Methods of Operation [ ] Attached, Document ID: ____________ [ ] Not Applicable
11.	Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID: ____________ [ ] Not Applicable
12.	Identification of Additional Applicable Requirements [ ] Attached, Document ID: ____________ [ ] Not Applicable
13.	Compliance Assurance Monitoring Plan [ ] Attached, Document ID: ____________ [ ] Not Applicable
14.	Acid Rain Permit Application (Hard Copy Required) [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: ____________ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: ____________ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: ____________ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: ____________ [ ] Not Applicable

ATTACHMENT UC-EU2-L1

PROCESS FLOW DIAGRAM



Attachment UC-EU1-L1
Mill Expansion
Process Flow Diagram
U.S. Sugar Corporation
Clewiston, FL

Process Flow Legend
Solid/Liquid ——→
Air - - - - →

Mill Expansion
Flow Diagram

Filename: UCEU1L1.VSD

Date: 08/14/96

Golder Associates

ATTACHMENT UC-EU2-L2

FUEL ANALYSIS OR SPECIFICATION

ATTACHMENT UC-EU1-L2
Fuel Analysis Specification for U.S. Sugar Corporation Granular Carbon Regeneration Furnace

Fuel Parameter	Very Low Sulfur No. 2 Fuel Oil (a) (0.03% max S)
Density (lb/gal)	6.83
Approximate Heating Value (Btu/lb)	19,766
Approximate Heating Value (Btu/gal)	135,000
Ultimate Analysis (dry basis):	
Carbon	87.3%
Hydrogen	12.6%
Nitrogen	0.006%
Oxygen	0.04%
Sulfur	0.03%
Ash/Inorganic	< 0.01%
Moisture	--

Note: All values represent average fuel characteristics.

Footnotes:
(a) Source: Perry's Chemical Engineers' Handbook. Sixth Edition.

ATTACHMENT UC-EU2-L3

CONTROL EQUIPMENT PARAMETERS

Control Equipment Parameters for the VHP Sugar Dryer Baghouse
Clewiston Mill Expansion

White Sugar Dryer Baghouse Exhaust Vents to Stack Number S-11	
Manufacturer	Micropul (or similar)
Outlet Gas Temp (°F)	115
Outlet Gas Flow Rate (ACFM)	127,000
Exhaust Gas Moisture Content (%)	5
Outlet Gas Flow Rate (DSCFM)	110,042
Cleaning Method	Air Pulse Jet cleaning (Timer Actuated)
Bag Material	Gore-Tex Polyester or Similar
Total Area of Filter Media (sq. ft)	36,681
Air to Cloth Ratio (CFM/sq. ft)	3.0
Manufacturer's Guaranteed Outlet Loading (grains/DSCF)	0.0017
Pollutants	Outlet Loading lb/hr
Particulate Matter	1.625

Note: Parameters are average values based on manufacturers design specifications.
Outlet loading rate is guaranteed by baghouse manufacturer.

Control Equipment Parameters for the Conditioning Silo Baghouses
Clewiston Mill Expansion

Conditioning Silos No. 1 Through No. 6 Baghouses Exhausts Vent to Stack Numbers S-7, S-8, S-9, S-14, S-15, S-16, respectively	
Manufacturer and Model No.	Torit & Day (or similar) 100PJD8
Outlet Gas Temp (°F)	110
Outlet Gas Flow Rate (ACFM)	2,939
Exhaust Gas Moisture Content (%)	3
Outlet Gas Flow Rate (DSCFM)	2,641
Cleaning Method	Air Pulse Jet cleaning (Timer Actuated)
Bag Material	Gore-Tex Polyester or Similar
Total Area of Filter Media of each Baghouse (sq. ft)	880
Air to Cloth Ratio (CFM/sq. ft)	3.0
Manufacturer's Guaranteed Outlet Loading (grains/DSCF)	0.0025
Pollutants	Outlet Loading lb/hr
Particulate Matter	0.057

Note: Parameters are average values based on manufacturers design specifications.

Sample calculations:

Outlet loading rate (lb/hr) = outlet gas flow rate (dscfm) X outlet loading rate (grains/dscf) ÷ 7000 grains/lb X 60 min/hr

Control Equipment Parameters for the Screening and Distribution Baghouse
Clewiston Mill Expansion

Screening and Distribution Baghouse Exhaust Vents to Stack Number S-1	
Manufacturer and Model No.	Torit & Day (or similar) 100PJD8
Outlet Gas Temp (°F)	68
Outlet Gas Flow Rate (ACFM)	1,705
Exhaust Gas Moisture Content (%)	3
Outlet Gas Flow Rate (DSCFM)	990
Cleaning Method	Air Pulse Jet cleaning (Timer Actuated)
Bag Material	Gore-Tex Polyester or Similar
Total Area of Filter Media (sq. ft)	330
Air to Cloth Ratio (CFM/sq. ft)	3.0
Manufacturer's Guaranteed Outlet Loading (grains/DSCF)	0.00754
Pollutants	Outlet Loading lb/hr
Particulate Matter	0.064

Note: Parameters are average values based on manufacturers design specifications.

Sample calculations:

Outlet loading rate (lb/hr) = outlet gas flow rate (dscfm) X outlet loading rate (grains/dscf) ÷ 7000 grains/lb X 60 min/hr

Control Equipment Parameters for the Powdered Sugar / Starch Bin Baghouses
Clewiston Mill Expansion

Powdered Sugar / Starch Bins Baghouses Exhaust Vents to Stack Number S-13	
Manufacturer and Model No.	Torit & Day (or similar) 100PJD8 and 9PJD8
Outlet Gas Temp (°F)	100
Outlet Gas Flow Rate (ACFM)	6,700
Exhaust Gas Moisture Content (%)	3
Outlet Gas Flow Rate (DSCFM)	6,128
Cleaning Method	Air Pulse Jet cleaning (Timer Actuated)
Bag Material	Gore-Tex Polyester or Similar
Total Area of Filter Media of all Baghouses (sq. ft)	2,043
Air to Cloth Ratio (CFM/sq. ft)	3.0
Manufacturer's Guaranteed Outlet Loading (grains/DSCF)	0.0025
Pollutants	Outlet Loading lb/hr
Particulate Matter	0.131

Note: Parameters are average values based on manufacturers design specifications.

Sample calculations:

Outlet loading rate (lb/hr) = outlet gas flow rate (dscfm) X outlet loading rate (grains/dscf) ÷ 7000 grains/lb X 60 min/hr

Control Equipment Parameters for the White Sugar Dryer Baghouse
Clewiston Mill Expansion

Raw Sugar Dryer Baghouse	
Exhaust Vents to Stack Number S-10	
Manufacturer	Micropul (or similar)
Outlet Gas Temp (°F)	115
Outlet Gas Flow Rate (ACFM)	113,000
Exhaust Gas Moisture Content (%)	5
Outlet Gas Flow Rate (DSCFM)	94,488
Cleaning Method	Air Pulse Jet Cleaning (Timer Actuated)
Bag Material	Gore-Tex Polyester or Similar
Total Area of Filter Media (sq. ft)	28,633
Air to Cloth Ratio (CFM/sq. ft)	3.3
Manufacturer's Guaranteed Outlet Loading (grains/DSCF)	0.0018
Pollutants	Outlet Loading lb/hr
Particulate Matter	1.436

Note: Parameters are average values based on manufacturers design specifications.
Outlet loading rate is guaranteed by baghouse manufacturer.

ontrol Equipment Parameters for the Off Gas Afterburner on the
Granular Carbon Furnace at Clewiston Mill Sugar Refinery

Manufacturer Model No.	BSP Thermal Systems, Inc. BSP Zero Hearth Type for 10'-9" OD x 8 HTH Furnace	
Outlet Gas Temp (°F) Min/Max	1,200 / 1,400	
Outlet Gas Flow Rate (ACFM) Min/Max	10,600 / 16,300	(a)
Gas residentce time (sec) Min/Max	0.5 / 0.75	
Incinerator Temp (°F) Min/Max	800 / 1,600	
Total VOC Destruction Efficiency (%)	92.0	

(a) Flow Rate at 1400°F

Control Equipment Parameters for Granular Carbon Regeneration Furnace Wet Collection System at Clewiston Mill Sugar Refinery

Manufacturer and Model No.	Sly Manufacturing Company High Energy Venturi Wet Scrubber With Tray Type Wet Scrubber
Outlet Gas Temp (°F)	160
Outlet Gas Flow Rate (ACFM)	4,300
Pressure Drop Across Venturi Scrubber (inches of H2O) Min/Max	20 / 30
Pressure Drop Across Tray Scrubber (inches of H2O) Min/Max	3 / 5
Venturi Scrubbant Flow Rate (gal/min) - Min	36
Tray Scrubbant Flow Rate (gal/min) - Min	230
Venturi Scrubbant Supply Pressure (psi) - Min	3
Tray Scrubbant Supply Pressure (psi) - Min	Free Flow
Average Scrubbant pH - Min/Max	6 / 9
Scrubbant Make-up Rate (gal/min)	4.5
Wet Scrubbing System Particulate Removal Efficiency	97%

Note: All values are based on manufacturers design information and are subject to revision.
All values represent typical operating conditions.

CARBON REGENERATION FURNACE
MANUFACTURERS GUARANTEES

BEST AVAILABLE COPY

BSP THERMAL SYSTEMS, INC.
1121 INDUSTRIAL ROAD, SUITE "D"
SAN CARLOS, CA 94070
(415) 591-6762/800-222-5575
FAX (415) 591-1383

Transmitted 3/11/97

FAX MESSAGE

DATE: 3/6/97

TIME: 8:25 A.M

TO: STONE & WEBSTER ENGINEEERS

FROM: R.H. KEELER

CC: M. ISHEIM

ATTN: [redacted]

FAX #: 1-770-481-4110

NO. OF PAGES (including this page): 2

SUBJECT: CARBON REGEN SYSTEM
10'-9" OD X 8 + 0 HTH UNIT
40,000#/DAY PRODUCT DESIGN RATE (CANE SUGAR)

MESSAGE:

PER YOUR REQUEST AND TO SATISFY THE 40,000#/DAY PRODUCTION REQUIREMENTS FOR CANE SUGAR, WE REVISE OUR ORIGINAL SCOPE AND PRICING TO REFLECT THE NEW PARAMETERS.

OUR PREVIOUS BUDGET PRICING AND PRELIMINARY SCOPE OF WORK AS OUTLINED IN OUR LETTER OF 15 JULY '93 IS REVISED AS FOLLOWS:

A. FURNACE SIZE IS NOW 10'-9" O.D. X 8+0 HEARTH AFTERBURNER.
B. EQUIPMENT SUPPLIED SAME AS BUDGET PROPOSAL ITEM I, EXCEPT ITEM J - OFF-GAS SYSTEM IS REMOVED UNTIL CLARIFICATION OF OFF GAS SYSTEM PARAMETERS IS DEFINED.
C. ITEM V - PRICE AND DELIVERY. BASED ON INCREASE ON STAINLESS STEEL, LABOR, AND EQUIPMENT ESCALATION, OUR BUDGET PRICE FOR ONE (1) 10'-9" O.D. X 8+0 HTH UNIT IS $926,000 PLUS OR MINUS 10%.

PROCESS DATA REQUESTED:

1. ANTICIPATED OFF-GAS TO STEAM BOILER
   11,000#/HR DRY GAS
   5,000#/HR H2O
   16,000#/HR TOTAL @ 1300-1400 DEG. F
2. PARTICULATES - 26#/HR
3. DRY GAS ANALYSIS:

CO2	12.366%	=	1360#/HR
O2	6.941%	=	764#/HR
N2	80.693#	=	8876#/HR
TOTAL - - - -			11,000#/HR

BEST AVAILABLE COPY

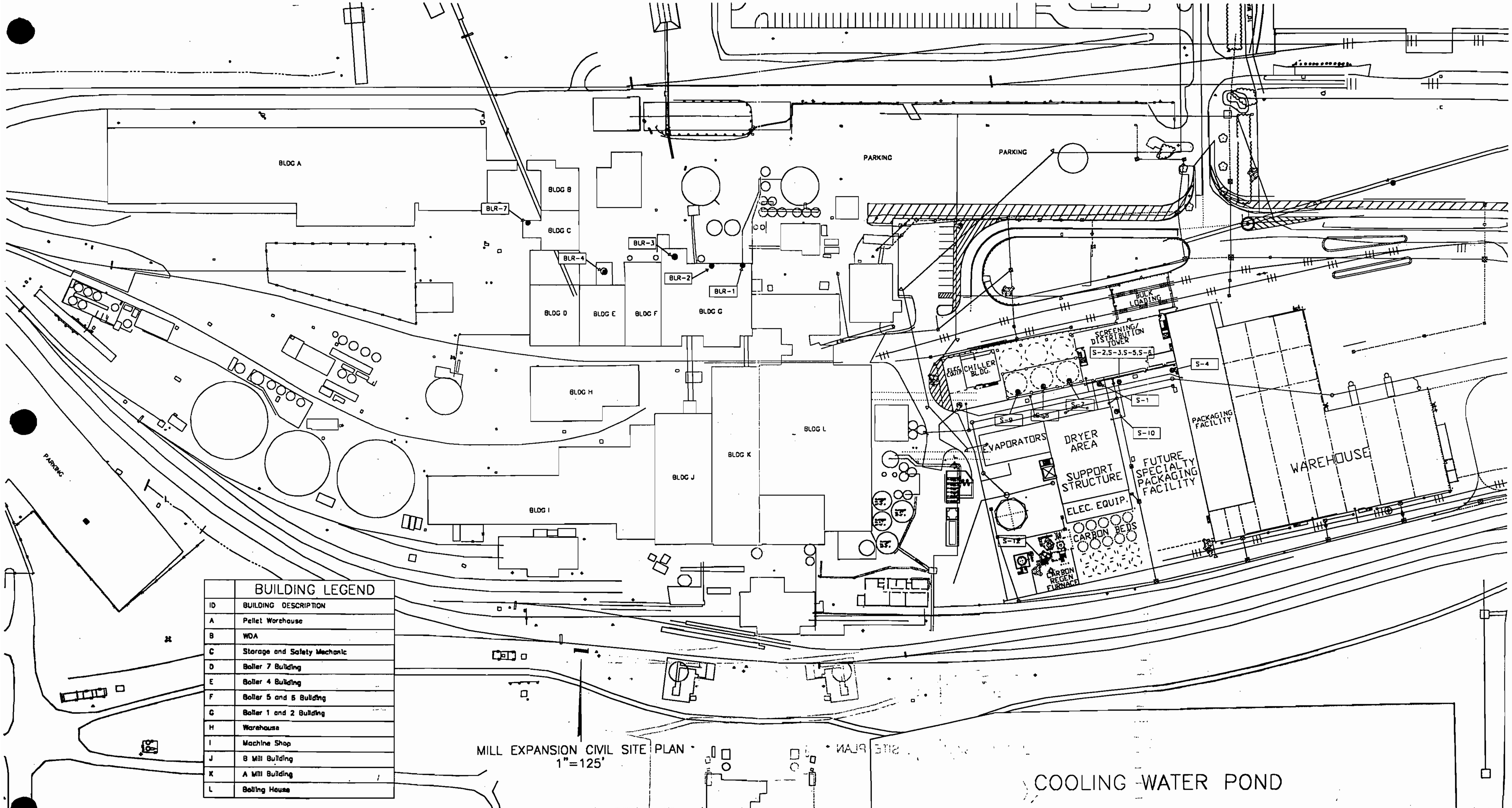
4. ANTICIPATED EMISSIONS WITH AFTERBURNER

NOX	1.84 #/HR	made a best estimate used
SO2	7.04 #/HR	in cane sugar plants
CO	1.76 #/HR	
VOC	0.68#/HR	

WHEN THIS INQUIRY BECOMES A FIRM BID PROPOSAL, WE WOULD APPRECIATE S&W FILLING OUT OUR PROCESS QUESTIONAIRE SO FIRM PROCESS PARAMETERS CAN BE USED FOR PRICING EQUIPMENT. IN ADDITION, WE WILL BE ISSUING A NEW PROPOSED PLANT ARRANGEMENT FOR YOUR USE IN DESIGNING THE BUILDING STRUCTURE WHEN A FIRM PRICE BID REQUEST IS RECEIVED.

WE TRUST THE ABOVE SATISFIES YOUR REQUIREMENTS AT THIS TIME.

BEST AVAILABLE COPY



BUILDING LEGEND

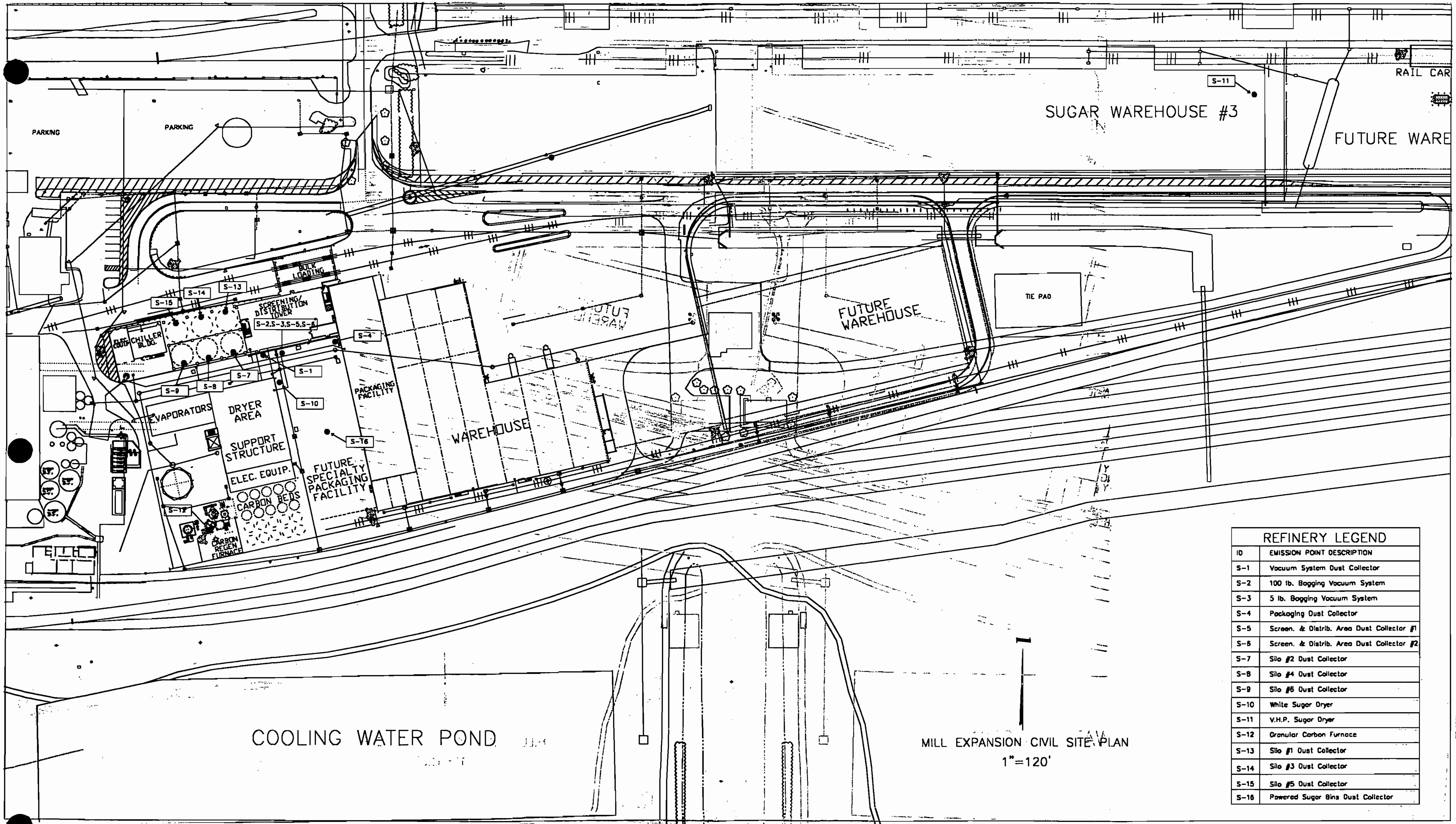
ID	BUILDING DESCRIPTION
A	Pellet Warehouse
B	WOA
C	Storage and Safety Mechanic
D	Boiler 7 Building
E	Boiler 4 Building
F	Boiler 5 and 6 Building
G	Boiler 1 and 2 Building
H	Warehouse
I	Machine Shop
J	B Mill Building
K	A Mill Building
L	Boiling House

Attachment UC-FE-2, Page 1. Clewiston Mill Plot Plan of Existing Sources and Major Buildings

Boiler No. 4/ Sugar Refinery, U.S. Sugar Corporation, Clewiston, Florida

Golder Associates

BEST AVAILABLE COPY



REFINERY LEGEND	
ID	EMISSION POINT DESCRIPTION
S-1	Vacuum System Dust Collector
S-2	100 lb. Bagging Vacuum System
S-3	5 lb. Bagging Vacuum System
S-4	Packaging Dust Collector
S-5	Screen. & Distrib. Area Dust Collector #1
S-6	Screen. & Distrib. Area Dust Collector #2
S-7	Silo #2 Dust Collector
S-8	Silo #4 Dust Collector
S-9	Silo #6 Dust Collector
S-10	White Sugar Dryer
S-11	V.H.P. Sugar Dryer
S-12	Granular Carbon Furnace
S-13	Silo #1 Dust Collector
S-14	Silo #3 Dust Collector
S-15	Silo #5 Dust Collector
S-16	Powered Sugar Bins Dust Collector

Attachment UC-FE-2, Page 2. Location of Sugar Refinery Sources and Major Buildings

Boiler No. 4/ Sugar Refinery, U.S. Sugar Corporation, Clewiston, Florida

Golder Associates

BSP THERMAL SYSTEMS, INC.
1121 INDUSTRIAL ROAD, SUITE "D"
SAN CARLOS, CA 94070
(415) 591-6762/800-222-5575
FAX (415) 591-1383

FAX MESSAGE

DATE:	7/22/96	TIME:	9:00 A.M.
TO:	STONE & WEBSTER ENGINEEERS	FROM:	R.H. KEELER
		CC:	A. FOMIN M. ISHEIM
ATTN:	[redacted]		
FAX #:	1-770-481-4110		

NO. OF PAGES (including this page): 2

SUBJECT: CARBON REGEN SYSTEM (S&W 7/15/96)
10'-9" OD X 8 + 0 HTH UNIT
EMISSIONS DATA
BSP PROPOSAL #E-1056

MESSAGE:
ED:

PER YOUR REQUEST, WE OUTLINE BELOW EMISSIONS DATA RELATED TO FURNACE OFF-GAS SYSTEM AND OUR ESTIMATE OF ITS EFFICIENCY. PLEASE UNDERSTAND THAT THIS DATA IS ESTIMATED AT THIS TIME AS WE HAVE NO ADSORBATE OR PROXIMATE ANALYSIS DATA FROM WHICH TO BASE FIRM FIGURES. OUR DATA IS BASED ON OUR RECENT EXPERIENCE ON THE MANY REGENERATION UNITS INSTALLED BY BSP FOR THE CORN MILLING, CANE SUGAR, AND WASTEWATER TREATMENT PLANTS.

AFTERBURNER - MODEL BSP ZERO HEARTH TYPE FOR 10'-9" OD X 8 HTH FURNACE.

OUTLET GAS TEMP.	1200 DEG. F - 1400 DEG. F	
OUTLET GAS FLOW RATE	10,600 MIN. 16,300 MAX. ACFM AT 1400 DEG. F.	
GAS RESIDENCE TIME	0.5 SEC. MIN., 0.75 SEC. MAX.	
MHF TEMPERATURE	HTH 1	800 DEG. F.
	HTH 8	1600 DEG. F.
EST. VOC EFF.	ESTIMATE = 92%	

SCRUBBER SYSTEM - SLY MFG CO. HIGH ENERGY VENTURI WITH TRAY TYPE SCRUBBER

INLET GAS VOLUME	14,900 ACFM AT 1400 DEG. F.
OUTLET GAS VOLUME	4,300 ACFM AT 160 DEG. F.
PRESSURE DROP ACROSS VENTURI	20 - 30" WC
PRESSURE DROP ACROSS SCRUBBER	3 - 5" WC

FAXMSG TO ED LAVERGNE
PAGE 2 OF 2
7/22/96

WATER FLOW RATES

VENTURI INLET	10 GPM	FREE FLOW
PRECOOLER WATER SPRAY	16 GPM	20 PSIG
VENTURI H20	36 GPM	3 PSIG
SCRUBBER OKATE H20	230 GPM	FREE FLOW
TOTAL - - -	292 GPM	
SCRUBBER MAKE UP WATER	4.5 GPM	CONTINUOUS BLOW DOWN
PARTICULATE IN	23 - 26 LBS/HR - ALL PM-10	
PARTICULATE OUT	0.65 - 0.70 LBS/HR.	
EFFICIENCY	97 - 98%	

OTHER POLLUTANTS GIVEN IN PREVIOUS CORRESPONDENCE.

AS ALWAYS PLEASE TREAT THIS INFORMATION AS CONFIDENTIAL.

REGARDS,

ROB KEELER

PART B

PSD ANALYSIS

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

United States Sugar Corporation (U.S. Sugar) is proposing two modifications to its sugar mill located in Clewiston, Hendry County, Florida:

1. Increase the permitted operating hours for Boiler No. 4
2. Expand the current sugar refinery operation.

Boiler No. 4 fires bagasse as its primary fuel, with No. 6 fuel oil as backup. It is currently permitted to operate up to 160 days per calendar year (3,840 hours/year), and only during the sugar processing season. Historically, the permitted number of operating hours have been sufficient to meet needs of the Clewiston sugar mill. Due to a number of factors, including recent shutdown of the Talisman sugar mill as part of the Everglades cleanup settlement, the length of the sugar processing season may increase in the future. As a result, U.S. Sugar desires to increase the permitted operation of the boiler to an equivalent of 200 days per year at the maximum daily steam rate. Also, U.S. Sugar desires the flexibility to operate the boiler at any time throughout the year.

U.S. Sugar made application and was issued permit 0510003-004-AC to construct the existing sugar refinery. A letter describing final, as constructed design information for the sugar refinery was submitted to Florida Department of Environmental Protection (FDEP) on May 20, 1999. At that time, potential particulate matter (PM) emission rates were still below the prevention of significant deterioration (PSD) threshold of 15 TPY. However, the modifications to the operation of the sugar refinery described in this application will result in potential PM emissions for the entire sugar refinery greater than 15 TPY. As such, this application includes both existing and proposed sugar refinery sources.

This application contains the technical information developed in accordance with Prevention of Significant Deterioration (PSD) regulations as promulgated by the U.S. Environmental Protection Agency (EPA) and implemented through delegation to the FDEP. It presents an evaluation of regulated pollutants subject to PSD review, a demonstration of Best Available Control Technology (BACT), and an assessment of potential air quality impacts associated with the Project. Through this application, U.S. Sugar requests that the FDEP issue a PSD construction permit for this project.

1.1 PREVENTION OF SIGNIFICANT DETERIORATION (PSD) REQUIREMENTS

The permitting of this project in Florida requires an air construction permit and PSD review approval. The project will be a modification to an existing air emission source in Hendry County. The (EPA) has implemented regulations requiring PSD review for new or modified sources that increase air emissions above certain threshold amounts. PSD regulations are promulgated under Title 40 of the Code of Federal Regulations (CFR), Part 52.21, and are implemented in Florida through delegation to the FDEP. FDEP has adopted the EPA PSD regulations as Rule 62-212.400, Florida Administrative Code (F.A.C.).

The current actual emissions, maximum future emissions, and the net increase in emissions, all in tons per year (TPY), associated with this project are presented in Table 1-1. Based on the net emissions increase due to the proposed project, a PSD review is required for each of the following regulated pollutants:

- Particulate matter (PM) as total suspended particulate matter (TSP),
- Particulate matter with aerodynamic diameter of 10 microns or less (PM_{10}),
- Nitrogen dioxide (NO_2),
- Sulfur dioxide (SO_2),
- Carbon monoxide (CO), and
- Volatile organic compounds (VOC).

Hendry County has been designated as an attainment or unclassifiable area for all criteria pollutants. The county is also classified as a PSD Class II area for PM_{10}, SO_2, and NO_2. As a result, the new source review will follow PSD regulations pertaining to such designations. Other regulated pollutants will be emitted in negligible amounts.

Table 1-1. Estimated Emissions for the Proposed Project

	Boiler No. 4		Sugar Refinery		
Pollutant	Baseline Emissions (TPY)	Future Maximum Emissions (TPY)	Future Maximum Emissions (TPY)	Net Increase in Emissions (TPY)	PSD Significant Emission Rate (TPY)
PM	100.5	216.0	24.0	139.5	25
PM_{10}	93.9	201.6	24.0	131.4	15
SO_2	17.7	335.2	30.7	348.2	40
NO_x	70.6	362.3	8.8	300.4	40
CO	5,285.1	9,360.0	7.8	4,082.7	100
VOC	207.8	2,160.0	20.1	1,972.3	40
Sulfuric Acid Mist	9.0	14.4	0	5.4	7
Lead	0.37	0.64	0	0.27	0.6
Mercury	0.007	0.055	0	0.048	0.1
Beryllium	0.0000015	0.0000069	0	0.0000055	0.0004

1.2 BEST AVAILABLE CONTROL TECHNOLOGY (BACT) ANALYSIS

For the proposed modification to Boiler No. 4, a BACT analysis was conducted for each pollutant for which the net increase exceeds the EPA/FDEP significance threshold and, is therefore, subject to BACT review. The proposed BACT to control PM/PM_{10} emissions from Boiler No. 4 is the existing wet scrubber control technology which limits emissions to 0.15 pounds per million British thermal units (lb/MMBtu) of heat input to the boiler. Evaluation of an electrostatic precipitator (ESP) for particulate control was ruled out due to economic infeasibility. NO_x, CO and VOC emissions will be controlled by good combustion practices. SO_2 emissions are controlled by the inherent low sulfur content of bagasse fuel and by limiting the sulfur content of No. 6 fuel oil to 2.5 percent, as well as limiting total annual fuel oil usage.

A less formal BACT analysis was conducted for the existing and proposed sugar handling systems associated with the refinery operations. There are two technologies suitable for controlling PM/ PM_{10} emissions from the existing and proposed sugar handling systems: scrubbers or baghouses. The use of an ESP was ruled out due to the potentially explosive nature of sugar dust. Currently, the sugar handling systems associated with the refinery are enclosed with dust pickups vented to baghouses. With an estimated control efficiency of 99.9%, the current and proposed baghouses are more efficient than a comparable wet scrubber. As such, enclosures and baghouses are proposed as BACT for these sources.

A similar BACT analysis was performed for the granular carbon regeneration furnace (CGRF) which is also part of the sugar refinery emissions unit. Sulfur dioxide emissions from the GCRF are minimized through the use of very low sulfur (0.03% sulfur) fuel oil. Emissions of PM from the GCRF are controlled using a wet scrubber. VOC emissions are controlled by an afterburner. The use of this existing equipment to minimize and control emissions from the GCRF is proposed as BACT for this source, as no more efficient means to control emissions is available. Nitrogen oxide and CO emissions from the CGRF are minimized through proper maintenance and good operation practices. Given the relatively small amount of CO and NO_x emissions from this unit, no other cost-effective control options are available.

1.3 AIR QUALITY ANALYSIS

An air quality impact analysis was conducted to determine if the proposed project would cause or contribute to a violation of any national or Florida Ambient Air Quality Standard (AAQS) or allowable PSD increment. It was demonstrated that emissions from the facility as modified as described in this application would not result in ambient concentrations above the AAQS or the PSD Class II increments. As a result, the project will not cause or contribute to any adverse impacts on air quality. Additional impacts due to the proposed modification on soils, vegetation, visibility and air quality related values (AQRVs) were analyzed and found to be not adverse.

1.4 SUMMARY OF ANALYSIS

Results from the analyses presented in this PSD Air Permit application lead to the following conclusions.

- The proposed BACT for each applicable pollutant provides the maximum degree of emissions reduction based on energy, environmental, and economic impacts and technical feasibility.

- National Ambient Air Quality Standards will not be exceeded as a result of the operation of the proposed modification.
- Applicable PSD increments will not be exceeded as a result of the operation of the proposed modification.
- No adverse effects upon soils, vegetation, visibility or AQRVs in the PSD Class I area are predicted.

As documented in this application, the proposed modification will be designed to operate in compliance with all applicable state and federal air quality rules and regulations.

1.5 AIR PERMIT APPLICATION ORGANIZATION

This air permit application is divided into seven major sections, including this introduction and summary section:

- Section 2.0 presents a description of the project, including air emissions and stack parameters;
- Section 3.0 provides a review of the PSD and nonattainment requirements applicable to the proposed project;
- Section 4.0 includes the control technology review and BACT analysis;
- Section 5.0 presents the ambient air monitoring analysis (pre-construction monitoring) required by PSD regulations;
- Section 6.0 presents a summary of the air modeling approach and results used in assessing compliance of the proposed project with AAQS, PSD increments, and good engineering practice (GEP) stack height regulations;.
- Section 7.0 provides the additional impact analyses for soils, vegetation, and visibility, as well as the AQRV analysis for the PSD Class I area.

2.0 PROJECT DESCRIPTION

2.1 SITE DESCRIPTION

The Clewiston sugar mill receives sugar cane by train from nearby cane fields and processes it into raw sugar. The cane is first cut into small pieces, and is then passed through a series of presses where the sugar cane juices are squeezed from the cane. The fibrous byproduct material is called bagasse, and is burned in on-site steam boilers for fuel.

The cane juice is further processed and purified through a series of steps involving clarification, separation, evaporation and crystallization. The final product is raw, unrefined sugar. U.S. Sugar recently began operating an on-site sugar refinery, wherein raw sugar is refined into white sugar suitable for human consumption. Steam is also used in the raw sugar refining process. Both raw and refined sugar is shipped offsite to customers. Refer to Attachment UC-FE-3 of the permit application form for a flow diagram of the overall sugar production process.

The Clewiston mill consists of seven bagasse/oil-fired boilers (Boiler Nos. 1, 2, 3, 4, 5, 6, and 7), which provide steam to the sugar mill and refinery. The primary fuel for all boilers is bagasse, while fuel oil is used for startup, shutdown, malfunction, and as a supplemental fuel. For economic reasons, fuel oil burning is minimized to the extent possible.

All boilers have wet scrubbers for particulate matter control, except for Boiler No. 7, which has a wet mechanical separator followed by an ESP control device. Currently, Boiler Nos. 1, 2, and 3 have no permit limitations on annual operating hours. Boiler No. 4 operation is limited to 160 days per calendar year (3,840 hr/yr). Boiler No. 7, which was constructed to provide a portion of its energy to support the new sugar refinery, began operating in 1997, and is permitted to operate year-round (8,760 hr/yr). Boiler Nos. 5 and 6 are permitted as backup boilers for the mill.

2.2 BOILER NO. 4

Boiler No. 4 is currently operating under Permit no. AC26-248808; PSD-FL-217, issued July 27, 1995 (copy attached in Appendix A). The boiler is permitted to operate while combusting carbonaceous (bagasse) fuel alone at a maximum 1-hour heat input rate of 777.2 MMBtu/hr, and a maximum 6-hour heat input rate of 706.6 MMBtu/hr. These heat input rates correspond to steam rates of 346,231 lb/hr (1-hr average) and 314,757 lb/hr (6-hr average) at 900°F and 850 psig, and 368,500 lb/hr (1-hr average) and 335,000 lb/hr (6-hr average) at 750°F and 600 psig.

Historically, Boiler No. 4 has been operated at lower than permitted steam rates. Past compliance tests spanning the last five years have been performed at steam rates ranging from 250,000 lb/hr steam up to 295,000 lb/hr steam.

No. 6 fuel oil can be combusted at a maximum heat input rate of 215.6 MMBtu/hr. No. 6 fuel oil burning is limited by permit condition to 500,000 gal/yr. Any No. 6 fuel oil burned in the boiler must be replaced, during the season it is burned, with an equal amount in the common fuel oil storage tank for Boiler Nos. 1 through 4. The replacement fuel oil cannot contain more than 1.5 percent sulfur by weight. Since the common fuel oil tank also receives 2.5 percent sulfur fuel oil for burning in Boiler Nos. 1 through 3, the actual sulfur content of the fuel oil burned in Boiler Nos. 1 through 4 is somewhere between 1.5 percent and 2.5 percent.

The air pollution control equipment for Boiler No. 4 consists of a Joy Turbulaire type spray impingement scrubber for particulate matter control, and good combustion practices for control of NO_x, CO and VOC emissions. A 150-foot tall stack provides for dispersion of air emissions from the boiler. Permitted emission rates for PM are 0.15 lb/MMBtu when combusting bagasse fuel, and 0.10 lb/MMBtu when combusting fuel oil. For SO_2, maximum allowable emissions are 0.166 lb/MMBtu when combusting bagasse. NO_x emissions are limited to 192.4 lb/hr, VOC is limited to 1.7 lb/ton of wet bagasse, and CO emissions are limited to 6.5 lb/MMBtu. The visible emissions are limited to 20 percent opacity, except 40 percent opacity is allowed for one 2-minute period per hour.

The proposed modification to Boiler No. 4 affects several aspects of the boiler operation. Based on historic operation of the boiler, U.S. Sugar is proposing to lower the maximum permitted steam production rates to 300,000 lb/hr as a 1-hour maximum and 285,000 lb/hr as a maximum 6-hour average. The boiler will operate at a nominal 600 psig and 750°F.

As described previously, Boiler No. 4 is currently limited to 160 days operation per calendar year (3,840 hr/yr). This is equivalent to 2.7133×10^{12} Btu/yr based on the currently permitted maximum 6-hour heat input rate of 706.6 MMBtu/hr. The proposed modification to Boiler No. 4 consists of eliminating the 160-day per year operating hours limitation and replacing it with a maximum annual heat input limitation of 2.88×10^{12} Btu/yr. No limitation on annual operating hours is proposed, as U.S. Sugar desires the flexibility of operating Boiler No. 4 at any time during the year.

A process flow diagram of Boiler No. 4 is presented in Attachment UC-EU1-L1 of the permit application form.

2.3 SUGAR REFINERY

In the current sugar mill operation, melter liquor is received from the existing sugar processing plant. The process which removes impurities through decolorization and crystallization is then performed. Drying and cooling of the wet sugar is performed with a fluidized bed dryer/cooler. After drying, the sugar will be cured in bulk conditioning silos, screened for the required size, and then sent via a network of conveyors, bucket elevators, and scales to either the bulk load out area for shipping by truck or rail car, or the packing room where it is packaged in bags.

To date, estimated annual PM emission rates from the facility described in the original permit application, and in subsequent modifications, have been below the emission thresholds that trigger new source review under PSD regulations. However, in this application, U.S. Sugar is proposing additional modifications to the sugar refinery that will result in annual PM emissions above the PM significant emission rate of 15 TPY. U.S. Sugar is proposing the following modifications to the existing sugar refinery:

1. Add three sugar conditioning silos with dust collectors,
2. Increase the annual hours of operation of the existing three vacuum systems from 7,680 to 8,760 hours,

3. Increase the annual hours of operation of the packaging system and dust collector from 7,680 to 8,760 hours,
4. Increase the annual hours of operation of the white sugar dryer and dust collector from 7,680 to 8,760 hours,
5. Add powdered sugar/starch bins with a dust collector and annual hours of operation of 8,760 hours, and
6. Increase the annual hours of operation for the VHP dryer and dust collector from 3,690 to 8,760 hours.

These proposed modifications will increase annual PM emissions from the sugar refinery from 14.92 TPY to 23.95 TPY.

A process flow diagram for the proposed mill expansion is presented in Attachment UC-EU2-L1. A plot plan providing a layout of the proposed expansion is presented in Attachments UC-FE-2.

2.3.1 SUGAR PROCESSING

The sugar process includes several steps. The melter liquor received from the mill is decolorized using granular carbon. As part of the decolorization process, a granular carbon regeneration furnace (GCRF) is used to regenerate the carbon so that the carbon can be reused in the process. During the regeneration process, the carbon is dried and colorants and other organic compounds which are removed from the sugar solution are vaporized. Non-vaporized colorants and other organic compounds are burned off in a multiple hearth furnace. The regeneration furnace is fired with very low sulfur No. 2 fuel oil (0.03 percent sulfur, maximum).

The carbon regeneration process results in emissions of particulate matter (PM), PM less than or equal to 10 microns in diameter (PM_{10}), volatile organic compounds (VOC), nitrogen oxides (NO_x), carbon monoxide (CO) and sulfur dioxide (SO_2). Emissions are controlled by a high temperature afterburner, fired by very low sulfur No. 2 fuel oil, followed by a high energy venturi wet scrubber and a tray type wet scrubber. The No. 2 fuel oil is supplied via a low sulfur fuel oil storage tank.

The decolorization step is followed by concentration, crystallization, and centrifuging. No air emissions are expected to be generated from these steps in the process. After centrifuging, the sugar is dried.

2.3.2 DRYING, CONDITIONING, AND SIZING OPERATIONS

The drying operations involve using a fluidized bed dryer/cooler to dry the sugar. In the fluidized bed drying process, wet sugar is passed over jets of heated air that suspend the particles and evaporate the moisture. Heat is supplied to the process via steam from the on-site boilers.

The dried sugar is cured in two conditioning silos that feed conditioned, dehumidified air through the sugar in the silos. Sugar is gristed using vibrating screens. Gristed sugar is conveyed to distribution bins for shipping and packaging.

USSC projects that the mill expansion, including all sugar processing equipment, bulk loadout operations, and packaging operations will be capable of operating up to 8,760 hours per year. The maximum production capacity utilizing the fluidized bed system will be 2,200 TPD of white sugar.

2.3.3 DISTRIBUTION SYSTEM OPERATIONS

Packaging of sugar is performed in the packaging building at a maximum rate of 730,000 TPY (2,000 TPD, maximum daily average) of sugar. The packaging system consists of all machinery necessary to measure and bag sugar. This system has a dust collector used for capture of dust created during packaging operations and to reclaim sugar through routine clean up of packaging spills.

The bulk loadout building to the north of the packaging building will contain two sugar bins that can be used to load bulk sugar into either trucks or railcars at a maximum rate of 803,000 TPY (2,200 TPD, maximum daily average). Sugar dust emissions from each bin are controlled by a high efficiency baghouse that emits to the atmosphere from a stack on the roof of the building.

The sugar bulk load-out area is a potential small source of fugitive PM emissions. Trucks and rail cars are loaded for shipment inside a building enclosed on two sides. Bulk loading of sugar can emit fugitive sugar dust, but is for the most part confined to the load-out building where it settles and is washed from the floor.

Sugar handling operations at USSC use high efficiency baghouses, enclosures for conveying systems and transfer points, and structure enclosures for bulk load out operations to recover/control sugar dust emissions.

2.3.4 SUGAR SPILL CLEANUP OPERATIONS

Spills of sugar product occur as a consequence of bagging and loading operations as well as some operations in the process. In order to control and recover product, a vacuum system for the facility was constructed. Spills are vacuumed and recovered at a central location. There are several points located in the screening tower, silo, bulk loading, and distribution buildings. Emissions from the vacuum pickup points are controlled by three independent high efficiency baghouses that emit to the atmosphere through stacks on the roof of the building.

2.3.5 MILL SUPPORT OPERATIONS

Support operations include paper cutting cleanup and bag stamping operations for the packaging system, rail car drying, and treating of process air by dehumidification and conditioning. Paper cutting cleanup will use a vacuum system to pick up cuttings from the bagging operations. The loose paper is sent through a cyclonic separator to collect the paper for disposal in the garbage bin. The cyclonic separator vents inside the building; therefore, it is not a source of air emissions. Bag stamping operations consist of stamping codes and dates on the bags before being filled with sugar.

Socks from the refinery baghouses and VHP dryer will be washed periodically. These socks will be dried using two 0.165 MMBtu/hr dryers fired with propane. These sock dryers are estimated to burn less than 1.14 million standard cubic feet per year (total both dryers) of propane gas.

In the sugar process, specially treated, conditioned and dehumidified air is required to aid in curing and conditioning the sugar in the conditioning silos. The treated air is also used to prevent the sugar from clumping together and fouling the systems.

2.3.6 CONTROL EQUIPMENT

As a consequence of the fluidized bed drying process, and screening, conveying, and loading operations, some of the sugar can break apart into smaller particles to form sugar dust. This sugar dust can be emitted to the atmosphere in the form of particulate matter (PM) and PM with an aerodynamic particle size diameter equal to or less than 10 microns (PM_{10}).

Product recovery and sugar dust control equipment serving the sugar refining process consists of high efficiency baghouses from various manufacturers. Each baghouse uses Gore-Tex, or similar material, as the fabric media, for which the manufacturer estimates a sugar dust emission rate of 0.0025 gr/dscf and a removal efficiency of 99.9 percent or greater. In addition, building enclosures on the entire system and the bulk loadout stations will be utilized to minimize fugitive PM emissions from these operations.

To control dust in the conveying system and to reclaim product, multiple sugar dust pickup points are located on conveyors, bucket elevators, scales, screens, and bins. These fugitive dust pick up points feed into the distribution bin baghouses and the vacuum pick up unit baghouses. In addition to the dust pickup points, all conveyors in the mill expansion buildings are enclosed.

The VOC's generated in the carbon regeneration furnace are oxidized internally at a maximum temperature of 1600°F and exhausted to a high energy venturi wet scrubber followed in series by a plate type wet scrubber. VOC's are controlled/destroyed in the afterburner, while particulates from the carbon are removed in the wet scrubbers. Operating parameters for the GCRF and the associated control equipment are presented in Attachment UC-EU1-L3.

During startup of the furnace, to reach the high operating temperatures needed for carbon regeneration, both wet scrubbers may be bypassed by opening a butterfly valve installed in the exhaust stack in order to reduce startup back pressure created by the control equipment. During startup, the furnace is fired without the control equipment on line for no more than two hours. According to Rule 62-210.700, F.A.C., excess emissions are allowed for up to two hours in a twenty-four hour period as long as reasonable precautions are taken to minimize the excess emissions during this time. USSC does not load the furnace with carbon until control equipment is properly operating and all exhaust gases are directed to the control equipment by completely closing the butterfly valve in the exhaust stack.

2.4 PROPOSED BOILER NO. 4 EMISSIONS

2.4.1 Maximum Short-Term Emissions

The estimated maximum hourly emissions for Boiler No. 4 operating both at the maximum 1-hr steam production rate of 300,000 lb/hr and at the 6-hr maximum steam rate of 285,000 lb/hr are shown in Table 2-1. The basis for the maximum emissions are shown in the footnotes to the table, and are explained below.

The maximum heat input to Boiler No. 4 is based on the proposed maximum steam rates, 1,160 Btu/lb of steam and 55 percent thermal efficiency for bagasse and 80 percent efficiency for fuel oil. The boiler operates at a nominal steam condition of 600 psig and 750°F. The steam enthalpies and resulting heat input rates of 633 MMBtu/hr (1-hr max.) and 600 MMBtu/hr (6-hr max) are shown in Table 2-1. No. 6 fuel oil can be burned at up to 225 MMBtu/hr. This is the current maximum firing rate for fuel oil, and will not change due to the proposed project.

Maximum PM, NO_x and CO emissions due to carbonaceous fuel (bagasse) firing are based on the current permit limitations on a lb/MMBtu heat input basis. As a result, maximum permitted hourly emissions are actually decreasing for the proposed project. Historic testing data for Boiler No. 4 show that these emission limitations are appropriate for the boiler.

Maximum SO_2 emissions for the boiler are also decreasing based on the use of 2.5 percent maximum sulfur fuel oil. For bagasse firing, the current SO_2 emission limit is the basis for this application. PM_{10} emissions are based on an estimated 93 percent of total PM emissions. This factor is based on one test conducted many years ago on a bagasse boiler.

No VOC test data are available for Boiler No. 4. Due to the wide variation in VOC emissions from bagasse boilers in the sugar industry, a proposed limit of 1.5 lb/MMBtu is requested. The 1.5 lb/MMBtu limitation is based on the VOC limits for Boiler Nos. 1, 2, and 3 at the U.S. Sugar Bryant mill. These are limitations imposed by Florida's RACT rules (Rule 62-296.570, F.A.C.).

Emissions of sulfuric acid mist (SAM), lead (Pb), and beryllium (Be) due to carbonaceous fuel firing are based on emission factors (refer to Appendix B for emission factor documentation). Mercury (Hg) emissions are based on extensive stack testing performed on similar wet scrubber controlled bagasse boilers during 1992 and 1993. The maximum emission rate for any individual test run (3.8E-05 lb/MMBtu) was used as a conservative emission factor.

Maximum PM emissions due to No. 6 fuel oil firing are based on the current Boiler No. 4 permit limitation and Florida emission limit (Rule 62-296.406). Emission factors for all other pollutants for fuel oil firing are based on AP-42 factors for No. 6 fuel oil. In the case of SO_2, no inherent removal was assumed, even through the alkaline ash generated from the carbonaceous fuel burning and the wet scrubbing system likely removes some SO_2 when firing fuel oil.

As shown in Table 2-1, maximum emissions of PM, PM_{10}, CO, VOC, Pb and Hg occur when burning 100 percent carbonaceous fuel. Maximum emissions of all other pollutants occur when burning the maximum amount of No. 6 fuel oil, with the remainder of heat input due to carbonaceous fuel.

2.4.2 Maximum Annual Emissions

Maximum annual emissions proposed for Boiler No. 4 are presented in Table 2-2. Emission factors are the same as utilized for the short-term emission rates (see Table 2-1). The maximum annual heat input to the boiler is 2,880,000 MMBtu/yr. For pollutants where carbonaceous fuel produces the maximum emission factor (in lb/MMBtu), this total heat input is applied to the emission factor. For pollutants where No. 6 fuel oil produces the highest factor (i.e., for SO_2, NO_x, and Be), the maximum annual heat input due to fuel oil burning (75,000 MMBtu/yr) is used, with the remainder of the annual heat input due to carbonaceous fuel.

2.5 SUGAR REFINERY EMISSIONS

PM and PM_{10} emission calculations for the sugar refinery baghouses are presented in Table 2-3. PM/ PM_{10} emissions from processes controlled by high efficiency baghouses are based upon the Gore-Tex fabric manufacturer's estimated emission rate of 0.0025 gr/dscf (see Attachment UC-EU2-L3 for manufacturer's data). Pollutant emissions from the GCRF were supplied by the manufacturer based upon similar systems that have been installed at other facilities. Minimum VOC destruction efficiency is estimated to be 92 percent. Particulate control by the wet scrubbers is estimated at a minimum of 97 percent. Estimated pollutant emission rates from the GCRF, assuming full year operation (8,760 hours/yr), are presented in Table 2-4.

Isopropyl alcohol (IPA) will be used in the sugar crystallization process as a carrier for seed material. IPA is 100 percent VOC and as a worst case, all of the IPA is assumed to be emitted to the atmosphere. The derivation of VOC emissions resulting from the seeding process is presented in Table 2-5. Emissions are based on the maximum sugar production of 803,000 TPY.

Estimated emissions from two propane-fired dryers are presented in Table 2-6. These dryers are used to dry socks from the sugar refinery baghouses and the VHP sugar dryer. The maximum heat input of each of these dryers is 0.165 MMBtu/hr.

Sources of emission factors and control efficiencies for Tables 2-3 through 2-6 include manufacturers' design information, manufacturers' data, and USSC's engineering consultant. Control equipment information, manufacturers' design information and efficiencies are provided in the attachments.

2.6 SITE LAYOUT AND STRUCTURES

A plot plan of the U.S. Sugar Clewiston facility, showing stack locations and property boundaries, is presented in Attachment UC-FI-2. The dimensions of the major buildings and structures are presented in Section 6.0.

2.7 STACK PARAMETERS

The existing stack serving Boiler No. 4 is 150 feet in height. This stack will continue to be utilized in the future. Stack parameters for Boiler No. 4, both current and future, are presented in Table 2-7. Stack parameters for the sugar refinery sources are presented in Table 2-8.

Table 2-1. Short Term Emissions of Regulated Pollutants for Boiler No. 4

Regulated Pollutant	Emission Factor (lb/MMBtu)	Ref	Activity Factor 1-Hour Max. (MMBtu/hr)(a)	Activity Factor 6-Hour Avg. (MMBtu/hr)(a)	Maximum Hourly Emissions (lb/hr)	Maximum 6-Hour Emissions (lb/hr)
			Carbonaceous Fuel			
Particulate Matter (PM)	0.15	1	633	600	95.0	90.0
Particulate Matter (PM10)	0.14	2	633	600	88.3	83.7
Sulfur dioxide	0.166	3	633	600	105.1	99.6
Nitrogen oxides	0.25	4	633	600	158.3	150.0
Carbon monoxide	6.5	1	633	600	4,114.5	3,900.0
VOC	0.90	5	633	600	569.7	540.0
Sulfuric Acid Mist	0.010	6	633	600	6.4	6.1
Lead	4.45E-04	7	633	600	0.28	0.27
Mercury	3.8E-05	8	633	600	0.0241	0.0228
Beryllium	--	7	633	600	--	--
			No. 6 Fuel Oil			
Particulate Matter (PM)	0.10	1	225	--	22.5	22.5
Particulate Matter (PM10)	0.10	9	225	--	22.5	22.5
Sulfur dioxide	0.72	10	225	--	162.0	162.0
Nitrogen oxides	0.31	11	225	--	69.8	69.8
Carbon monoxide	0.033	11	225	--	7.5	7.5
VOC	0.0019	11	225	--	0.4	0.4
Sulfuric Acid Mist	0.044	6	225	--	9.9	9.9
Lead	1.01E-05	11	225	--	2.27E-03	2.27E-03
Mercury	7.53E-07	11	225	--	1.70E-04	1.70E-04
Beryllium	1.85E-07	11	225	--	4.17E-05	4.17E-05
			Maximum No. 6 Fuel Oil/ Remainder Bagasse			
Particulate Matter (PM)			530	499	68.3	63.6
Particulate Matter (PM10)			530	499	65.1	60.7
Sulfur dioxide			530	499	212.7	207.5
Nitrogen oxides			530	499	146.1	138.2
Carbon monoxide			530	499	1,993.3	1,787.2
VOC			530	499	275.4	246.8
Sulfuric Acid Mist			530	499	13.0	12.7
Lead			530	499	0.14	0.12
Mercury			530	499	0.012	0.011
Beryllium			530	499	4.17E-05	4.17E-05
			Maximum Any Combination			
Particulate Matter (PM)					95.0	90.0
Particulate Matter (PM10)					88.3	83.7
Sulfur dioxide					212.7	207.5
Nitrogen oxides					158.3	150.0
Carbon monoxide					4,114.5	3,900.0
VOC					569.7	540.0
Sulfuric Acid Mist					13.0	12.7
Lead					0.28	0.27
Mercury					0.0241	0.0228
Beryllium					4.17E-05	4.17E-05

Footnotes

(a) Maximum 1-hour activity factor is based on a steam production of 300,000 lb/hr at 600 psig, 750 F.
Maximum 6-hour average activity factor based on steam production rate of 285,000 lb/hr at 600 psig, 750 F.
Enthalpy of steam = 1,378 Btu/lb. Enthalpy of feedwater = 218 Btu/lb. Net enthalpy = 1,160 Btu/lb.
Boiler efficiency = 80% on fuel oil and 55% on bagasse.
Derivation of heat input for No. 6 Fuel oil/Bagasse combination firing:
Max 1-hr case: Max oil = 225 MMBtu/hr x 80% eff. = 180 MMBtu/hr into steam.
Remainder needed into steam = (300,000 lb/hr steam x 1,160 Btu/lb) - 180 MMBtu/hr = 168 MMBtu/hr
Required heat input to boiler from bagasse = 168 MMBtu/hr / 55% eff. = 305.5 MMBtu/hr
Total heat input required = 225 + 305.5 = 530 MMBtu/hr
Max 6-hr case: Max oil = 225 MMBtu/hr x 80% eff. = 180 MMBtu/hr into steam.
Remainder needed into steam = (285,000 lb/hr steam x 1,160 Btu/lb) - 180 MMBtu/hr = 150.6 MMBtu/hr
Required heat input to boiler from bagasse = 150.6 MMBtu/hr / 55% eff. = 273.8 MMBtu/hr
Total heat input required = 225 + 274 = 499 MMBtu/hr

References

1. Current BACT permit limit for Clewiston.
2. Based on limited source testing of bagasse boiler which indicated 93% of PM was PM10.
3. Current BACT permit limit for Clewiston Boiler No. 4. Based on 0.2% sulfur content of bagasse (dry basis), 3,600 Btu/lb(wet) and 50% moisture; and 40% removal in wet scrubber.
4. Equivalent to current permit limit for Clewiston Boiler No. 4.
5. Proposed permit limit; based on state RACT limitation for carbonaceous fuel burning.
6. Based on assuming 5% of SO2 emissions are equal to SO3, based on AP-42 Section 1.3, Fuel Oil Combustion. Conversion of SO3 to H2SO4 (SO3 x 98/80).
7. Based on AP-42, Section 1.6, Wood Waste Combustion. Represents controlled emissions.
8. Based on stack testing of 5 bagasse boilers in Florida (refer to appendices).
9. Assumed as 100% of PM emissions.
10. Based on 0.7% S fuel oil; 142,000 Btu/gal; 7.3 lb/gal; assumes 100% conversion of sulfur to SO2.
11. Based on AP-42, Section 1.3, Fuel Oil Combustion.
    NOx - 47 lb/1000 gal; CO - 5 lb/1000 gal; VOC - 0.28 lb/1000 gal;
    Lead - 1.51E-03 lb/1000 gal; Mercury - 1.13E-04 lb/1000 gal; Beryllium - 2.85E-05 lb/1000 gal

Example Calculations

Single Fuel Combustion:
Hourly Emission Rate = Emission Factor X Activity Factor (1-hour maximum)

Multiple Fuel Combustion:
= ((Bagasse Activity Factor - Fuel Oil Activity Factor) x Bagasse Emission Factor)
+ (Fuel Oil Activity Factor x Fuel Oil Emission Factor)

Table 2-2. Future Maximum Annual Emissions, Clewiston Boiler No. 4, U.S. Sugar Corporation

Pollutant	Bagasse Firing			Fuel Oil Firing			TOTAL
	Emission Factor	Heat Input (a) (MMBtu/yr)	Emissions (TPY)	Emission Factor	Heat Input (a) (MMBtu/yr)	Emissions (TPY)	EMISSIONS (TPY)
Particulate Matter (PM)	0.15 lb/MMBtu	2,880,000	216.0	0.1 lb/MMBtu	0	0.0	216.0
PM10	0.14 lb/MMBtu	2,880,000	201.6	0.1 lb/MMBtu	0	0.0	201.6
Sulfur Dioxide	0.166 lb/MMBtu	2,805,000	232.8	0.72 lb/MMBtu	75,000	27.0	259.8
Nitrogen Oxides	0.25 lb/MMBtu	2,805,000	350.6	0.31 lb/MMBtu	75,000	11.6	362.3
Carbon Monoxide	6.5 lb/MMBtu	2,880,000	9,360.0	0.033 lb/MMBtu	0	0.0	9,360.0
Volatile Organic Compounds	1.50 lb/MMBtu	2,880,000	2,160.0	0.0019 lb/MMBtu	0	0.0	2,160.0
Sulfuric Acid Mist	0.010 lb/MMBtu	2,880,000	14.4	0.085 lb/MMBtu	0	0.0	14.4
Lead	4.45E-04 lb/MMBtu	2,880,000	0.6	1.01E-05 lb/MMBtu	0	0.0	0.64
Mercury	3.80E-05 lb/MMBtu	2,880,000	0.1	7.53E-07 lb/MMBtu	0	0.0	0.055
Beryllium	--	2,805,000	--	1.85E-07 lb/MMBtu	75,000	6.94E-06	6.94E-06

(a) Total heat input based on total steam production of 1.368E+09 lb steam/yr, 1,160 Btu/lb steam and 55% thermal efficiency.
Fuel oil considered where worst case emission factor is due to oil burning. Maximum fuel oil burning is 500,000 gal/yr, equivalent to 75,000 MMBtu/yr.

References: Refer to Table 2-1 for emission factors.

Table 2-3. Summary of PM/PM10 Emissions from the Baghouses Associated With the Sugar Refinery, U.S. Sugar Corporation

Source / Vent Name	Stack Number	Control Type	Manufacturer/Model	Design Capacity	Control Efficiency (percent)	Operating Hours	PM/PM10 Emission Rate gr/dscf	PM/PM10 Emission Rate lb/hr	PM/PM10 Emission Rate TPY
Existing Sources									
Screening & Distribution Vacuum	S-1	Baghouse	Hoffman	990 dscfm	99.9	8,760	0.00754 [a]	0.064 [b]	0.280
100 lb Bagging Vacuum System	S-2	Baghouse	Hoffman	872 dscfm	99.9	8,760	0.00856 [a]	0.064 [b]	0.280
5 lb Bagging Vacuum System	S-3	Baghouse	Hoffman	984 dscfm	99.9	8,760	0.00759 [a]	0.064 [b]	0.280
Packaging Dust Collector	S-4	Baghouse	Hosokawa Mikropul	9,589 dscfm	99.9	8,760	0.0025	0.205	0.900
Screening and Distribution #1	S-5	Baghouse	Hosokawa Mikropul	2,668 dscfm	99.9	8,760	0.0025	0.057	0.250
Screening and Distribution #2	S-6	Baghouse	Hosokawa Mikropul	8,755 dscfm	99.9	8,760	0.0025	0.188	0.822
Conditioning Silo No. 2	S-7	Baghouse	Hosokawa Mikropul	2,641 dscfm	99.9	8,760	0.0025	0.057	0.248
Conditioning Silo No. 4	S-8	Baghouse	Hosokawa Mikropul	2,641 dscfm	99.9	8,760	0.0025	0.057	0.248
Conditioning Silo No. 6	S-9	Baghouse	Hosokawa Mikropul	2,641 dscfm	99.9	8,760	0.0025	0.057	0.248
White Sugar Dryer	S-10	Baghouse	BACT Engineering	94,488 dscfm	99.9	8,760	0.00177 [a]	1.436 [b]	6.29
V.H.P. Sugar Dryer	S-11	Baghouse	BACT Engineering	110,042 dscfm	99.9	8,760	0.00172 [a]	1.625 [b]	7.12
Granular Carbon Furnace	S-12	None	--	--	--	8,760	--	0.650	2.85
Proposed Sources									
Conditioning Silo No. 1	S-13	Baghouse	Hosokawa Mikropul	2,641 dscfm	99.9	8,760	0.0025	0.057	0.248
Conditioning Silo No. 3	S-14	Baghouse	Hosokawa Mikropul	2,641 dscfm	99.9	8,760	0.0025	0.057	0.248
Conditioning Silo No. 5	S-15	Baghouse	Hosokawa Mikropul	2,641 dscfm	99.9	8,760	0.0025	0.057	0.248
Powdered Sugar / Starch Bins	S-16	Baghouse	Hosokawa Mikropul	6,128 dscfm	99.9	8,760	0.0025	0.131	0.575
							Total =	4.82	21.13

Footnotes:
[a] Back calculated from guaranteed emission rate and design flow rate.
[b] Manufacturer's guaranteed emission rate.

Notes: dscfm = dry standard cubic foot per minute.
gr/dscf = grains per dry standard cubic foot
lb/hr = pounds per hour
TPY = tons per year

Table 2-4. Emissions From Granular Carbon Regeneration Furnace, USSC Clewiston Mill Expansion

Pollutant	Manufacturer's Design[a] (lb/hr)	Maximum Estimated Emissions lb/hr	Maximum Estimated Emissions TPY[b]
PM / PM10	0.65 [c]	0.65	2.85
NO_x	3.0	3.0	13.1
SO_2	0.49 [d]	0.49	2.15
CO	3.0	3.0	13.1
VOC	1.0	1.0	4.4

Footnotes:

[a] Estimated emissions obtained from design information provided by BSP Thermal Sytems, Inc.

[b] Based on 8,760 hours per year of operation.

[c] Based on uncontrolled emissions of 32.5 lb/hr and 98% control efficiency with wet scrubber system.

[d] Based on No. 2 fuel oil combustion only. Calculation based on manufacuter's data for the Granular Carbon Furnace is shown below.

Hourly SO_2 Emission Rate = 120 gal oil/hr * 0.03% * 6.83 lb sulfur/gal oil
* 2 lb SO_2/ 1 lb sulfur
= 0.49176 lb SO_2/hr

Annual SO_2 Emission Rate = 0.49176 lb SO_2/hr
* 8,760 hr/yr * 1 Ton/2000 lb
= 2.15 TPY SO_2

Scrubber control of SO_2 emissions was not considered.

Table 2-5. Potential Emissions of VOC from Alcohol Usage, USSC Clewiston Mill Expansion

Material	VOC Content	Maximum Sugar Production (TPY)	Annual Pounds of Material Used	Potential VOC Emissions (TPY)
Isopropyl Alcohol (a)	100%	704,000	29,216	14.61

(a) Isopropyl alcohol (IPA) usage based on 1 quart IPA per 100,000 lb of sugar.

Table 2-6. Estimated Emissions from Two Sock Dryers Due to Propane Combustion, USSC Mill Expansion

Parameter	Sock Dryer No. 1	Sock Dryer No. 2
OPERATING DATA		
Maximum Operating Hours (hr/yr)	8,760	8,760
Heat Input Rate (MMBtu/hr)	0.165	0.165
Propane (gal/hr) [a]	1.7	1.7
Propane (gal/yr)	15,295	15,295
Propane (scf/hr) [a]	64.7	64.7
Propane (scf/yr)	566,824	566,824

Pollutant	Emission Factor [b]	Emissions Sock Dryer No. 1		Emissions Sock Dryer No. 2		Total Emissions	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EMISSIONS DATA							
SO2: Propane	0.018 lb/Mgal [c]	0.000031	0.00014	0.000031	0.00014	0.000062	0.000280
NOx: Propane	14 lb/Mgal	0.024	0.11	0.024	0.11	0.048	0.22
PM/PM10: Propane	0.4 lb/Mgal	0.00074	0.0031	0.00074	0.0031	0.00148	0.0062
CO: Propane	1.9 lb/Mgal	0.0033	0.015	0.0033	0.015	0.0066	0.030
NMVOC: Propane	0.5 lb/Mgal	0.00087	0.0038	0.00087	0.0038	0.0017	0.0076

Note: NA = not applicable.

[a] Based on 94,500 Btu/gal and 2,550 Btu/scf for propane.

[b] Emission factors based on AP-42.

[c] Formula is 0.10*S where "S" denotes the sulfur content in gr/100 ft^3 gas vapor. S equals 0.18 gr/100 ft^3.

Table 2-7. Stack Parameters for Existing and Modified Boiler No. 4

Scenario	Steam Production Rate (lb/hr)	Stack Height (ft)	Stack Diameter (ft)	Gas Flow Rate (acfm)	Gas Velocity (fps)	Gas Temperature (°F)
Existing Conditions[a]						
Boiler No. 4	250,000	150	8.2	234,000	73.85	160
Future Conditions[b]						
Boiler No. 4	285,000	150	8.2	266,800	84.20	160

Note: acfm = actual cubic feet per minute.
°F = degrees Fahrenheit.
fps = feet per second.
ft = feet.
lb/hr = pounds per hour.

[a]Represents conditions during latest compliance testing.
[b]Represents maximum 24-hour-average operating conditions.

Table 2-8. Stack and Vent Geometry and Operating Data for U.S. Sugar Refinery, U.S. Sugar Corporation, Clewiston Florida

Source / Vent Name	Stack/Vent Release Height (ft)	Stack/Vent Diameter (ft)	Exhaust Flow (acfm)	Exit Velocity[a] (ft/sec)	Gas Exit Temperature (°F)
Existing Sources					
Screening & Distribution Vacuum	65	0.50	1,705	0.29	68
100 lb Bagging Vacuum System	65	0.50	1,564	0.29	90
5 lb Bagging Vacuum System	65	0.50	1,585	0.29	90
Packaging Dust Collector	60	1.94	11,500	0.29	125
Screening and Distribution #1	72	0.95	3,200	0.29	125
Screening and Distribution #2	72	1.94	10,500	0.29	125
Conditioning Silo No. 2	130	1.37	3,000	0.29	110
Conditioning Silo No. 4	130	1.37	3,000	0.29	110
Conditioning Silo No. 6	130	1.37	3,000	0.29	110
White Sugar Dryer	75	7.31	113,000	0.29	115
V.H.P. Sugar Dryer	10	4.79	127,000	0.29	115
Granular Carbon Furnace	30	2.00	4,300	22.8	160
Proposed Sources					
Conditioning Silo No. 1	130	1.37	3,000	0.29	110
Conditioning Silo No. 3	130	1.37	3,000	0.29	110
Conditioning Silo No. 5	130	1.37	3,000	0.29	110
Powdered Sugar / Starch Bins	55	2.00	6,500	34.5	100

Footnotes:
[a] All sources but the Granular Carbon Furnance and the Powdered Sugar/Starch Bins have horizontal discharge.

3.0 AIR QUALITY REVIEW REQUIREMENTS AND APPLICABILITY

Federal and state air regulatory requirements for a new source of air pollution are discussed in Sections 3.1 to 3.4. The applicability of these regulations to the modified Boiler No. 4 is presented in Section 3.5. These regulations must be satisfied before the proposed project can be approved.

3.1 NATIONAL AND STATE AAQS

The existing applicable national and Florida Ambient Air Quality Standards (AAQS) are presented in Table 3-1. Primary national AAQS were promulgated to protect the public health, and secondary national AAQS were promulgated to protect the public welfare from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air. Areas of the country in violation of AAQS are designated as nonattainment areas, and new sources to be located in or near these areas may be subject to more stringent air permitting requirements.

Florida has adopted state AAQS in Rule 62-204.240. These standards are the same as the national AAQS, except in the case of SO_2. For SO_2, Florida has adopted the former 24-hour secondary standard of 260 $\mu g/m^3$, and former annual average secondary standard of 60 $\mu g/m^3$.

3.2 PSD REQUIREMENTS

3.2.1 General Requirements

Under Federal and State of Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. Florida's State Implementation Plan (SIP), which contains PSD regulations, has been approved by EPA; therefore, PSD approval authority has been granted to the Florida Department of Environmental Protection (FDEP).

A "major facility" is defined as any one of 28 named source categories that have the potential to emit 100 tons per year (TPY) or more or any other stationary facility that has the potential to emit 250 TPY or more of any pollutant regulated under CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. Once a new source is determined to be a "major facility" for a particular pollutant, any pollutant emitted in amounts greater than the PSD significant emission rates is subject to PSD review. For an existing source for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions due to the modification is greater than the PSD significant emission rates. The PSD significant emission rates are shown in Table 3-2.

EPA has promulgated as regulations limits to increases above an air quality baseline concentration level of SO_2, PM_{10}, and NO_2 concentrations that would constitute significant deterioration. The EPA class designations and allowable PSD increments are presented in Table 3-1. The magnitude of the allowable increment depends on the classification of the area in which a new source (or modification) will be located or have an impact. Three classifications are designated based on criteria established in the Clean Air Act Amendments. Congress promulgated areas as Class I (international parks, national wilderness areas, and memorial parks larger than 5,000 acres, and national parks larger than 6,000 acres) or as Class II (all areas not designated as Class I). No Class III areas, which would be allowed greater deterioration than Class II areas, were designated. The State of Florida has adopted the EPA class designations and allowable PSD increments for SO_2, PM_{10}, and NO_2 increments.

PSD review is used to determine whether significant air quality deterioration will result from the new or modified facility. Federal PSD requirements are contained in 40 CFR 52.21, Prevention of Significant Deterioration of Air Quality. The State of Florida has adopted the federal PSD regulations by reference (Rule 62-212.400, F.A.C.). Major facilities and major modifications are required to undergo the following analysis related to PSD for each pollutant emitted in significant amounts:

1. Control technology review,
2. Source impact analysis,
3. Air quality analysis (monitoring),
4. Source information, and
5. Additional impact analyses.

In addition to these analyses, a new facility also must be reviewed with respect to Good Engineering Practice (GEP) stack height regulations. Discussions concerning each of these requirements are presented in the following sections.

3.2.2 Control Technology Review

The control technology review requirements of the federal and state PSD regulations require that all applicable federal and state emission-limiting standards be met, and that Best Available Control Technology (BACT) be applied to control emissions from the source. The BACT requirements are applicable to all regulated pollutants for which the increase in emissions from the facility exceeds the significant emission rate (see Table 3-2).

BACT is defined in 40 CFR 52.21 (b)(12), as:

> An emissions limitation (including a visible emission standard) based on the maximum degree of reduction of each pollutant subject to regulation under the Act which would be emitted by any proposed major stationary source or major modification which the Administrator, 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 (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant, which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular part of a source or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice, or operation and shall provide for compliance by means, which achieve equivalent results.

BACT was promulgated within the framework of the PSD requirements in the 1977 amendments of the CAA [Public Law 95-95; Part C, Section 165(a)(4)]. The primary purpose of BACT is to optimize consumption of PSD air quality increments and thereby enlarge the potential for future economic growth without significantly degrading air quality (EPA, 1978;

1980). Guidelines for the evaluation of BACT can be found in EPA's *Guidelines for Determining Best Available Control Technology (BACT)* (EPA, 1978) and in the *PSD Workshop Manual* (EPA, 1980). These guidelines were promulgated by EPA to provide a consistent approach to BACT and to ensure that the impacts of alternative emission control systems are measured by the same set of parameters. In addition, through implementation of these guidelines, BACT in one area may not be identical to BACT in another area. According to EPA (1980), "BACT analyses for the same types of emissions unit and the same pollutants in different locations or situations may determine that different control strategies should be applied to the different sites, depending on site-specific factors. Therefore, BACT analyses must be conducted on a case-by-case basis."

The BACT requirements are intended to ensure that the control systems incorporated in the design of a proposed facility reflect the latest in control technologies used in a particular industry and take into consideration existing and future air quality in the vicinity of the proposed facility. BACT must, as a minimum, demonstrate compliance with new source performance standards (NSPS) for a source (if applicable). An evaluation of the air pollution control techniques and systems, including a cost-benefit analysis of alternative control technologies capable of achieving a higher degree of emission reduction than the proposed control technology, is required. The cost-benefit analysis requires the documentation of the materials, energy, and economic penalties associated with the proposed and alternative control systems, as well as the environmental benefits derived from these systems. A decision on BACT is to be based on sound judgment, balancing environmental benefits with energy, economic, and other impacts (EPA, 1978).

3.2.3 Source Impact Analysis

A source impact analysis must be performed for a proposed major source or major modification subject to PSD review, and for each pollutant for which the increase in emissions exceeds the PSD significant emission rate (Table 3-2). The PSD regulations specifically provide for the use of atmospheric dispersion models in performing impact analyses, estimating baseline and future air quality levels, and determining compliance with AAQS and allowable PSD increments. Designated EPA models normally must be used in performing the impact analysis. Specific applications for other than EPA-approved models require EPA's consultation and prior approval. Guidance for the use and application of dispersion models is presented in the EPA publication *Guideline on Air Quality Models* (EPA, 1980).

To address compliance with AAQS and PSD Class II increments, a source impact analysis must be performed for the criteria pollutants. However, this analysis is not required for a specific pollutant if the net increase in impacts as a result of the new source or modification is below significant impact levels, as presented in Table 3-1. The significant impact levels are threshold levels that are used to determine the level of air impact analyses needed for the project. If the new or modified source's impacts are predicted to be less than significant, then the source's impacts are assumed not to have a significant adverse affect on air quality and additional modeling with other sources is not required. However, if the source's impacts are predicted to be greater than the significant impact levels, additional modeling with other sources is required to demonstrate compliance AAQS and PSD increments.

EPA has proposed significant impact levels for Class I areas as follows:

• SO_2	3-hour	-	1 $\mu g/m^3$
	24-hour	-	0.2 $\mu g/m^3$
	Annual	-	0.1 $\mu g/m^3$
• PM_{10}	24- hour	-	0.3 $\mu g/m^3$
	Annual	-	0.2 $\mu g/m^3$
• NO_2	Annual	-	0.1 $\mu g/m^3$

Although these levels have not been officially promulgated as part of the PSD review process and may not be binding for states in performing PSD review, the proposed levels serve as a guideline in assessing a source's impact in a Class I area. The EPA action to incorporate Class I significant impact levels in the PSD process is part of implementing NSR provisions of the 1990 CAA Amendments. Because the process of developing the regulations will be lengthy, EPA believes that the proposed rules concerning the significant impact levels is appropriate in order to assist states in implementing the PSD permit process.

Various lengths of record for meteorological data can be used for impact analysis. A 5-year period is normally used with corresponding evaluation of highest, second-highest short-term concentrations for comparison to AAQS or PSD increments. The meteorological data are selected based on an evaluation of measured weather data from a nearby weather station that represents weather conditions at the project site. The criteria used in this evaluation include determining the distance of the project site to the weather station; comparing topographical and land use features between the locations; and determining availability of necessary weather parameters.

The term "highest, second-highest" (HSH) refers to the highest of the second-highest concentrations at all receptors (i.e., the highest concentration at each receptor is discarded). The second-highest concentration is important because short-term AAQS specify that the standard should not be exceeded at any location more than once a year. If fewer than 5 years of meteorological data are used in the modeling analysis, the highest concentration at each receptor normally must be used for comparison to air quality standards.

The term "baseline concentration" evolves from federal and state PSD regulations and refers to a concentration level corresponding to a specified baseline date and certain additional baseline sources. By definition, in the PSD regulations as amended August 7, 1980, baseline concentration means the ambient concentration level that exists in the baseline area at the time of the applicable baseline date. A baseline concentration is determined for each pollutant for which a baseline date is established and includes:

1. The actual emissions representative of facilities in existence on the applicable baseline date; and
2. The allowable emissions of major stationary facilities that commenced construction before January 6, 1975, for SO_2 and PM(TSP) concentrations, or February 8, 1988, for NO_2 concentrations, but that were not in operation by the applicable baseline date.

The following emissions are not included in the baseline concentration and therefore affect PSD increment consumption:

1. Actual emissions from any major stationary facility on which construction commenced after January 6, 1975, for SO_2 and PM(TSP) concentrations, and after February 8, 1988, for NO_2 concentrations; and
2. Actual emission increases and decreases at any stationary facility occurring after the baseline date.

In reference to the baseline concentration, the term "baseline date" actually includes three different dates:

1. The major facility baseline date, which is January 6, 1975, in the cases of SO_2 and PM(TSP), and February 8, 1988, in the case of NO_2.
2. The minor facility baseline date, which is the earliest date after the trigger date on which a major stationary facility or major modification subject to PSD regulations submits a complete PSD application.
3. The trigger date, which is August 7, 1977, for SO_2 and PM(TSP), and February 8, 1988, for NO_2.

3.2.4 Air Quality Monitoring Requirements

In accordance with requirements of 40 CFR 52.21(m), any application for a PSD permit must contain an analysis of continuous ambient air quality data in the area affected by the proposed major stationary facility or major modification. For a new major facility, the affected pollutants are those that the facility potentially would emit in significant amounts. For a major modification, the pollutants are those for which the net emissions increase exceeds the significant emission rate (see Table 3-2).

Ambient air monitoring for a period of up to 1 year generally is appropriate to satisfy the PSD monitoring requirements. A minimum of 4 months of data is required. Existing data from the vicinity of the proposed source may be used if the data meet certain quality assurance requirements; otherwise, additional data may need to be gathered. Guidance in designing a PSD monitoring network is provided in EPA's *Ambient Monitoring Guidelines for Prevention of Significant Deterioration* (EPA, 1987a).

The regulations include an exemption that excludes or limits the pollutants for which an air quality analysis must be conducted. This exemption states that Florida DEP may exempt a proposed major stationary facility or major modification from the monitoring requirements with respect to a particular pollutant if the emissions increase of the pollutant from the facility or modification would cause, in any area, air quality impacts less than the *de minimis* levels presented in Table 3-2.

3.2.5 Source Information/Good Engineering Practice Stack Height

Source information must be provided to adequately describe the proposed project. The general type of information required for this project is presented in Section 2.0.

The 1977 CAA Amendments require that the degree of emission limitation required for control of any pollutant not be affected by a stack height that exceeds GEP or any other dispersion technique. On July 8, 1985, EPA promulgated final stack height regulations (EPA, 1985a). The Florida DEP has adopted identical regulations (Rule 62-210.550, F.A.C.). GEP stack height is defined as the highest of:

1. 65 meters (m); or
2. A height established by applying the formula:

   $$Hg = H + 1.5L$$

   where: Hg = GEP stack height,

   H = Height of the structure or nearby structure, and

   L = Lesser dimension (height or projected width) of nearby structure(s); or
3. A height demonstrated by a fluid model or field study.

"Nearby" is defined as a distance up to five times the lesser of the height or width dimensions of a structure or terrain feature, but not greater than 0.8 km. Although GEP stack height regulations require that the stack height used in modeling for determining compliance with AAQS and PSD increments not exceed the GEP stack height, the actual stack height may be greater.

The stack height regulations also allow increased GEP stack height beyond that resulting from the above formula in cases where plume impaction occurs. Plume impaction is defined as concentrations measured or predicted to occur when the plume interacts with elevated terrain. Elevated terrain is defined as terrain that exceeds the height calculated by the GEP stack height formula.

3.2.6 Additional Impact Analysis

In addition to air quality impact analyses, federal and State of Florida PSD regulations require analyses of the impairment to visibility and the impacts on soils and vegetation that would occur as a result of the proposed source [40 CFR 52.21(o); Rule 62-212.400]. These analyses are to be conducted primarily for PSD Class I areas. Impacts as a result of general commercial, residential, industrial, and other growth associated with the source also must be addressed. These analyses are required for each pollutant emitted in significant amounts (Table 3-2).

3.3 NONATTAINMENT RULES

Based on the current nonattainment provisions, all major new facilities and modifications to existing major facilities located in a nonattainment area must undergo nonattainment review. A new major facility is required to undergo this review if the proposed pieces of equipment have the potential to emit 100 TPY or more of the nonattainment pollutant.

3.4 EMISSION STANDARDS

3.4.1 New Source Performance Standards

Federal New Source Performance Standards (NSPS) are a set of national emission standards that apply to specific categories of new sources. As stated in the CAA Amendments of 1977, these standards "shall reflect the degree of emission limitation and the percentage reduction achievable through application of the best technological system of continuous emission reduction the Administrator determines has been adequately demonstrated."

Boiler No. 4 at Clewiston is an existing source. No physical changes will be to the boiler as a result of this project. NSPS do not apply to the boiler at the present time, and NSPS will not be triggered by the proposed modification to Boiler No. 4.

3.4.2 Florida Rules

FDEP regulations for existing carbonaceous fuel burning equipment are covered in Rule 62-296.410. These rules require that carbonaceous fuel burning equipment meet a PM emission limit of 0.2 lb/MMBtu for carbonaceous fuel firing, and 0.1 lb/MMBtu for fossil fuel firing.

3.5 PSD APPLICABILITY

3.5.1 Area Classification

The project site is located in Hendry County, which has been designated by EPA and FDEP as an attainment area for all criteria pollutants. Hendry County and surrounding counties are designated as PSD Class II areas for SO_2, PM(TSP), and NO_2. The nearest Class I area to the site is the Everglades National Park (ENP), located about 102 km (62 miles) south of the Clewiston mill site.

3.5.2 PSD Review

3.5.2.1 Pollutant Applicability

The existing U.S. Sugar Clewiston mill is considered to be a "major existing facility" because the annual emissions of several regulated pollutants from the mill are greater than 250 TPY. Therefore, PSD review is required for any pollutant for which the increase in emissions due to the modification is greater than the PSD significant emission rates.

Current actual (baseline) emissions for Boiler No. 4 are shown in Table 3-3. The current annual emissions are based on the last two years (1997-1998) of actual operation (heat input due to bagasse and fuel oil). Emission factors for bagasse firing are based on the average of the last five years of stack test results (in lb/MMBtu) for Boiler No. 4 for PM, SO_2, NO_x, and CO (refer to Appendix B). Mercury emissions from bagasse are based on industry test data. Emission factors for other pollutants for bagasse firing, and for all pollutants for fuel oil firing, are based on published emission factors or permit limits. Refer to the footnotes in Table 3-3 for further explanation.

Presented in Table 3-4 is the comparison of current actual emissions to future maximum emissions from Boiler No. 4 after the proposed modification (refer to Table 2-2). As shown in Table 3-4, the potential increase in emissions due to the proposed modification of Boiler No. 4 alone exceeds the PSD significant emission rates for PM, PM_{10}, SO_2, NO_x, CO and VOC. As a result, PSD review applies for these pollutants.

3.5.2.2 Source Impact Analysis

A source impact analysis was performed for PM_{10}, SO_2, NO_x and CO emissions resulting from the proposed modification. As shown in Section 6.0, the predicted increase in impacts due to the proposed modification are predicted to be below the significant impact levels for NO_x. As a result, a modeling analysis incorporating the impacts from other sources is not required for NO_x. For the other pollutants, the predicted increase in impacts are above the significant impact levels, and further modeling is required.

3.5.2.3 Emission Standards

The applicable emission limit for PM for Boiler No. 4 is 0.2 lb/MMBtu of heat input (Rule 62-296.410). The proposed PM emission rate of 0.15 lb/MMBtu for Boiler No. 4 will comply with the specified limit.

3.5.2.4 Ambient Monitoring

Based on the increase in emissions from the proposed modification (see Table 3-4), a pre-construction ambient monitoring analysis is required for PM_{10}, SO_2, NO_2, CO, and VOC and monitoring data is required to be submitted as part of the application. However, if the net increase in impacts of a pollutant is less than the applicable *de minimis* monitoring concentration, then an exemption from submittal of pre-construction ambient monitoring data may be obtained [40 CFR 52.21(i)(8)]. In addition, if EPA has not established an acceptable ambient monitoring method for the pollutant, monitoring is not required.

Pre-construction monitoring data for NO_x may be exempted for this project because, as shown in Table 3-5 and in Section 6.0, the proposed modification's impacts are predicted to be below the applicable *de minimis* monitoring concentration for NO_x. A pre-construction ambient monitoring analysis is required for PM_{10}, SO_2, CO and VOC. This analysis is presented in Section 4.0.

3.5.2.5 GEP Stack Height Impact Analysis

The GEP stack height regulations allow any stack to be at least 65 m [213 feet (ft)] high. The Boiler No. 4 stack is 150 feet high. This stack height does not exceed the *de minimis* GEP stack height. All the sugar refinery stacks are likewise below *de minimis* GEP. However, as discussed in Section 6.0, Air Quality Modeling, since the stack height is less than GEP, building downwash effects must be considered in the modeling analysis. As a result, the potential for downwash caused by nearby structures is included in the modeling analysis.

3.5.3 NONATTAINMENT REVIEW

The project site is located in Hendry County, which is classified as an attainment area for all criteria pollutants. Therefore, nonattainment requirements are not applicable.

Table 3-1. National and State AAQS, Allowable PSD Increments, and Significant Impact Levels ($\mu g/m^3$)

Pollutant	Averaging Time	AAQS			PSD Increments		Significant Impact Levels[d]
		National Primary Standard	National Secondary Standard	State of Florida	Class I	Class II	
Particulate Matter[a] (PM_{10})	Annual Arithmetic Mean	50	50	50	4	17	1
	24-Hour Maximum	150[b]	150[b]	150[b]	8	30	5
Sulfur Dioxide	Annual Arithmetic Mean	80	NA	60	2	20	1
	24-Hour Maximum	365[b]	NA	260[b]	5	91	5
	3-Hour Maximum	NA	1,300[b]	1,300[b]	25	512	25
Carbon Monoxide	8-Hour Maximum	10,000[b]	10,000[b]	10,000[b]	NA	NA	500
	1-Hour Maximum	40,000[b]	40,000[b]	40,000[b]	NA	NA	2,000
Nitrogen Dioxide	Annual Arithmetic Mean	100	100	100	2.5	25	1
Ozone[a]	1-Hour Maximum	235[c]	235[c]	235[c]	NA	NA	NA
Lead	Calendar Quarter Arithmetic Mean	1.5	1.5	1.5	NA	NA	NA

Note: Particulate matter (PM_{10}) = particulate matter with aerodynamic diameter less than or equal to 10 micrometers.

NA = Not applicable, i.e., no standard exists.

[a] On July 18, 1997, EPA promulgated revised AAQS for particulate matter and ozone. For particulate matter, PM2.5 standards were introduced with a 24-hour standard of 65 ($\mu g/m^3$ (3-year average of 98th percentile) and an annual standard of 15 $\mu g/m^3$ (3-year average at community monitors). Implementation of these standards are many years away. The ozone standard was modified to be 0.08 ppm for 8-hour average; achieved when 3-year average of 99th percentile is 0.08 ppm or less. FDEP has not yet adopted these standards.

[b] Short-term maximum concentrations are not to be exceeded more than once per year.

[c] Achieved when the expected number of days per year with concentrations above the standard is fewer than 1.

[d] Maximum concentrations.

Sources: Federal Register, Vol. 43, No. 118, June 19, 1978. 40 CFR 50. 40 CFR 52.21. Rule 62-204, F.A.C.

Table 3-2. PSD Significant Emission Rates and *De Minimis* Monitoring Concentrations

Pollutant	Regulated Under	Significant Emission Rate (TPY)	*De Minimis* Monitoring Concentration[a] ($\mu g/m^3$)
Sulfur Dioxide	NAAQS, NSPS	40	13, 24-hour
Particulate Matter [PM(TSP)]	NSPS	25	10, 24-hour
Particulate Matter (PM_{10})	NAAQS	15	10, 24-hour
Nitrogen Dioxide	NAAQS, NSPS	40	14, annual
Carbon Monoxide	NAAQS, NSPS	100	575, 8-hour
Volatile Organic Compounds (Ozone)	NAAQS, NSPS	40	100 TPY[b]
Lead	NAAQS	0.6	0.1, 3-month
Sulfuric Acid Mist	NSPS	7	NM
Total Fluorides	NSPS	3	0.25, 24-hour
Total Reduced Sulfur	NSPS	10	10, 1-hour
Reduced Sulfur Compounds	NSPS	10	10, 1-hour
Hydrogen Sulfide	NSPS	10	0.2, 1-hour
Mercury	NESHAP	0.1	0.25, 24-hour
MWC Organics	NSPS	$3.5x10^{-6}$	NM
MWC Metals	NSPS	15	NM
MWC Acid Gases	NSPS	40	NM
MSW Landfill Gases	NSPS	50	NM

Note: Ambient monitoring requirements for any pollutant may be exempted if the impact of the increase in emissions is below *de minimis* monitoring concentrations.

NAAQS = National Ambient Air Quality Standards.

NM = No ambient measurement method established; therefore, no *de minimis* concentration has been established.

NSPS = New Source Performance Standards.

NESHAP = National Emission Standards for Hazardous Air Pollutants.

g/m^3 = micrograms per cubic meter.

MWC = Municipal waste combustor

MSW = Municipal solid waste

[a] Short-term concentrations are not to be exceeded.

[b] No *de minimis* concentration; an increase in VOC emissions of 100 TPY or more will require monitoring analysis for ozone.

[c] Any emission rate of these pollutants.

Sources: 40 CFR 52.21.

Rule 62-212.400, F.A.C.

Table 3-3. Baseline Emissions for Clewiston Boiler No. 4, U.S. Sugar Corporation

Pollutant	Bagasse Firing					Fuel Oil Firing					TOTAL EMISSIONS (TPY)
	Emission Factor		Ref.	Heat Input (a) (MMBtu/yr)	Emissions (TPY)	Emission Factor		Ref.	Heat Input (b) (MMBtu/yr)	Emissions (TPY)	
Particulate Matter (PM)	0.12	lb/MMBtu	1	1,661,913	99.7	0.1	lb/MMBtu	4	15,952	0.80	100.5
PM10	0.112	lb/MMBtu	2	1,661,913	93.1	0.1	lb/MMBtu	9	15,952	0.80	93.9
Sulfur Dioxide	0.008	lb/MMBtu	1	1,661,913	6.65	1.39	lb/MMBtu	5	15,952	11.09	17.7
Nitrogen Oxides	0.082	lb/MMBtu	1	1,661,913	68.1	0.31	lb/MMBtu	10	15,952	2.47	70.6
Carbon Monoxide	6.36	lb/MMBtu	1	1,661,913	5,284.9	0.033	lb/MMBtu	10	15,952	0.26	5,285.1
Volatile Organic Compounds	0.25	lb/MMBtu	3	1,661,913	207.7	0.0019	lb/MMBtu	10	15,952	0.015	207.8
Sulfuric Acid Mist	0.010	lb/MMBtu	6	1,661,913	8.3	0.085	lb/MMBtu	6	15,952	0.68	9.0
Lead	4.45E-04	lb/MMBtu	7	1,661,913	0.37	1.01E-05	lb/MMBtu	10	15,952	8.06E-05	0.37
Mercury	8.00E-06	lb/MMBtu	8	1,661,913	6.65E-03	7.53E-07	lb/MMBtu	10	15,952	6.01E-06	6.65E-03
Beryllium	--		7	1,661,913	0.0	1.85E-07	lb/MMBtu	10	15,952	1.48E-06	1.48E-06

(a) Based on actual steam production during 1997 and 1998, and actual steam enthalpies during stack tests.

Footnotes:

(1) Based on average of stack tests from last 5 years.
(2) Based on 93% of PM emissions for bagasse burning based on limited testing of a bagasse boiler.
(3) Test data not available; assumed equal to permit limit of 1.7 lb/ton wet bagasse.
(4) Based on permit limit.
(5) Based on stoichiometric calculation of sulfur content (2.5 %) and density of No. 6 fuel oil (8.33 lb/gal), and assuming 50% removal in wet scrubber.
(6) Based on assuming 5% of SO2 emissions are equal to SO3, based on AP-42 Section 1.3, Fuel Oil Combustion.
Conversion of SO3 to H2SO4 (SO3 x 98/80).
(7) Based on AP-42, Section 1.6, Wood Waste Combustion. Represents controlled emissions.
(8) Based on average emission factor from stack testing of 5 bagasse boilers in Florida (refer to appendices).
(9) Assumed as 100% of PM emissions.
(10) Based on AP-42, Section 1.3, Fuel Oil Combustion. Represents uncontrolled emissions except for SO2, 50% removal in wet scrubber assumed.
NOx - 47 lb/1000 gal; CO - 5 lb/1000 gal; VOC - 0.28 lb/1000 gal;
Lead - 1.51E-03 lb/1000 gal; Mercury - 1.13E-04 lb/1000 gal; Beryllium - 2.85E-05 lb/1000 gal

Table 3-4. Net Emissions Increase for Clewiston Boiler No. 4, U.S. Sugar Corporation

Pollutant	PSD Baseline Emissions (TPY)	Future Maximum Emissions (TPY)	Net Increase in Emissions (TPY)	PSD Significant Emission Rate (TPY)	PSD Review Applies?
Particulate Matter (PM)	100.5	216.0	115.5	25	Yes
PM10	93.9	201.6	107.7	15	Yes
Sulfur Dioxide	17.7	259.8	242.1	40	Yes
Nitrogen Oxides	70.6	362.3	291.6	40	Yes
Carbon Monoxide	5,285.1	9,360.0	4,074.9	100	Yes
Volatile Organic Compounds	207.8	1,296.0	1,088.2	40	Yes
Sulfuric Acid Mist	9.0	14.4	5.4	7	No
Lead	0.37	0.64	0.27	0.6	No
Mercury	0.007	0.055	0.048	0.1	No
Beryllium	1.48E-06	6.94E-06	5.46E-06	4.00E-04	No

Table 3-5. Predicted Net Increase in Impacts Due to the Proposed Project

	Concentration ($\mu g/m^3$)	
Pollutant	Predicted Net Increase in Impacts[a]	*De Minimis* Monitoring Concentration
Sulfur Dioxide	77	13, 24-hour
Particulate Matter (PM_{10})	10.7	10, 24-hour
Nitrogen Dioxide	0.8	14, annual
Carbon Monoxide	1,064	575, 8-hour
Ozone[b]	1,952 TPY VOC	100 TPY VOC

Note: NA = not applicable.
NM = no ambient measurement method.
TPY = tons per year.

[a] See Section 6.0 for air dispersion modeling results.
[b] Preconstruction monitoring analysis required for ozone, if increase in VOC emissions are greater than 100 TPY.

4.0 AMBIENT MONITORING ANALYSIS

4.1 INTRODUCTION

In accordance with requirements of 40 CFR 52.21(m) and Rule 62-212.400(5)(f), F.A.C., any application for a PSD permit must contain an analysis of continuous ambient air quality data in the area affected by the proposed major stationary facility or major modification. For a new major facility, the affected pollutants are those that the facility potentially would emit in significant amounts. For a major modification, the pollutants are those for which the net emissions increase exceeds the significant emission rate.

Ambient air monitoring for a period of up to 1 year is generally appropriate to satisfy the PSD monitoring requirements. A minimum of 4 months of data is required. Existing data from the vicinity of the proposed source may be used if the data meet certain quality assurance requirements; otherwise, additional data may need to be gathered. Guidance in designing a PSD monitoring network is provided in EPA's Ambient Monitoring Guidelines for Prevention of Significant Deterioration (EPA, 1987).

An exemption from the preconstruction ambient monitoring requirements is also available if certain criteria are met. If the predicted increase in ambient concentrations due to the proposed modification is less than the specified *de minimis* concentration for a particulate pollutant, the modification can be exempted from the preconstruction air monitoring requirements for that pollutant.

As described in Section 3.5.2, NO_x can be exempted from the preconstruction ambient monitoring requirements. However, a preconstruction air monitoring analysis is required for PM_{10}, SO_2, CO, and ozone. This analysis is presented in the following section. In addition, existing ambient air quality data for the Everglades National Park Class I area, for all pollutants requiring PSD review, is presented to support the AQRV analysis presented in Section 7.0.

4.2 VICINITY OF U.S. SUGAR CLEWISTON

The PSD ambient monitoring guidelines allow the use of existing data to satisfy preconstruction review requirements and to develop background concentrations.

Background concentrations are necessary to determine total ambient air quality impacts to demonstrate compliance with AAQS. "Background concentrations" are defined as concentrations due to sources other than those specifically included in the modeling analysis. For all pollutants, background would include other point sources not included in the modeling (i.e., faraway sources or small sources), fugitive emission sources, and natural background sources.

4.2.1 PM_{10} AMBIENT BACKGROUND CONCENTRATIONS

Presented in Table 4-1 is a summary of existing ambient PM_{10} data for monitors located in the vicinity of Clewiston facility. Data are presented for the last 2 years of record, 1997 to 1998. As shown, two PM_{10} monitors were operational in the vicinity of Clewiston during this period. These stations, located in Clewiston, operated in 1997 but were shutdown in 1998. Several stations were operated in Belle Glade during 1997. Only one station operated in Belle Glade during 1998.

The monitors show that ambient PM_{10} concentrations were well below the ambient air quality standards of 150 $\mu g/m^3$, maximum 24-hour average, and 50 $\mu g/m^3$, annual average at all sites. Monitors in Belle Glade appear to exhibit higher air quality levels than those in Clewiston.

For purposes of an ambient PM_{10} background concentration for use in the modeling analysis, the annual average PM_{10} concentration of 23 $\mu g/m^3$ recorded at the Clewiston, 115 S. Lopez Street, monitor during 1997 was selected. This concentration was utilized for both the 24-hour and annual average background PM_{10} concentrations in the air quality impact analysis since this monitor is impacted by the existing U.S. Sugar sugar mill, which is included explicitly in the modeling analysis, and all other major point sources of PM within 50 km are also included explicitly in the modeling analysis. Therefore, this monitor would be influenced significantly by point sources and would represent a conservative estimate of actual background concentrations.

4.2.2 SO_2 AMBIENT BACKGROUND CONCENTRATIONS

Presented in Table 4-2 is a summary of existing continuous ambient SO_2 data for monitors located in the vicinity of the Clewiston facility. Data are presented for the last 2 years of record, 1997 to 1998. As shown, only one SO_2 monitor was operational in the vicinity of Clewiston during this period. This station, located in Clewiston, operated in 1997 but was shutdown in 1998. One station also operated in Riviera Beach during 1997 and 1998, but this station is more than 50 km from Clewiston.

The monitor at Clewiston shows that ambient SO_2 concentrations were well below the ambient air quality standards of: 1,300 μg/m3, maximum 3-hour average; 260 $\mu g/m^3$, maximum 24-hour average; and 60 $\mu g/m^3$, annual average. The monitor in Riviera Beach is not considered to be representative of the Clewiston are to the distance this monitor is from Clewiston.

For purposes of an ambient SO_2 background concentration for use in the modeling analysis, the annual average SO_2 concentration of 5 $\mu g/m^3$ recorded at the South Bay, monitor during 1997 was selected. This concentration was utilized for both the 3-hour, 24-hour and annual average background SO_2 concentrations in the air quality impact analysis since this monitor is impacted by existing sugar mills in Belle Glade, which are included explicitly in the modeling analysis, and all other major point sources of SO_2 are also explicitly included in the modeling analysis. Therefore, this monitor would be influenced by point sources and would represent a conservative estimate of actual background concentrations.

4.2.3 CO AMBIENT BACKGROUND CONCENTRATIONS

Presented in Table 4-3 is a summary of existing continuous ambient CO data for monitors located in the vicinity of Clewiston. Data are presented for the last 2 years of record, 1997 to 1998. As shown, no CO monitors were operational in the vicinity of Clewiston during this period. The nearest CO monitoring stations were located in West Palm Beach.

The CO monitors show that ambient CO concentrations were well below the ambient air quality standards of: 35 ppm (40,000 $\mu g/m^3$), maximum 1-hour average; and 9 ppm (10,000 $\mu g/m^3$) maximum 8-hour average. The monitor in West Palm Beach is not considered to be representative of the Clewiston area due to the distance this monitor is from Clewiston, but is the closest monitoring station.

For purposes of an ambient CO background concentration for use in the modeling analysis, the second highest 1-hour CO concentration of 5 ppm (5,555 $\mu g/m^3$) and the second highest 8-hour concentration of 3 ppm (3,333 $\mu g/m^3$), recorded at the West Palm Beach monitor during 1997 was selected. These concentrations are very conservative since this monitor is impacted by significant mobile sources.

4.2.4 AMBIENT OZONE CONCENTRATIONS

Presented in Table 4-4 is a summary of existing continuous ambient ozone data for monitors located in the vicinity of the Clewiston facility. Data are presented for the last 2 years of record, 1997 to 1998. As shown, no ozone monitors were operational in the vicinity of Clewiston during this period. The nearest ozone monitoring stations were located in West Palm Beach.

The ozone monitors show that ambient ozone concentrations were below the ambient air quality standards of: 0.12 ppm (235 $\mu g/m^3$), maximum 1-hour average allowed to be exceeded on average one day per year; and 0.08 ppm (157 $\mu g/m^3$), average annual fourth highest 8-hour average. The monitor in West Palm Beach is not considered to be representative of the Clewiston area due to the distance this monitor is from Clewiston, but is the closest monitoring station and would represent a very conservative estimate of ambient concentrations in Clewiston.

4.3 EVERGLADES NATIONAL PARK CLASS I AREA

Presented in Table 4-5 is a summary of existing ambient PM/PM_{10}, SO_2 and NO_2 monitoring data for monitors located in the vicinity of the Everglades National Park Class I area. One

PM_{10} monitor and one SO_2 monitor was located directly in the Everglades National Park in 1997 and 1998. The nearest NO_2 data is from a site located in downtown Miami.

The monitoring data show that ambient PM_{10} concentrations were well below the ambient air quality standards of 150 $\mu g/m^3$, maximum 24-hour average, and 50 $\mu g/m^3$, annual average, and ambient SO_2 concentrations were extremely low and are representative of natural background concentrations.

Table 4-1. Summary of PM_{10} Ambient Monitoring Data Collected Near Clewiston

Year	County	Station ID	Monitor Location	Number of Observations	Concentration ($\mu g/m^3$) Maximum 24-Hour	2nd-High 24-Hour	Annual Average
1997	Hendry	0660-002-J02	Clewiston - 115 S. Lopez Street	55	43	38	23
	Hendry	1720-002-J02	Clewiston - Delta Ranch SR 832	51	60	39	23
	Palm Beach	0240-008-G01	Belle Glade - 38754 SR 80	61	45	39	20
	Palm Beach	0240-004-J02	Belle Glade - SR 717, Municipal Golf	57	43	39	20
	Palm Beach	0240-006-J02	Belle Glade - 273 SE Avenue E	60	47	44	22
	Palm Beach	3420-010-J02	Belle Glade - PO Box 484	55	81	75	26
	Palm Beach	3420-011-J02	Belle Glade - SR 80	61	36	36	21
1998	Palm Beach	12-099-0008	Belle Glade - 38754 SR80	50	82	59	27

$\mu g/m^3$ = micrograms per cubic meter

Table 4-2. Summary of Sulfur Dioxide Ambient Monitoring Data Collected Near Clewiston

					Concentration ($\mu g/m^3$)				
Year	County	Station ID	Monitor Location	Number of Observations	Maximum 3-Hour	2nd High 3-Hour	Maximum 24-Hour	2nd High 24-Hour	Annual Average
1997	Palm Beach	4150-001-J02	South Bay- 300 North US 27	8,486	55	47	19	13	5
	Palm Beach	3840-004-G02	Riviera Beach - 1050 15th St.	8,274	165	154	50	37	4
1998	Palm Beach	12-099-3004	Riviera Beach - 1050 15th St.	8,299	177	31	24	10	3
					(0.068 ppm)	(0.012 ppm)	(0.009 ppm)	(0.004 ppm)	(0.001 ppm)

$\mu g/m^3$ = micrograms per cubic meter

Table 4-3. Summary of Carbon Monoxide Ambient Monitoring Data Collected Near Clewiston

					Concentration (ppm)			
Year	County	Station ID	Monitor Location	Number of Observations	Maximum 1-Hour	2nd-High 1-Hour	Maximum 8-Hour	2nd High 8-Hour
1997	Palm Beach	4760-004-G01	West Palm Beach - 3730 Belvedere Rd.	8,232	11	10	7	3
	Palm Beach	4760-005-G01	West Palm Beach - 4356 Okeechobee Blvd.	3,547	7	7	5	3
	Palm Beach	4760-006-G01	West Palm Beach - 50 South Military Trail	843	6	5	4	3
1998	Palm Beach	12-099-1004	West Palm Beach - 3700 Belvedere Rd.	8,280	6.0	5.6	2.7	2.5
	Palm Beach	12-099-1006	West Palm Beach - 50 South Military Trail	8,476	5.4	5.3	3.0	3.0

ppm = parts per million

Table 4-4. Summary of Continuous Ozone Ambient Monitoring Data Collected Near Clewiston

Year	County	Station ID	Monitor Location	Number of Observations	Concentration (ppm) Maximum 1-Hour	Concentration (ppm) 2nd High 1-Hour	Concentration (ppm) 3rd High 1-Hour
1997	Palm Beach	3420-007-G01	Royal Pam Beach Royal Palm Beach Storage	8,005	0.087	0.078	0.074
1998	Palm Beach	12-099-0007	West Palm Beach - 10999 Okeechobee Blvd.	8,424	0.094	0.092	0.087

ppm = parts per million.

Table 4-5. Summary of Sulfur Dioxide, PM_{10}, and NO_2 Monitoring Data Collected in or Near the Everglades National Park

					Concentrations ($\mu g/m^3$)		
Year	County	Station ID	Monitor Location	Number of Observations	Maximum 24-Hour	2nd High 24-Hour	Annual Average
SO_2 Monitoring Data							
1997	Dade	National Park Service	Within Everglades National Park	94	0.52	0.18	0.044
1998	Dade	National Park Service	Within Everglades National Park	66	0.72	0.68	0.13
PM_{10} Monitoring Data							
1990	Dade	National Park Service	Within Everglades National Park	89	79	44	20
1991	Dade	National Park Service	Within Everglades National Park	53	38	37	18
NO_2 Monitoring Data							
1997	Dade	2700-002-G01	Miami - 864 NW 3rd Street	8,477	NA	NA	31
	Dade	0860-027-G01	Miami - Rosenstiel School	7,854	NA	NA	13
1998	Dade	12-025-4002	Miami - 864 NW 3rd Street	8,427	NA	NA	28 (0.015 ppm)
	Dade	12-025-0027	Miami - Rosenstiel School	7,019	NA	NA	11 (0.006 ppm)

Source: Improve, NPS.

5.0 CONTROL TECHNOLOGY REVIEW

5.1 APPLICABILITY

The PSD regulations require new major stationary sources to undergo a control technology review for each pollutant that may potentially be emitted above significant emission rates. For the proposed modification to the facility, the control technology review requirements of the PSD regulations are applicable to emissions of PM/PM_{10}, SO_2, NO_x, CO, and VOC (see Section 3.0). Maximum emissions for Boiler No. 4 are based on operating an equivalent of 200 days per year at 285,000 lb/hr steam. Boiler No. 4 is an existing boiler with an existing wet scrubber control system. Emissions will be controlled by the existing wet scrubber and through good combustion practices. The existing technology results in the best available control technology considering economic, environmental, and energy impacts.

This section presents the proposed BACT for these pollutants. The approach to the BACT analysis is based on the regulatory definitions of BACT. A BACT determination requires an analysis of the economic, environmental, and energy impacts of the proposed and alternative control technologies [see 40 CFR 52.21(b)(12)]. The analysis must, by definition, be specific to the project (i.e., case-by-case). As described in Section 3.2.2, BACT is determined on a case-by-case basis after taking into account the specific energy, environmental and economic impacts and other costs of the project.

As explained in Section 1.2, the use of baghouses and enclosures is considered BACT for the existing and proposed sugar handling sources associated with the refinery as other, more efficient alternatives are not available. Similarly, the existing control equipment for the GCRF is proposed as BACT.

5.2 BEST AVAILABLE CONTROL TECHNOLOGY FOR PARTICULATE MATTER

Historically, only two types of control devices have been used for PM/PM_{10} control for bagasse-fired boilers. These consist of wet scrubber technology and an ESP. Wet scrubber technology is used on all existing bagasse-fired boilers in Florida, Louisiana and Texas, except for one boiler located in Florida. One ESP application exists: on Boiler No. 7 located at the U.S. Sugar Clewiston mill.

The wet scrubbing systems used in Florida, generally wet impingement type scrubbers, have permitted levels of PM/PM_{10} emissions ranging from 0.15 to 0.30 lb/MMBtu. The single ESP application has a permitted PM/PM_{10} emission level of 0.03 lb/MMBtu. However, the 0.03 lb/MMBtu emission level was only achievable after installation of a wet cyclone ahead of the ESP, at additional capital cost.

A total of six bagasse boilers have previously been issued BACT determinations for PM. All these boilers are located in Florida. These consist of five boilers with wet scrubbers, all with PM limits of 0.15 lb/MMBtu, and one boiler with an ESP control, with a PM limit of 0.03 lb/MMBtu.

Since wet scrubber and ESPs are the only proven PM/PM_{10} control technologies on bagasse-fired boilers, and levels of 0.03 lb/MMBtu or less are achievable with the ESP, no other control technologies were evaluated.

The existing spray impingement scrubber operating on Boiler No. 4 is an efficient, low energy control device. As demonstrated by the past compliance data for the boiler (Appendix B), individual test runs for PM emissions have ranged from 0.074 to 0.177 lb/MMBtu, and have averaged 0.12 lb/MMBtu. Allowable emissions, based on a previous BACT determination for Boiler No. 4 , are 0.15 lb/MMBtu.

Based on the sole ESP installation on a bagasse-fired boiler (at the U.S. Sugar Clewiston mill), the ESP is considered to be technically feasible. However, this is conditioned upon an effective pre-treatment device, such as a wet cyclone. This device is needed to prevent excessive wear upon the ESP induced draft (ID) fan, as well as reduce the total particulate loading to the ESP and to remove a majority of the larger size particles which may otherwise be carried through the ESP.

An economic analysis was performed to investigate the cost effectiveness of installing an ESP on the existing Boiler No. 4. The economic analysis is presented in Table 5-1. The purchased equipment cost is based on actual costs for the ESP and wet cyclone on Boiler No.

7. The ESP cost ratio for Boiler No. 7 was based on the respective air flow rates for Boiler No. 4 and Boiler No. 7. The purchased equipment cost includes all equipment and installation costs except foundations, site preparation, and ductwork. Costs for these items were based on actual costs for the ESP on Boiler No. 7.

Energy costs for operation of the wet cyclone/ESP were based on standard cost methods from the *OAQPS Cost Control Manual.* The primary energy cost is fan power. Based on the combination of wet cyclone and ESP, as well as ductwork, a total pressure drop across the system of 10 in H_2O was estimated.

The total capital cost of the ESP control system for Boiler No. 4 is estimated at $3.3 million. Total annual operating costs are estimated at $1.1 million. These costs do not reflect additional difficulty which may arise in retrofitting an ESP on the existing boiler.

Baseline PM emissions for the cost effectiveness calculation is based on the average historic emissions for Boiler No. 4 of 0.12 lb/MMBtu, and the proposed maximum annual heat input of 2,880,000 MMBtu/yr. The ESP system will reduce PM emissions from this level down to 0.03 lb/MMBtu, resulting in a reduction in PM emissions of 130 TPY. The resulting cost effectiveness of the ESP system is $8,400/ton of PM removed. This cost effectiveness is much higher than costs previously determined to be reasonable for bagasse-fired boilers, and is considered economically infeasible for the proposed modification.

Based on the economic analysis, BACT for PM emissions is determined to be the existing wet spray impingement scrubber system meeting an emissions limit of 0.15 lb/MMBtu. This emission limit was deemed to represent BACT previously for Boiler No. 4. The ESP was determined to represent BACT for a much larger boiler than Boiler No. 4, and for a boiler that was permitted to operate year around. Boiler No. 4 will only operate an equivalent of 200 days per year at full steam load.

5.3 BEST AVAILABLE CONTROL TECHNOLOGY FOR NO_x, CO AND VOC

Historically, only good combustion practices (GCP) have been used to control NO_x, CO and VOC emissions from bagasse-fired boilers. All previous BACT determinations for bagasse-fired boilers and these pollutants have been based on GCP. The previous BACT determination for Boiler No. 4 resulted in GCP being determined as BACT for these pollutants. There are no other technologies which are both technically and economically feasible for application to bagasse-fired boilers.

NO_x emissions are inherently low from bagasse-fired boilers. This is due in part to the high moisture content of the bagasse fuel (approx. 50-55 percent), which acts to reduce flame and furnace temperatures. Historic NO_x emissions from Boiler No. 4 have averaged 0.08 lb/MMBtu (see Appendix B), which is very low compared to fossil fuel combustion sources. The current BACT limit for Boiler No. 4 is equivalent to 0.25 lb/MMBtu for bagasse firing. It is proposed to retain this limit as BACT for the modified Boiler No. 4.

CO and VOC emissions are inherently high from bagasse-fired boilers compared to fossil-fuel fired sources. This is also due to the high moisture content of the bagasse fuel (approx. 50-55 percent), which acts to reduce flame and furnace temperatures. Also, excess air levels are generally high in order to insure the most complete combustion of the bagasse fuel.

Boiler No. 4 at Clewiston is currently operating under an Operation & Maintenance (O&M) plan to minimize CO and VOC emissions. This O&M plan was required in the PSD permit which revised the CO emission rate for Boiler No. 4 to its current limit. The plan requires he following measures:

- Bagasse moisture content be maintained at or below 55;
- Steam rate be maintained at optimal or desired level by controlling feed of bagasse;
- Maintain combustion air at highest possible level in order to promote good combustion;
- Periodic visual confirmation of good combustion via stack video monitor, with corrective action if an abnormal plume is observed.

The O&M plan is included in this application as an attachment to the application form.

Historic CO emissions from Boiler No. 4 have averaged 6.36 lb/MMBtu (see Appendix B). The current BACT limit for Boiler No. 4 is 6.5 lb/MMBtu for bagasse firing. It is proposed to retain this limit as BACT for the modified Boiler No. 4, based on the GCPs and O & M plan already in place for the boiler.

Historic VOC emissions from Boiler No. 4 are not available, since compliance testing has not been required in the past. The current BACT limit for Boiler No. 4 is 1.7 lb/ton of wet bagasse, equivalent to 0.24 lb/MMBtu for bagasse firing. However, industry VOC test data indicate a wide range of VOC emissions for bagasse boilers, possibly related to type of boiler, as well as fuel characteristics and boiler operation at the time of testing. Due to the lack of VOC emissions data for Boiler No. 4, and the wide range of industry test data, it is proposed to set the BACT emission limit at 1.5 lb/MMBtu, equivalent to the RACT emission limits for Boiler Nos. 1, 2, and 3 located at the U.S. Sugar Bryant Mill. The current O & M Plan and GCP already in place are also proposed as BACT.

5.4 BEST AVAILABLE CONTROL TECHNOLOGY FOR SO_2

Bagasse fuel is inherently low in sulfur, and therefore produces low SO_2 emissions. The previous BACT for Boiler No. 4 resulted in an SO_2 limit for bagasse firing of 0.167 lb/MMBtu, based on the expected maximum sulfur content of bagasse of 0.2 percent on a dry basis. Limited SO_2 testing on Boiler No. 4 has resulted in emissions ranging from 0.006 to 0.014 lb/MMBtu, and averaging 0.008 lb/MMBtu. U.S. Sugar is proposing to maintain the maximum sulfur content in the fuel oil at 2.5 percent maximum.

Boiler No. 4 already employs BACT for SO_2 emissions, and has a BACT limitation. Fuel oil burning in Boiler No. 4 is currently limited to 500,000 gal/yr. Because fuel oil is costly compared to bagasse, fuel oil usage is minimized. Actual fuel oil usage in Boiler No. 4 has averaged about 100,000 gallons over the past two years. The current permit and BACT determination for Boiler No. 4 is to replace any fuel oil burned in the boiler with 1.5 percent sulfur maximum fuel oil in the common fuel oil tank for Boiler Nos. 1 through 4. Due to the relatively low fuel oil usage, and the requirement to replace any fuel oil burned with lower sulfur fuel oil, the proposed BACT for SO_2 emission is to retain the current BACT limitations on the boiler.

Table 5-1. Cost Effectiveness of ESP for Boiler No. 4, U. S. Sugar Clewiston

Cost Items	Cost Factors	Cost ($)
DIRECT CAPITAL COSTS (DCC):		
(1) Purchased Equipment Cost		
(a) Basic Equipment/Services	Based on Vendor Quote (a)	2,700,000
(b) Instrumentation & Controls	Based on Vendor Quote	included
(c) Wet Cyclone	Wet cyclone costs for Boiler No. 7	200,000
(d) Exhaust Fan	Based on Vendor Quote	included
(d) New Stack- 225 feet	Based on Vendor Quote	included
(e) Ductwork	Based on Boiler No. 7 ESP costs	100,000
(f) Freight	Based on Vendor Quote	included
(g) Sales Tax (Florida)	Based on Vendor Quote	included
(h) Subtotal		3,000,000
(2) Direct Installation	Based on Boiler No. 7 ESP costs (b)	300,000
Total DCC:	(1h) + (2)	3,300,000
INDIRECT CAPITAL COSTS (ICC): (c)		
(3) Indirect Installation Costs		
(a) Engineering	Based on Vendor Quote	included
(b) Construction & Field Expenses	Based on Vendor Quote	included
(c) Construction Contractor Fee	Based on Vendor Quote	included
(d) Contingencies	Based on Vendor Quote	included
(4) Other Indirect Costs		
(a) Startup & Testing	Based on Vendor Quote	included
(b) Working Capital (c)	30-day DOC	30,444
Total ICC:	(3) + (4)	30,444
TOTAL CAPITAL INVESTMENT (TCI):	DCC + ICC	3,330,444
DIRECT OPERATING COSTS (DOC): (d)		
(1) Operating Labor		
Operator	$17/hr; 200 days/yr @ 8 hrs/day	27,200
Supervisor (c)	15% of operator cost	4,080
(2) Maintenance (c)		
Labor	Equivalent to Operating Labor	31,280
Materials	Equivalent to Maintenance Labor	31,280
(3) Utilities		
(a) Electricity- Fan power (c)	624 kw; 200 days/yr; $0.07/kw-hr	209,664
Electricity- TR sets & rappers (c)	178 kw; 200 days/yr; $0.07/kw-hr	59,808
Electricity- Hopper heaters (c)	6 kw; 200 days/yr; $0.07/kw-hr	2,016
Total DOC:	(1) + (2) + (3)	365,328
INDIRECT OPERATING COSTS (IOC): (c)		
(7) Overhead	60% of oper. labor & maintenance	56,304
(8) Property Taxes	1% of total capital investment	33,304
(9) Insurance	1% of total capital investment	33,304
(10) Administration	2% of total capital investment	66,609
Total IOC:	(7) + (8) + (9) + (10)	189,522
CAPITAL RECOVERY COSTS (CRC):	CRF of 0.1627 times TCI (10 yrs @ 10%)	541,863
ANNUALIZED COSTS (AC):	DOC + IOC + CRF	1,096,713
BASELINE PM EMISSIONS (TPY) :	0.12 lb/MMBtu @ 2,880,000 MMBtu/yr	173
MAXIMUM PM EMISSIONS WITH ESP (TPY):	0.03 lb/MMBtu @ 2,880,000 MMBtu/yr	43
REDUCTION IN PM EMISSONS (TPY):		130
COST EFFECTIVENESS:	$ per ton of PM Removed	8,436

Notes:
(a) Based on actual cost of ESP for Clewiston Boiler No. 7. Adjusted based on air flow rates of Boiler No. 4 vs. Boiler No. 7.
(b) All direct installation costs are included in basic price, except for local site preparation and foundations.
Site preparation and foundation costs based on actual costs for Boiler No. 7 ESP.
(c) Factors and cost estimates reflect OAQPS Cost Manual, Section 3.
(d) Based on U.S. Sugar actual costs, unless otherwise noted.

6.0 AIR QUALITY IMPACT ANALYSIS

For the proposed project, the net emissions changes are greater than the PSD significant emission rates for SO_2, NO_x, PM_{10}, and CO. As a result, an air quality impact analysis is required for those four pollutants under the new source review procedures in the FDEP PSD regulations.

The air quality modeling analysis was initially performed using the Industrial Source Complex Short-Term (ISCST3) model, Version 98356, currently recommended for regulatory applications, to assess maximum ground-level impacts due to Boiler No. 4 and other sources at the plant. These maximum concentrations were predicted at or near the plant boundary due to building downwash conditions. The building downwash routines currently in the ISCST3 model assume that, if a stack is within the building wake region, it is treated as though it were at the center of the lee wall of the building. The wake region is assumed to extend downwind about 5 times L (5L) from the lee of the building where L is the lesser dimension of the building height or width. The location of the stack within the wake region is not considered even though the stack may be situated away from the building. The building downwash routines assume an "all-or-nothing" approach even though stacks located in the far wake region (about 3L to 5L) will be less influenced by downwash conditions than those located in the near wake region.

It should also be noted that the downwash routines in the ISCST3 model were largely developed with data that represented neutral stability, moderate to high wind speeds, winds perpendicular to the building face, and non-buoyant or low buoyancy plumes. Besides the lack of consideration of a stack's location within the building wake region, some of the limitations of the these downwash routines include:

- No consideration for streamline deflection to account for ascent of wind streamlines upwind of and over the building and descent in the lee of the building;
- No connection between plume material captured by the near wake and far wake concentrations;
- No wind direction effects for squat buildings; and

- Predictions of high concentrations during light wind speed, stable conditions that are not supported by observations.

Based on the sources under evaluation for this project, the associated stacks (boilers) at the plant are located between 3L and 5L from the most influential buildings (see Section 6.1.5.4). Although these sources are within the wake effects of these buildings, the current downwash procedures assume that these stacks are essentially adjoining the buildings and the full downwash effects are used to predict maximum concentrations. Based on studies performed by the EPA (1997), the effects of building downwash within the wake region are reduced as a stack's location increases away from the building. In fact, wind tunnel and field studies have made it clear that incorporating the location of stacks, as well as estimates of wind speed, streamline deflection, and turbulence intensities in the wake, are crucial in improving model simulations of the influence of buildings on ground-level concentrations. As a result, the use of the building downwash routine in the ISCST3 model is not appropriate for assessing building downwash effects for the boiler sources at the plant since the stack locations are not considered, are located in the far wake regions, and would not be expected to be influenced by the full downwash effects.

To provide more realistic plume behavior and resulting concentrations in the vicinity of nearby building structures, a non-regulatory version of the Industrial Source Complex Short-Term (ISCST) model was used to assess building downwash effects. Referred to as the ISC-PRIME model, the model incorporates the Plume Rise Model Enhancement (PRIME) downwash algorithm developed by the Electric Power Research Institute (EPRI). The ISC-PRIME model, which has undergone extensive testing by the EPA, is currently planned as a future replacement for the current regulatory version of the ISCST3 model. Based on discussions with FDEP and EPA, it is anticipated that the model would be included as a regulatory model after EPA holds the seventh Conference on Air Quality Modeling tentatively scheduled for the fall of 1999. Other than for having different downwash algorithms, the ISC-PRIME and ISCST3 models are identical and use the same methods for estimating pollutant concentrations. A more detailed discussion on the ISC-PRIME model is presented in Sections 6.1.3 and 6.1.5.4.

The ISC-PRIME model was used in same manner as the ISCST3 model would be used in a regulatory evaluation, and followed EPA and FDEP modeling guidelines for determining compliance with AAQS and PSD increments.

6.1 AIR MODELING ANALYSIS APPROACH

6.1.1 Significant Impact Analysis

6.1.1.1 Site Vicinity

A significant impact analysis is performed for all criteria pollutants that are emitted in amounts greater than the applicable PSD significant emission rates. For each pollutant, a significant impact analysis is performed to determine a project's maximum air quality impact and the distance at which the project's impacts are below significant impact levels (SIL). If the project's maximum impact are less than the SIL, no additional modeling with other sources is needed and the impact analysis is complete. However, if the project's impacts are predicted to be greater than the SIL for a particular pollutant, then additional, more detailed modeling analyses are required for that pollutant. The additional analyses include AAQS and PSD increment analyses. Both of these detailed analyses require that the cumulative air quality impacts from other facilities that are in the vicinity of the proposed project's plant be addressed in the impact evaluation. A more detailed description of these analyses is provided in the following sections.

The significant impact analysis generally uses both a screening and refinement phases to determine the maximum pollutant impacts of the project for comparison to the SIL. The difference between the two modeling phases is the density of the receptor grid spacing used when predicting concentrations. Concentrations are predicted for the screening phase using a coarse receptor grid and a 5-year meteorological data record. In this analysis, the receptor grid consisted of a polar receptor grid with a 10-degree angular spacing between receptors.

Refinements of the maximum predicted concentrations from the screening phase are typically performed in the vicinity of the receptors of the screening receptor grid at which the highest predicted concentrations occurred over the 5-year period. Generally, if maximum concentrations predicted in another year are within 10 percent of the overall maximum concentration predicted for the 5-year period, then the other concentrations are refined as well. Modeling refinements are performed to determine maximum concentrations with a receptor grid spacing of 100 meters (m) or less.

The domain of a refined receptor grid will generally extend to all adjacent screening receptors surrounding a particular screening grid receptor. The air dispersion model is then executed with the refined grid for the entire year of meteorology during which the maximum concentration in the screening phase occurred. This approach is used to ensure that a valid maximum concentration is obtained. A more detailed description of the model, along with the emission inventory, meteorological data, and screening receptor grids are presented in the following sections.

6.1.1.2 PSD Class I Areas

If the project is within 150 to 200 kilometers of a PSD Class I area, then a significant impact analysis is also performed at the PSD Class I area. Currently, the National Park Service (NPS) has recommended SIL for PSD Class I areas. If the project's impacts are above the SIL, then a more detailed PSD increment air modeling analysis is performed with PSD increment consuming and expanding background facilities at the PSD Class I area.

Because the US Sugar Clewiston Mill is located 102 km from the Everglades National Park (ENP), a PSD Class I area, a significant impact analysis was conducted at the ENP.

Current FDEP policies stipulate that the highest annual average and highest short-term (i.e., 24 hours or less) concentrations are to be compared to the applicable significant impact levels.

6.1.2 AAQS/PSD Increment Analyses

6.1.2.1 AAQS and PSD Class II Increment Analyses

For all pollutants that have a significant impact, a more detailed impact analysis is required. In general, when 5 years of meteorological data are used, the highest annual and the highest, second-highest (H2H) short-term concentrations are to be compared to the applicable AAQS and allowable PSD Class II increments. The H2H 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, and
3. Selecting the highest concentration among these second-highest concentrations.

This approach is consistent with most air quality standards and all allowable PSD increments, which permit a short-term average concentration to be exceeded once per year at each receptor.

For the AAQS analysis, the future emissions of the plant site are modeled with background emission facilities. A non-modeled background concentration is added to the maximum predicted air quality to determine a total air quality concentration. The maximum annual and H2H short-term total concentrations are compared to the AAQS.

For the PSD Class II increment analysis, the PSD increment consuming and expanding sources at the Clewiston Mill site are modeled with background PSD consuming or expanding sources. The maximum annual and H2H short-term PSD increment are compared to the allowable PSD Class II increments.

6.1.2.2 PSD Class I Increment Analysis

For all pollutants that have a significant impact at the PSD Class I area, a more detailed PSD increment analysis is required at the PSD Class I area. For the PSD Class I increment analysis, the PSD increment consuming and expanding sources at Clewiston Mill site are modeled with background PSD consuming or expanding sources within 100-150 miles from the PSD Class I area. The maximum annual and H2H short-term PSD increment are compared to the allowable PSD Class I increments.

6.1.3 Model Selection

The ISC-PRIME dispersion model (Version 99020) was used to evaluate the pollutant impacts due to the proposed project alone and in combination with other emission sources. This model is currently available for evaluation on the EPA's Internet website, Support

Center for Regulatory Air Models (SCRAM), within the Technical Transfer Network (TTN). A listing of ISC-PRIME model features is presented in Table 6-1. The ISC-PRIME model is designed to calculate hourly concentrations based on hourly meteorological data (i.e., wind direction, wind speed, atmospheric stability, ambient temperature, and mixing heights). The ISC-PRIME model is applicable to sources located in either flat or rolling terrain where terrain heights do not exceed stack heights. These areas are referred to as simple terrain. The model can also be applied in areas where the terrain exceeds the stack heights. These areas are referred to as complex terrain.

Since the terrain surrounding the U.S. Sugar Clewiston mill is flat, the modeling analysis assumed that all receptors were at the base elevation of the sources (i.e., flat terrain assumption in ISC-PRIME).

In this analysis, the EPA regulatory default options were used to predict all maximum impacts. The ISC-PRIME model can run in the rural or urban land use mode, which affects stability dispersion coefficients, wind speed profiles, and mixing heights. Land use can be characterized based on a scheme recommended by EPA (Auer, 1978). If more than 50 percent land use within a 3-km radius around a project is classified as industrial or commercial, or high-density residential, then the urban option should be selected. Otherwise, the rural option is 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 Clewiston 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 Clewiston mill and other emission sources considered in the modeling analysis.

The ISC-PRIME model was used to predict maximum pollutant concentrations for averaging times of annual and 24-, 8-, 3-, and 1-hours. The predicted concentrations were then compared to applicable significant impact levels, allowable PSD increments, or to the AAQS that exist for the same respective averaging times.

6.1.4 Meteorological Data

Meteorological data used in the ISC-PRIME 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) office located at the Palm Beach International Airport (PBI). Concentrations were predicted using 5 years of hourly meteorological data from 1987 through 1991. The NWS office at PBI is located approximately 82 km (51 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. The PBI station meteorological data have been used for numerous air modeling studies within the sugar industry. An anemometer height of 33 ft is used for the modeling analysis.

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 ISCST3 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 Ruskin 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.

6.1.5 Emission Inventory

6.1.5.1 <u>Proposed Project</u>

The proposed project will result in Boiler No. 4 having a net emissions increase for SO_2, NO_x, PM_{10}, and CO. The proposed emissions and stack parameters for Boiler No. 4's future operating condition are summarized in Section 2.0. The current baseline emissions for Boiler

No. 4 are presented in Section 3.0, Table 3-3. Current stack parameters are presented in Table 2-3.

6.1.5.2 Clewiston Mill

The maximum predicted concentrations due to the project's net emissions increase exceeds the significant impact levels for SO_2, PM_{10}, and CO. For these pollutants, the air quality analysis must include other Clewiston Mill sources and other background facility sources on a pollutant-specific basis. A summary of the stack parameters and locations used in the air modeling analysis for the future Mill configuration is presented in Table 6-2. The future Mill configuration includes Boilers No. 1, 2, 3, 4 and 7 and 16 refinery sources. Fourteen of the 16 refinery sources discharge horizontally. This was represented in the air modeling analysis by setting the exit velocity for these sources to 0.01 m/s. The stack locations for each source are relative to the location of Boiler No. 4's stack and are oriented to true north.

A summary of the maximum 3-hour and 24-hour calculated SO_2 emission rates for Boilers 1 through 7 are presented in Table 6-3. SO_2 emissions due to fuel oil burning are based on a maximum 2.5 percent sulfur content, which is the current permitted fuel sulfur content. For modeling of SO_2, the 3-hour emission rates were used for predicting 3-hour averaging time impacts, while the 24-hour maximum emissions were used for predicting annual and 24-hour averaging time impacts.

While the future Boiler No. 4 can operate year-round, currently the Boiler No. 4 is restricted to the approximate seven-month sugar harvesting season, beginning and ending around November 1 and May 31, respectively. For Boiler No. 4 part-year source operation is input to the air modeling analysis by using monthly emission factors for those sources. An emission factor of 1 is used for months when a source is operating, while an emission factor of zero is used for non-operating months.

A summary of the maximum calculated PM_{10} and CO emission rates for Boilers No. 1 through 7 are presented in Table 6-4. The PM_{10} emission rates were based on the maximum heat input rates to each boiler and the permitted PM emission rate. A summary of the PM_{10} emission rates from the baghouses associated with the sugar refinery is presented in

Table 6–5. The emission rates are based on the design capacity of the baghouse and the grain loading. The CO emission rates for the boilers, presented in Table 6-4, were based on the maximum heat input rates to each boiler and a representative CO emission factor. For Boilers No. 4 and 7, the CO emission rates are based on the permitted CO emission rate of 6.5 and 0.7 lb/MMBtu, respectively. For all other boilers, the CO emission rate is based on actual CO stack test results available for the boilers. Based on the test data, actual maximum 1-hour CO emission rates were determined. These rates were used in the CO modeling analysis.

6.1.5.3 Other Emission Sources

The emission inventories for background facilities were developed mainly from data bases from previous air modeling studies performed by Golder Associates in South Florida, and from air permit data. Emission inventories of background sources were developed for the proposed project's 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 the Clewiston Mill 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.

Sulfur Dioxide

A summary of all facilities, their locations with respect to the Clewiston Mill, their TPY emissions, and the calculated screening threshold are provided in Table 6-6. The project's significant impact distance modeling is 32 and 60 km for the 24-hour and 3-hour averaging times, respectively. Because of the relative isolation of the Clewiston Mill from the other facilities, however, the modeling area was limited to 30 km and the screening area was limited to 70 km for the AAQS and PSD Class II analyses. All facilities within the proposed project's modeling area (i.e., significant impact area) were included in the air modeling analysis. Those facilities eliminated from the modeling analysis using the screening threshold technique are noted in Table 6-6. For all facilities that were not eliminated, the individual source emissions, stack, and operating parameters for the AAQS and PSD Class II modeling analyses were developed.

Because the proposed project's net SO_2 emissions increase also exceeded the proposed PSD Class I SIL, a PSD Class I increment-modeling analysis is required for SO_2. The facilities that were considered in the PSD Class I increment analysis are presented in Table 6-7. All PSD increment consuming or expanding sources within these facilities are included in the analysis.

A summary of the source emissions and stack parameters for each source that was included in the SO_2 modeling analysis is presented in Table 6-8. Each source listed in Table 6-8 includes a description of the source, the ID name of the source used in the air modeling analysis, whether the source consumes or expands PSD increment, and the analyses that the source is included in. Facilities with PSD-affecting sources may have PSD Baseline sources. PSD baseline source emissions and stack configurations no longer exist but were in effect during the SO_2 PSD baseline period of 1974-75. These sources expand PSD increment and are represented in the PSD increment air modeling analyses as negative emission sources.

Particulate Matter

A summary of all facilities, their locations with respect to the Clewiston Mill, their TPY PM emissions, and the calculated screening threshold are provided in Table 6-9. The proposed project's modeling area is 4 km and the screening area is 54 km. For all facilities not eliminated by the NC screening analysis, the emission and stack parameters for each source are included in Table 6-10. Because the proposed project's net PM_{10} emissions increase was equal to the proposed EPA PSD Class I significant impact levels, a PSD Class I increment modeling analysis was not performed for this pollutant.

Carbon Monoxide

A summary of all facilities, their locations with respect to the Clewiston Mill, their TPY emissions, and the calculated screening threshold are provided in Table 6-11. The proposed project's modeling area is 3 km and the screening area is 53 km. For all facilities not eliminated by the NC screening analysis, the emission and stack parameters for each source are included in Table 6-12.

The CO emissions due to sugar boiler sources that do not have permit limits are based on a 9.0 lb CO/MMBtu emission factor, except for Sugar Cane Growers Cooperative. This is a very conservative emission factor based on industry CO test data. Emissions due to other sources are based on FDEP data and permits.

6.1.5.4 Building Downwash Effects for Clewiston Mill

Based on the building dimensions associated with buildings and structures at the plant, all stacks at U.S. Sugar's Clewiston Mill will comply with the GEP stack height regulations. However, these stacks are be less than GEP. Therefore, the potential for building downwash to occur was considered in the air modeling analysis for these stacks.

Generally, a stack is considered within the influence of a building if it is within the lesser of 5 times L where L is the lesser dimension of the building height or projected width. The current ISCST3 model (Version 98356) 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:

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. Both downwash algorithms affect stacks that are within the influence of a building, without regard for the actual distance the stack or stack's plume from the building.

As discussed previously, the ISC-PRIME model was developed to correct the deficiencies of the building downwash within the current version of the ISCST3 model. The ISC-PRIME model incorporates the PRIME algorithm that was developed under the support of EPRI.

Based on studies performed by the EPA (1997), the effects of building downwash within the wake region are reduced as a stack's location increases away from the building. In fact, wind tunnel and field studies have made it clear that incorporating the location of stacks, as well as estimates of wind speed, streamline deflection, and turbulence intensities in the wake, are crucial in improving model simulations of the influence of buildings on ground-level concentrations. As a result, the use of the building downwash routine in the ISCST3 model is inappropriate for assessing building downwash effects for the sources at the U.S. Sugar mill since the stack locations are not considered, are located in the far wake regions, and would not be expected to be influenced by the full downwash effects.

The building dimensions considered in the air modeling analysis for the Clewiston Mill are presented in Table 6-13. The location of the Mill's buildings and stacks can be found on the site plot plans are included with the PSD permit application and shown in Attachment UC-FE-2. At the Clewiston Mill, the five boiler stacks are in the area of influence (i.e., within 5L) of the two tallest structures: the 136-ft sugar silos and the 130-ft support structure located at the refinery. The stack to building height ratios for the boiler stacks range from 1.1 to 1.2 and the distance of these boilers from the buildings are as follows:

Stack Location with respect to:

	130-ft Support Structure		136-ft Sugar Silos	
Boiler	Distance (ft)	L	Distance (ft)	L
1	505	3.9	365	2.7
2	540	4.2	405	3.0
3	592	4.6	455	3.4
4	670	5.1	545	4.0

Although these stacks are generally within the wake effects of nearby buildings, the current downwash procedures assume that these stacks are essentially adjoining the buildings and the full downwash effects are used to estimate maximum concentrations. In reality, the boiler stacks are between 3L and 5L of influence of those structures, and as such, should have a reduced effects due to building downwash from that assumed by the ISCST3 downwash routines.

The primary purpose for using the ISC-PRIME model in this modeling analysis is to incorporate more realistic assumptions and procedures in evaluating ground-level concentrations that the ISCST3 model does not consider. The following features include:

1. Enhanced plume dispersion in the region of a building's turbulent wake
2. Reduced plume rise due to streamline deflection in the lee of a building
3. Increased plume entrainment in the building wake
4. Continuous plume treatment from the near field wake adjoining the building to the far wake fields away from the building, and
5. Reduced downwash effects as a plume's position increases away from the building.

For sources located away from buildings, it is important that the plume's position is tracked within the wake to account for the reduced downwash effect from buildings as a plume travels further from influence of the building.

For the modeling analysis, the ISC-PRIME model's input files for the downwash analysis are very similar to those in the current regulatory ISCST3 model. The direction-specific building dimensions are input for H_b and l_b for 36 radial directions, with each direction representing a 10-degree. The H_b is the building height and l_b is the lesser of the building height or projected width. In addition, the ISC-PRIME model inputs three additional building parameters that further describe the building/wake configuration:

- Projected length of the building along the flow direction
- Along-flow distance from the stack to the center of the upwind face of the projected building, and
- Cross-flow distance from the stack to the center of the upwind face of the projected building

All direction-specific building parameters were calculated with the Building Profile Input Program, Version 95039, modified to process the additional direction-specific building information for ISC-PRIME (BPIPPRM). BPIPPRM was used to generate building data for the ISC-PRIME model input. A detailed listing of direction-specific building data used in the air modeling analysis is provided in Appendix C.

6.1.5.5 Receptor Locations

Significant Impact Analysis

For predicting maximum concentrations in the vicinity of the Mill and distance of the project's significant impact, both discrete and gridded polar receptors were used. The number of discrete receptors was 176, which included 36 located at the Mill's restricted property line and 140 additional offsite receptors located at distances of 0.6, 0.9, 1.2, 1.5 and 1.8 km from Boiler No. 4's stack location, the origin (i.e., 0,0) location for the air modeling analysis. A summary of the Clewiston Mill's boundary receptors is presented in Table 6-14. An additional 360 receptors were included in a polar grid, with 36 radials extending out from the origin. Along each radial, receptors were located at distances of 2.0, 3.0, 5.0, 7.0, 10.0, 15.0, 20.0, 25.0, 30.0 and 35.0 km from the origin.

Modeling refinements were performed, as needed, by employing a polar receptor grid with a maximum spacing of 100 m along each radial and an angular spacing between radials of 1 or 2 degrees. At a distance of less than 575 m, the angular distance between receptors is 100 m or less and addition refinements may not be performed. At distances of 600 m or beyond, modeling refinements are performed by employing an angular spacing between radials of 1 or 2 degrees and a spacing interval along radials of 100 m.

Pollutant concentrations for SO_2 and PM_{10} were also predicted at 51 receptors located along the northern and eastern boundaries of the Everglades National Park (ENP) PSD Class I area. A listing of the 51 ENP receptors is presented in Table 6-15. The receptors locations are also shown in Figure 6-1. Due to the great distance from the various sugar mills to the ENP, additional receptor refinements were not performed at the ENP.

AAQS and PSD Class II Analyses

The nearest receptor distances used in the significant impact analysis were used for the AAQS and PSD Class II Analysis up to the project's significant impact distance. For SO_2, PM_{10} and CO, these distances were 53 (based on 3-hour emissions) and 3 km, respectively. For SO_2, the modeling area was limited to 30 km.

If the maximum predicted concentrations occurred beyond 575 m from the origin, refinements were performed using a 2-degree angular spacing and a radial distance spacing of 100 m.

For the SO_2 PSD Class II analysis, the maximum annual PSD increment consumption concentrations occurred in the vicinity of the Southern Gardens Citrus, requiring a refined grid analysis covering the area near that facility. Because this facility is located approximately 20 km from the Clewiston Mill, refined concentrations were predicted with a polar grid comprised of 1-degree angular spacing and a 1-km spacing between distances along each radial.

Background Concentrations

Total air quality impacts were estimated for the AAQS analysis by adding the maximum annual and highest, second-highest short-term concentrations due to project-related sources to measured background concentrations. Background concentrations are concentrations due to sources not associated with the Clewiston Mill. These concentrations consist of two components:

- Impacts due to other modeled emission sources (i.e., non-project-related), and
- Impacts due to sources not explicitly modeled.

Background concentrations due to other modeled sources were predicted with the ISC-PRIME model based on the data developed from the emission inventories presented in Section 6-1.5.3.

The non-modeled background concentrations were obtained from air quality monitoring data, as described in Section 4.0, and are as follows:

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)
PM_{10}	24-hour	23
	Annual	23
SO_2	3-hour	5
	24-hour	5
	Annual	5

CO	8-hour	3,430 (3 ppm)
	1-hour	5,715 (5 ppm)

6.1.6 Air Modeling Results

6.1.6.1 Significant Impact Analysis

Site Vicinity

The maximum predicted SO_2, PM_{10}, NO_x, and CO concentrations from the screening analysis due to the proposed project only are presented in Table 6-16. Based on the results of the screening analyses, refined modeling analyses were performed for SO_2, PM_{10}, and NO_x. The refined modeling results, comparing the maximum impacts due to the proposed project only against the EPA significant impact levels, are shown in Table 6-17. Based upon the modeling results, the proposed project was determined have a significant impact for SO_2, PM_{10}, and CO. Additional, detailed modeling analyses are, therefore, required for each of these pollutants. The additional analyses include a comparison of all future source impacts to the AAQS for each pollutant and a PSD Class II increment analysis for SO_2 and PM_{10}. The distances of the project's significant impact were determined to be 53/26 (3-hour/24-hour), 4, and 3 km for SO_2, PM_{10}, and CO, respectively.

Everglades National Park PSD Class I Area

The maximum predicted SO_2, PM_{10}, NO_x, and CO concentrations due to the proposed project only are compared to the recommend NPS and proposed EPA Class I significant impact levels in Table 6-18. The maximum predicted SO_2 concentrations exceed both the NPS and EPA significant impact levels, while the maximum PM_{10} and NO_x concentrations are below both criteria. Based on the results, the proposed project was determined have a significant impact at the ENP for only SO_2. An additional, detailed PSD Class I increment modeling analysis is, therefore, required for SO_2.

6.1.6.2 AAQS Analyses

The maximum predicted SO_2, PM_{10}, and CO concentrations from the screening analysis due to all future sources is presented in Table 6-19. Based on the results of the screening analyses, refined modeling analyses were performed for each pollutant. The refined modeling results are added to a measured non-modeling background concentration to produce a cumulative total air quality concentration that can be compared with the AAQS. A summary of the refined analysis is presented in Table 6-20.

Because the maximum SO_2 concentrations from the screening analysis occurred in the vicinity of the nearby Everglades Sugar Refinery, refinements were performed over that area for all years and applicable averaging times. Refinements for PM_{10} and CO were performed in the vicinity of the Clewiston Mill.

The maximum predicted total SO_2 concentrations are 36, 226, and 893 $\mu g/m^3$, respectively for the annual, 24-hour and 3-hour averaging times. These concentrations are all below the AAQS of 60, 260, and 1,300 $\mu g/m^3$, respectively, for these averaging times.

The maximum predicted total PM_{10} concentrations are 33 and 101 $\mu g/m^3$, respectively for the annual and 24-hour averaging times. These concentrations are all below the AAQS of 50 and 150 $\mu g/m^3$, respectively, for these averaging times.

The maximum predicted total CO concentrations are 8,310 and 15,441 $\mu g/m^3$, respectively for the 8-hour and 1-hour averaging times. These concentrations are all below the AAQS of 10,000 and 40,000 $\mu g/m^3$, respectively, for these averaging times.

6.1.6.3 PSD Class II Analysis

The maximum predicted SO_2 and PM_{10} PSD increment consumption from the screening analysis due to all PSD-affecting sources is presented in Table 6-21. For the SO_2 annual averaging time, the maximum PSD increment consumption is in the area of Southern Gardens. For the 24-hour and 3-hour averaging times, the maximum PSD increment consumption is in the area of several sugar mills on the eastern side of Lake Okeechobee. Based on the screening modeling results, it was determined if the emission increase due to the proposed project alone would significantly impact the area on the eastern side of Lake Okeechobee for the annual and 24-hour averaging times. For this analysis, an additional refined polar receptor grid was used extending from 26 to 34 km and 60 to 79 degrees from the Clewiston Mill origin. Grid resolution was an angular spacing of 1 degree and a distance spacing along each radial of 1 km.

The result of the refined analysis is presented in Table 6-22. The maximum annual and 24-hour concentrations are 0.13 and 2.95 $\mu g/m^3$, which are below the EPA significant impact levels of 1 and 5 $\mu g/m^3$. Therefore the proposed project is not significant in this area for those averaging times. Annual refinements were, therefore, performed in the vicinity of Southern Gardens only. The 24-hour refinements were not performed because the proposed project is not significant where the maximum impacts for each year occurred, and 3-hour refinements were performed in the areas of Lake Okeechobee.

The maximum predicted PSD increment consumption is compared to the allowable PSD Class II increments in Table 6-23. The maximum predicted SO_2 PSD increment consumption is 5.1, 31, and 241 $\mu g/m^3$, respectively, for the annual, 24-hour and 3-hour averaging times. These concentrations are all below the allowable PSD Class II increments of 20, 91 and 512 $\mu g/m^3$, respectively, for these averaging times.

The maximum predicted PM_{10} PSD increment consumption is 0.03 and 10.5 $\mu g/m^3$, respectively, for the annual and 24-hour averaging times. These concentrations are below the allowable PSD Class II increments of 17, and 30 $\mu g/m^3$, respectively, for these averaging times.

6.1.6.4 PSD Class I Analysis

The maximum predicted SO_2 PSD increment consumption at the ENP PSD Class I area due to all nearby PSD-affecting sources are compared with the allowable PSD Class I increments in Table 6-24.

The maximum predicted SO_2 PSD increment consumption at the ENP is 0.23, 3.0, and 18.0 $\mu g/m^3$, respectively for the annual, 24-hour and 3-hour averaging times. These concentrations are all below the allowable PSD Class I increments of 2, 5, and 25 $\mu g/m^3$, respectively, for these averaging times.

Table 6-1. Major Features of the ISC-PRIME Model

ISC-PRIME 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, 1972, and 1975; Bowers, et al., 1979).
• Procedures suggested by Schulman et. al. (1998) for evaluating building wake effects
• Procedures suggested by Briggs (1974) for evaluating stack-tip downwash
• Separation of multiple emission sources
• Consideration of the effects of gravitational settling and dry deposition on ambient particulate concentrations
• Capability of simulating point, line, volume, area, and open pit sources
• Capability to calculate dry and wet deposition, including both gaseous and particulate precipitation scavenging for wet 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 for ISCST3; a built-in algorithm for predicting concentrations in complex terrain
• 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 including setting wind speeds less than 1 m/s to 1 m/s.

Note: ISC-PRIME = Industrial Source Complex Short-Term Model with Plume Rise Model Enhancement (PRIME) downwash algorithm.

Source: EPA, 1999.

Table 6-2. Summary of Stack Parameters for Future Sources Used in Modeling of U.S. Sugar Clewiston Mill

Emission Unit	Modeling ID	Stack Height		Stack Diameter		Temperature		Flow Rate		Velocity[a]		Relative Location[b]			
												X		Y	
		(ft)	(m)	(ft)	(m)	(F)	(K)	(dscfm)	(acfm)	(ft/s)	(m/s)	(ft)	(m)	(ft)	(m)
BOILERS															
Boiler 1	USSBLR1	165	50.3	8.00	2.44	165	347.0	--	190,000	63.0	19.2	185	56.39	-5	-1.52
Boiler 2	USSBLR2	165	50.3	8.00	2.44	150	338.7	--	190,000	63.0	19.2	143	43.59	-5	-1.52
Boiler 3	USSBLR3	165	50.3	8.00	2.44	140	333.2	--	108,000	35.8	10.9	95	28.96	18	5.49
Boiler 4	USSBLR4	150	45.7	8.25	2.51	160	344.3	--	266,800	83.2	25.4	0	0.00	0	0.00
Boiler 7	USSBLR7	225	68.6	8.50	2.59	270	405.4	--	290,000	85.2	26.0	-58	-17.68	65	19.81
REFINERY SOURCES															
Screening & Distribution Vacuum	S1	65	19.8	0.50	0.15	68	293.2	990	1,705	0.29	0.01	664.79	202.63	-155.17	-47.30
100 lb Bagging Vacuum System	S2	65	19.8	0.50	0.15	90	305.4	872	1,564	0.29	0.01	700.98	213.66	-147.48	-44.95
5 lb Bagging Vacuum System	S3	65	19.8	0.50	0.15	90	305.4	984	1,585	0.29	0.01	700.98	213.66	-147.48	-44.95
Packaging Dust Collector	S4	60	18.3	1.94	0.59	125	324.8	9,589	11,500	0.29	0.01	774.34	236.02	-131.89	-40.20
Screening and Distribution #1	S5	72	21.9	0.95	0.29	125	324.8	2,668	3,200	0.29	0.01	700.98	213.66	-147.48	-44.95
Screening and Distribution #2	S6	72	21.9	1.94	0.59	125	324.8	8,755	10,500	0.29	0.01	700.98	213.66	-147.48	-44.95
Conditioning Silo No. 2	S7	130	39.6	1.37	0.42	110	316.5	2,641	3,000	0.29	0.01	637.28	194.24	-150.8	-45.96
Conditioning Silo No. 4	S8	130	39.6	1.37	0.42	110	316.5	2,641	3,000	0.29	0.01	602.07	183.51	-158.28	-48.24
Conditioning Silo No. 6	S9	130	39.6	1.37	0.42	110	316.5	2,641	3,000	0.29	0.01	566.85	172.78	-165.77	-50.53
White Sugar Dryer Baghouse	S10	75	22.9	7.31	2.23	115	319.3	94,488	113,000	0.29	0.01	695.66	212.04	-194.62	-59.32
V. H. P. Sugar Dryer Baghouse	S11	10	3.0	4.79	1.46	115	319.3	110,042	127,000	0.29	0.01	2045.01	623.32	214.88	65.50
Granular Carbon Furnace	S12	30	9.1	2.00	0.61	160	344.3	--	4,300	22.8	6.9	603.97	184.09	-398.13	-121.35
Conditioning Silo No. 1	S13	130	39.6	1.37	0.42	110	316.5	2,641	3,000	0.29	0.01	622.85	189.84	-92.52	-28.20
Conditioning Silo No. 3	S14	130	39.6	1.37	0.42	110	316.5	2,641	3,000	0.29	0.01	588.61	179.41	-99.8	-30.42
Conditioning Silo No. 5	S15	130	39.6	1.37	0.42	110	316.5	2,641	3,000	0.29	0.01	549.49	167.48	-108.12	-32.95
Powdered Sugar Starch Bins	S16	55	16.8	2.00	0.61	100	310.9	6,128	--	34.5	10.50	767.14	233.82	-266.32	-81.17

[a] All refinery sources except granular carbon furnace and powered sugar starch bins have horizontal discharge: velocity set at 0.01 m/s for modeling purposes.

[b] Relative to Boiler No. 4 stack location, true north

Table 6-3. U.S. Sugar Clewiston Mill Maximum Fuel Oil Burning And SO_2 Emissions - Future Operation @ 2.5% S Fuel Oil

Boiler	Total Maximum Heat Input (MMBtu/hr)	Maximum Heat Input From Fuel Oil (MMBtu/hr)	Fuel Oil gal/hr [a]	Fuel Oil MMBtu/hr	Bagasse MMBtu/hr	Bagasse lb/hr(dry)	SO_2 Emissions Fuel Oil (lb/hr)	SO_2 Emissions Bagasse [b] (lb/hr)	SO_2 Emissions Total (lb/hr)	SO_2 Emissions Total (g/s)
					MAXIMUM 3-HOUR CASE					
1	495.6 [c]	225.1	1,500	225.0	270.6	37,583	615.0	18.8	633.8	79.86
2	495.6 [c]	225.1	1,500	225.0	270.6	37,583	615.0	18.8	633.8	79.86
3	342.0 [c]	135.1	900	135.0	207.0	28,750	369.0	14.4	383.4	48.31
4	633.0	225.1	1,500	225.0	408.0	56,667	615.0	67.7 [d]	682.7	86.02 [e]
7	812.0	249.0	0	0.0	812.0	112,778	0.0	138.0 [d]	138.0	17.39
Totals	2,778.2		5,400 (16,2001 gallons per 3-hour period)	810.0	1,968.2	273,361	2,214.0	257.7	2,471.7	311.4
					MAXIMUM 24-HOUR CASE					
1	495.6	225.1	1,070	160.5	335.1	46,542	438.7	23.3	462.0	58.21
2	495.6	225.1	1,070	160.5	335.1	46,542	438.7	23.3	462.0	58.21
3	342.0	135.1	600	90.0	252.0	35,000	246.0	17.5	263.5	33.20
4	600.0	225.1	960	144.0	456.0	63,333	393.6	75.7 [d]	469.3	59.13 [e]
7	738.0	249.0	0	0.0	738.0	102,500	0.0	125.5 [d]	125.5	15.81
Totals	2,671.2		3,700 (88,800 gallons per 24-hour period)	555.0	2,116.2	293,917	1,517.0	265.2	1,782.2	224.6

[a] Total fuel usage for all boilers based on current permit limits. Individual boiler rates selected to maximize SO_2 emissions.

[b] Assumes 75 percent removal of SO_2 due to bagasse firing, based on industry test data.

[c] Permit limit for 24-hour average.

[d] Based on permit limit of 0.166 lb/MM Btu for Boiler No. 4, and 0.17 lb/MMBtu for Boiler No. 7.

[e] For modeling purposes, this SO_2 emission rate is slightly higher than that shown in Table 2-1 for Boiler No. 4.
This is due to not accounting for the differneces in combustion efficiency between bagasse and fuel oil.

Note: Fuel Oil - 8.2 lb/gal
18,300 Btu/lb; 150,000 Btu/gal
2.5% sulfur
Bagasse - 7,200 Btu/lb (dry); 3,600 Btu/lb (wet)
0.1% sulfur average, dry basis

Table 6-4. U.S. Sugar Clewiston Boiler Maximum PM_{10} and CO Emissions - Future Configuration

Source	Maximum Heat Input (MMBtu/hr)	Emission Factor		Emissions (lb/hr)	Emissions (g/s)
		MAXIMUM 24-HOUR CASE - PM_{10} EMISSIONS			
Boilers		PM Emission Factor	PM_{10} Emission Factor		
Boiler 1	495.6	0.25 lb/MMBtu	93% of PM	115.2	14.52
Boiler 2	495.6	0.25 lb/MMBtu	93% of PM	115.2	14.52
Boiler 3	342.0	0.30 lb/MMBtu	93% of PM	95.4	12.02
Boiler 4	600.0	0.15 lb/MMBtu	93% of PM	83.7	10.55
Boiler 7	738.0	0.03 lb/MMBtu	100% of PM	22.1	2.79
		MAXIMUM 1-HOUR CASE - CO EMISSIONS			
Boilers					
Boiler 1	495.6	13.0 lb/MMBtu		6,442.80	811.79
Boiler 2	495.6	13.0 lb/MMBtu		6,442.80	811.79
Boiler 3	342.0	10.0 lb/MMBtu		3,420.00	430.92
Boiler 4	633.0	6.5 lb/MMBtu		4,114.50	518.43
Boiler 7	812.0	0.7 lb/MMBtu		568.40	71.62

Table 6-5. Summary of PM/PM_{10} Emissions from the Baghouses Associated With the Sugar Refinery, U.S. Sugar Corporation

Source / Vent Name	New Stack Number	Design Capacity	Operating Hours	PM/PM_{10} Emissions (gr/dscf)	(lb/hr)	(g/s)	(TPY)
Screening & Distribution Vacuum	S-1	990 dscfm	7,680	0.00754 [a]	0.064 [b]	0.00806	0.246
100 lb Bagging Vacuum System	S-2	872 dscfm	7,680	0.00856 [a]	0.064 [b]	0.00806	0.246
5 lb Bagging Vacuum System	S-3	984 dscfm	7,680	0.00759 [a]	0.064 [b]	0.00806	0.246
Packaging Dust Collector	S-4	9,589 dscfm	7,680	0.0025	0.205	0.0259	0.789
Screening and Distribution #1	S-5	2,668 dscfm	8,760	0.0025	0.057	0.00720	0.250
Screening and Distribution #2	S-6	8,755 dscfm	8,760	0.0025	0.188	0.0236	0.822
Conditioning Silo No. 2	S-7	2,641 dscfm	8,760	0.0025	0.057	0.00713	0.248
Conditioning Silo No. 4	S-8	2,641 dscfm	8,760	0.0025	0.057	0.00713	0.248
Conditioning Silo No. 6	S-9	2,641 dscfm	8,760	0.0025	0.057	0.00713	0.248
White Sugar Dryer	S-10	94,488 dscfm	7,680	0.00177 [a]	1.436 [b]	0.181	5.51
V.H.P. Sugar Dryer	S-11	110,042 dscfm	3,960	0.00172 [a]	1.625 [b]	0.205	3.22
Granular Carbon Furnace	S-12	--	8,760	--	0.650	0.0819	2.85
				Total =	4.52	0.57	14.92

[a] Back calculated from guaranteed emission rate and design flow rate.
[b] Manufacturer's guaranteed emission rate.
Note: dscfm = dry standard cubic foot per minute.
gr/dscf = grains per dry standard cubic foot
lb/hr = pounds per hour
TPY = tons per year

Table 6-6. Summary of Background SO_2 Facilities Considered for Inclusion in the AAQS and PSD Class II Air Modeling Analyses

			UTM Coordinates		Relative to USS Clewiston Mill				Maximum SO_2	Q, Emission	Include in
APIS Number	Facility	County	East (km)	North (km)	X (km)	Y (km)	Distance (km)	Direction[a] (deg)	Emissions (TPY)	Threshold (Dist -53) x 20	Modeling Analysis?
52FTM260001	Everglades Sugar	Hendry	509.6	2954.2	3.5	-2.7	4.4	128	607	SIA	YES
50PMB500086	Glades Correctional Institute	Palm Beach	523.4	2955.2	17.3	-1.7	17.4	96	98	SIA	YES
52FTM260015	Southern Gardens Citrus	Hendry	487.6	2957.6	-18.5	0.7	18.5	272	409	SIA	YES
50PMB500332	Okeelanta	Palm Beach	525.0	2937.4	18.9	-19.5	27.2	136	939	SIA	YES
52FTM500026	Sugar Cane Growers	Palm Beach	534.9	2953.3	28.8	-3.6	29.0	97	2,555	SIA	YES
52FTM500061	U.S. Sugar -Bryant	Palm Beach	538.8	2968.1	32.7	11.2	34.6	71	2,698	SIA	YES
52FTM500016	Osceola Farms	Palm Beach	544.2	2968.0	38.1	11.1	39.7	74	2,023	SIA	YES
52FTM500016	Atlantic Sugar	Palm Beach	552.9	2945.2	46.8	-11.7	48.2	104	954	SIA	YES
50WPB430001	FPL -Martin	Martin	543.1	2992.9	37.0	36.0	51.6	46	93,788	SIA	YES
50WPB430102	Bechtel Indiantown	Martin	545.6	2991.5	39.5	34.6	52.5	49	2,629	SIA	YES
50PMB500021	Pratt & Whitney	Palm Beach	559.2	2978.3	53.1	21.4	57.3	68	504	85.0	YES
50WPB430007	Dickerson	Martin	569.5	2995.9	63.4	39.0	74.4	58	58	428.7	NO
50WPB500234	Palm Beach Resource Recovery	Palm Beach	585.8	2960.2	79.7	3.3	79.8	88	1,533	535.4	NO
52FTM360119	Lee County Resource Recovery	Lee	424.0	2946.0	-82.1	-10.9	82.8	262	490	596.4	NO
52FTM36	FPL - Fort Myers	Lee	422.1	2952.9	-84.0	-4.0	84.1	267	22,701	621.9	NO
50WPB430021	Stuart Contracting	Martin	575.2	3006.8	69.1	49.9	85.2	54	100	644.7	NO
50PMB500045	Lake Worth Utilities	Palm Beach	592.8	2943.7	86.7	-13.2	87.7	99	2,302	694.0	NO
50PMB500042	FPL -Riviera Beach	Palm Beach	594.2	2960.6	88.1	3.7	88.2	88	77,815	703.6	NO
50WPB062120	North Broward Resource Recovery	Broward	583.6	2907.6	77.5	-49.3	91.9	122	896	777.0	NO
50WPB560003	Fort Pierce Utilities	St. Lucie	566.8	3036.3	60.7	79.4	99.9	37	2,708	938.9	NO
50WPB062119	South Broward Resource Recovery	Broward	579.6	2883.3	73.5	-73.6	104.0	135	1,318	1020.3	NO
50BRO060037	FPL -Lauderdale	Broward	580.1	2883.3	74.0	-73.6	104.4	135	65,964	1027.4	NO
50BRO060036	FPL -Port Everglades	Broward	587.4	2885.3	81.3	-71.6	108.3	131	76,239	1106.7	NO
50DAD130020	Tarmac	Dade	562.9	2861.7	56.8	-95.2	110.9	149	2,792	1157.1	NO
50DAD130348	Dade Co. Resource Recovery	Dade	564.3	2857.4	58.2	-99.5	115.3	150	857	1245.4	NO
30ORL310029	Vero Beach Power	St. Lucie	567.1	3056.5	61.0	99.6	116.8	31	18,496	1275.9	NO

US Sugar Clewiston Mill Coordinates: 506.1 2956.9

Proposed project's 3-hour emissions are significant to 60 km; screening area is limited to facilities within 70 km of the proposed project.

Table 6-7. Background SO_2 Facilities That Were Included in the PSD Class I Incremental Modeling Analysis

APIS Number	Facility	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to Everglades National Park X (km)	Y (km)	Distance (km)	Direction[a] (deg)
50DAD130348	Dade Co. Resource Recovery	Dade	564.3	2857.4	14.0	8.8	16.5	58
50DAD130020	Tarmac	Dade	562.9	2861.7	12.6	13.1	18.2	44
50WPB062119	South Broward Resource Recovery	Broward	579.6	2883.3	29.3	34.7	45.4	40
50BRO060037	FPL -Fort Lauderdale	Broward	580.1	2883.3	29.8	34.7	45.7	41
50WPB062120	North Broward Resource Recovery	Broward	583.6	2907.6	33.3	59.0	67.7	29
52FTM360119	Lee County Resource Recovery	Lee	424.0	2946.0	-30.0	82.0	87.3 [b]	340
50PMB500332	Okeelanta	Palm Beach	525.0	2937.4	-25.3	88.8	92.3	344
52FTM36	FPL - Fort Myers	Lee	422.1	2952.9	-31.9	88.9	94.5 [b]	340
52FTM500016	Atlantic Sugar	Palm Beach	552.9	2945.2	2.6	96.6	96.6	2
52FTM500026	Sugar Cane Growers	Palm Beach	534.9	2953.3	-15.4	104.7	105.8	352
52FTM260001	Evercane Sugar	Hendry	509.6	2954.2	-40.7	105.6	113.2	339
52FTM260003	US Sugar Clewiston	Hendry	506.1	2956.9	-44.2	108.3	117.0	338
50WPB500234	Palm Beach Resource Recovery	Palm Beach	585.8	2960.2	35.5	111.6	117.1	18
52FTM500016	Osceola Farms	Palm Beach	544.2	2968.0	-6.1	119.4	119.6	357
52FTM500061	U.S. Sugar -Bryant	Palm Beach	538.8	2968.1	-11.5	119.5	120.1	355
50PMB500042	FPL -Riviera Beach	Palm Beach	594.2	2960.6	43.9	112.0	120.3	21
52FTM260015	Southern Gardens	Hendry	487.6	2957.6	-62.7	109.0	125.7	330
50PMB500021	Pratt & Whitney	Palm Beach	559.2	2978.3	8.9	129.7	130.0	4
50WPB430102	Bechtel Indiantown	Martin	545.6	2991.5	-4.7	142.9	143.0	358
50WPB430001	FPL -Martin	Martin	543.1	2992.9	-7.2	144.3	144.5	357

[a] Distance from northeastern corner UTM location =550.3 km E, 2848.6 km N

[b] Distance from northwestern corner UTM location = 454.0 km E, 2864.0 km N

Table 6-8. Summary of Background SO_2 Sources Included in the Air Modeling Analysis

APIS Number	Facility	Units	ISCST3 ID Name	Stack Parameters Height (m)	Diameter (m)	Temper. (K)	Velocity (m/s)	Emission Rate (g/s) 3-Hour	24-Hour	PSD Source (EXP/CON)	Modeled in AAQS	Class II	Class I
52FTM500016	Atlantic Sugar [a]												
		Unit 1	ATLSUG1	27.4	1.83	346.0	17.97	10.85	10.85	CON	Yes	Yes	Yes
		Unit 2	ATLSUG2	27.4	1.83	350.0	23.36	10.85	10.85	CON	Yes	Yes	Yes
		Unit 3	ATLSUG3	27.4	1.83	350.0	21.56	10.50	10.50	CON	Yes	Yes	Yes
		Unit 4	ATLSUG4	27.4	1.83	344.0	25.16	10.76	10.76	CON	Yes	Yes	Yes
		Unit 5 PSD	ATLSUG5	27.4	1.68	339.0	19.24	11.84	11.84	CON	Yes	Yes	Yes
		Unit 1 PSD Baseline	ATLSUG1B	18.9	1.92	506.0	12.70	-17.24	-17.24	EXP	No	Yes	Yes
		Unit 2 PSD Baseline	ATLSUG2B	18.9	1.92	511.0	10.90	-22.50	-22.50	EXP	No	Yes	Yes
		Unit 3 PSD Baseline	ATLSUG3B	21.9	1.83	522.0	17.50	-16.88	-16.88	EXP	No	Yes	Yes
		Unit 4 PSD Baseline	ATLSUG4B	18.3	1.83	344.0	15.00	-10.76	-10.76	EXP	No	Yes	Yes
50WPB430102	Bechtel Indiantown PSD		BECHTIND	150.9	4.88	333.2	30.50	75.64	75.64	CON	Yes	Yes	Yes
50DAD130348	Dade County RRF PSD												
		Units 1&2	DCRRF12	76.2	3.66	405.4	15.86	26.41	12.32	CON	No	No	Yes
		Units 3&4	DCRRF34	76.2	3.66	405.4	15.86	26.41	12.32	CON	No	No	Yes
52FTM260001	Everglades Sugar [a] Main Boiler		EVERGLAD	21.9	1.10	477.0	10.10	34.90	34.90	NO	Yes	No	No
50BRO060037	FPL - Lauderdale												
		CTs 1-4 PSD	FTLAU1_4	45.7	4.88	411.0	10.97	271.10	271.10	CON	No	No	Yes
		4&5 PSD Baseline	FTLAU45B	46.0	4.27	422.0	14.63	-457.00	-457.00	EXP	No	No	Yes
50WPB430001	FPL Martin												
		Units 1&2	MART12	152.1	7.99	420.9	21.03	1743.79	1743.79	NO	Yes	No	No
		Aux Blr PSD	MARTAUX	18.3	1.10	535.4	15.24	12.90	12.90	CON	Yes	Yes	Yes
		Diesl Gens PSD	MARTGEN	7.6	0.30	785.9	39.62	0.51	0.51	CON	Yes	Yes	Yes
		Units 3&4 PSD	MART34	64.9	6.10	410.9	18.90	470.40	470.40	CON	Yes	Yes	Yes
50PMB500086	Glades Corr Institute		GLADCORR	9.8	0.40	389.0	11.28	2.82	2.82	NO	No	No	No
	FPL Fort Myers												
		Unit 1	FPLFMYU1	91.8	2.90	422.0	29.90	-585.50	-585.50	EXP	No	No	No
		Unit 2	FPLFMYU2	121.2	5.52	408.0	19.20	1334.0	1334.0	EXP	No	No	No
		GT 1-12	FPLFMGTS	9.75	4.42	797.0	35.70	5152.4	5152.4	NO	No	No	No
		6 CTs, PSD	FPLFM6CT	38.1	5.79	377.6	21.43	3.86	3.86	CON	No	No	Yes
52FTM360119	Lee County RRF PSD		LEECORRF	83.8	1.88	388.5	19.81	14.00	14.00	CON	No	No	Yes
50WPB062120	North Broward RRF PSD		NBCRRF	58.5	3.96	381.0	18.01	35.40	35.40	CON	No	No	Yes
50PMB500332	Okeelanta [a]												
		Boiler 4 PSD Baseline	OKBLR4B	22.9	2.29	333.0	7.36	-10.95	-10.95	EXP	No	Yes	Yes
		Boiler 5 PSD Baseline	OKBLR5B	22.9	2.29	333.0	12.07	-15.64	-15.64	EXP	No	Yes	Yes
		Boiler 6 PSD Baseline	OKBLR6B	22.9	2.29	334.0	8.74	-15.64	-15.64	EXP	No	Yes	Yes
		Boiler 10 PSD Baseline	OKBLR10B	22.9	2.29	334.0	10.35	-17.15	-17.15	EXP	No	Yes	Yes
		Boiler 11 PSD Baseline	OKBLR11B	22.9	2.29	342.0	9.89	-16.79	-16.79	EXP	No	Yes	Yes
		Boiler 12 PSD Baseline	OKBLR12B	22.9	2.29	330.0	8.16	-20.58	-20.58	EXP	No	Yes	Yes
		Boiler 14 PSD Baseline	OKBLR14B	22.9	2.29	333.0	8.28	-20.03	-20.03	EXP	No	Yes	Yes
		Boiler 15 PSD Baseline	OKBLR15B	22.9	2.29	332.0	10.23	-16.79	-16.79	EXP	No	Yes	Yes
		Okeelanta Power Blrs 1,2,3^b	OKCOGEN	68.6	3.05	438.7	17.46	27.0	27.0	CON	Yes	Yes	Yes

Table 6-8. Summary of Background SO_2 Sources Included in the Air Modeling Analysis

APIS Number	Facility	Units	ISCST3 ID Name	Stack Parameters Height (m)	Diameter (m)	Temper. (K)	Velocity (m/s)	Emission Rate (g/s) 3-Hour	24-Hour	PSD Source (EXP/CON)	Modeled in AAQS	Class II	Class I
52FTM500019	Osceola Farms[a]												
		Unit 2	OSBLR2	27.4	1.52	339.0	18.63	17.12	17.12	CON	Yes	Yes	Yes
		Unit 3	OSBLR3	27.4	1.92	344.0	14.34	30.74	30.74	CON	Yes	Yes	Yes
		Unit 4	OSBLR4	27.4	1.83	344.0	16.53	17.12	17.12	CON	Yes	Yes	Yes
		Unit 5	OSBLR5	27.4	1.52	344.0	17.85	18.00	18.00	CON	Yes	Yes	Yes
		Unit 6	OSBLR6	27.4	1.92	339.0	18.25	33.39	33.39	CON	Yes	Yes	Yes
		Unit 1 PSD Baseline	OSBLR1B	22.0	1.52	342.0	8.18	-5.07	-5.07	EXP	No	Yes	Yes
		Unit 2 PSD Baseline	OSBLR2B	22.0	1.52	341.0	18.10	-16.32	-16.32	EXP	No	Yes	Yes
		Unit 3 PSD Baseline	OSBLR3B	22.0	1.93	341.0	14.50	-7.26	-7.26	EXP	No	Yes	Yes
		Unit 4 PSD Baseline	OSBLR4B	22.0	1.83	341.0	18.80	-13.61	-13.61	EXP	No	Yes	Yes
		Unit 5 PSD Baseline	OSBLR5B	22.0	1.52	342.0	12.12	-16.32	-16.32	EXP	No	Yes	Yes
50WPB500234	Palm Beach Co. Resource Recovery												
		1&2 PSD	PBCRRF	76.2	2.04	505.2	24.90	85.05	85.05	CON	No	No	Yes
50WPB500234	Pratt & Whitney												
		Heater	PRATARCH	15.2	0.91	810.9	143.73	13.99	13.99	CON	No	No	Yes
		Boiler BO-12	PRATBO12	4.6	0.76	533.2	6.92	0.51	0.51	CON	No	No	Yes
50WPB062116	South Broward RRF PSD		SBCRRF	59.4	3.96	381.0	18.01	37.91	37.91	CON	No	No	Yes
50FTM260015	Southern Gardens Citrus - PSD												
		Peel Dryer	SGARDDRY	38.1	1.16	338.7	9.41	5.29	5.29	CON	Yes	Yes	Yes
		Boilers 1-3	SGARDBLR	16.8	1.22	477.6	14.23	6.48	6.48	CON	Yes	Yes	Yes
52FTM500026	Sugar Cane Growers[a]												
		Unit 1&2	SUGCN12	45.7	1.87	339.0	21.75	41.20	41.20	CON	Yes	Yes	Yes
		Unit 3	SUGCN3	27.4	1.52	339.0	22.25	16.20	16.20	CON	Yes	Yes	Yes
		Unit 4 PSD	SUGCN4	54.9	2.44	339.0	21.73	38.20	38.20	CON	Yes	Yes	Yes
		Unit 5	SUGCN5	45.7	2.30	339.0	15.94	27.90	27.90	CON	Yes	Yes	Yes
		Unit 8 PSD	SUGCN8	47.2	2.90	339.0	13.62	23.50	23.50	CON	Yes	Yes	Yes
		Unit 1&2 PSD Baseline	SUGCN12B	24.4	1.40	344.0	11.40	-24.20	-24.20	EXP	No	Yes	Yes
		Unit 3 PSD Baseline	SUGCN3B	24.4	1.60	344.0	15.60	-4.40	-4.40	EXP	No	Yes	Yes
		Unit 4 PSD Baseline	SUGCN4B	25.9	1.63	344.0	11.20	-24.20	-24.20	EXP	No	Yes	Yes
		Unit 5 PSD Baseline	SUGCN5B	24.4	1.40	344.0	15.20	-16.20	-16.20	EXP	No	Yes	Yes
		Unit 6&7 PSD Baseline	SUGCN67B	12.2	1.52	606.0	11.20	-51.00	-51.00	EXP	No	Yes	Yes
50DAD130020	Tarmac												
		Kiln 1	TARMC1	61.0	2.44	465.0	12.80	5.67	5.67	NO	No	No	No
		Kiln 2 PSD Baseline	TARMC2B	61.0	2.44	465.0	12.84	-5.71	-5.71	EXP	No	No	Yes
		Kiln 3 PSD Baseline	TARMC3B	61.0	4.57	472.0	10.78	-2.76	-2.76	EXP	No	No	Yes
		Kiln 2 PSD	TABMC2P	61.0	2.44	422.0	9.10	24.57	24.57	CON	No	No	Yes
		Kiln 3 PSD	TARMC3P	61.0	4.57	450.0	11.04	51.43	51.43	CON	No	No	Yes
52FTM500061	US Sugar-Bryant[a]												
		Unit 5 PSD	USSBRY5	42.7	2.90	345.0	11.49	45.70	45.70	CON	Yes	Yes	Yes
		Unit 1,2&3	USBRY123	19.8	1.64	342.0	36.40	109.50	109.50	CON	Yes	Yes	Yes
		Unit 1 PSD Baseline	USSBRY1B	19.8	1.68	494.0	44.30	-36.50	-36.50	EXP	No	Yes	Yes
		Unit 2&3 PSD Baseline	USBRY23B	19.8	1.68	344.0	37.90	-73.00	-73.00	EXP	No	Yes	Yes

Table 6-8. Summary of Background SO_2 Sources Included in the Air Modeling Analysis

APIS Number	Facility	Units	ISCST3 ID Name	Stack Parameters: Height (m)	Diameter (m)	Temper. (K)	Velocity (m/s)	Emission Rate (g/s): 3-Hour	24-Hour	PSD Source (EXP/CON)	Modeled in: AAQS	Class II	Class I
	US Sugar - Clewiston - PSD Baseline												
		Unit 1 PSD Baseline	BRL1B	23.1	1.86	344.0	30.20	-79.86	-58.21	EXP	No	Yes	Yes
		Unit 2 PSD Baseline	BLR2B	23.1	1.86	343.0	35.70	-79.86	-58.21	EXP	No	Yes	Yes
		Unit 3 PSD Baseline	BLR3B	27.4	2.29	342.0	14.70	-48.30	-33.20	EXP	No	Yes	Yes
		East Pellet Plant PSD Baseline	EPELLET	12.2	1.52	347.0	8.54	-10.30	-10.30	EXP	No	Yes	Yes
		West Pellet Plant PSD Baseline	WPELLET	15.7	1.52	347.0	8.54	-10.30	-10.30	EXP	No	Yes	Yes

[a] Facilities or sources within facilities that operate only during the November 1 through May 31 crop season

[b] Sugar mill sources that operate all year

Note: EXP = PSD expanding source.
CON = PSD consuming source.
NO = Source does not affect PSD increment.

Table 6-9. Summary of Background PM Facilities Considered for Inclusion in the AAQS and PSD Class II Air Modeling Analyses

			UTM Coordinates		Relative to USS Clewiston Mill				Maximum PM	Q, Emission	Include in
APIS Number	Facility	County	East (km)	North (km)	X (km)	Y (km)	Distance (km)	Direction[a] (deg)	Emissions (TPY)	Threshold (Dist -4) x 20	Modeling Analysis ?
52FTM260001	Everglades Sugar	Hendry	509.6	2954.2	3.5	-2.7	4.4	128	41	8.4	YES
50PMB500086	Glades Correctional Institute	Palm Beach	523.4	2955.2	17.3	-1.7	17.4	96	30	267.7	NO
52FTM260015	Southern Gardens Citrus	Hendry	487.6	2957.6	-18.5	0.7	18.5	272	250	290.3	NO
50PMB500332	Okeelanta	Palm Beach	525.0	2937.4	18.9	-19.5	27.2	136	283	463.1	NO
52FTM500026	Sugar Cane Growers	Palm Beach	534.9	2953.3	28.8	-3.6	29.0	97	1,032	500.5	YES
52FTM500061	U.S. Sugar -Bryant	Palm Beach	538.8	2968.1	32.7	11.2	34.6	71	979	611.3	YES
52FTM500016	Osceola Farms	Palm Beach	544.2	2968.0	38.1	11.1	39.7	74	700	713.7	NO
52FTM500016	Atlantic Sugar	Palm Beach	552.9	2945.2	46.8	-11.7	48.2	104	797	884.8	NO
50WPB430001	FPL -Martin	Martin	543.1	2992.9	37.0	36.0	51.6	46	7,578	952.5	YES
50WPB430102	Bechtel Indiantown	Martin	545.6	2991.5	39.5	34.6	52.5	49	270	970.2	NO
50PMB500021	Pratt & Whitney	Palm Beach	559.2	2978.3	53.1	21.4	57.3	68	30	1065.0	NO

US Sugar Clewiston Mill Coordinates: 506.1 2956.9

Proposed project is significant to 4 km; Emission imventory is limited to facilities within 54 km of the proposed project.

Table 6-10. Summary of Background PM Sources Included in the Air Modeling Analysis

APIS Number	Facility	Units	ISCST3 ID Name	Stack Parameters Height (m)	Diameter (m)	Temper. (K)	Velocity (m/s)	Emission Rate (g/s)	PSD Source (EXP/CON)	Modeled in AAQS	Class II
52FTM260001	Everglades Sugar[a]	Main Boiler	EVERGLAD	21.9	1.10	477.0	10.10	2.37	NO	Yes	No
50WPB430001	FPL Martin										
		Units 1&2	MART12	152.1	7.99	420.9	21.03	38.92	NO	Yes	No
		Aux Blr PSD	MARTAUX	18.3	1.10	535.4	15.24	-	CON	Yes	Yes
		Diesl Gens PSD	MARTGEN	7.6	0.30	785.9	39.62	-	CON	Yes	Yes
		Units 3&4 PSD	MART34	64.9	6.10	410.9	18.90	13.33	CON	Yes	Yes
52FTM500026	Sugar Cane Growers[a]										
		Unit 1&2	SUGCN12	45.7	1.87	339.0	21.75	6.49	CON	Yes	Yes
		Unit 3	SUGCN3	27.4	1.52	339.0	22.25	12.95	CON	Yes	Yes
		Unit 4 PSD	SUGCN4	54.9	2.44	339.0	21.73	12.45	CON	Yes	Yes
		Unit 5	SUGCN5	45.7	2.30	339.0	15.94	12.45	CON	Yes	Yes
		Unit 8 PSD	SUGCN8	47.2	2.90	339.0	13.62	8.57	CON	Yes	Yes
		Unit 1&2 PSD Baseline	SUGCN12B	24.4	1.40	344.0	11.40	-18.94	EXP	No	Yes
		Unit 3 PSD Baseline	SUGCN3B	24.4	1.60	344.0	15.60	-5.70	EXP	No	Yes
		Unit 4 PSD Baseline	SUGCN4B	25.9	1.63	344.0	11.20	-10.90	EXP	No	Yes
		Unit 5 PSD Baseline	SUGCN5B	24.4	1.40	344.0	15.20	-9.10	EXP	No	Yes
		Unit 6&7 PSD Baseline	SUGCN67B	12.2	1.52	606.0	11.20	-2.50	EXP	No	Yes
52FTM500061	US Sugar-Bryant[a]										
		Unit 5 PSD	USSBRY5	42.7	2.90	345.0	11.49	12.59	CON	Yes	Yes
		Unit 1,2&3	USBRY123	19.8	1.64	342.0	36.40	43.66	CON	Yes	Yes
		Unit 1 PSD Baseline	USSBRY1B	19.8	1.68	494.0	44.30	-82.40	EXP	No	Yes
		Unit 2&3 PSD Baseline	USBRY23B	19.8	1.68	344.0	37.90	-12.04	EXP	No	Yes
	US Sugar - Clewiston - PSD Baseline										
		Unit 1 PSD Baseline	BRL1B	23.1	1.86	344.0	30.20	-7.48	EXP	No	Yes
		Unit 2 PSD Baseline	BLR2B	23.1	1.86	343.0	35.70	-7.04	EXP	No	Yes
		Unit 3 PSD Baseline	BLR3B	27.4	2.29	342.0	14.70	-4.57	EXP	No	Yes
		East Pellet Plant PSD Baseline	EPELLET	12.2	1.52	347.0	8.54	-1.69	EXP	No	Yes
		West Pellet Plant PSD Baseline	WPELLET	15.7	1.52	347.0	8.54	-0.82	EXP	No	Yes
		Units 5&6 PSD Baseline	BLR56B	23.1	1.86	494.0	44.30	-52.92	EXP	No	Yes

[a] Facilities or sources within facilities that operate only during the November 1 through May 31 crop season.

[b] Sugar mill sources that operate all year.

Note: EXP = PSD expanding source.
CON = PSD consuming source.
NO = Source does not affect PSD increment.

Table 6-11 . Summary of Background CO Facilities Considered for Inclusion in the AAQS Air Modeling Analyses

			UTM Coordinates		Relative to USS Clewiston Mill				Maximum CO	Q, Emission	Include in
APIS Number	Facility	County	East (km)	North (km)	X (km)	Y (km)	Distance (km)	Direction[a] (deg)	Emissions (TPY)	Threshold (Dist -3) x 20	Modeling Analysis ?
52FTM260001	Everglades Sugar	Hendry	509.6	2954.2	3.5	-2.7	4.4	128	15	28.4	NO
50PMB500086	Glades Correctional Institute	Palm Beach	523.4	2955.2	17.3	-1.7	17.4	96	10	287.7	NO
52FTM260015	Southern Gardens Citrus	Hendry	487.6	2957.6	-18.5	0.7	18.5	272	723	310.3	YES
50PMB500332	Okeelanta	Palm Beach	525.0	2937.4	18.9	-19.5	27.2	136	3,289	483.1	YES
52FTM500026	Sugar Cane Growers	Palm Beach	534.9	2953.3	28.8	-3.6	29.0	97	33,771	520.5	YES
52FTM500061	U.S. Sugar -Bryant	Palm Beach	538.8	2968.1	32.7	11.2	34.6	71	2,071	631.3	YES
52FTM500016	Osceola Farms	Palm Beach	544.2	2968.0	38.1	11.1	39.7	74	25,175	733.7	YES
52FTM500016	Atlantic Sugar	Palm Beach	552.9	2945.2	46.8	-11.7	48.2	104	22,577	904.8	YES
50WPB430001	FPL -Martin	Martin	543.1	2992.9	37.0	36.0	51.6	46	1,816	972.5	YES
50WPB430102	Bechtel Indiantown	Martin	545.6	2991.5	39.5	34.6	52.5	49	1,647	990.2	YES
50PMB500021	Pratt & Whitney	Palm Beach	559.2	2978.3	53.1	21.4	57.3	68	30	1085.0	NO
US Sugar Clewiston Mill Coordinates:			506.1	2956.9							

[a] Proposed project is significant to 3 km; Emission imventory is limited to facilities within 53 km of the proposed project.

Table 6-12. Summary of Background CO Sources Included in the Air Modeling Analysis

APIS Number	Facility	Units	ISCST3 ID Name	Stack Parameters Height (m)	Diameter (m)	Temp. (K)	Velocity (m/s)	Emission Rate (g/s)
52FTM500016	Atlantic Sugar [a]							
		Unit 1	ATLSUG1	27.4	1.83	346.0	17.97	242.68
		Unit 2	ATLSUG2	27.4	1.83	350.0	23.36	242.68
		Unit 3	ATLSUG3	27.4	1.83	350.0	21.56	294.84
		Unit 4	ATLSUG4	27.4	1.83	344.0	25.16	311.85
		Unit 5 PSD	ATLSUG5	27.4	1.68	339.0	19.24	206.92
50WPB430102	Bechtel Indiantown PSD		BECHTIND	150.9	4.88	333.2	30.50	47.38
50WPB430001	FPL Martin							
		Units 1&2	MART12	152.1	7.99	420.9	21.03	38.92
		Aux Blr PSD	MARTAUX	18.3	1.10	535.4	15.24	---
		Diesl Gens PSD	MARTGEN	7.6	0.30	785.9	39.62	---
		Units 3&4 PSD	MART34	64.9	6.10	410.9	18.90	13.33
50PMB500332	Okeelanta [a]							
		Okeelanta Power Blrs 1,2,3[b]	OKCOGEN	68.6	3.05	438.7	17.46	94.61
52FTM500019	Osceola Farms [a]							
		Unit 2	OSBLR2	27.4	1.52	339.0	18.63	317.52
		Unit 3	OSBLR3	27.4	1.92	344.0	14.34	128.77
		Unit 4	OSBLR4	27.4	1.83	344.0	16.53	317.52
		Unit 5	OSBLR5	27.4	1.52	344.0	17.85	374.22
		Unit 6	OSBLR6	27.4	1.92	339.0	18.25	310.40
50FTM260015	Southern Gardens Citrus - PSD							
		Peel Dryer	SGARDDRY	38.1	1.16	338.7	9.41	20.80
		Boilers 1-3	SGARDBLR	16.8	1.22	477.6	14.23	---
52FTM500026	Sugar Cane Growers [a]							
		Unit 1&2	SUGCN12	45.7	1.87	339.0	21.75	547.09
		Unit 3	SUGCN3	27.4	1.52	339.0	22.25	187.61
		Unit 4 PSD	SUGCN4	54.9	2.44	339.0	21.73	467.71
		Unit 5	SUGCN5	45.7	2.30	339.0	15.94	359.60
		Unit 8 PSD	SUGCN8	47.2	2.90	339.0	13.62	381.02
52FTM500061	US Sugar-Bryant [a]							
		Unit 5 PSD	USSBRY5	42.7	2.90	345.0	11.49	760.91
		Unit 1,2&3	USBRY123	19.8	1.64	342.0	36.40	1309.77

[a] Facilities or sources within facilities that operate only during the November 1 through May 31 crop season.

[b] Sugar mill sources that operate all year.

Table 6-13. A Summary of Building Structures Considered in the Air Modeling Analysis

Structure	Height		Length		Width	
	ft	m	ft	m	ft	m
Mill Expansion Buildings						
Electrical Equipment	100.0	30.5	95.6	29.1	27.6	8.4
Support Structure	133.0	40.5	95.6	29.1	76.2	23.2
Dryer Area	100.0	30.5	95.6	29.1	41.8	12.7
Screening & Distribution Towers	150.0	45.7	132.2	40.3	68.7	20.9
Specialty Packaging Facility	40.0	12.2	82.1	25.0	201.6	61.5
Packaging Facility	60.0	18.3	65.0	19.8	280.0	85.3
Warehouse	28.0	8.5	339.7	103.6	289.7	88.3
Electrical & Conditioning Equipment	24.0	7.3	59.7	18.2	52.3	15.9
Bulk Loading	40.0	12.2	84.4	25.7	53.8	16.4
Sugar Silos	136.0	41.5	111.6	34.0	68.7	20.9
Other Mill Buildings						
Pellet Warehouse	46.0	14.0	527.0	160.6	105.0	32.0
WDA	51.0	15.5	55.0	16.8	53.0	16.2
Storage and Safety Mechanic	34.8	10.6	58.0	17.7	52.0	15.8
Boiler 4 Building	87.5	26.7	78.0	23.8	66.0	20.1
Boiler 5&6 Building	56.0	17.1	118.0	36.0	66.0	20.1
Boiler 1&2 Building	67.3	20.5	115.0	35.1	103.0	31.4
Power House	34.0	10.4	119.0	36.3	65.0	19.8
Warehouse	37.0	11.3	153.0	46.6	71.0	21.6
Machine Shop	39.0	11.9	309.0	94.2	106.0	32.3
B Mill Building	68.0	20.7	81.0	24.7	81.0	24.7
A Mill Building	69.0	21.0	243.0	74.1	67.0	20.4
Boiling House	93.7	28.6	181.0	55.2	155.0	47.2
Boiler 7 ESP	87.5	26.7	55.0	16.8	33.0	10.1
Boiler 7 Building	83.0	25.3	78.0	23.8	68.0	20.7
Sugar Warehouse #1	37.0	11.3	390.5	119.0	103.8	31.6
Sugar Warehouse #3	55.0	16.8	771.3	235.1	143.4	43.7

Table 6-14. Property Boundary Receptors Used in the Air Modeling Analysis

Receptor	Direction (degrees)	Distance (m)	Receptor	Direction (degrees)	Distance (m)
1	10	463	19	190	1,135
2	20	485	20	200	1,178
3	30	527	21	210	806
4	40	595	22	220	627
5	50	709	23	230	526
6	60	912	24	240	465
7	70	1,333	25	250	429
8	80	2,048	26	260	409
9	90	2,017	27	270	403
10	100	1,785	28	280	409
11	110	906	29	290	429
12	120	675	30	300	465
13	130	764	31	310	526
14	140	910	32	320	595
15	150	1,170	33	330	527
16	160	1,190	34	340	485
17	170	1,135	35	350	463
18	180	1,118	36	360	456

Note: Distances are relative to the Boiler No. 4 stack location.

Table 6-15. Everglades National Park Receptors Utilized in the PSD Class I Modeling Analysis

Receptor	UTM Coordinates (m) East	UTM Coordinates (m) North	Receptor	UTM Coordinates (m) East	UTM Coordinates (m) North
1	557000	2789000	27	540000	2848600
2	556600	2792000	28	535000	2848600
3	556000	2796000	29	530000	2848600
4	553000	2796500	30	525000	2848600
5	548000	2796500	31	520000	2848600
6	542700	2796500	32	514500	2848600
7	542700	2800000	33	514500	2843000
8	542700	2805000	34	514500	2838000
9	542700	2810000	35	514500	2832500
10	542000	2811000	36	510000	2832500
11	541300	2814000	37	505000	2832500
12	542700	2816000	38	500000	2832500
13	544100	2820000	39	495000	2832500
14	543500	2824600	40	494500	2837000
15	545000	2829000	41	491500	2841000
16	545700	2832200	42	488500	2845500
17	546200	2835700	43	483000	2848500
18	548600	2837500	44	480000	2852500
19	550300	2839000	45	475000	2854000
20	545000	2839000	46	473500	2857000
21	540000	2839000	47	473500	2860000
22	550500	2844000	48	469000	2860000
23	545000	2844000	49	464000	2860000
24	540000	2844000	50	459500	2863200
25	550300	2848600	51	454000	2863200
26	545000	2848600			

Note: U.S. Sugar Clewiston coordinates are 506100E, 2956900N
m = meter.

Table 6-16. Maximum Predicted Pollutant Impacts From Proposed Project, Screening Analysis

Averaging Time	Concentration[a] ($\mu g/m^3$)	Receptor Location[b] Direction (degree)	Distance (m)	Time Period (YYMMDDHH)
SO_2				
Annual				
	4.2	300	1500	87123124
	3.8	270	1500	88123124
	4.5	310	1500	89123124
	5.0	300	1500	90123124
	4.8	300	1500	91123124
High 24-Hour				
	68.3	240	900	87110124
	62.9	260	1200	88013024
	44.6	250	1500	89021724
	60.9	250	900	90030824
	56.9	290	1200	91052124
High 3-Hour				
	274	10	463	87011915
	328	360	456	88112306
	231	350	900	89022118
	210	240	900	90100812
	245	10	463	91030309
PM10				
Annual				
	0.78	120	675	87123124
	0.82	110	906	88123124
	0.80	110	906	89123124
	0.70	250	429	90123124
	0.75	30	527	91123124
High 24-Hour				
	9.3	130	764	87071924
	7.1	10	900	88060824
	6.8	250	900	89072524
	9.2	240	1200	90100824
	10.1	260	1200	91102424
NOx				
Annual				
	0.68	300	1500	87123124
	0.60	270	1500	88123124
	0.72	310	1500	89123124
	0.77	300	1500	90123124
	0.72	300	1500	91123124
CO				
High 8-Hour				
	1064	50	709	87062716
	880	10	900	88060816
	707	340	900	89060816
	795	240	900	90100816
	700	310	1200	91072416
High 1-Hour				
	2097	350	1200	87071916
	2208	10	463	88090511
	2200	10	463	89062816
	1965	10	463	90071311
	1861	360	600	91080111

[a] Based on 5-year meteorological record, West Palm Beach, 1987-91
[b] Relative to Boiler Number 4 Stack Location
Notes:
YYMMDDHH = Year, Month, Day, Hour Ending

Table 6-17. Maximum Predicted Pollutant Impacts From Proposed Project for Comparison to EPA Significant Impact Levels - Refined Analyses

Averaging Time	Concentration[a] (ug/m^3)	Receptor Location[b] Direction (degree)	Receptor Location[b] Distance (m)	Time Period (YYMMDDHH)	EPA Significant Impact Levels (ug/m^3)
SO_2					
Annual	5.0	302	1500	90123124	1
	4.8	300	1500	91123124	
High 24-Hour	69.2	240	800	87110124	5
	62.9	260	1100	88013024	
	77.4	244	1000	90042024	
High 3-Hour	328	360	456	88112306	25
PM10					
Annual	0.97	120	600	87123124	1
	1.51	100	800	88123124	
	1.43	100	800	89123124	
High 24-Hour	10.0	120	700	87071924	5
	10.7	244	1000	90100924	
	10.2	262	1200	91102424	
NOx					
Annual	0.72	306	1500	89123124	1
	0.77	300	1600	90123124	
	0.72	300	1500	91123124	
CO					
High 8-Hour	1,064	50	709	87062716	500
High 1-Hour	2,208	10	463	88090511	2000

[a] Based on 5-year meteorological record, West Palm Beach, 1987-91

[b] Relative to Boiler Number 4 Stack Location

Note: The project's significant impact distances (km) are SO2 - 32 (24hr)/55 (3hr); PM10 - 4; CO - 3

Notes:

YYMMDDHH = Year, Month, Day, Hour Ending

EPA = Environmental Protection Agency

Table 6-18. Maximum Predicted Pollutant Impacts From Proposed Project at the Everglades National Park PSD Class I Area

Averaging Time	Concentration[a] (ug/m^3)	UTM Receptor Location[b] (m)	UTM Receptor Location[b] (m)	Time Period (YYMMDDHH)	EPA Proposed Class I Significant Impact Levels (ug/m^3)
SO_2					
Annual					
	0.05	550300	2848600	87123124	0.1
	0.08	550300	2848600	88123124	
	0.07	545000	2848600	89123124	
	0.05	550300	2848600	90123124	
	0.07	545000	2848600	91123124	
High 24-Hour					
	1.19	540000	2848600	87021224	0.2
	1.20	535000	2848600	88071824	
	1.09	525000	2848600	89022824	
	1.60	545000	2844000	90082724	
	1.65	473500	2860000	91101924	
High 3-Hour					
	7.9	483000	2848500	87090706	1.0
	12.7	540000	2848600	88040603	
	12.7	525000	2848600	89022806	
	12.9	540000	2844000	90112603	
	10.5	545000	2848600	91012306	
PM10					
Annual					
	0.005	550300	2848600	87123124	0.2
	0.007	550300	2848600	88123124	
	0.007	545000	2848600	89123124	
	0.005	550300	2848600	90123124	
	0.006	550300	2848600	91123124	
High 24-Hour					
	0.15	550300	2848600	87082024	0.3
	0.22	535000	2848600	88071824	
	0.16	535000	2848600	89090224	
	0.31	545000	2844000	90082724	
	0.30	473500	2857000	91101924	
NOx					
Annual					
	0.008	550300	2848600	87123124	0.1
	0.012	550300	2848600	88123124	
	0.012	545000	2848600	89123124	
	0.008	550300	2848600	90123124	
	0.010	545000	2848600	91123124	

[a] Based on 5-year meteorological record, West Palm Beach, 1987-91

[b] Universal Mercator Transverse coordinate system

Legend:

YYMMDDHH = Year, Month, Day, Hour Ending

PSD = Prevention of Significant Deterioration

EPA = Environmental Protection Agency

Table 6-19. Maximum Predicted Pollutant Impacts Due to All Future Sources, AAQS Screening Analyses

Averaging Time	Concentration[a] (ug/m^3)	Receptor Location[b] Direction (degree)	Distance (m)	Time Period (YYMMDDHH)
SO_2				
Annual				
	25.6	300	1200	87123124
	26.5	270	1200	88123124
	28.9	310	1200	89123124
	30.7	270	1200	90123124
	28.7	300	1200	91123124
H2H 24-Hour				
	210	270	1200	87123124
	219	310	1200	88112024
	200	320	900	89060424
	210	250	900	90042024
	217	260	1200	91102424
H2H 3-Hour				
	689	310	900	87080715
	791	310	900	88090912
	724	320	900	89100115
	687	270	900	90092115
	887	310	900	91072412
PM_{10}				
Annual				
	7.9	270	900	87123124
	8.6	270	900	88123124
	9.0	310	900	89123124
	9.9	270	900	90123124
	8.6	300	900	91123124
H2H 24-Hour				
	74.6	270	900	87123124
	69.9	310	1200	88112024
	66.2	320	900	89060424
	68.1	250	900	90042024
	69.0	260	900	91102424
CO				
H2H 8-Hour				
	4,183	310	900	87061416
	4,501	280	1200	88032408
	4,389	310	900	89041416
	4,239	250	900	90022708
	4,742	310	900	91043016
H2H 1-Hour				
	8,533	320	600	87090213
	8,679	320	600	88090413
	8,901	320	600	89061511
	9,236	330	527	90080511
	9,726	40	595	91061812

[a] Based on 5-year meteorological record, West Palm Beach, 1987-91
[b] Relative to Boiler Number 4 Stack Location

Notes
YYMMDDHH = Year, Month, Day, Hour Ending
H2H = Highest, 2nd-Highest Concentration in 5 years.

Table 6-20. Maximum Predicted Pollutant Impacts Due to All Future Sources For Comparison to AAQS, Refined Analysis

Averaging Time	Concentration (ug/m^3) Total	Modeled	Background	Receptor Location[b] Direction (degree)	Distance (m)	Time Period (YYMMDDHH)	Florida AAQS (ug/m^3)
SO_2							
Annual	34.7	29.7	5	316	1100	89123124	60
	35.8	30.8	5	272	1100	90123124	
	33.7	28.7	5	300	1100	91123124	
H2H 24-Hour	226	221	5	310	1300	88112024	260
	222	217	5	260	1100	91102424	
H2H 3-Hour	799	794	5	310	800	88090912	1300
	622	617	5	314	900	89061212	
	893	888	5	310	800	91070615	
PM_{10}							
Annual	32.3	9.3	23	316	900	89123124	50
	33.0	10.0	23	272	900	90123124	
H2H 24-Hour	101	78	23	272	800	87123124	150
	93	70	23	310	1300	88112024	
	93	70	23	260	1000	91102424	
CO							
H2H 8-Hour	7,962	4532	3430	280	1100	88032408	10,000
	8,310	4880	3430	312	700	91043016	
H2H 1-Hour	15,441	9726	5715	40	595	91061812	40,000

[a] Based on 5-year meteorological record, West Palm Beach, 1987-91

[b] Relative to Boiler Number 4 Stack Location

Notes

YYMMDDHH = Year, Month, Day, Hour Ending

H2H = Highest, 2nd-Highest Concentration in 5 years.

Table 6-21. Maximum Predicted Pollutant PSD Class II Increment, Screening Analysis

Averaging Time	Concentration[a] (ug/m^3)	Receptor Location[b] Direction (degree)	Distance (m)	Time Period (YYMMDDHH)
SO_2				
Annual				
	1.9	270	20000	87123124
	2.5	270	20000	88123124
	1.4	270	20000	89123124
	2.7	70	30000	90123124
	1.9	270	20000	91123124
H2H 24-Hour				
	30	70	30000	87112324
	28	70	30000	88013024
	23	70	30000	89021624
	31	70	30000	90031024
	28	70	30000	91120724
H2H 3-Hour				
	70	70	30000	87050318
	79	70	30000	88050324
	69	70	30000	89021718
	73	70	30000	90011821
	84	70	30000	91020509
PM_{10}				
Annual				
	<0	0	0	87123124
	0.03	340	1200	88123124
	<0	0	0	89123124
	0.03	330	1500	90123124
	0.03	340	1200	91123124
H2H 24-Hour				
	6.5	360	1200	87071924
	8.6	330	900	88062824
	7.0	320	900	89070224
	7.7	310	900	90082724
	10.4	310	900	91072424

[a] Based on 5-year meteorological record, West Palm Beach, 1987-91

[b] Relative to Boiler Number 4 Stack Location

Notes:

YYMMDDHH = Year, Month, Day, Hour Ending

H2H = Highest, 2nd-Highest Concentration in 5 years.

PSD = Prevention of Significant Deterioration

Table 6-22. Maximum Predicted Annual and 24-Hour SO_2 Concentrations Due to Proposed Project Only At Areas of Predicted MaximumPSD Class II Increment Consumption - Detailed Screening

Averaging Time	Concentration (ug/m^3)	Receptor Location[b] Direction (degree)	Receptor Location[b] Distance (m)	Time Period (YYMMDDHH)	EPA Significant Impact Level (ug/m^3)
SO_2					
Annual	0.10	261	16000	87123124	1
	0.01	274	24000	88123124	
	0.02	271	24000	89123124	
	0.13	262	16000	90123124	
	0.03	263	24000	91123124	
High 24-Hour	2.61	268	16000	87111624	5
	2.77	261	16000	88013024	
	2.26	260	16000	89021724	
	2.73	260	16000	90011624	
	2.95	263	16000	91102424	

[a] Based on 5-year meteorological record, West Palm Beach, 1987-91

[b] Relative to Boiler Number 4 Stack Location

Notes:

Receptor grid covers range from 26,000 to 34,000 km and 60 to 79 degrees by 1 degree

YYMMDDHH = Year, Month, Day, Hour Ending

EPA = Environmental Protection Agency

Table 6-23. Maximum Predicted Pollutant PSD Increment Consumption For Comparision With PSD Class II Allowable Increments, Refined Analysis

Averaging Time	Concentration (ug/m^3)	Receptor Location[b] Direction (degree)	Receptor Location[b] Distance (m)	Time Period (YYMMDDHH)	Allowable PSD Class II Increment (ug/m^3)
SO_2					
Annual	4.3	273	19000	87123124	20
	4.1	273	19000	88123124	
	4.4	273	19000	89123124	
	5.1	273	19000	90123124	
	4.6	273	19000	91123124	
H2H 24-Hour	31	70	30000	90011624	91
H2H 3-Hour	241	70	33000	87111821	512
	227	70	33000	88053124	
	228	70	34000	89040321	
	230	70	33000	90120624	
	236	70	34000	91010215	
PM_{10}					
Annual	0.03	340	1200	91123124	17
H2H 24-Hour	11.5	308	900	91072424	30

[a] Based on 5-year meteorological record, West Palm Beach, 1987-91

[b] Relative to Boiler Number 4 Stack Location

Notes:

YYMMDDHH = Year, Month, Day, Hour Ending

H2H = Highest, 2nd-Highest Concentration in 5 years.

EPA = Environmental Protection Agency

PSD = Prevention of Significant Deterioration

Table 6-24. Maximum Predicted SO_2 PSD Increment at the Everglades National Park PSD Class I Area

Averaging Time	Concentration[a] (ug/m^3)	Receptor Location (UTM) (m)	(m)	Time Period (YYMMDDHH)	Allowable PSD Class I Increment (ug/m^3)
Annual					
	0.18	550300	2848600	87123124	2
	0.20	535000	2848600	88123124	
	0.15	550300	2848600	89123124	
	0.23	545000	2848600	90123124	
	0.14	540000	2848600	91123124	
H2H 24-Hour					
	2.1	550300	2848600	87102324	5
	3.0	545000	2848600	88022824	
	2.1	545000	2848600	89040624	
	2.6	545000	2848600	90111624	
	2.5	550300	2848600	91100924	
H2H 3-Hour					
	14.0	545000	2848600	87031421	25
	15.7	535000	2848600	88021621	
	15.8	543500	2824600	89011003	
	18.0	540000	2848600	90012224	
	14.5	530000	2848600	91100915	

[a] Based on 5-year meteorological record, West Palm Beach, 1987-91

Legend:
PSD = Prevention of Significant Deterioration
YYMMDDHH = Year, Month, Day, Hour Ending
UTM = Universal Transverse Mercator
H2H = Highest, 2nd-Highest

7.0 ADDITIONAL IMPACT ANALYSES

7.1 VICINITY OF CLEWISTON

The primary vegetation, as well as agricultural crop, in the area of the U.S. Sugar Clewiston facility is sugar cane. Citrus groves are also located in the area, primarily to the west of Clewiston. Some vegetable farming, nurseries and sod farms are also located in the area. Soils in the area are primarily histosols, which are peat soils with high amounts of organic matter.

As described in the air quality impact analysis (Section 6.0), the maximum predicted SO_2, NO_2, PM, and CO concentrations in the vicinity of the site as a result of the proposed project are predicted to be below the AAQS. Since the AAQS are designed to protect the public welfare, including effects upon soils and vegetation, no detrimental effects on soils or vegetation should occur in this area. The potential impacts of SO_2, NO_2, PM, and CO upon soils, vegetation, and visibility in the Everglades National Park are addressed in the following sections.

7.2 PSD CLASS I AREA

This section focuses on the ecological effects of the proposed facility modification on Air Quality Related Values (AQRV), as defined under PSD regulations, in the Everglades National Park (ENP). The ENP is the closest Class I area to the Clewiston mill, and is located approximately 100 km south of the Clewiston mill. The AQRVs are defined as being:

> "All those values possessed by an area except those that are not affected by changes in air quality and include all those assets of an area whose vitality, significance, or integrity is dependent in some way upon the air environment. These values include visibility and those scenic, cultural, biological, and recreational resources of an area that are affected by air quality. Important attributes of an area are those values or assets that make an area significant as a monument, preserve, or primitive area. They are the assets that are to be preserved if the area is to achieve the purposes for which it was set aside" (Federal Register, 1978).

The AQRVs include freshwater and coastal wetlands, dominant plant communities, unique and rare plant communities, soils and associated periphyton, and the wildlife dependent upon these communities for habitat. Rare, endemic, threatened, and endangered species of the national park and bioindicators of air pollution (e.g., lichens) are also evaluated.

The maximum predicted atmospheric concentrations due to the increase in emissions resulting from the proposed project are presented in Table 7-1. As shown, the predicted increase in impacts is very low for all pollutants considered.

7.2.1 IMPACTS TO SOILS

For soils, the potential and hypothesized effects of atmospheric deposition include:

- Increased soil acidification,
- Alteration in cation exchange,
- Loss of base cations, and
- Mobilization of trace metals.

The potential sensitivity of specific soils to atmospheric inputs is related to two factors. First, the physical ability of a soil to conduct water vertically through the soil profile is important in influencing the interaction with deposition. Second, the ability of the soil to resist chemical changes, as measured in terms of pH and soil cation exchange capacity (CEC), is important in determining how a soil responds to atmospheric inputs.

The soils of the Everglades National Park are generally classified as histosols or entisols. Histosols (peat soils) are organic and have extremely high buffering capacities based on their CEC, base saturation, and bulk density. Therefore, they would be relatively insensitive to atmospheric inputs. The entisols are shallow sandy soils overlying limestone, such as the soils found in the pinelands. The direct connection of these soils with subsurface limestone tends to neutralize any acidic inputs. Moreover, the groundwater table is highly buffered due to the interaction with subsurface limestone formations which results in high alkalinity (as $CaCO_3$).

The relatively low sensitivity of the soils to acid inputs, coupled with the extremely low ground-level concentrations of pollutants predicted within the Everglades National Park due to the increase in emissions from the Clewiston facility, precludes any significant impact on soils.

7.2.2 IMPACTS TO VEGETATION

The maximum predicted gaseous concentrations ($\mu g/m^3$) of SO_2, NO_2, PM, and CO were used in the determination of impacts on vegetation. These compounds are believed to interact predominantly with foliage and this is considered the major route of entry into plants. In this assessment, 100 percent of the compound of interest was assumed to interact with the vegetation.

7.2.2.1 Sulfur Dioxide

Sulfur is an essential plant nutrient usually taken up as sulfate ions by the roots from the soil solution. When sulfur dioxide in the atmosphere enters the foliage through pores in the leaves, it reacts with water in the leaf interior to form sulfite ions. Sulfite ions are highly toxic. They interact with enzymes, compete with normal metabolites, and interfere with a variety of cellular functions (Horsman and Wellburn, 1976). However, within the leaf, sulfite is oxidized to sulfate ions which can then be used by the plant as a nutrient. Small amounts of sulfite may be oxidized before they prove harmful.

SO_2 gas at elevated levels has long been known to cause injury to plants. Acute SO_2 injury usually develops within a few hours or days of exposure, and symptoms include marginal, flecked, and/or intercostal necrotic areas that appear water-soaked and dullish green initially. This injury generally occurs to younger leaves. Chronic injury usually is evident by signs of chlorosis, bronzing, premature senescence, reduced growth, and possible tissue necrosis (EPA, 1982). Observed SO_2 effect levels for several plant species and plant sensitivity groupings are presented in Tables 7-2 and 7-3, respectively.

Many studies have been conducted to determine the effects of high-concentration, short-term SO_2 exposure on natural community vegetation. Sensitive plants include ragweed, legumes, blackberry, southern pine, and red and black oak. These species are injured by exposure to 3-hour SO_2 concentrations of 790 to 1,570 $\mu g/m^3$. Intermediate plants include locust and sweetgum. These species are injured by exposure to 3-hour SO_2 concentrations of 1,570 to 2,100 μg/m^3. Resistant species (injured at concentrations above 2,100 μg/m^3 for 3 hours) include white oak and dogwood (EPA, 1982).

A study of native Floridian species (Woltz and Howe, 1981) demonstrated that cypress, slash pine, live oak, and mangrove exposed to 1,300 μg/m^3 SO_2 for 8 hours were not visibly damaged. This finding supports the levels cited by other researchers on the effects of SO_2 on vegetation. A corroborative study (McLaughlin and Lee, 1974) demonstrated that approximately 20 percent of a cross-section of plants ranging from sensitive to tolerant was visibly injured at 3-hour SO_2 concentrations of 920 μg/m^3.

Two lichen species indigenous to the park area exhibited signs of SO_2 damage in the form of decreased biomass gain and photosynthetic rate as well as membrane leakage when exposed to concentrations of 200 to 400 μg/m^3 for 6 hours/week for 10 weeks (Hart et al., 1988).

When the 8-hour modeled incremental SO_2 increase from the facility modification (4.56 μg/m^3) is added to the upper range of existing SO_2 concentrations (0.72 μg/m^3; refer to Table 4-5), a maximum of 5.28 μg/m^3 of SO_2 would be expected at the point of maximum impact in the Everglades National Park. Upon comparison of this concentration to those causing injury to native species, it is evident that SO_2-sensitive species (or more tolerant species) would not be damaged by the predicted concentrations. By comparing the SO_2 concentration of 5.28 μg/m^3 with the concentrations that cause plant injury, it can be shown that the amount of SO_2 in the park area is only 3 percent of the most conservative concentration (200 μg/m^3) that caused injury to SO_2-sensitive species.

The 24-hour and annual SO_2 concentrations predicted within the park due to the project only (1.65 and 0.075 μg/m^3, respectively) when added to existing concentrations of 0.72 and 0.13 μg/m^3, respectively, result in total SO_2 impacts of 2.37 and 0.21 μg/m^3, respectively. These levels are much lower than those known to cause damage to test species. Jack pine seedlings exposed to SO_2 concentrations of 470 to 520 μg/m^3 for 24 hours demonstrated inhibition of foliar lipid synthesis; however, this inhibition was reversible (Malhotra and Kahn, 1978). Black oak exposed to 1,310 μg/m^3 SO_2 for 24 hours a day for 1 week demonstrated a 48 percent reduction in photosynthesis (Carlson, 1979). By comparison of these levels, it is apparent that the modeled 24-hour incremental increase of SO_2 is well below (i.e., less than 3 percent) the concentrations that caused damage in SO_2-sensitive plants. The modeled annual incremental increase in SO_2 (0.075 μg/m^3) adds only slightly to existing levels of this substance and poses no threat to area vegetation.

7.2.2.2 Nitrogen Dioxide

Atmospheric nitrogen dioxide (NO_2) can injure plant tissue with symptoms usually appearing as irregular white to brown collapsed lesions between the leaf veins and near the margins. Conversely, non-injurious levels of NO_2 can be absorbed by plants, enzymatically transformed into ammonia, and incorporated into plant constituents such as amino acids (Matsumaru et al., 1979).

Plant damage can occur through either acute (short-term, high concentration) or chronic (long-term, relatively low concentration) exposure. For plants that have been determined to be more sensitive to NO_2 exposure than others, acute (1, 4, 8 hours) exposure caused 5 percent predicted foliar injury at concentrations ranging from 3,800 to 15,000 μg/m^3 (Heck and Tingey, 1979). Chronic exposure of selected plants (some considered NO_2-sensitive) to NO_2 concentrations of 2,000 to 4,000 μg/m^3 for 213 to 1,900 hours caused reductions in yield of up to 37 percent and some chlorosis (Zahn, 1975).

By comparison of published toxicity values for NO_2 exposure to short-term (i.e., 1-, 3-, and 8-hour averaging times) and long-term (annual averaging time) predicted maximum impacts due to the proposed modification, the possibility of plant damage in the park can be examined for both acute and chronic exposure situations, respectively. The 1-, 3-, and 8-hour estimated NO_2 concentrations due to the project only at the point of maximum impact in the park area are 2.5, 1.05, and 0.55 μg/m^3, respectively. These concentrations are approximately 0.01 to 0.07 percent of the levels that could potentially injure 5 percent of the plant foliage. For a chronic exposure, the annual estimated NO_2 concentration due to the project only at the point of maximum impact in the park (0.01 μg/m^3) is 0.00025 to 0.0005 percent of the levels that caused minimal yield loss and chlorosis in plant tissue.

Although it has been shown that simultaneous exposure to SO_2 and NO_2 can result in synergistic plant injury (Ashenden and Williams, 1980), the magnitude of this response is generally only 3 to 4 times greater than either substance alone and usually occurs at unnaturally high levels of each gas. Therefore, the concentrations within the park are still far below the levels that potentially cause plant injury for either acute or chronic exposure. In any event, the extremely small additional impact the proposed project is predicted to have on the ENP will not cause any adverse affects to vegetation.

7.2.2.3 Particulate Matter

Although information pertaining to the effects of PM on plants is scarce, baseline concentrations are available (Mandoli and Dubey, 1988). Ten species of native Indian plants were exposed to levels of PM that ranged from 210 to 366 $\mu g/m^3$ for an 8-hour averaging period. Damage in the form of a higher leaf area/dry weight ratio was observed at varying degrees for most plants tested. Concentrations of PM lower than 163 $\mu g/m^3$ did not appear to be injurious to the tested plants.

By comparison of published toxicity values for PM exposure (i.e., 8-hour averaging time) concentrations, the possibility of plant damage in the park due to the project can be determined. The 8-hour estimated PM concentration due to the project only at the point of maximum impact in the ENP is 0.63 $\mu g/m^3$. This concentration is approximately 0.14 to 0.24 percent of the values that affected plant foliage. The extremely small additional impact the proposed project is predicted to have on the ENP will not cause any adverse affects to vegetation.

7.2.2.4 Carbon Monoxide

As with PM, information pertaining to the effects of CO on plants is scarce. The main effect of high concentrations of CO is the inhibition of cytochrome *c* oxidase, the terminal oxidase in the mitochondrial electron transfer chain. Inhibition of cytochrome *c* oxidase depletes the supply of ATP, the principal donor of free energy required for cell functions. However, this inhibition only occurs at extremely high concentrations of CO. Pollok et al. (1989) reported that exposure to $CO:O_2$ ratio of 25 (equivalent to an ambient CO concentration of 6.85 x 10^6 $\mu g/m^3$) resulted in stomatal closure in the leaves of the sunflower (*Helianthus annuus*).

Naik et al. (1992) reported cytochrome *c* oxidase inhibition in corn, sorghum, millet, and Guinea grass at $CO:O_2$ ratios of 2.5 (equivalent to an ambient CO concentration of 6.85 x 10^5 $\mu g/m^3$). These plants were considered the species most sensitive to CO-induced inhibition of cytochrome *c* oxidase.

7.2.3 SUMMARY

In summary, the phytotoxic effects on the ENP from proposed increase in Boiler No. 4 emissions are expected to be minimal. It is important to note that the substances evaluated with the assumption that 100 percent was available for plant uptake. This is rarely the case in a natural ecosystem.

7.3 IMPACTS TO WILDLIFE

A wide range of physiological and ecological effects to fauna has been reported for gaseous and particulate pollutants (Newman, 1981; Newman and Schreiber, 1988). The most severe of these effects have been observed at concentrations above the secondary ambient air quality standards. Physiological and behavioral effects have been observed in experimental animals at or below these standards. No observable effects to fauna are expected at concentrations below the values reported in Table 7-4.

The major air quality risk to wildlife in the United States is from continuous exposure to pollutants above the National Ambient Air Quality Standards. This occurs in non-attainment areas, e.g., Los Angeles Basin. Risks to wildlife also may occur for wildlife living in the vicinity of an emission source that experiences frequent upsets or episodic conditions resulting from malfunctioning equipment, unique meteorological conditions, or startup operations (Newman and Schreiber, 1988). Under these conditions, chronic effects (e.g., particulate contamination) and acute effects (e.g., injury to health) have been observed (Newman, 1981).

For impacts on wildlife, the lowest threshold values of SO_2, NO_x, and particulates which are reported to cause physiological changes are shown in Table 7-4. These values are up to orders of magnitude larger than maximum predicted concentrations for the Class I area due to the proposed modification. No effects on wildlife AQRVs from SO_2, NO_x, or particulates are expected. These results are considered indications of the risk of other air pollutant emissions (i.e., CO) which will result from the facility.

7.4 IMPACTS ON VISIBILITY

7.4.1 Regional Haze

7.4.1.1 Introduction

A change in visibility is characterized by either a change in the visual range, defined as the greatest distance that a large dark object can be seen, or by a change in the light-extinction coefficient (b_{ext}). The parameter b_{ext} is the attenuation of light per unit distance due to the scattering and absorption by gases and particles in the atmosphere. A change in the extinction coefficient produces a perceived visual change that is measured by a visibility index called the deciview. The parameter deciview (dv) is defined as:

$$dv = 10 \ln (1 + b_{exts} / b_{extb})$$

where: b_{exts} is the extinction coefficient calculated for the source, and
b_{extb} is the background extinction coefficient

The source extinction coefficient is determined from NO_x, SO_2, and PM_{10} emission's increase from the proposed project. The background extinction coefficient s for each area evaluated are based on existing ambient monitoring data. Based on predicted SO_4, NO_3 , and PM_{10} concentrations, the increase in the project's emissions were compared to a 5 percent change in light extinction of the background levels. This is equivalent to a change in deciview of 0.5.

The regional haze modeling analysis determined the deciview change at the Everglades National Park, a PSD Class I area located 102 km from the Clewiston Mill.

7.4.2 Analysis Methodology

Following the recommendations of the Interagency Workgroup on Air Quality Modeling (IWAQM) Phase II report, a level II screening analysis was performed using the California Puff (CALPUFF) long-term transport model, along with an enhanced ISC meteorological data record. The CALPUFF postprocessor model CALPOST was used to summarize the maximum concentrations of SO_4, NO_3, and PM_{10} that were predicted with the CALPUFF model.

CALPUFF was used in a manner recommended by the IWAQM Phase 2 Summary Report (EPA, 1998). The recommended parameter settings used with CALPUFF, as presented in Appendix B of the IWAQM Phase II Summary Report, are presented in Appendix D. The CALPUFF model was used in an ISC screening mode with an "enhanced" ISCST3 meteorological data set.

The following CALPUFF settings/values were implemented in the Level II screening analysis:

- Use of five pollutant species: SO_2, SO_4, NO_x, HNO_3, and NO_3
- Use of MESOPUFF II scheme for chemical transformation with CALPUFF default background concentrations
- Include both dry and wet deposition and plume depletion
- Use agricultural, unirrigated land use; minimum mixing height of 50 m
- Use transitional plume rise, stack-tip downwash, and partial plume penetration
- Use puff plume element dispersion, PG/MP coefficients, rural mode, and ISC building downwash scheme
- Use partial plume path adjustment terrain effects
- Use highest, 2^{nd}–highest (H2H) concentrations predicted in 5 years for comparison to deciview criteria

7.4.3 Emission Inventory

Based on recommendations of the IWAQM Phase II Report, the increase in emissions due to U.S. Sugar's proposed facility modification only were used in the air modeling analysis. For the CALPUFF analysis, the current Boiler No. 4 's emissions were not included as offsets against Boiler No. 4's future emissions. Therefore, the emission rates used in the CALPUFF analysis for Boiler No. 4 are 28.25 g/s for SO_2; 10.4 g/s for NO_x, and 10.55 g/s for PM_{10}. To represent all the refinery sources, a second source was included in CALPUFF with source parameters of the White Sugar Dryer (Source ID S-10) and total refinery emissions of 0.062 g/s for SO_2; 0.278 g/s for NO_x, and 0.608 g/s for PM_{10}.

7.4.4 Building Wake Effects

The air modeling analysis included the Clewiston Mill's building dimensions to account for the effects of building-induced downwash on the emission sources. Dimensions for all significant building structures were processed with the Building Profile Input Program (BPIP), Version 95086, and were included in the CALPUFF model.

7.4.5 Receptor Locations

Receptors were located along a circle that was centered over the Clewiston Mill and with a radius equal to the minimum distance between the Mill and ENP (102 km). The circle was comprised of 180 polar receptors, spaced at 2-degree intervals. Because the area's terrain is flat, all receptors were assumed to be at the Clewiston Mill's elevation.

7.4.6 Background Visual Ranges and Relative Humidity Factors

Seasonal and annual background extinction coefficients and relative humidity adjustment factors were provided by the National Park Service Air Quality Division for the ENP. The background extinction coefficient was based on data representative of the mean of the top 20-percentile air quality days. The following table summarizes the annual information.

Summary of Regional Haze Analysis Data		
Modeled Area	**Relative Humidity Factor**	**Background B_{ext}**
Everglades National Park	3.85	46.43

7.4.7 Meteorological Data

A five-year data record was used which consisted of hourly surface observations and twice-daily mixing height data obtained from the Palm Beach International Airport National Weather Service (NWS) office. The data record was for the years 1987 through 1991. The surface and upper data were preprocessed into an ASCII modeling format by EPA 's PCRAMMET meteorological preprocessing program. An anemometer height of 10.1 m was used for the modeling analysis.

Additional meteorological parameters were added to the meteorological data records for use with the CALPUFF model. The addition parameters include friction velocity, Monin-Obukhov length, and surface roughness used for calculating dry deposition; precipitation type code and precipitation rate used for calculating wet deposition, and short-wave solar radiation and relative humidity use for calculating chemical transformation rates. The dry deposition parameters were added to the meteorological data records using the PCRAMMET model in dry deposition mode. Using the guidance provided in Section 3.1 of the PCRAMMET User's Manual (8/98), the following input values were selected:

1. Surface roughness at both application and measurement sites: 0.15 m
2. Noontime Albedo: 0.14
3. Bowen Ratio: 0.8
4. Anthropogenic Heat flux: 0
5. Minimum Monin-Obukhov Length: 2 m
6. Fraction of Net Radiation Absorbed by Ground: 0.15

Hourly precipitation amounts, relative humidity and short-wave radiation values were added separately to the meteorological data set. These parameters were obtained from the West Palm Beach surface data available from Solar and Meteorological Surface Observation Network (SAMSON) data.

Based on the precipitation classification scheme provided in the CALPUFF Users Manual (Table 2-11 of the manual), each hour's precipitation code was set to 0 or 2. An hour in which no precipitation occurred received a code of 0. If precipitation occurred the code was set to 2. All precipitation is in the form of rain.

7.4.8 Chemical Transformation

Conservative chemical transformation assumptions were assumed for the air modeling analysis. It is assumed that all NO_x emissions are initially NO_2. The CALPUFF model is then used to predict SO_4, NO_3, and PM_{10} concentrations. The concentration of $4(NH_4)SO_4$ was estimated from the predicted SO_4 concentration by multiplying the SO_4 concentration by 1.375. This factor is the ratio of the two substances' molecular weights. Similarly, the concentration of NH_4 NO_3 was estimated from the predicted NO_3 concentration by multiplying the NO_3 concentration by 1.29.

7.5 RESULTS

The results of the Level II screening analysis are summarized in Table 7-5. The predicted deciview change of 0.292 is well below the criteria of 0.5 deciview. Therefore, it is concluded that the proposed project will not result in a significant impact on the visibility at the ENP.

Table 7-1. Maximum Predicted Concentrations Due To Project Only at Everglades National Park

Pollutant	Concentrations[a] (ug/m^3) for Averaging Times				
	Annual	24-Hour	8-Hour	3-Hour	1-Hour
Sulfur Dioxide (SO_2)	0.075	1.65	4.65	12.89	24.58
Nitrogen Dioxide (NO_2)	0.012	0.29	0.66	1.26	2.98
Particulates (PM_{10})	0.007	0.31	0.63	1.08	3.25
Carbon Monoxide (CO)	0.288	13.68	29.55	51.86	140.39

[a]. From the ISC-PRIME model and 5-years of hourly meteorlogical data from Palm Beach International Airport, 1987-91

Table 7-2. SO_2 Effects Levels for Various Plant Species

Plant Species	Observed Effect Level ($\mu g/m^3$)	Exposure (Time)	Reference
Sensitive to tolerant	920 (20 percent displayed visible injury)	3 hours	McLaughlin and Lee, 1974
Lichens	200-400	6 hr/wk for 10 weeks	Hart *et al.*, 1988
Cypress, slash pine, live oak, mangrove	1,300	8 hours	Woltz and Howe, 1981
Jack pine seedlings	470-520	24 hours	Malhotra and Kahn, 1978
Black oak	1,310	Continuously for 1 week	Carlson, 1979

Table 7-3. Sensitivity Groupings of Vegetation Based on Visible Injury at Different SO_2 Exposures[a]

Sensitivity Grouping	SO_2 Concentration 1-Hour	SO_2 Concentration 3-Hour	Plants
Sensitive	1,310 - 2,620 $\mu g/m^3$ (0.5 - 1.0 ppm)	790 - 1,570 $\mu g/m^3$ (0.3 - 0.6 ppm)	Ragweeds Legumes Blackberry Southern pines Red and black oaks White ash Sumacs
Intermediate	2,620 - 5,240 $\mu g/m^3$ (1.0 - 2.0 ppm)	1,570 - 2,100 $\mu g/m^3$ (0.6 - 0.8 ppm)	Maples Locust Sweetgum Cherry Elms Tuliptree Many crop and garden species
Resistant	>5,240 $\mu g/m^3$ (>2.0 ppm)	>2,100 $\mu g/m^3$ (>0.8 ppm)	White oaks Potato Upland cotton Corn Dogwood Peach

[a] Based on observations over a 20-year period of visible injury occurring on over 120 species growing in the vicinities of coal-fired power plants in the southeastern United States.

Source: EPA, 1982a.

Table 7-4. Examples of Reported Effects of Air Pollutants at Concentrations Below National Secondary Ambient Air Quality Standards

Pollutant	Reported Effect	Concentration ($\mu g/m^3$)	Exposure
Sulfur Dioxide[1]	Respiratory stress in guinea pigs	427 to 854	1 hour
	Respiratory stress in rats	267	7 hours/day; 5 day/wk for 10 weeks
	Decreased abundance in deer mice	13 to 157	continually for 5 months
Nitrogen Dioxide[2,3]	Respiratory stress in mice	1,917	3 hours
	Respiratory stress in guinea pigs	96 to 958	8 hours/day for 122 days
Particulates[1]	Respiratory stress, reduced respiratory disease defenses	120 PbO_3	continually for 2 months
	Decreased respiratory disease defenses in rats, same with hamsters	100 $NiCl_2$	2 hours

Source: [1]Newman and Schreiber, 1988.
[2]Gardner and Graham, 1976.
[3]Trzeciak et al., 1977.

Table 7-5. Regional Haze Analyses for the Everglades NP PSD Class I Area, IWAQM Level II Screening Analysis

Parameter	Units	Values
Predicted Concentration (a)	ug/m^3	
PM_{10}		0.14300
SO_4		0.0573
NO_3		0.0216
Calculated Concentrations	ug/m^3	
$(NH_4)_2SO_4$ (b)		0.0787
NH_4NO_3 (c)		0.0278
Everglades NP Background Data		
Relative Humidity Factor(d)		3.85
Background Extinction Coeff.(bext) (d)	Mm^{-1}	0.0464
Background Visual Range, Vr	km	84
Source Extinction Coeff (bexts)	km^{-1}	
$(NH_4)_2SO_4$ (e)		0.00091
NH_4NO_3 (e)		0.00032
PM_{10} (f)		0.00014
Total source bexts	km^{-1}	0.00137
Deciview Change		
delta (dv) = 10 ln(1 + bext/bext)		0.292

(a). Based on H2H predicted 24-hour concentration from CALPUFF model and 5-year enhanced meteorological data set for West Palm Beach (1987-91)
(b) Based on SO_4 concentration times 1.375.
(c) Based on NO_3 concentration times 1.29.
(d) Provided by NPS, Air Resources Div., Facimile of 5/26/99
(e) bext = Concentration * 0.003 * f(RH)
(f) bext = Concentration * 0.001

Ref: IWAQM Phase I Report (1993), Section 5.1.2, Inset 1, Appendix B
IWAQM Phase II Summary Report (12/98) Appendix B
H2H = Predicted Highest, Second-Highest Concentration in 5 years.

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APPENDIX A

CURRENT PERMIT
NO. 4 BOILER

Department of Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

May 1, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Murray T. Brinson
President of Sugar Processing
U.S. Sugar Corporation
Post Office Drawer 1207
Clewiston, Florida 33440

Dear Mr. Brinson:

RE: Amendment of Permit No. AC 26-248808/PSD-FL-217
Clewiston Mill Boiler No. 4

In response to Bryan Cave LLP April 5, 1996 letter on resolving the outstanding issues on the carbon monoxide emission limit for boiler No. 4 at your sugar mill in Clewiston, Henry County, Florida, the Department is amending the reference permit as follows:

FROM:

Permit Expiration Date - June 1, 1996

Specific Conditions

1. Stack sampling facilities for Boiler No. 4 shall be in accordance with the requirements of Rule 62-297.345, F.A.C.

11. During any 24-hour period, not more than 40,800 gallons of No. 6 residual fuel oil shall be burned in boilers 1, 2, 3 and 4 at the plant.

12. During any 3-hour period, not more than 6,300 gallons of No. 6 residual fuel oil shall be burned in boilers 1, 2, 3 and 4 at the plant.

17. Emissions of carbon monoxide and volatile organic compounds shall be maintained at the lowest possible level through the implementation of an Operation and Maintenance plan that is approved by the Department's Bureau of Air Regulation (BAR). The permittee

Mr. Murray T. Brinson
Page Two
May 1, 1996

shall update and resubmit the Operation and Maintenance plan for Boiler No. 4 with detailed information on minimizing carbon monoxide emissions prior to June 1, 1996. The Department will incorporate the plan into the air operation permit for this facility. Emissions of carbon monoxide (1-hour average) shall be minimized through Good Combustion Practice (GCP) and shall not exceed 6.5 lbs/MMBtu, 5,052 lbs/hr, and 8,818 tons during any calendar year, (based on a 6-hr average of 706.6 MMBtu/hr heat input). During the 1995-1996 sugar cane season, the permittee shall conduct a minimum of three tests for CO on this unit using EPA Method 10 (Rule 62-297.401(10), F.A.C.), while employing GCP as described in the Operation and Maintenance plan. The Department may revise the carbon monoxide emission standard and the permit if the tests show lower carbon monoxide emissions can be achieved by this boiler. Emissions of volatile organic compounds shall not exceed 1.7 lbs/ton of wet bagasse as determined by EPA Method 25 or 25A in conjunction with EPA Method 18. These test methods are described in 40 CFR 60, Appendix A. Compliance tests for VOC will not be required if the visible emissions from Boiler No. 4 are below 20 percent opacity and acceptable emission factors have been established for this pollutant.

21. Compliance tests for all emission standards listed in Specific Conditions Nos. 14, 15, and 17 for Boiler No. 4 shall be conducted once each Federal fiscal year and reported to the Department's South District office within 45 days of completion of the last test run. During the 1995-1996 sugar cane season, the permittee shall make a minimum of three tests for carbon monoxide on Boiler No. 4 using EPA Method 10 (Rule 62-297.401(10), F.A.C.) while employing Good Combustion Practices as described in the Operation and Maintenance plan. The Department shall revise the carbon monoxide emission standard and this permit if the tests show lower carbon monoxide emissions can be achieved by this boiler.

<u>TO</u>:

Permit Expiration Date - August 15, 1996

Specific Conditions

1. Stack sampling facilities for Boiler Nos. 1, 2, 3, and 4 shall be in accordance with the requirements of Rule 62-297.345, F.A.C.

11. During any 24-hour period, not more than 88,800 gallons of No. 6 residual fuel oil shall be burned in boilers 1, 2, 3 and 4 at the plant. Boiler Nos. 1, 2, and 3 shall be equipped with stacks having a minimum height of 165 feet.

12. During any 3-hour period, not more than 16,200 gallons of No. 6 residual fuel oil shall be burned in boilers 1, 2, 3 and 4 at the plant.

17. Emissions of carbon monoxide and volatile organic compounds shall be maintained at the lowest possible level through the implementation of an Operation and Maintenance plan that is approved by the Department's Bureau of Air Regulation (BAR). The permittee shall update and resubmit the Operation and Maintenance plan for Boiler No. 4 with detailed information on minimizing carbon monoxide emissions prior to August 15, 1996. The Department will incorporate the plan into the air operation permit for this facility. Emissions of carbon monoxide (1-hour average) shall be minimized through Good Combustion Practice (GCP) and shall not exceed 6.5 lbs/MMBtu, 5,052 lbs/hr, and 8,818 tons during any calendar year, (based on a 6-hr average of 706.6 MMBtu/hr heat input). Emissions of volatile organic compounds shall not exceed 1.7 lbs/ton of wet bagasse as determined by EPA Method 25 or 25A in conjunction with EPA Method 18. These test methods are described in 40 CFR 60, Appendix A. Compliance tests for VOC will not be required if the visible emissions from Boiler No. 4 are below 20 percent opacity and acceptable emission factors have been established for this pollutant.

21. Compliance tests for all emission standards listed in Specific Conditions Nos. 14, 15, and 17 for Boiler No. 4 shall be conducted once each Federal fiscal year and reported to the Department's South District office within 45 days of completion of the last test run. 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 permit amendment is required for the proposed change.

The Department will issue the permit amendment 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 3900 Commonwealth Blvd., Mail Station 35, Tallahassee, Florida 32399-3000. 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/ request 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 60Q-2.010, F.A.C.

Mr. Murray T. Brinson
Page Five
May 1, 1996

As indicated in the Department's letter dated October 26, 1995 burning fuel at a rate that is in excess of the permit limits is not authorized by Rule 62-210.700, F.A.C.

A copy of this letter must be filed with the referenced permit and shall become a condition to that permit.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Howard L Rhodes

Howard L. Rhodes, Director
Division of Air Resources
Management

Attachment: Bryan Cave LLP April 5, 1996 letter

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that all copies of this INTENT TO ISSUE PERMIT AMENDMENT all copies were mailed by certified mail before the close of business on 5-3-96 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.

Kim Tober 5/3/96
Clerk Date

Copies furnished to:

David Knowles, SD
Jewell Harper, EPA
David Buff, KBN
Joe Kahn, SED
John Bunyak, NPS

BRYAN CAVE LLP

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PHOENIX, ARIZONA
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SANTA MONICA, CALIFORNIA
IRVINE, CALIFORNIA

LONDON, ENGLAND
FRANKFURT AM MAIN, GERMANY
RIYADH, SAUDI ARABIA
KUWAIT CITY, KUWAIT
DUBAI, UNITED ARAB EMIRATES
HONG KONG
AFFILIATED OFFICE IN BEIJING

ROBERT F. VAN VOORHEES
DIRECT DIAL NUMBER
(202) 508-6014

April 5, 1996

RECEIVED
APR 08 1996
BUREAU OF
AIR REGULATION

BY FEDERAL EXPRESS

Mr. A. A. Linero, P.E.
Administrator
New Source Review Section
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 33440

Re: DEP File No. AC26-248809/PSD-FL-217
PSD Construction Permit Modification
Clewiston Boiler No. 4
United States Sugar Corporation

Dear Mr. Linero:

This letter addresses all outstanding issues pertaining to the proposed PSD permit modification for U.S. Sugar Corporation's Clewiston Boiler No. 4 and provides information necessary for the Department to issue the final permit modification.

As requested by the Department in its letter of October 26, 1995, U.S. Sugar conducted an SO_2 impact assessment to determine the optimum quantity of No. 6 fuel oil that could be burned at the Clewiston Mill without causing or contributing to a violation of the 3-hour and 24-hour ambient air quality standards. As a result of the impact assessment prepared by KBN Engineering and Applied Sciences, Inc. (copy enclosed), U.S. Sugar proposes to increase the facility-wide No. 6 fuel oil burning rates at the Clewiston Mill to 16,200 gallons for any 3-hour period and 88,800 gallons for any 24-hour period. We also request that the Department modify the operation permits for Clewiston Boilers Nos. 1, 2, and 3 to make clear that these increased fuel oil burning rates apply facility-wide.

We understand that the final BACT CO emissions limit of 6.5 lbs/MMBtu will not be subject to revision based on future testing, as currently required by specific conditions 17 and 21. In a telephone conversation with Peter Oppenheimer on November 6, 1995, Jefferson W. Braswell of the Department's Office of General Counsel stated that the Department had accepted 6.5 lbs/MMBtu as a final BACT CO limit. We request that specific conditions 17 and 21 be modified accordingly as stated in attachment A to KBN's letter of October 19, 1995 (copy enclosed).

Although the Department stated in its letter of October 26, 1995 that the fuel burning rate is a separate issue from excess emissions, we retain our view that Rule 62-200.710, F.A.C. applies to the fuel consumption limit contained in specific condition 12.

Two further housekeeping matters: First, U.S. Sugar has decided to increase the stack heights for Boiler Nos. 1, 2, and 3 to 165 feet, 15 feet higher than the minimum height required by specific condition 4 of the construction permit for Clewiston Boiler No. 7. As a result, stack heights of 165 feet were used for the modeling analysis in the SO_2 impact assessment. Second, the construction permit modification for Boiler No. 4 expires on June 1, 1996. To avoid issuance of a non-Title V operation permit during the period between June 1, 1996 and the Title V permit application deadline of June 15, 1996, we request that the expiration date of the construction permit modification be extended to August 15, 1996 in accordance with DEP's Memorandum of May 24, 1995 entitled "Guidance for Extending the Expiration Date of Construction Permits for Title V Sources" (DARM-PER/V-06).

We trust you agree that this letter resolves all outstanding issues, and we look forward to the expeditious issuance of a final PSD construction permit modification for Clewiston Boiler No. 4. If you have any questions or need additional information, please do not hesitate to call me.

Sincerely,

Robert F. Van Voorhees

Robert F. Van Voorhees

Enclosures

cc: Jeff Braswell, DEP OGC (w/o enclosure)
David Knowles, DEP South District
Lisa Gefen, U.S. Sugar (w/o enclosure)
Peter Briggs, U.S. Sugar (w/o enclosure)
Don Griffin, U.S. Sugar
David Buff, KBN (w/o enclosure)

.576.01

cc: EPA
NPS

Department of Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

January 31, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Donald Griffin, Project Manager
United States Sugar Corporation
Post Office Box 1207
Clewiston, Florida 33440-1207

Dear Mr. Griffin:

Re: U. S. Sugar Corp.
Clewiston Boiler No. 4
DEP File No. AC 26-248809 - PSD-FL-217

The Department has reviewed your updated Operation and Maintenance (O&M) plan dated January 16, 1996, for the No. 4 bagasse/fuel oil-fired boiler at the Clewiston sugar mill. We have concluded it is acceptable for the operation of the scrubber and the control of particulate matter emissions.

However, the plan needs to be expanded in the area of carbon monoxide (CO) and volatile organic compounds (VOC) control. The plan should specify what parameters (oxygen, carbon monoxide, and/or carbon dioxide concentration(s)) will be monitored, the operational ranges of these parameters, and when it may be necessary to depart from those ranges in order to provide reasonable assurance that Good Combustion Practices (GCP) are being employed. Such an O&M plan needs to be source-specific to take advantage of the existing instruments and operation practices.

Please expand on the CO and VOC part of your O&M plan. We look forward to reviewing your amendment to this plan. If you have any questions, please call Willard Hanks at (904)488-1344.

Sincerely,

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

AAL/wh/t

cc: David Knowles, SD
David Buff, KBN

Boiler No. 4
Corrected Copy

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

State of Florida
Department of Environmental Protection
Notice of Permit

In the matter of an
Application for Permit by:
Mr. Murray Brinson, Vice President
United States Sugar Corporation
Post Office Drawer 1207
Clewiston, Florida 33440

DEP File No. AC 26-248809
PSD-FL-217
Hendry County

Enclosed is Permit Number AC 26-248809 (PSD-FL-217) for the construction (modification of the permit) of the existing No. 4 boiler which is fired with bagasse and No. 6 residual fuel oil. This boiler is located at your sugar mill in Clewiston, Hendry 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, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 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

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 8-9-95 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.

Kim Tober 8-9-95
Clerk Date

Copies furnished to:

David Knowles, SD
Jewell Harper, EPA
John Bunyak, NPS
David Buff, KBN
Robert Van Voorhees, Bryan Cave

Final Determination

United States Sugar Corporation
Hendry County
Clewiston, Florida

Boiler No. 4
Department Permit No. AC 26-248809
PSD-FL-217

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

July 27, 1995

Final Determination

U. S. Sugar Corporation
No. 4 Bagasse/No. 6 Residual Fuel Oil-Fired Boiler
Permit No. AC 26-248809 (PSD-FL-217)

A Technical Evaluation and Preliminary Determination, proposed Best Available Control Technology (BACT) determination, and draft construction permit for U. S. Sugar Corporation's existing Boiler No. 4 was distributed on February 9, 1995. The boiler is located at their sugar mill in Clewiston, Hendry County, Florida. The Notice of Intent to Issue was published in the legal section of the Clewiston News on March 1, 1995. Copies of the evaluation were available for public inspection at the Department's offices in Ft. Myers and Tallahassee.

The applicant's attorney submitted comments on the Department's Intent in a letter dated March 23, 1995. The comments addressed items in the Technical Evaluation and Preliminary determination, proposed BACT determination, and the draft permit. The Department's response to these comments follow.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

The source was described by the Department as a bagasse/fuel oil-fired boiler. The applicant requested the source be described as a bagasse/No. 6 residual fuel oil-fired boiler. The Department accepts the applicant's recommendation and has revised the description of the boiler.

The applicant noted that they originally requested a carbon monoxide (CO) emissions limit of 9.0 lbs/MMBtu, not the 6.5 lbs/MMBtu stated in evaluation. The Department agrees with this statement.

The applicant commented that it was the permit for Boiler No. 4 that was being modified, not the boiler itself as implied by the language used in the evaluation. This is correct. There are no physical or operational changes being made to the boiler. Only the allowable CO emission limit and test method are being changed by this permit.

The applicant requested that the Department's statement that the CO emissions vary with boiler operation be deleted from the determination. It is known from principles of combustion that higher excess air or oxygen is associated with lower carbon monoxide emissions. The Department does not know the precise correlation between fuels/boiler operation and CO emissions for the subject boiler. We expect to learn more about the variation in CO emissions after reviewing the applicant's Operation Plan and future CO emissions report for tests conducted while employing Good Combustion Practice (GCP).

The applicant noted that other bagasse boilers have been given a BACT emission limit of 6.5 lbs CO/MMBtu. This statement is true. The Department has made BACT determinations for bagasse boilers, on a case-by-case basis, of 3.5 and 6.5 lbs/MMBtu. For this boiler, the Department has determined that BACT will be the CO emission limit that can be achieved while employing GCP, not to exceed 6.5 lbs/MMBtu.

The applicant requested the EPA directed stack height language on page 5 of the evaluation be deleted. The 1995 EPA-FDEP Workplan requires this or similar statement in all PSD new source review permits.

The applicant stated the 1-hour ambient air background concentration was 7,400 ug/m^3, not the 7,800 ug/m^3 listed in the determination. The Department reported the CO concentration of 7,790 ug/m^3 from page 6-22 of the application as 7,800 ug/m^3 in the determination.

BACT DETERMINATION

The applicant noted that they originally requested a CO emissions limit of 9.0 lbs/MMBtu even though they later agreed to accept a limit of 6.5 lbs/MMBtu. The BACT determination is reworded to state the applicant's original request. The Department adopted a CO limit for this boiler as that which can be met with GCP, not to exceed 6.5 lbs/MMBtu.

The applicant noted that the fuel oil burned by this boiler is No. 6 residual fuel oil. The Department agrees with this comment and has amended the BACT to note the type oil burned in this boiler.

The applicant asked that all annual emission limits be specified as tons per federal fiscal year (TPFFY) instead of tons per year (TPY). The Department will note that the TPY standards in this permit shall be on a calendar year basis because the Title V processing fees and Annual Operation Reports are based on a calendar year.

PERMIT NO. AC 26-248809 (PSD-FL-217)

Because of the delay in issuing the permit, the proposed expiration date is extended to June 1, 1996. The applicant requested that other correspondence related to the processing of this application be made an attachment to the permit. The Department accepts this recommendation and have referenced the other documents in the list of attachments.

The applicant requested several editing changes to the General Conditions in the permit to reflect the current language in Rule 62-4.160, F.A.C. The Department accepts this recommendation and has made these changes.

Specific Condition No. 2. The applicant requested that this condition be expanded to clarify the scrubber monitoring requirements. The Department accepts this recommendation and has amended this condition.

Specific Condition No. 3. The applicant requested that this condition be reworded to clarify the Department's intent on restriction of the No. 6 residual oil burned at this facility. The Department has made the changes requested.

Specific Condition No. 4. The applicant requested that the months boiler No. 4 may operate be deleted from this permit. This request is acceptable. The hours per year operation and tons per year emissions listed elsewhere in the permit have been retained.

Specific Condition No. 5. The applicant requested the limit on steam pressure and steam temperature by deleted from the permit, steam pressure by expressed in PSIG, and the permit note that heat input be based on the boiler having a thermal efficiency of 55 percent. The Department is clarifying the limits on steam pressure and temperature, which is from a previous permit for this boiler (Specific Condition No. 1 of Permit No. AC 26-126965), and accepting the request to add the pressure units and assumed boiler thermal efficiency to this condition.

Specific Condition No. 7. The applicant asked that this condition, which sets minimum pressure drop for the No. 4 boiler scrubber, be deleted. The Department is retaining this condition which is from a previous permit for this boiler (Specific Condition No. 17 of permit No. AC 26-126965).

Specific Condition No. 8. Basically, the same as above.

Specific Condition No. 9. The applicant requested that this condition be reworded to clarify the restrictions on No. 6 fuel oil consumption at this facility. This request is acceptable to the Department and this condition has been amended.

Specific Condition No. 11. Basically, the same as above.

Specific Condition No. 12. At the applicant's request, this condition was reworded to clarify restrictions on No. 6 residual fuel oil consumption at the facility. There was also a request to incorporate language similar to Rule 62-210.700, F.A.C., in this condition. The referenced rule addresses excess emissions, not fuel consumption. Although Rule 62-210.700, F.A.C., applies to this boiler (and other units of air pollution), it was not incorporated in this condition.

Specific Condition No. 13. At the applicant's request, this condition was reworded to note that it applied only to No. 6 residual fuel oil consumed at this facility and added several analytical methods that may be used for the analysis of sulfur in the oil.

Specific Condition No. 14. The applicant requested that the annual emission limits be on a ton per federal fiscal year basis. As described earlier, the tons per year limit are are to be met on a calendar year basis. The applicant requested that the compliance test procedures be listed in this condition. This condition is in the Emission Limitation Section of the permit. The Department is leaving the compliance tests procedures under the Testing and Reporting section of the permit.

Specific Condition No. 16. The applicant asked that the sulfur dioxide emission standard of 0.87 lbs/MMBtu be removed from the permit, the annual emission limit be based on the federal fiscal year, and the requirement to calculate the emissions for information purposes only using the F factor be deleted from the permit. The Department will remove the lbs/MMBtu sulfur dioxide emission limit from the permit. The standard was not expressed in this unit in previous permits for Boiler No. 4. The annual emission limits are based on a calendar year basis. The F factor emission calculations, from Specific Condition No. 9 of permit No. AC 26-126965, is retained until the report on its use prepared by U. S. Sugar Corporation's consultant is accepted by the Department.

Specific Condition No. 17. The applicant requested additional time to submit an updated Operation and Maintenance Plan on minimizing CO emissions from Boiler No. 4, that the requirement to test the boiler while employing GCP as a basis for revising the BACT be deleted, that Method 25A in conjunction with Method 18 be allowed to measure the VOC emissions, and that the compliance tests for CO and VOC be waived if visible emissions were less than 20 percent opacity. The Department will allow the additional time to update the Operation and Maintenance plan, the use of the combined test methods for VOC, waive the VOC test if visible emissions are less than 20 percent opacity, but retain the CO testing requirements while Boiler No. 4 is being operated with GCP. Annual CO tests are required thereafter.

Specific Condition No. 18. The applicant requested this condition be reworded to note what action may reduce fugitive emissions. This request is acceptable to the Department.

Specific Condition No. 19. The applicant requested the TPY NOx standard be deleted from this condition and the compliance test be waived on approval of an Operation and Maintenance plan that optimizes NOx emissions. The Department has replaced this condition with Specific Condition No. 15 of permit No. AC 26-126965, a previous permit for this boiler, whose requirements are similar to those requested by the applicant.

Specific Condition No. 21. The applicant requested this condition listing the testing requirements be deleted and replaced with current requirements from previous permits. The Department is rewording this condition to retain the current testing requirements and the new CO emissions test requirements added as a condition of this modification. The testing requirements of this permit will be annual PM, CO, and visible emissions tests provided an acceptable Operation and Maintenance plan has been provided to the Department, visible emissions are less than 20 percent opacity, and emissions factors have been established for the other regulated pollutants per Specific Condition No. 16 of permit No. AC 26-126965.

Specific Condition No. 22. The applicant requested that this condition, which lists the reference test methods, be deleted because it is redundant. Previous comments were to add the test methods in the condition listing the emission standards. The Department is retaining this condition under the Testing and Reporting section of the permit.

Specific Condition No. 23. The applicant requested that this condition be reworded to address situations where the particulate matter and visible emissions tests cannot be performed concurrently. The Department has revised this condition to address this situation.

Specific Condition No. 24. The applicant requested this condition, which specified the particulate matter test method, be deleted because an earlier request had asked it be put in the condition with the particulate matter standard. The Department is retaining this condition under the Testing and Reporting section of the permit.

Specific Condition No. 25. The applicant requested an alternate schedule be allowed to determine the thermal efficiency of Boiler No. 4. This condition is modified to approve the request.

Specific Condition No. 26. The applicant requested that the 15 days notice prior to compliance testing not be required in writing. The Department is deleting the requirement that the notification be in writing but cautions the applicant that failure to notify the Department of the scheduled compliance test may be grounds to reject the test results.

Specific Condition No. 27. The applicant requested that annual reporting of fuel oil consumption be deleted. This request is denied. Specific Condition No. 17 of Permit No. AC 26-126965 requires this data be reported annually.

The applicant also requested that the operation permit for Boiler No. 4 be issued prior to the expiration date of this construction permit. The Bureau of Air Regulations recommends the South District office issue the operation permit for this boiler after incorporating the conditions of this construction permit.

The final action of the Department will be to issue the construction permit and the BACT determination as proposed in the Technical Evaluation and Preliminary Determination except for the changes noted above.

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. Murray T. Brinson
Vice President of Sugar Processing
U.S. Sugar Corporation
P. O. Drawer 1207
Clewiston, Florida 33440

APIS No: 52FTM26000309
Permit Number: AC26-248809/PSD-FL-217
Expiration Date: December 29, 1995
County: Hendry
Latitude/Longitude: 26°44'05"N 80°56'19"W
Project: Boiler No. 4 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 Foster Wheeler Boiler No. 4 located at U.S. Sugar Corporation's sugar mill. This mill is located near the intersection of W. C. Owens Avenue and Clewiston Street in Clewiston, Hendry County, Florida. The UTM coordinates of this site are zone 17, 506.1 km E and 2956.9 km N.

The modification shall be in accordance with the application (cover letter dated April 7, 1994), and the additional information submitted in the U.S. Sugar Corporation's letters dated June 27, 1994, and September 8, 1994, except for the changes mentioned in the Technical Evaluation and Preliminary Determination and listed as Specific Conditions in this permit to construct/modify.

Attachments are listed below:

1. U.S. Sugar Corporation's application received April 8, 1994.
2. DEP's letter dated April 26, 1994.
3. U.S. Sugar Corporation's letter dated June 27, 1994.
4. DEP's letter dated July 19, 1994.
5. KBN's letter dated August 31, 1994.
6. U.S. Sugar Corporation's letter dated September 8, 1994.
7. U.S. Sugar's 90-day time limit waiver, dated November 30, 1994.
8. DEP's letter dated December 6, 1994.
9. KBN's letter dated December 8, 1994.
10. U.S. Sugar's 90-day time limit waiver, dated January 9, 1995.
11. KBN's letter dated January 11, 1995.
12. Bryan Cave's letter dated March 23, 1995.

PERMITTEE:
U.S. Sugar Corporation

Permit Number: AC26-248809/PSD-FL-217
Expiration Date: December 29, 1995

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.

PERMITTEE:
U.S. Sugar Corporation

Permit Number: AC26-248809/PSD-FL-217
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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.

PERMITTEE:
U.S. Sugar Corporation

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Expiration Date: December 2[illegible], 1995

SPECIFIC CONDITIONS:

Equipment Specification

1. Stack sampling facilities for Boiler No. 4 shall be in accordance with the requirements of Rule 62-297.345, F.A.C.

2. The scrubber control system for Boiler No. 4 shall be equipped with an instrument to measure the gas pressure drop. Readings shall be taken and logged once per shift (every 8 hours) for each day during which bagasse is burned in Boiler No. 4. The pH of the scrubber water shall be measured and recorded once for each day during which bagasse is burned in Boiler No. 4. These records shall be available for regulatory agency inspection for 5 years. During compliance testing, the scrubber parameters shall be measured and recorded at 15-minute intervals.

3. All boilers at the plant that burn No. 6 residual fuel oil shall be equipped with integrated fuel oil flow meters or continuous recorders to measure the amount of No. 6 residual fuel oil consumed by the boilers. Boiler No. 4 shall not have more than two burners with two oil guns each (total of four oil guns). The maximum capacity of all four fuel oil guns shall not exceed the permitted fuel oil input rate.

Operation Limitations

4. Boiler No. 4 is limited to 160 days (3840 hrs/yr) operation per season.

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

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

*Based upon 55% thermal efficiency while burning bagasse.
?
**1-hour average

6. Readings shall be taken and logged every 8 hours of the scrubber pressure drop and every 24 hours for the pH of the scrubber water for each day during which bagasse is burned in Boiler No. 4. During compliance testing, the scrubber parameters shall be measured and recorded at 15 minute intervals.

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U.S. Sugar Corporation

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7. The scrubber shall be operated at a 1-hour average pressure drop that is 90% or more of the average pressure drop that existed during a particulate matter test that demonstrated compliance. ok

8. The scrubber shall in no case be operated with an instantaneous (5-minute avg.) pressure drop less than 75% of the pressure drop that was determined concurrently with a stack test that demonstrated compliance for particulate matter. ok

9. The heat input for Boiler No. 4 while firing No. 6 residual fuel oil shall not exceed 225 million Btu per hour, which is approximately equivalent to 1,500 gallons per hour of No. 6 residual fuel oil. Fuel oil meter readings on boilers 1, 2, 3 and 4 shall be read and logged at least once every three hours, unless fuel oil consumption for these boilers is recorded continuously, and these records shall be kept for at least five years for Department inspection. Each meter shall be calibrated annually by a method approved by the Department.

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

11. During any 24-hour period, not more than 40,800 gallons of No. 6 residual fuel oil shall be burned in boilers 1, 2, 3 and 4 at the plant. B1-4

12. During any 3-hour period, not more than 6,300 gallons of No. 6 residual fuel oil shall be burned in boilers 1, 2, 3 and 4 at the plant. B1-4

13. No. 6 residual fuel oil burned by this boiler will be replaced in the fuel oil storage tank with an equal amount of No. 6 residual fuel oil containing no more than 1.50 percent sulfur by weight. Compliance with this condition shall be determined from certified analysis of the replacement No. 6 residual fuel oil by ASTM Method D-129, D-1552, D-2622, or D-4294. Records of the quantity and analysis of No. 6 residual fuel oil consumed in Boiler No. 4 and invoices for the No. 6 residual fuel oil purchased shall be kept for a minimum of five years for regulatory agency inspection.

Emission Limitation

14. Particulate matter (PM) emissions from Boiler No. 4 shall not exceed 0.150 pounds per million Btu heat input (lbs/MMBtu) for

PERMITTEE:
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bagasse fuel or 0.10 lbs/MMBtu for No. 6 residual fuel oil. **Maximum PM emissions shall not exceed 116.6 lbs/hr and 223.8 tons during any calendar year.** In the event that both fuels are burned concurrently, the allowable PM emissions shall be prorated from the allowable standards for each fuel by their respective heat inputs. Compliance test procedures are listed in Specific Condition No. 24.

15. Visible emissions (VE) from Boiler No. 4 shall not exceed 20 percent opacity except for one two-minute period per hour during which the opacity shall not exceed 40 percent pursuant to Rule 62-296.405(1)(a), F.A.C. Compliance with the standard shall be determined by the EPA Method 9 as described in 40 CFR 60, Appendix A.

16. Sulfur dioxide emissions from Boiler No. 4, while burning a mixture of No. 6 residual fuel oil and bagasse, shall not exceed 680 lbs/hr. Sulfur dioxide emissions from Boiler No. 4, while burning 100 percent bagasse fuel, shall not exceed 0.166 lbs/MMBtu **and 129.0 lbs/hr. Total sulfur dioxide emissions from Boiler No. 4 during any calendar year shall not exceed 340 tons.** Sulfur dioxide emissions shall be determined by EPA Method 6 or 6C as described in 40 CFR 60, Appendix A. The compliance test results shall be calculated by assuming the thermal efficiency of Boiler No. 4 is 55 percent.

17. Emissions of carbon monoxide and volatile organic compounds shall be maintained at the lowest possible level through the implementation of an Operation and Maintenance plan that is approved by the Department's Bureau of Air Regulation (BAR). The permittee shall update and resubmit the Operation and Maintenance plan for Boiler No. 4 with detailed information on minimizing carbon monoxide emissions prior to June 1, 1996. The Department will incorporate the plan into the air operation permit for this facility. Emissions of carbon monoxide (1-hour average) shall be minimized through Good Combustion Practice (GCP) and shall not exceed **6.5 lbs/MMBtu, 5,052 lbs/hr, and 8,818 tons** during any calendar year. (based on a 6-hr average of 706.6 MMBtu/hr heat input). During the 1995-1996 sugar cane season, the permittee shall conduct a minimum of three tests for CO on this unit using EPA Method 10 (Rule 62-297.401(10), F.A.C.), while employing GCP as described in the Operation and Maintenance plan. The Department may revise the BACT determination and the carbon monoxide standard ~~and the permit~~ if the tests show lower carbon monoxide emissions can be achieved by this boiler. Emissions of volatile organic compounds shall not exceed 1.7 lbs/ton of wet bagasse as determined by EPA Method 25 or

State BACT is GCP;
however, limit may be revised
based on tests

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U.S. Sugar Corporation

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25A in conjunction with EPA Method 18. These test methods are described in 40 CFR 60, Appendix A. Compliance tests for VOC will not be required if the visible emissions from Boiler No. 4 are below 20 percent opacity and acceptable emission factors have been established for this pollutant.

18. Pursuant to Rule 62-296.310(3), F.A.C., the permittee shall not cause, let, permit, suffer or allow the emissions of unconfined particulate matter from the bagasse storage and handling system without taking reasonable precautions to prevent such emissions. These precautions may include, but shall not be limited to the following: paving and maintenance of roads, parking areas and yards; application of water or chemicals to control unconfined emissions; application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar sources; removal of particulate matter from roads and other paved areas under the control of the permittee to prevent reentrainment, and from buildings or work areas to prevent particulate matter from becoming airborne; landscaping or planting of vegetation; use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter; and, enclosure or covering of conveyer systems.

19. Nitrogen oxides emissions, expressed as NO_2, shall not exceed 192.4 lbs/hr (maximum) as determined by EPA Reference Method 7 or 7E in accordance with 40 CFR 60, Appendix A. After the initial compliance test, the company may substitute an Operation and Maintenance plan that optimizes nitrogen oxide emissions for the compliance tests specified in this specific condition if the initial Method 7 or 7E test shows compliance.

20. All references to the 40 CFR 60 requirements are of the July 1, 1993 version.

Testing and Reporting

21. Compliance tests for all emission standards listed in Specific Conditions Nos. 14, 15, and 17 for Boiler No. 4 shall be conducted once each Federal fiscal year and reported to the Department's South District office within 45 days of completion of the last test run. During the 1995-1996 sugar cane season, the permittee shall make a minimum of three tests for carbon monoxide on Boiler No. 4 using EPA Method 10 (Rule 62-297.401(10), F.A.C.) while employing Good Combustion Practices as described in the Operation and Maintenance plan. The Department shall revise the BACT determination and this permit if the tests show lower carbon monoxide emissions can be achieved by this boiler.

"may"

PERMITTEE:
U.S. Sugar Corporation

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22. Compliance with the emission standards shall be based on EPA Reference Methods 5, 6, 6C, 7, 7E, 9, 10, and 25 or 25A in conjunction with 18 as described in 40 CFR 60, Appendix A.

23. As a condition of this permit, PM emissions and visible emissions tests shall be conducted concurrently on the boiler. Under circumstances when this is not feasible, the company shall obtain approval from the South Florida District to conduct the tests at separate times. In such circumstances, the tests shall be conducted as close to each other as is feasible.

24. Compliance with the PM standards shall be determined by EPA Reference Methods 1, 2, 3, 4, and 5, as described in 40 CFR 60, Appendix A. The compliance test results shall be calculated by assuming the thermal efficiency of Boiler No. 4 is 55 percent. For informational purposes only, the particulate matter emissions rate shall also be calculated by utilizing both the F factor (for each compliance test) and the short term ASME boiler efficiency test results (once every five years).

25. A test shall be conducted on Boiler No. 4 to determine its actual thermal efficiency in accordance with the ASME short-form procedure each time the operating permit for this boiler is renewed. The test shall be conducted while the tubes are clean, and within 14 days of the compliance test unless an alternation schedule is approved by the Department. A current report on the thermal efficiency test must be included with the application to operate this boiler.

26. The South District office and, for the 1995-1996 sugar cane season, the Bureau of Air Regulation, shall be notified as least 15 days in advance of any emission test required by this permit. Testing of emissions shall be conducted with the emission unit operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the maximum operating rate allowed by the permit. If it is impracticable to test at permitted capacity, then emission units may be tested at less than 90 percent of the maximum operating rate allowed by the permit. In this case, subsequent emission unit operation is limited to 110 percent of the test load until a new test is conducted. Once the emission unit is so limited, then operation at higher capacities is allowed for no more than 15 consecutive days for the purposes of additional compliance testing to regain the permitted capacity in the permit.

27. An annual operation report shall be submitted to the Department's South District office by March 1 of each year pursuant to Rule 62-210.370(2), F.A.C. The report shall include the amount

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U.S. Sugar Corporation

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SPECIFIC CONDITIONS:

of No. 6 residual fuel oil burned by each emission unit at the plant in order to determine compliance with the limits on fuel oil usage in this permit, the sulfur content of the residual fuel oil purchased for the season, and a summary of the scrubber parameters listed in Specific Condition No. 2.

28. 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.).

29. An application for an operation permit must be submitted to the Department's South District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (Rule 62-4.220, F.A.C.).

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Virginia B. Wetherell, Secretary
Department of Environmental
Protection

Best Available Control Technology (BACT) Determination
United States Sugar Corporation
Clewiston Mill Boiler No. 4

AC 26-248809
PSD-FL-217

The United States Sugar Corporation (USSC) requested the carbon monoxide (CO) emission limit for Boiler No. 4 at the existing sugar mill in Clewiston, Hendry County, Florida, be increased from 0.25 lbs CO/MMBtu heat input to 9.0 lbs CO/MMBtu heat input. The emission limit adopted by the Department is based on actual EPA Method 10 test data on Boiler No. 4. The increase in allowable emission 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 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:

June 29, 1994

Date Application Complete

September 8, 1994

BACT Requested by the Applicant:

The BACT determination requested by the applicant is summarized below:

Carbon Monoxide (CO): The requested emission limit is 9.0 lbs CO/MMBtu heat input. For the 706.6 MMBtu/hr bagasse/No. 6 residual fuel oil-fired boiler, this will result in 6,359 lbs CO/hr emissions. The heat input and CO emissions are 6-hour averages (permit No. AC 26-126965). For a 3,840 hour per year operation, this is equivalent to 12,209 tons CO emissions during a federal fiscal year. The CO emission limit of 9.0 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:

Carbon monoxide emissions from Boiler No. 4 shall be minimized through GCP. Until the minimum emission rate is established, carbon monoxide emissions shall not exceed 6.5 lbs/MMBtu and, based on a maximum allowable heat input of 777.2 MMBtu/hr, 5,052 lbs/hr, 1-hr max.. Carbon monoxide emissions during any consecutive 12-month period shall not exceed 8,818 tons (based on a maximum allowable 6-hr average of 706.6 MMBtu/hr heat input and 3840 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 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 limited emission data, they concluded that CO emissions averaged 6.7 lbs/MMBtu. The Department's proposed limit, not to exceed 6.5 lbs/MMBtu, is to be achieved through GCP.

The applicant investigated retrofitting a new bagasse feed/air distribution system (at the Department's request), 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 no decrease in CO emissions would be achieved through the use of a new feed/air distribution system. 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 from this existing boiler.

The Department believes that if this boiler is operated properly, it should be able to meet the CO limit given to similar boilers in the sugar industry. The BACT determination for Boiler No. 4 is established as GCP with emissions not to exceed 6.5 lbs CO/MMBtu. The Department has no information to suggest that this boiler is designed significantly differently from the other bagasse boilers that were given this standard.

Conclusion

By employing Good Combustion Practice and meeting a carbon monoxide limitation of 6.5 lbs/MMBtu (or lower), the requirements of Best Available Control Technology and Prevention of Significant Deterioration will be met by the existing boiler.

Details of the Analysis May be Obtained by Contacting:

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

Recommended by:

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

7/27, 1995
Date

Approved by:

Virginia B. Wetherell
Virginia B. Wetherell, Secretary
Dept. of Environmental Protection

8-7, 1995
Date

ATTACHMENTS AVAILABLE UPON REQUEST

KBN

May 6, 1996

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

Re: U. S. Sugar Corporation
Clewiston Boiler No. 4
DEP File No. AC26-248809; PSD-FL-217

Dear Mr. Linero:

The purpose of this letter is to respond to the Department's letter to U.S. Sugar dated January 31, 1996 (attached), regarding the above referenced source and to supplement the updated Operation & Maintenance (O&M) Plan, dated January 16, 1996, that DEP has concluded is acceptable for the operation of the scrubber and the control of particulate matter (PM) emissions. In its letter, the Department requested that the source-specific Operation and Maintenance plan for Boiler 4 to be expanded in the area of carbon monoxide (CO) and volatile organic compounds (VOC) control while taking advantage of existing instruments and operation practices. The Department requests that the plan specify what parameters will be monitored, the operational ranges of these parameters, and the circumstances when it may be necessary to depart from these ranges. Specifying these parameters will provide reasonable assurance that Good Combustion Practices (GCP) are being employed.

In order to respond to the Department's request, KBN conducted an on-site survey and review of Boiler No. 4 to identify the existing instruments and operation practices being employed. The following parameters were identified as presently being measured on Boiler No. 4:

Steam rate
Steam pressure
Steam temperature
Air flow (as a percent of maximum air flow)
Scrubber pressure drop
Scrubber water flow rate
Scrubber pH
Visible emission (by means of television camera and video monitor)

Based on discussions with the boiler operator at U. S. Sugar, GCP for Boiler No. 4 is implemented according to the following existing operating practices:

1. Maintain steam rate at desired rate by controlling feed of bagasse fuel into the boiler.

2. The boiler operator relies on the TV camera and monitor to visually confirm that good combustion is taking place. Although this is a subjective judgement, operator experience results in a very consistent

KBN ENGINEERING AND APPLIED SCIENCES, INC.

RECEIVED MAY 10 1996

7785 Baymeadows Way, Suite ... Jacksonville, FL ... 904/730-5600
... Boca Raton, Florida 33487 407/994-9910 FAX 407/994-9393
... Washington, D.C. ... 202/...-1100

means of determining combustion conditions. If poor combustion conditions occur, it is reflected in the visible plume from the boiler. Under such conditions, the visible plume becomes darker than normal. If an abnormal plume is observed, the operator immediately takes corrective action to remedy the situation. Possible corrective actions include reducing fuel feed to the boiler.

Other than steam rate and the visible opacity of the plume, none of the parameters currently monitored for Boiler No. 4 relate directly to combustion. Therefore, based on the existing instrumentation and boiler operation, the following practices are proposed to provide reasonable assurance that GCP are being employed on Boiler No. 4:

1. The boiler operator will maintain steam rate at optimal or desired rate by controlling feed of bagasse fuel into the boiler. Combustion air to the boiler will be maintained at the highest possible level (resulting in the highest possible excess air) in order to promote good combustion.

2. The boiler operator will periodically (at least once per hour) view the stack video monitor to visually confirm that good combustion is taking place. If an abnormal plume is observed, the operator will immediately take corrective action. The boiler operator will log the occurrence and duration of all such events into the boiler operation log, along with the corrective action taken. These records will be kept for a period of at least two years.

I have included a revised O&M plan which incorporates appropriate wording to implement the proposed measures. U.S. Sugar will implement these additional O&M measures for VOC and CO emission upon approval by the Department. If you have any comments or questions concerning this information, or the proposed measures to expand the updated O&M Plan in the areas of CO and VOC control, please call or write.

Sincerely,

David A. Buff

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

SEAL

DB/mk

Enclosures

cc: Murray Brinson
Don Griffin
Lisa Gefen
Peter Oppenheimer
David Knowles
File (2)

16101A/7

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTH FLORIDA DISTRICT
2269 BAY STREET
FORT MYERS, FLORIDA 33901-2896
(813)332-2667

BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY
PHILIP R. EDWARDS
DISTRICT MANAGER

REVISED
OPERATING PERMIT

RECEIVED FEB 19, 1988
RECEIVED REVISION MAR 24, 1988

PERMITTEE: A. R. Mayo, Senior Vice Pres.,
Sugar Houses
United States Sugar Corp.
Post Office Drawer 1207
Clewiston, Florida 33440

I.D. Number: 52/26/0003/09
Permit/Certification Number: AO26-144701
Date of Issue: February 15, 1988
Expiration Date: February 15, 1993
County: Hendry
Latitude/Longitude:
26° 44' 05"N
80° 56' 19"W
Section/Township/Range: 21 & 22/43S/34E
Project: U. S. Sugar Corporation
Boiler No. 4

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

Operate Boiler Number 4 with a steam production capacity of 314,757 lbs/hr for a 6-hour average and a maximum 1-hour average of 346,231 lbs/hr at 850 psig, 900°F. Steam production capacity at 600 psig, 750°F is 335,000 lbs/hr for a 6-hour average and 368,500 lbs/hr for a maximum 1-hour average. Boiler is fired with bagasse and No. 6 residual oil having a combined heat input of 706.6 million BTU per hour for a 6-hour average and a maximum 1-hour average of 777.2 million BTU per hour. Emissions are controlled by one (1) Joy Turbulaire Spray Impingement Scrubber, Type D, Size 200. The permit contains 15 General Conditions and 17 Specific Conditions.

Plant is located near the intersection of W. C. Owens Avenue and Clewiston Street, Clewiston, Florida.

PERMITTEE: U. S. Sugar Corporation

I.D. Number: 52/26/0003/09
Permit/Certification Number: AO26-144701
Date of Issue: February 15, 1988
Expiration Date: February 15, 1993

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefor caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by an order from the department.

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

PERMITTEE: U. S. Sugar Corporation

I.D. Number: 52/26/0003/09
Permit/Certification Number: A026-144701
Date of Issue: February 15, 1988
Expiration Date: February 15, 1993

GENERAL CONDITIONS:

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

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

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

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

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

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

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

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

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

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

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

PERMITTEE: U. S. Sugar Corporation

I.D. Number: 52/26/0003/09
Permit/Certification Number: AO26-144701
Date of Issue: February 15, 1988
Expiration Date: February 15, 1993

GENERAL CONDITIONS:

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

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)
( ) Compliance with New Source Performance Standards

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

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

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

c. Records of monitoring information shall include:

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

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

PERMITTEE: U. S. Sugar Corporation

I.D. Number: 52/26/0003/09
Permit/Certification Number: A026-144701
Date of Issue: February 15, 1988
Expiration Date: February 15, 1993

SPECIFIC CONDITIONS:

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

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

*Maximum is a 1 hour average.

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

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

4. During any 24 hour period, not more than 40,800 gallons of fuel oil shall be burned in all stationary fuel oil burning equipment at the plant. All permits to operate other oil burning equipment at this plant are revised to include this limitation.

CAVEAT / STIPULATION

5. During any 3 hour period, not more than 6,300 gallons of fuel oil shall be burned in all stationary fuel oil burning equipment at the plant. All permits to operate other oil burning equipment at this plant are revised to include this limitation.

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

BEST AVAILABLE COPY

PERMITTEE: U. S. Sugar Corporation

I.D. Number: 52/26/0003/09
Permit/Certification Number: A026-144701
Date of Issue: February 15, 1988
Expiration Date: February 15, 1993

SPECIFIC CONDITIONS:

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

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

Readings every ~~four~~ 24 hours of the pH of the scrubber water shall be taken and logged for each day during which bagasse is burned in Boiler No. 4 during its first 160 days of operation following issuance of the construction permit. The Department will be notified if chemicals are used to adjust pH. If any pH value falls more than ten percent below the pH that existed during the compliance test for sulfur dioxide, the Department may require the installation of an instrument to continuously measure and record scrubber water pH.

?

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

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

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

BEST AVAILABLE COPY

PERMITTEE: U. S. Sugar Corporation

I.D. Number: 52/26/0003/09
Permit/Certification Number: AO26-144701
Date of Issue: February 15, 1988
Expiration Date: February 15, 1993

SPECIFIC CONDITIONS:

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

All compliance tests shall be conducted while the boiler is operating within 10 percent of its maximum or permitted capacity, whichever is lower. Such tests shall be conducted once per year commencing before February 15th. Results shall be submitted to the Department within 45 days after testing. The South Florida District office shall be notified 15 days prior to any compliance test to allow witnessing.

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

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

12. Sulfur dioxide emissions from Boiler No. 4, while it is burning 100 percent bagasse fuel, shall not exceed 0.166 lb/million BTU heat input as determined by EPA Method 6 as described in 40 CFR 60, Appendix A. The compliance test results shall be calculated by assuming the thermal efficiency of Boiler No. 4 is

55 percent, or any new method subsequently adopted by Department rule. The Department will reevaluate this sulfur dioxide standard, without penalty to the applicant, if technical data is submitted to the Department prior to the expiration of this permit that confirms the emissions from bagasse are differnt under the two operation modes (bagasse only versus bagasse/oil combination). For informational purposes only, the sulfur dioxide emission rate shall also be calculated by utilizing both the F factor (for each compliance test) and the short term ASME boiler efficiency test results (once every five years). Scrubber parameters listed in Specific Condition No. 8 shall be recorded every 15 minutes or continuously during the compliance test.

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

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

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

14. Visible emissions from the bagassee handling systems shall not exceed 10 percent opacity over any 6 minute period as measured by EPA Reference Method 9, provided, however, that this visible emissions limit shall not apply during periods of high winds (wind speed of 18 miles per hour or greater) if reasonable precautions (covered conveyors, windbreaks, and the height of drop points are minimized) to control fugitive emissions have been taken. The company shall maintain a meteorlogical instrument to record the wind speed at the plant which shall be located at its Research Center, about one mile ~~north~~ "South" of the Clewiston Mill.

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

16. Compliance with all emission standards for Boiler No. 4, except particulate matter and visible emissions, may be based on emission factors established by previous EPA reference method tests on this boiler. Operation of Boiler No. 4 is limited to 160 days per season.

PERMITTEE: U. S. Sugar Corporation

I.D. Number: 52/26/0003/09
Permit/Certification Number: A026-144701
Date of Issue: February 15, 1988
Expiration Date: February 15, 1993

SPECIFIC CONDITIONS:

~~particulate matter and visible emission tests; an annual operation report which will include the amount of oil burned at the plant to determine compliance with the limits on oil usage in this permit, and the sulfur content of the residual oil purchased for the season; and a monthly summary of the scrubber parameters listed in Specific Condition No. 8.~~

17. Stack sampling facilities provided by the owner shall be in accordance with the requirements of Chapter 17-2.700(4), Florida Administrative Code.

Specific Condition No. 18 is added as follows:

18. An annual operation report (DER Form 17-1.202(6) attached) shall be submitted by March 1st of each year.

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

Issued this 15th day of February, 1988

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Philip R. Edwards

Philip R. Edwards
District Manager

PRE/OO/jsw

11 Pages Attached

JAMESON SAYS INTERPRETATION IS THAT FACTORS OBTAINED ON PREVIOUS TEST FOLLOWING EPA'S REFERENCE METHODS WILL STILL APPLY.

To:

16. Compliance with all emission standards for Boiler No. 4, except particulate matter and visible emissions, may be based on emission factors established by previous EPA reference method tests on this boiler. Operation of Boiler No. 4 is limited to 160 days per season. NEW. OK

Specific Condition No. 18 is added as follows:

NEW 18. An annual operation report (DER Form 17-1.202(6) attached) shall be submitted by March 1st of each year. OK.

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

Sincerely,

Philip R. Edwards

Philip R. Edwards
District Manager

PRE/DMK/mk

APPENDIX B

CURRENT PERMIT SUGAR REFINERY

BEST AVAILABLE COPY

Cpy'g9 · GR Permit
09
P. Briggs
B. Worthum
Master File

Department of Environmental Protection

Jeb Bush
Governor

South District
P.O. Box 2549
Fort Myers, Florida 33902-2549

David B. Struhs
Secretary

JUN 99
Sugar
Processing

NOTICE OF PERMIT MODIFICATION

June 14, 1999

CERTIFIED MAIL #Z 459 522 803
RETURN RECEIPT REQUESTED

In the Matter of an Application
for permit by:

Murray T. Brinson
U. S. Sugar Corporation
111 Ponce DeLeon Avenue
Clewiston, Florida 33440

Hendry County - AP
DEP File No. 0510003-008-AC
EMA- Everglades Agricultural Area

The applicant, U. S. Sugar Corporation on May 26, 1999 applied to the Department of Environmental Protection for a modification to permit 0510003-004-AC for replacing the Table 3-1 referenced in Construction Permit No. 0510003-004-AC , Table 3-2 and plot plan (Attachment UC-FE2B) with the revised documents submitted. These changes (additions) to the permit are hereby entered and are now a part of the permit.

All other conditions of the permit remain unchanged.

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

A petition that disputes the material facts on which the Department's action is based must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination;

(c) A statement of how and when petitioner received notice of the agency action or proposed action;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and

(f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and

(g) A Statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

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

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

Mediation is not available in this proceeding.

Any party to this order has the right to seek judicial review of it under section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

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

Executed in Fort Myers, Florida.

STATE OF FLORIDA DEPARTMENT
ENVIRONMENTAL PROTECTION

Margaret F. Highsmith
Director of
District Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT ISSUANCE and all copies were mailed by certified mail before the close of business on June 15, 1999 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to §120.57(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) (Date) 6-15-99

MFH/JRS/jw

Copies furnished to:

David A. Buff, P.E.

BEST AVAILABLE COPY

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

Golder Associates

May 26, 1999

9937532A/2

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

Attention: Phillip Barbaccia

RE: U.S. Sugar Corporation
Clewiston Sugar Mill Expansion
Permit No. 0510003-004-AC
Hendry County - AP

Dear Mr. Barbaccia:

Per my telephone conversation with Art Lyal on May 25, please find enclosed the permit modification application fee of $250. Please accept our apologies for the oversight and any inconvenience it may have caused.

If you have any questions or need further information concerning the revisions, please do not hesitate to contact me at (352) 336-5600, fax (352) 336-6603 or Don Griffin of US Sugar at (941) 902-2711, fax (941) 902-2729.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer

DB/jkk

cc: Don Griffin, US Sugar
Lisa Gefen, US Sugar
Murray Brinson, US Sugar
Paul Wesson, Golder Associates

Refining update
Emissions Table

P:\99\99937\9937532A\01\#01-ltr.doc

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Department of Environmental Protection

FLORIDA

Lawton Chiles
Governor

South District
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901-3881

Virginia B. Wetherell
Secretary

NOTICE OF PERMIT MODIFICATION

February 14, 1997

FEB Clewiston Sugar House

CERTIFIED MAIL NO. P 482 208 840
RETURN RECEIPT REQUESTED

In the Matter of an Application
for permit by:

Murray T. Brinson
Vice President Sugar Processing
United States Sugar Corporation
Post Office Drawer 1207
Clewiston, Florida 33440

Facility I.D. No: 0510003
DEP Permit Numbers: 0510003-004-AC
Hendry County - AP

The applicant, United States Sugar Corporation, applied on December 23, 1996 to the Department of Environmental Protection for a permit modification to permit 051003-001-AC for adding new equipment and an increase in emission limits for the sugar refinery. The increase in emissions was to be offset by a reduction in emissions from Boiler No. 7. This was not acceptable to EPA so U.S. Sugar withdrew the applications for emissions increase from the new equipment and emissions decrease from Boiler No. 7. U.S. Sugar applied on February 3, 1997 for a permit modification to reduce the allowable operation of the new equipment to 320 days per year. This will avoid increasing emissions above the PSD significant limit there by avoiding PSD review. The following changes (additions) to the permit are hereby entered and are now a part of the permit:

SPECIFIC CONDITION:

FROM:

1. The total hours of operation of the dryer/cooler unit, the granular carbon regeneration furnace, the bulk loadout operation are not restricted. The total hours of operation of each of the vacuum pickup points (Units No. 1, 2, 3, and 4) shall not exceed 4,380 hours per calendar year. [Reference Construction Permit Application Dated August 12,1996]

TO:

1. The total hours of operation of the dryer/cooler unit, conditioning silos, screened sugar bins, distribution bins, screening and distribution, packaging and palletizing, bagging, powdered sugar/starch bins, vacuum pickup units 2 - 5, the granular carbon regeneration furnace and the bulk loadout operation are restricted to 320 days, 7,680 hours per year. The total hours of operation of each of the vacuum pickup points (Units No. 1, 6, and 7) and the V.H.P. sugar dryer shall not exceed 3,600 hours per calendar year. Please replace Table 3-1, dated 8/13/96 with Table 3-1, dated 1/28/97, Table 3-2, dated 1/31/97 and Table 3-3 dated 1/30/97 (enclosed). [Reference Revised Construction Permit Application Dated January 31, 1997]

ADD Under Required Testing:

17. Sulfur Dioxide tests are required on the carbon regeneration furnace to show continuing compliance with the standards of the Department. The test results must provide reasonable assurance that the unit is capable of compliance at the permitted maximum operating rate. Tests shall be conducted in accordance with EPA Method 6 or 6c as published in 40 CFR-60 Appendix A, or State approved equivalent method. Such test shall be conducted within 30 days after full production is achieved. The Department shall be notified at least 15 days prior to testing to allow witnessing. [Reference Rules 62-297.310(7)(a)9 and 62-297.401(6), F.A.C.]

Renumber Specific Conditions 17 - 19 as 18 - 20.

A person whose substantial interests are affected by this permit 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 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-2400, within 14 days of receipt of this Permit. 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 permit. 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 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 (F.A.C.).

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 62-103.070, F.A.C.. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

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

Executed in Fort Myers, Florida.

STATE OF FLORIDA DEPARTMENT
ENVIRONMENTAL PROTECTION

David M. Knowles, P.E.
District Air Program Administrator
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901-3881
(941) 332-6975

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT ISSUANCE and all copies were mailed by certified mail before the close of business on February 14, 1997 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to §120.57(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

[illegible] 2-14-97
(Clerk) (Date)

DMK/JRS/jw

Enclosures

Copies furnished to:
David A. Buff, P.E.

BEST AVAILABLE COPY

Table 3-1. Summary of PM/PM10 Emissions from the Baghouses Associated With the Mill Expansion, U.S. Sugar Corporation

Source / Vent Name	Stack Number	Control Type	Manufacturer/Model ^a	Design Capacity	Control Efficiency (percent)	Operating Hours	PM/PM10 Emissions (gr/dscf)	(lb/hr)	(TPY)
Vacuum Pickup Unit No. 1	S-1	Baghouse	Hoffman	3,000 dscfm	99.9	3,600	0.0025	0.064	0.116
Vacuum Pickup Unit No. 2	S-2	Baghouse	Hoffman	3,000 dscfm	99.9	7,680	0.0025	0.064	0.247
Vacuum Pickup Unit No. 3	S-3	Baghouse	Hoffman	3,000 dscfm	99.9	7,680	0.0025	0.064	0.247
Vacuum Pickup Unit No. 4	S-4	Baghouse	Hoffman	3,000 dscfm	99.9	7,680	0.0025	0.064	0.247
Vacuum Pickup Unit No. 5	S-5	Baghouse	Hoffman	3,000 dscfm	99.9	7,680	0.0025	0.064	0.247
Vacuum Pickup Unit No. 6	S-6	Baghouse	Hoffman	3,000 dscfm	99.9	3,600	0.0025	0.064	0.116
Vacuum Pickup Unit No. 7	S-7	Baghouse	Hoffman	3,000 dscfm	99.9	3,600	0.0025	0.064	0.116
White Sugar Dryer	S-8	Baghouse	Mikropul	91,000 dscfm	99.9	7,680	0.00184 ^b	1.436 ^c	5.51
Conditioning Silo No. 2	S-9	Baghouse	Torit & Day 100PJD8	3,000 dscfm	99.9	7,680	0.0025	0.064	0.247
Conditioning Silos No. 4	S-10	Baghouse	Torit & Day 100PJD8	3,000 dscfm	99.9	7,680	0.0025	0.064	0.247
Conditioning Silos No. 6	S-11	Baghouse	Torit & Day 100PJD8	3,000 dscfm	99.9	7,680	0.0025	0.064	0.247
Screened Sugar Bins	S-12	Baghouse	Torit & Day 100PJD8	100 dscfm	99.9	7,680	0.0025	0.0021	0.0082
Distribution Bins	S-13	Baghouse	Torit & Day 100PJD8	100 dscfm	99.9	7,680	0.0025	0.0021	0.0082
Screening and Distribution	S-14	Baghouse	Torit & Day 100PJD8	3,200 dscfm	99.9	7,680	0.0025	0.069	0.263
Packaging and Palletizing Area	S-15	Baghouse	Torit & Day 36PJD8	1,000 dscfm	99.9	7,680	0.0025	0.021	0.082
Bagging Operations	S-16	Baghouse	Torit & Day 100PJD8	11,900 dscfm	99.9	7,680	0.0025	0.255	0.979
Powdered Sugar / Starch Bins	S-17	Baghouse	Torit & Day 100PJD8 & 9PJD8	5,940 dscfm	99.9	7,680	0.0025	0.127	0.489
V.H.P. Sugar Dryer	S-18	Baghouse	Mikropul	103,000 dscfm	99.9	3,600	0.00184 ^b	1.625 ^c	2.925
							Total =	4.18	12.34

Footnotes:
^a Manufacturer and model are supplied for informational purposes only. Final design specifications will be similar but, manufacturer may differ.
^b. Back calculated from guaranteed emission rate and design flow rate.
^c. Manufacturer's guaranteed emission rate. See dryer baghouses manufacturer emission data.

Note: dscfm = dry standard cubic foot per minute.
gr/dscf = grains per dry standard cubic foot
lb/hr = pounds per hour
TPY = tons per year

Table 3-2. Emissions From Granular Carbon Regeneration Furnace, USSC Clewiston Mill Expansion

Pollutant	Manufacturer's Design(a) (lb/hr)	Maximum Estimated Emissions lb/hr	Maximum Estimated Emissions TPY (b)
PM / PM10	0.65 (c)	0.65	2.5
NOx	3.0	3.0	11.5
SO2	0.49 (d)	0.49	1.89
CO	3.0	3.0	11.5
VOC	1.0	1.0	3.8

Notes: (a) Estimated emissions obtained from design information provided by BSP Thermal Sytems, Inc.

(b) Based on 7,680 hours per year of operation.

(c) Based on uncontrolled emissions of 32.5 lb/hr and 98% control efficiency with wet scrubber system.

(d) Based on No. 2 fuel oil combustion only. See carbon regeneration furnace data for calculations. Scrubber SO2 removal is not considered.

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Table 3-3. Potential Emissions of VOC from Alcohol Usage, USSC Clewiston Mill Expansion

Material	VOC Content	Maximum Sugar Production (TPY)	Annual Pounds of Material Used	Potential VOC Emissions (TPY)
Isopropyl Alcohol (a)	100%	704,000	29,216	14.61

(a) Isopropyl alcohol (IPA) usage based on 1 quart IPA per 100,000 lb of sugar.

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Copy: W A Rarick
D. Griffin
P. Briggs

FLORIDA

Department of Environmental Protection

Lawton Chiles
Governor

South District
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901-3881

Virginia B. Wetherell
Secretary

OCT 1996
CLEWISTON SUGAR HOUSE

NOTICE OF PERMIT

October 25, 1996

CERTIFIED MAIL #P 482 208 815
RETURN RECEIPT REQUESTED
In the matter of an
Application for Permit by:

DEP File No. 0510003-001-AC
Hendry County - AP

Murray T. Brinson, Senior Vice President
United States Sugar Corporation
111 Ponce de Leon Avenue
Post Office Box 1207
Clewiston, Florida 33440

Enclosed is Permit Number 0510003-001-AC to expand The Clewiston Sugar Mill to a maximum design capacity of 803,000 tons per year, issued pursuant to Section(s) 403.087, 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 (F.S.), by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Fort Myers, Florida.

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL PROTECTION

David M. Knowles

David M. Knowles, P.E.
District Air
Program Administrator

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on October 29, 1996 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to §120.57(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

[signature] 10-29-96
(Clerk) (Date)

PJW/JRS/jw

Enclosures

Copies furnished to:

David A. Buff, P.E.

BEST AVAILABLE COPY

Department of
Environmental Protection

Lawton Chiles
Governor

South District
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901-3881

Virginia B. Wetherell
Secretary

PERMITTEE:
Murray T. Brinson, Senior Vice President
U.S. Sugar Corporation
111 Ponce DeLeon Avenue
Clewiston, Florida 33440

Facility I.D.: 0510003
Permit Number: 0510003-001-AC
Date of Issue: October 25, 1996
Expiration Date: October 25, 2001
County: Hendry
Latitude: 26° 44' 6" N
Longitude: 80° 56' 19" W
Section/Town/Range: 21&22 / 43S/ 34 E
Project: Sugar Mill Expansion

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Rules 62-4, 62-296, and 62-297. 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 made a part hereof and specifically described as follows:

To expand a sugar mill and sugar processing operation to a maximum design production capacity of 803,000 tons per year. The mill expansion will include granular carbon filters, a granular carbon regeneration furnace, a fluidized bed dryer/cooler, conditioning silos, vibrating screens, distribution bins, packaging facility, several air pollution control systems, including baghouses, a thermal oxidizer, and wet scrubbers.

The facility is located at W. C. Owens Avenue & S R 82, Clewiston, Florida.

For Title V Permits
SIC Number 2062
SCC Numbers 3-02-015-01 General
3-02-015-99 Not Classified

PERMITTEE:
U.S. Sugar Corporation

I.D. No.: 0510003
Permit/Cert. No.: 0510003-001-AC
Date of Issue: October 25, 1996
Expiration Date: October 25, 2001

SPECIFIC CONDITIONS

FACILITY OPERATIONS:

1. The total hours of operation of the dryer/cooler unit, the granular carbon regeneration furnace, the bulk loadout operation are not restricted. The total hours of operation of each of the vacuum pickup points (Units No. 1,2,3, and 4) shall not exceed 4,380 hours per calendar year. [Reference Construction Permit Application Dated August 12, 1996]

2. This facility shall be operated in such a fashion so as to preclude objectionable odors. [Reference Rule 62-296.320(2), F.A.C.]

3. Any time this unit is found to be performing inadequately because of overloading, neglect, or other reasons, the owner shall discontinue its use until measures are provided to correct the cause of such performance.

4. Reasonable precautions shall be taken to prevent emissions of unconfined particulate matter. Reasonable precautions include the following:

A. Paving and maintenance of roads, parking areas, and yards.
B. Application of water when necessary to control emissions.
C. Removal of particulate matter from roads and other paved areas under control of the owner or operator to prevent reentrainment, and from buildings or work areas to prevent particulate.
D. Enclosure or covering of conveyor systems.
E. Posting of vehicle (or truck) speed limits.

[Reference Rule 62-296.320(4)(c), F.A.C.]

5. Circumvention. No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. [Rule 62-210.650, F.A.C.]

CONDITIONS OF COMPLIANCE:

6. The applicant shall retain a registered professional engineer for the inspection of the construction of this project. Upon completion the engineer shall inspect for conformity to construction permit applications and associated documents. [Reference Rule 62-4.050(3), F.A.C.]

7. The Department shall be notified and prior approval shall be obtained of any changes or revisions made during construction.

8. It shall be assumed that all the Volatile Organic Compounds (VOC) which are used in the processing are emitted to the atmosphere as fugitive emissions and are to be reported as such. Any VOC that is included in the Hazardous Air Pollutant (HAP) list must be reported separately from the total VOCs.

PERMITTEE:
U.S. Sugar Corporation

I.D. No.: 0510003
Permit/Cert. No.: 0510003-001-AC
Date of Issue: October 25, 1996
Expiration Date: October 25, 2001

SPECIFIC CONDITIONS

9. This facility shall comply with the Process Weight Table Emission Rates shown in Table 296.320-1. Interpolation of the data in Table 296.320-1 for the process weight rates up to 30 tons per hour shall be accomplished by the use of the equation: $E = 3.59*P^{0.62}$, where P is less than or equal to 30 tons per hour; and interpolation and extrapolation of the data for process weight rates in excess of 30 tons per hour shall be accomplished by use of the equation: $E = 17.31*P^{0.16}$, where P is greater than 30 tons per hour. Where: E = Emissions in pounds per hour, P = Process weight rate in tons per hour. [Reference Rule 62-296.320(4)(a)2., F.A.C.]

10. Each of the emission units included in this expansion has the potential to emit less than 100 tons per year of particulate matter and is equipped with either a baghouse or a wet cyclone(s). Therefore the department waives any particulate matter compliance test requirements for such emissions unit specified in any otherwise applicable rule, and specifies an alternative standard of 5% opacity.

11. If the Department has reason to believe that the particulate weight emission standard applicable to such an emissions unit is not being met, it shall require that compliance be demonstrated by the test method specified in the applicable rule.
[Reference Rule 62-297.620(4), F.A.C.]

12. U.S. Sugar Corporation, the Permittee, has requested lower emissions limits than what is allowed in the Process Weight Tables found at Table 296.320-1, F.A.C. The emissions limits are found in the Attached Table 1 - "Summary of Pm/Pm10 Emissions Associated with the Mill Expansion, U.S. Sugar Corporation" which is hereby made a part of this permit. These emission limits were developed on the basis of emission factors provided by the process equipment and control equipment manufacturers. The emissions limits listed in Table 1 shall be the basis for calculating Title V fees..

CONDITIONS OF COMPLIANCE:

13. Sulfur content of fuel oil used in granular carbon regeneration furnace shall not exceed 0.03%.

REQUIRED TESTING:

14. Visible emissions test are required to show continuing compliance with the standards of the Department. The test results must provide reasonable assurance that the unit is capable of compliance at the permitted maximum operating rate. Tests shall be conducted in accordance with EPA Method Nine as published in 40 CFR-60 Appendix A, or State approved equivalent method. Such test shall be conducted within 30 days of initial operation. The Department shall be notified at least 15 days prior to testing to allow witnessing.
[Reference Rules 62-297.310(7)(a)9. and 62-297.310(7)(a)4.a,, F.A.C.]

PERMITTEE:
U.S. Sugar Corporation

I.D. No.: 0510003
Permit/Cert. No.: 0510003-001-AC
Date of Issue: October 25, 1996
Expiration Date: October 25, 2001

SPECIFIC CONDITIONS

15. Testing of emissions should be conducted with the source operating within 10% of its rated capacity. Testing may be conducted at less than 90% of rated capacity; however, if so, subsequent source operation is limited to up to 110% of the test load. Once the unit is so limited, then operation at higher capacities is allowed for purposes of additional compliance testing to regain rated capacity in the permit with prior notification to the Department's South District. [Reference Rule 62-297.310(2), F.A.C.]

16. Notification of the Department prior to any required testing shall include as a minimum: the date and time of the test, the exact location of the test, and the name and telephone number of the contact person at the site. [Reference Rule 62-297.310(7)(a)9., F.A.C.]

REPORTS AND RECORD KEEPING:

17. An annual operation report (DEP Form 62-210.900(5)) shall be submitted by March 1st each year. [Rule 62-4.070(3), and Rule 62-210.370(3), F.A.C.]

18. The owner shall maintain records to demonstrate that each shipment of fuel oil has 0.03% or less sulfur. Such records shall be retained for five years.

GENERAL CONDITIONS:

19. An integral part of this permit is the attached 15 General Conditions. [Rule 62-4.160, F.A.C.]

Note: In the event of an emergency the permittee shall contact the Department by calling **(904) 413-9911**. During normal business hours, the permittee shall call (941) 332-6975.

Issued this 25th day of October, 1996.

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL PROTECTION

David M. Knowles

David M. Knowles, P.E.
District Air
Program Administrator

DMK/JRS/jw

10 Pages Attached

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Table 3-1. Summary of PM/PM10 Emissions from the Baghouses Associated With the Mill Expansion, U.S. Sugar Corporation

Source	Control Type	Manufacturer/Model	Design Capacity	Control Efficiency (percent)	Operating Hours	PM/PM10 Emissions (gr/dscf)	PM/PM10 Emissions (lb/hr)	PM/PM10 Emissions (TPY)
White Sugar Dryer	Baghouse	Mikropul	67,000 dscfm	99.9	8,760	0.0025	1.436	6.29
Conditioning Silo No. 1	Baghouse	Buhler/Type APPC 86/8	3,100 dscfm	99.9	8,760	0.0025	0.066	0.29
Conditioning Silo No. 2	Baghouse	Buhler/Type APPC 86/8	3,100 dscfm	99.9	8,760	0.0025	0.066	0.29
Vacuum Pickup Unit No. 1	Baghouse	Vac-U-Max/ Model 107-129-02	19,000 dscfm	99.9	4,380	0.0025	0.407	0.89
Vacuum Pickup Unit No. 2	Baghouse	Vac-U-Max/ Model 107-129-02	19,000 dscfm	99.9	4,380	0.0025	0.407	0.89
Vacuum Pickup Unit No. 3	Baghouse	Vac-U-Max/ Model 107-129-02	19,000 dscfm	99.9	4,380	0.0025	0.407	0.89
Vacuum Pickup Unit No. 4	Baghouse	Vac-U-Max/ Model 107-129-02	19,000 dscfm	99.9	4,380	0.0025	0.407	0.89
Screened Sugar Bins No.1 and No.	Baghouse	Buhler/Type APPR - 10/L	200 dscfm	99.9	8,760	0.0025	0.0043	0.019
Screened Sugar Bins No.3 and No.	Baghouse	Buhler/Type APPR - 10/L	200 dscfm	99.9	8,760	0.0025	0.0043	0.019
Distribution Bin No. 1	Baghouse	Buhler/Type APPR - 7/4	100 dscfm	99.9	8,760	0.0025	0.0021	0.0094
Distribution Bin No. 2	Baghouse	Buhler/Type APPR - 7/4	100 dscfm	99.9	8,760	0.0025	0.0021	0.0094
Distribution Bin No. 3	Baghouse	Buhler/Type APPR - 7/4	100 dscfm	99.9	8,760	0.0025	0.0021	0.0094
Bulk Loading Bin No. 1	Baghouse	Buhler/Type APPR - 10/L	200 dscfm	99.9	8,760	0.0025	0.0043	0.019
Bulk Loading Bin No. 2	Baghouse	Buhler/Type APPR - 10/L	200 dscfm	99.9	8,760	0.0025	0.0043	0.019
Packaging Dust Collector	Baghouse	Buhler/Type APPR - 10/L	200 dscfm	99.9	8,760	0.0025	0.0043	0.019
						Total =	3.23	10.56

Note: acfm = actual cubic feet per minute
dscfm = dry standard cubic foot per minute.
gr/scf = grains per standard cubic foot
lb/hr = pounds per hour
scfm = standard cubic feet per minute
TPY = tons per year

PERMITTEE:
U.S. Sugar Corporation

I.D. No.: 0510003
Permit/Cert. No.: 0510003-001-AC
Date of Issue: October 25, 1996
Expiration Date: October 25, 2001

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, Florida Statutes. 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) Florida Statutes, 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 the 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 Florida Statutes and Department rules, unless specifically authorized by any 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.

GENERAL CONDITIONS:

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, and at a reasonable time, 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 the 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 non-compliance, 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 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 Florida Statutes or Department rules, except where such use is prescribed by Section 403.73 and 403.111, Florida Statutes. 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 Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

GENERAL CONDITIONS:

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code 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:

( ) Determination of Best Available Control Technology (BACT)
( ) 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.

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

BEST AVAILABLE COPY

Table 3-1. Summary of PM/PM10 Emissions from the Baghouses Associated With the Mill Expansion, U.S. Sugar Corporation

Source	Control Type	Manufacturer/Model	Design Capacity	Control Efficiency (percent)	Operating Hours	PM/PM10 Emissions (gr/dscf)	PM/PM10 Emissions (lb/hr)	PM/PM10 Emissions (TPY)
White Sugar Dryer	Baghouse	Mikropul	67,000 dscfm	99.9	8,760	0.0025	1.436	6.29
Conditioning Silo No. 1	Baghouse	Buhler/Type APPC 86/8	3,100 dscfm	99.9	8,760	0.0025	0.066	0.29
Conditioning Silo No. 2	Baghouse	Buhler/Type APPC 86/8	3,100 dscfm	99.9	8,760	0.0025	0.066	0.29
Vacuum Pickup Unit No. 1	Baghouse	Vac-U-Max/ Model 107-129-02	19,000 dscfm	99.9	4,380	0.0025	0.407	0.89
Vacuum Pickup Unit No. 2	Baghouse	Vac-U-Max/ Model 107-129-02	19,000 dscfm	99.9	4,380	0.0025	0.407	0.89
Vacuum Pickup Unit No. 3	Baghouse	Vac-U-Max/ Model 107-129-02	19,000 dscfm	99.9	4,380	0.0025	0.407	0.89
Vacuum Pickup Unit No. 4	Baghouse	Vac-U-Max/ Model 107-129-02	19,000 dscfm	99.9	4,380	0.0025	0.407	0.89
Screened Sugar Bins No.1 and No.	Baghouse	Buhler/Type APPR - 10/L	200 dscfm	99.9	8,760	0.0025	0.0043	0.019
Screened Sugar Bins No.3 and No.	Baghouse	Buhler/Type APPR - 10/L	200 dscfm	99.9	8,760	0.0025	0.0043	0.019
Distribution Bin No. 1	Baghouse	Buhler/Type APPR - 7/4	100 dscfm	99.9	8,760	0.0025	0.0021	0.0094
Distribution Bin No. 2	Baghouse	Buhler/Type APPR - 7/4	100 dscfm	99.9	8,760	0.0025	0.0021	0.0094
Distribution Bin No. 3	Baghouse	Buhler/Type APPR - 7/4	100 dscfm	99.9	8,760	0.0025	0.0021	0.0094
Bulk Loading Bin No. 1	Baghouse	Buhler/Type APPR - 10/L	200 dscfm	99.9	8,760	0.0025	0.0043	0.019
Bulk Loading Bin No. 2	Baghouse	Buhler/Type APPR - 10/L	200 dscfm	99.9	8,760	0.0025	0.0043	0.019
Packaging Dust Collector	Baghouse	Buhler/Type APPR - 10/L	200 dscfm	99.9	8,760	0.0025	0.0043	0.019
						Total =	3.23	10.56

Note: acfm = actual cubic feet per minute
dscfm = dry standard cubic foot per minute.
gr/scf = grains per standard cubic foot
lb/hr = pounds per hour
scfm = standard cubic feet per minute
TPY = tons per year

Table 3-2. Emissions From Granular Carbon Regeneration Furnace, USSC Clewiston Mill Expansion

Pollutant	Manufacturer's Design(a) (lb/hr)	Maximum Estimated Emissions lb/hr	Maximum Estimated Emissions TPY (b)
PM / PM10	0.78 (c)	0.78	3.42
NOx	1.84	1.84	8.06
SO2	7.00	7.00	30.66
CO	1.76	1.76	7.71
VOC	0.78	0.78	3.42

Notes: (a) Estimated emissions obtained from design information provided by BSP Thermal Sytems, Inc.

(b) Based on 8,760 hours per year of operation.

(c) Based on uncontrolled emissions of 26 lb/hr and 97% control efficiency with wet scrubber system.

Table 3-3. Potential Emissions of VOC from Alcohol Usage, USSC Clewiston Mill Expansion

Material	VOC Content	Maximum Sugar Production (TPY)	Annual Pounds of Material Used	Potential VOC Emissions (TPY)
Isopropyl Alcohol (a)	100%	803,000	33,325	16.66

(a) Isopropyl alcohol (IPA) usage based on 1 quart IPA per 100,000 lb of sugar.

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Table 3-4. Estimated Emissions due to Propane Combustion, USSC Mill Expansion.

Parameter	Propane
OPERATING DATA	
Maximum Operating Hours (hr/yr)	7,000
Heat Input Rate (MMBtu/hr)	1.5
Propane (gal/hr) a	15.9
Propane (gal/yr)	111,111
Propane (scf/hr) a	588.2
Propane (scf/yr)	4,117,647

Pollutant	Emission Factor b	Propane lb/hr	Propane TPY
EMISSIONS DATA			
SO2: Propane	0.018 lb/Mgal c	0.00029	0.0010
NOx: Propane	14 lb/Mgal	0.22	0.78
PM/PM10: Propane	0.4 lb/Mgal	0.0063	0.022
CO: Propane	1.9 lb/Mgal	0.030	0.11
NMVOC: Propane	0.5 lb/Mgal	0.0079	0.028

Note: NA = not applicable.

a Based on 94,500 Btu/gal and 2,550 Btu/scf for propane.

b Emission factors based on AP-42.

c Formula is 0.10*S where "S" denotes the sulfur content in gr/100 ft^3 gas vapor. S equals 0.18 gr/100 ft^3.

Table 3-5 PSD Source Applicability Analysis for U.S. Sugar Corporation, Clewiston Mill Expansion

Regulated Pollutant	Potential Emissions (TPY)					PSD Significant Emission Rate (TPY)	PSD Review Applies?
	Baghouses	GCRF(a)	Alcohol Usage	Propane Heater	Total		
PM(TSP)	10.56	3.42	--	0.022	14.0	25	No
PM10 (b)	10.56	3.42	--	0.022	14.0	15	No
Sulfur Dioxide	--	30.66	--	0.001	30.7	40	No
Nitrogen Dioxide	--	8.06	--	0.78	8.8	40	No
Carbon Monoxide	--	7.71	--	0.11	7.8	100	No
VOC	--	3.42	16.66	0.028	20.1	40	No

Footnote:
(a) GCRF = Granular Carbon Regeneration Furnace
(b) PM10 emission estimates reflect the assumption that all PM is PM10.

Table 3-6. Stack and Vent Geometry and Operating Data for U.S. Sugar Clewiston Mill Expansion.

Source	Stack/Vent Release Height (ft)	Stack/Vent Diameter (ft)	Air Flow Rate acfm	Air Flow Rate scfm	Air Flow Rate dscfm	Gas Exit Temperature (°F)	Water Vapor Content (%)	Velocity (ft/sec)
White Sugar Dryer Baghouse	90	5.0	77,472	70,526	67,000	120	5	65.8
Conditioning Silos (2): One Baghouse Each	100	1.0	3,511	3,196	3,100	120	3	74.5
Vacuum Pickup Points (4): One Baghouse Each	90	2.5	20,775	19,588	19,000	100	3	70.5
Screened Sugar Bins (4): One Baghouse per 2 Bins	90	0.5	219	206	200	100	3	18.6
Distribution Bins (3): One Baghouse Each	90	0.5	109	103	100	100	3	9.3
Bulk Loading Bins (2): One Baghouse Each	70	0.5	219	206	200	100	3	18.6
Packaging Dust Baghouse	30	0.5	219	206	200	100	3	18.6
Granular Carbon Regeneration Furnace Stack	30	2.0	4,300	3,662	2,746	160	25	22.8

Note: acfm = actual cubic feet per minute
dscfm = dry standard cubic feet per minute
scfm = standard cubic feet per minute

APPENDIX C

EMISSION FACTOR DOCUMENTATION

Table B-1. Emission Tests Performed on Clewiston Boiler No. 4, U.S. Sugar Corporation

Unit	Test Date	Steam Rate (lb/hr)	Heat Input Rate (MMBtu/hr)	Bagasse Rate (1) (TPH)	SO2 Emissions (EPA Method 6) lb/hr	SO2 Emissions (EPA Method 6) lb/MMBtu	PM Emissions (EPA Method 5) lb/hr	PM Emissions (EPA Method 5) lb/MMBtu	CO Emissions (EPA Method 10) lb/hr	CO Emissions (EPA Method 10) lb/MMBtu	NOx Emissions (EPA Method 7e) lb/hr	NOx Emissions (EPA Method 7e) lb/MMBtu
Boiler 4	01/13/94	290,132	628.52	87.29				0.131	3,487	5.55	34.21	0.054
Boiler 4	01/13/94	283,500	614.06	85.29				0.113	3,229	5.26	44.67	0.073
Boiler 4	01/13/94	283,784	615.24	85.45				0.079	6,958	11.31	18.17	0.030
Boiler 4	01/14/94	294,583	639.11	88.77				0.121	3,314	5.18	37.46	0.059
Boiler 4	01/14/94	290,548	629.38	87.41				0.128	3,845	6.11	43.70	0.069
Boiler 4	01/14/94	293,425	635.50	88.26				0.145	11,113	17.49	38.17	0.060
Boiler 4	02/01/94	272,113	592.17	82.25		0.0070		0.083	1,093	1.84	95.61	0.161
Boiler 4	02/01/94	271,250	595.17	82.66		0.0100		0.177	5,272	8.59	25.87	0.043
Boiler 4	02/07/94	269,434	587.52	81.60		0.0090		0.128	2,731	4.65	61.37	0.104
Boiler 4	02/07/94	274,909	599.46	83.26		0.0080		0.115	3,278	5.47	49.08	0.082
Boiler 4	02/07/94	266,538	582.08	80.84		0.0140		0.155	7,586	13.03	33.59	0.058
Boiler 4	02/07/94	268,333	586.88	81.51		0.0110		0.141	4,091	6.97	50.67	0.086
Boiler 4	02/09/94	283,944	620.29	86.15					4,336	6.99	28.90	0.047
Boiler 4	02/11/94	285,000	622.97	86.52					3,602	5.78	35.67	0.057
Boiler 4	02/11/94	267,273	580.67	80.65					887	1.53	70.40	0.121
Boiler 4	02/11/94	288,358	625.28	86.84					4,666	7.89	29.70	0.050
Boiler 4	02/11/94	294,000	644.24	89.48					1,615	2.51	63.75	0.099
Boiler 4	02/17/94	280,000	608.74	84.55		0.0080			5,676	9.47	35.24	0.058
Boiler 4	02/17/94	268,800	584.52	81.18		0.0060			2,838	4.86	35.58	0.061
Boiler 4	02/17/94	285,600	623.65	86.62		0.0060			4,167	6.68	52.18	0.084
Boiler 4	02/17/94	289,800	631.71	87.74		0.0060			4,283	6.78	46.21	0.073
Boiler 4	02/22/94	285,600	625.33	86.85				0.109	4,678	7.48	50.03	0.080
Boiler 4	02/22/94	289,800	633.82	88.03				0.098	4,678	7.38	53.20	0.084
Boiler 4	02/22/94	282,692	616.86	85.68				0.094	4,678	7.58	66.42	0.128
Boiler 4	02/22/94	268,800	585.45	81.31				0.110	4,678	7.99	74.23	0.127
Boiler 4	02/22/94	266,667	580.29	80.60				0.140	4,678	8.06	48.75	0.084
Boiler 4	02/23/94	283,043	616.93	85.68		0.0060	81.72	0.132	2,464	3.99	56.40	0.091
Boiler 4	02/23/94	290,769	633.14	87.94		0.0060	73.42	0.116	3,844	6.07	46.64	0.074
Boiler 4	02/23/94	284,308	617.98	85.83		0.0080	93.94	0.152	3,952	6.39	47.43	0.077
Boiler 4	03/04/94	289,655	636.45	88.40				0.081	1,923	3.02	71.10	0.112
Boiler 4	03/04/94	278,793	614.71	85.38				0.074	1,439	2.34	75.40	0.123
Boiler 4	03/04/94	271,552	598.50	83.13				0.092	2,517	4.21	65.77	0.110
Boiler 4	03/04/94	283,889	625.69	86.90				0.108	3,992	6.38	52.50	0.084
Boiler 4	12/30/94	288,750	626.80	87.06			88.74	0.142				
Boiler 4	12/30/94	280,986	609.43	84.64			70.23	0.115				
Boiler 4	12/30/94	281,918	614.32	85.32			73.08	0.119				
Boiler 4	12/22/95	290,548	617.49	85.76			59.28	0.096				
Boiler 4	12/22/95	280,946	597.65	83.01			63.06	0.106				
Boiler 4	12/22/95	291,200	617.40	85.75			52.29	0.085				
Boiler 4	12/17/96	289,909	608.80	84.56			67.58	0.111	3,144	5.16		
Boiler 4	12/17/96	291,818	610.90	84.85			70.56	0.116	1,760	2.88		
Boiler 4	12/17/96	286,462	601.10	83.49			61.82	0.103	3,559	5.93		
Boiler 4	12/23/97	261,818	552.60	76.75			67.59	0.122				
Boiler 4	12/23/97	258,243	546.00	75.83			51.22	0.094				
Boiler 4	12/23/97	250,385	529.20	73.50			61.65	0.117				
Boiler 4	12/09/98	250,833	545.59	75.78			61.07	0.112				
Boiler 4	12/09/98	253,750	553.13	76.82			71.90	0.130				
Boiler 4	12/09/98	247,397	540.00	75.00			62.54	0.116				
Number =		**48**	**48**	**48**		**13**	**18**	**39**	**36**	**36**	**33**	**33**
Minimum =		**247,397**	**529.20**	**73.50**		**0.006**	**51.22**	**0.074**	**887**	**1.53**	**18.2**	**0.030**
Average =		**278,789**	**604.22**	**83.92**		**0.008**	**68.43**	**0.116**	**3,890**	**6.36**	**49.6**	**0.082**
Maximum =		**294,583**	**644.24**	**89.48**		**0.014**	**93.94**	**0.177**	**11,113**	**17.49**	**95.6**	**0.161**

Notes:
lb/hr = pounds per hour.
lb/MMBtu = pounds per million British thermal units.
lb/ton = pounds per ton.
MMBtu/hr = million British thermal units per hour.
TPH = tons per hour.
Footnotes:
[1] Assumed 3,600 Btu/lb average heat content for wet bagasse, except where noted.

Table 1.3-1. CRITERIA POLLUTANT EMISSION FACTORS FOR FUEL OIL COMBUSTION[a]

Firing Configuration (SCC)[a]	SO_2[b]		SO_3[c]		NO_x[d]		CO[e]		Filterable PM[f]	
	Emission Factor (lb/10^3 gal)	EMISSION FACTOR RATING	Emission Factor (lb/10^3 gal)	EMISSION FACTOR RATING	Emission Factor (lb/10^3 gal)	EMISSION FACTOR RATING	Emission Factor (lb/10^3 gal)	EMISSION FACTOR RATING	Emission Factor (lb/10^3 gal)	EMISSION FACTOR RATING
Boilers > 100 Million Btu/hr										
No. 6 oil fired, normal firing (1-01-004-01), (1-02-004-01), (1-03-004-01)	157S	A	5.7S	C	47	A	5	A	9.19(S)+3.22	A
No. 6 oil fired, normal firing, low NO_x burner (1-01-004-01), (1-02-004-01)	157S	A	5.7S	C	40	B	5	A	9.19(S)+3.22	A
No. 6 oil fired, tangential firing, (1-01-004-04)	157S	A	5.7S	C	32	A	5	A	9.19(S)+3.22	A
No. 6 oil fired, tangential firing, low NO_x burner (1-01-004-04)	157S	A	5.7S	C	26	E	5	A	9.19(S)+3.22	A
No. 5 oil fired, normal firing (1-01-004-05), (1-02-004-04)	157S	A	5.7S	C	47	B	5	A	10	B
No. 5 oil fired, tangential firing (1-01-004-06)	157S	A	5.7S	C	32	B	5	A	10	B
No. 4 oil fired, normal firing (1-01-005-04), (1-02-005-04)	150S	A	5.7S	C	47	B	5	A	7	B
No. 4 oil fired, tangential firing (1-01-005-05)	150S	A	5.7S	C	32	B	5	A	7	B
No. 2 oil fired (1-01-005-01), (1-02-005-01), (1-03-005-01)	157S	A	5.7S	C	24	D	5	A	2	A
No.2 oil fired, LNB/FGR, (1-01-005-01), (1-02-005-01), (1-03-005-01)	157S	A	5.7S	A	10	D	5	A	2	A

Table 1.3-3. EMISSION FACTORS FOR TOTAL ORGANIC COMPOUNDS (TOC), METHANE, AND NONMETHANE TOC (NMTOC) FROM UNCONTROLLED FUEL OIL COMBUSTION[a]

EMISSION FACTOR RATING: A

Firing Configuration (SCC)	TOC[b] Emission Factor ($lb/10^3$ gal)	Methane[b] Emission Factor ($lb/10^3$ gal)	NMTOC[b] Emission Factor ($lb/10^3$ gal)
Utility boilers			
No. 6 oil fired, normal firing (1-01-004-01)	1.04	0.28	0.76
No. 6 oil fired, tangential firing (1-01-004-04)	1.04	0.28	0.76
No. 5 oil fired, normal firing (1-01-004-05)	1.04	0.28	0.76
No. 5 oil fired, tangential firing (1-01-004-06)	1.04	0.28	0.76
No. 4 oil fired, normal firing (1-01-005-04)	1.04	0.28	0.76
No. 4 oil fired, tangential firing (1-01-005-05)	1.04	0.28	0.76
Industrial boilers			
No. 6 oil fired (1-02-004-01/02/03)	1.28	1.00	0.28
No. 5 oil fired (1-02-004-04)	1.28	1.00	0.28
Distillate oil fired (1-02-005-01/02/03)	0.252	0.052	0.2
No. 4 oil fired (1-02-005-04)	0.252	0.052	0.2
Commercial/institutional/residential combustors			
No. 6 oil fired (1-03-004-01/02/03)	1.605	0.475	1.13
No. 5 oil fired (1-03-004-04)	1.605	0.475	1.13
Distillate oil fired (1-03-005-01/02/03)	0.556	0.216	0.34
No. 4 oil fired (1-03-005-04)	0.556	0.216	0.34
Residential furnace (A2104004/A2104011)	2.493	1.78	0.713

[a] To convert from $lb/10^3$ gal to $kg/10^3$ L, multiply by 0.12. SCC = Source Classification Code.

[b] References 29-32. Volatile organic compound emissions can increase by several orders of magnitude if the boiler is improperly operated or is not well maintained.

Table 1.3-11. EMISSION FACTORS FOR METALS FROM UNCONTROLLED NO. 6 FUEL OIL COMBUSTION[a]

Metal	Average Emission Factor[b, d] (lb/10^3 Gal)	EMISSION FACTOR RATING
Antimony	5.25E-03[c]	E
Arsenic	1.32E-03	C
Barium	2.57E-03	D
Beryllium	2.78E-05	C
Cadmium	3.98E-04	C
Chloride	3.47E-01	D
Chromium	8.45E-04	C
Chromium VI	2.48E-04	C
Cobalt	6.02E-03	D
Copper	1.76E-03	C
Fluoride	3.73E-02	D
Lead	1.51E-03	C
Manganese	3.00E-03	C
Mercury	1.13E-04	C
Molybdenum	7.87E-04	D
Nickel	8.45E-02	C
Phosphorous	9.46E-03	D
Selenium	6.83E-04	C
Vanadium	3.18E-02	D
Zinc	2.91E-02	D

[a] Data are for residual oil fired boilers, Source Classification Codes (SCCs) 1-01-004-01/04.

[b] References 64-72. 18 of 19 sources were uncontrolled and 1 source was controlled with low efficiency ESP. To convert from lb/10^3 gal to kg/10^3 L, multiply by 0.12.

[c] References 29-32,40-44.

[d] For oil/water mixture, reduce factors in proportion to water content of the fuel (due to dilution). To adjust the listed values for water content, multiply the listed value by 1-decimal fraction of water (ex: For fuel with 9 percent water by volume, multiply by 1-0.9=.91).

Table 1. Summary of Mercury Test Results for Okeelanta and Osceola

Source	Date	Boiler Type	Heat Input (MMBtu/hr)	Mercury Emissions		
				lb/hr	lb/MMBtu	lb/ton[a]
Okeelanta						
Boiler 10	2/5/93	Cell	236.19	0.00353	1.49E-05	1.27E-04
Boiler 10	2/5/93	Cell	230.16	0.00126	5.47E-06	4.65E-05
Boiler 10	2/6/93	Cell	239.50	<0.00145	<6.05E-06	<5.15E-05
Boiler 10	2/6/93	Cell	235.34	<0.00133	<5.65E-06	<4.80E-05
Boiler 10	2/6/93	Cell	232.28	<0.00126	<5.42E-06	<4.61E-05
Boiler 10	2/6/93	Cell	223.60	<0.00137	<6.13E-06	<5.21E-05
Boiler 12	3/19/92	Traveling grate	310.45	0.00462	1.49E-05	1.26E-04
Boiler 12	3/19/92	Traveling grate	315.81	0.00019	6.05E-07	5.14E-06
Boiler 12	3/19/92	Traveling grate	304.49	0.00119	3.91E-06	3.32E-05
Boiler 14	1/15/93	Traveling grate	251.84	0.00546	2.17E-05	1.84E-04
Boiler 14	1/15/93	Traveling grate	282.98	0.00736	2.60E-05	2.21E-04
Boiler 14	1/15/93	Traveling grate	283.95	0.00185	6.52E-06	5.54E-05
Boiler 14	2/5/93	Traveling grate	210.21	0.00129	6.14E-06	5.22E-05
Boiler 14	2/5/93	Traveling grate	225.95	0.00855	3.78E-05	3.22E-04
Boiler 14	2/5/93	Traveling grate	205.50	0.00110	5.35E-06	4.55E-05
Osceola Farms						
Boiler 2	2/15/93	Inclined grate	207.38	0.00330	1.59E-05	1.35E-04
Boiler 2	2/15/93	Inclined grate	207.38	0.00275	1.33E-05	1.13E-04
Boiler 2	2/15/93	Inclined grate	207.46	<0.00094	<4.53E-06	<3.85E-05
Boiler 2	2/15/93	Inclined grate	207.40	<0.00094	<4.53E-06	<3.85E-05
Boiler 2	2/15/93	Inclined grate	207.28	0.00194	9.36E-06	7.96E-05
Boiler 2	2/15/93	Inclined grate	207.38	<0.00104	<5.01E-06	<4.26E-05
Boiler 4	2/16/93	Horseshoe	207.06	<0.00064	<3.09E-06	<2.63E-05
Boiler 4	2/16/93	Horseshoe	271.34	<0.00072	<2.65E-06	<2.26E-05
Boiler 4	2/16/93	Horseshoe	269.34	<0.00105	<3.90E-06	<3.31E-05
Boiler 4	2/16/93	Horseshoe	255.74	0.00131	5.12E-06	4.35E-05
Boiler 4	2/16/93	Horseshoe	277.16	<0.00105	<3.79E-06	<3.22E-05
Boiler 4	2/16/93	Horseshoe	209.44	<0.00099	<4.73E-06	<4.02E-05
			No. of tests =	27	27	27
			Average (1) =	0.00217	8.98E-06	7.63E-05
			Average (2) =	0.00193	7.95E-06	6.76E-05
			Average (3) =	0.00169	6.93E-06	5.89E-05

[a] Based on bagasse heating value of 4,250 Btu/lb.

(1) Minimum detectable limit (MDL) used for values reported as below the MDL.
(2) One-half the minimum detectable limit (MDL) used for values reported as below the MDL.
(3) Zero was used for values reported as below the minimum detectable limit.

APPENDIX D

BPIP PRM MODEL INPUT/OUTPUT

```
'BPIP data for US Sugar Corp wrt Boiler 4 stack -6/9/99'
'ST'
'FEET'  0.3048
'UTMN' 0
22
'pel. whse'  1  0.0
4 46.0
-682  212
-155  212
-155  107
-682  107
'WDA'  1    0.0
4  51.0
 -85  153
 -32  153
 -32   98
 -85   98
'S&Safety' 1   0.0
4  34.8
 -85   40
 -32   40
 -32   98
 -85   98
'Blr 4 Bld' 1  0.0
4 87.5
 -32  -13
  34  -13
  34  -91
 -32  -91
'Blr 5&6 Bld'  1  0.0
4 56.0
  34  -95
 100  -95
 100   23
  34   23
'Blr 1&2 Bld'  1  0.0
4  67.25
 100   15
 215   15
 215  -88
 100  -88
'Blr 7 bld'   1  0.0
4 83.0
-100  -13
-100  -91
 -32  -91
 -32  -13
'Blr 7 ESP'  1  0.0
4 87.5
-123   15
-123   70
 -90   70
 -90   15
'pwrhse'  1    0.0
8  34.0
 215  -69
 215  -23
 334  -23
 334  -79
 295  -79
```

```
 295  -88
 256  -88
 256  -69
'w-hose'     1    0.0
6 37.0
 -97 -119
  56 -119
  56 -176
   6 -176
   6 -190
 -97 -190
'shop'    1    0.0
6 39
-241 -276
 -57 -276
 -57 -235
  68 -235
  68 -341
-241 -341
'B Mill'    1  0.0
4 68.0
  78 -194
 159 -194
 159 -372
  78 -372
'A Mill'    1  0.0
4  69.0
 159 -372
 159 -129
 226 -129
 226 -372
'Boiling Hse' 1  0.0
6 93.67
 226 -313
 226 -176
 381 -176
 381 -357
 312 -357
 312 -313
'SugarWhs#3' 1  0.0
4 55.0
1304.0 228.4
1304.0  85.0
2075.3  85.0
2075.3 228.4
'ScreenigDistTowr' 1  0.0
4 150
642.79      -82.46
657.07     -149.66
780.71     -123.38
766.43      -56.18
'Sugar Silos' 1  0.0
4 136
642.79      -82.46
657.07     -149.66
547.91     -172.86
533.57     -105.37
'Supportstrt' 1  0.0
4 130
608.73     -242.54
```

```
624.57      -317.07
718.08      -297.20
702.24      -222.66
'Dryer Area' 1  0.0
4 100
608.73      -242.54
600.62      -204.39
694.13      -184.51
702.24      -222.66
'SpecPackArea' 1 0.0
4 40
717.45      -220.65
759.37      -417.85
839.68      -400.78
797.76      -203.58
'ElectEquip' 1 0.0
4 100
630.31      -344.07
624.57      -317.07
718.08      -297.20
723.82      -324.19
'Packing Facil' 1 0.0
4 40
824.64      -330.06
766.43       -56.18
830.01       -42.66
888.22      -316.54
23
'Blr1'  0.0   165.0    185     -5
'Blr2'  0.0   165.0    143     -5
'Blr3'  0.0   165.0     95     18
'Blr4'  0.0   150.0      0      0
'Blr5'  0.0    65.0     78     25
'Blr6'  0.0    65.0     40     25
'Blr7'  0.0   225.0    -58     65
 'S-1'  0.0    65.0     664.79      -155.17
 'S-2'  0.0    65.0     700.98      -147.48
 'S-3'  0.0    65.0     700.98      -147.48
 'S-4'  0.0    60.0     774.34      -131.89
 'S-5'  0.0    72.0     700.98      -147.48
 'S-6'  0.0    72.0     700.98      -147.48
 'S-7'  0.0   130.0     637.28      -150.80
 'S-8'  0.0   130.0     602.07      -158.28
 'S-9'  0.0   130.0     566.85      -165.77
 'S-10'  0.0   75.0     695.66      -194.62
 'S-11'  0.0   10.0    2045.01       214.88
 'S-12'  0.0   30.0     603.97      -398.13
 'S-13'  0.0  130.0     622.85       -92.52
 'S-14'  0.0  130.0     588.61       -99.80
 'S-15'  0.0  130.0     549.49      -108.12
 'S-16'  0.0  130.0     767.14      -266.32
0
```

BPIP (Dated: 95086)

BPIP data for US Sugar Corp wrt Boiler 4 stack -6/9/99

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

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

Inputs entered in FEET will be converted to meters using a conversion factor of 0.3048. 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 US Sugar Corp wrt Boiler 4 stack -6/9/99

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	50.29	0.00	103.63	103.63
Blr2	50.29	0.00	103.63	103.63
Blr3	50.29	0.00	103.63	103.63
Blr4	45.72	0.00	103.63	103.63
Blr5	19.81	0.00	103.63	103.63
Blr6	19.81	0.00	103.63	103.63
Blr7	68.58	0.00	103.63	103.63
S-1	19.81	0.00	111.50	111.50
S-2	19.81	0.00	111.50	111.50
S-3	19.81	0.00	111.50	111.50
S-4	18.29	0.00	111.50	111.50
S-5	21.95	0.00	111.50	111.50
S-6	21.95	0.00	111.50	111.50
S-7	39.62	0.00	111.49	111.49
S-8	39.62	0.00	110.12	110.12
S-9	39.62	0.00	104.85	104.85
S-10	22.86	0.00	111.50	111.50
S-11	3.05	0.00	41.91	65.00
S-12	9.14	0.00	111.49	111.49
S-13	39.62	0.00	111.50	111.50
S-14	39.62	0.00	109.69	109.69
S-15	39.62	0.00	103.63	103.63
S-16	39.62	0.00	111.50	111.50

* 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 : 0/ 0/ 0
TIME : 0: 0: 0

BPIP data for US Sugar Corp wrt Boiler 4 stack -6/9/99

BPIP output is in meters

SO	BUILDHGT	Blr1	21.03	21.03	20.73	20.50	26.67	26.67
SO	BUILDHGT	Blr1	26.67	26.67	26.67	26.67	26.67	20.50
SO	BUILDHGT	Blr1	28.55	28.55	28.55	28.55	28.55	28.55
SO	BUILDHGT	Blr1	21.03	21.03	20.73	20.50	26.67	26.67
SO	BUILDHGT	Blr1	26.67	26.67	39.62	41.45	41.45	41.45
SO	BUILDHGT	Blr1	39.62	28.55	28.55	28.55	28.55	28.55
SO	BUILDWID	Blr1	32.97	44.52	48.51	47.03	31.14	30.65
SO	BUILDWID	Blr1	29.22	26.91	49.07	26.91	40.07	44.71
SO	BUILDWID	Blr1	62.36	63.03	61.79	58.68	53.78	47.24
SO	BUILDWID	Blr1	32.97	44.52	104.82	47.03	31.14	30.65
SO	BUILDWID	Blr1	29.22	26.91	79.52	46.59	56.20	64.10
SO	BUILDWID	Blr1	88.71	63.03	61.79	58.68	53.78	47.24
SO	BUILDLEN	Blr1	76.49	76.58	59.33	46.58	30.69	29.31
SO	BUILDLEN	Blr1	27.03	23.94	47.85	23.94	61.75	46.05
SO	BUILDLEN	Blr1	71.65	72.63	71.40	68.00	62.53	55.17
SO	BUILDLEN	Blr1	76.49	76.58	97.91	46.58	30.69	29.31
SO	BUILDLEN	Blr1	27.03	23.94	75.33	75.14	72.66	67.98
SO	BUILDLEN	Blr1	80.66	72.63	71.40	68.00	62.53	55.17
SO	XBADJ	Blr1	-111.54	-107.83	-113.18	-36.03	-67.52	-70.39
SO	XBADJ	Blr1	-71.12	-69.69	-93.88	-64.71	-96.04	-25.48
SO	XBADJ	Blr1	43.08	47.96	51.39	53.25	53.50	52.12
SO	XBADJ	Blr1	35.05	31.24	15.27	-10.55	36.82	41.08
SO	XBADJ	Blr1	44.08	45.75	-181.57	-185.08	-182.96	-175.29
SO	XBADJ	Blr1	-181.72	-120.59	-122.79	-121.25	-116.03	-107.29
SO	YBADJ	Blr1	-15.25	-27.74	-24.81	0.25	25.08	15.64
SO	YBADJ	Blr1	5.72	-4.37	-1.68	-23.85	-27.22	-12.51
SO	YBADJ	Blr1	-32.70	-19.25	-5.22	8.97	22.89	36.12
SO	YBADJ	Blr1	15.25	27.74	52.97	-0.25	-25.08	-15.64
SO	YBADJ	Blr1	-5.72	4.37	55.36	7.88	-17.85	-43.05
SO	YBADJ	Blr1	-57.61	19.25	5.22	-8.97	-22.89	-36.12

SO	BUILDHGT	Blr2	20.73	20.73	20.50	26.67	26.67	26.67
SO	BUILDHGT	Blr2	26.67	26.67	26.67	26.67	26.67	28.55
SO	BUILDHGT	Blr2	28.55	28.55	21.03	21.03	28.55	21.03
SO	BUILDHGT	Blr2	20.73	20.73	20.50	26.67	26.67	26.67
SO	BUILDHGT	Blr2	26.67	26.67	39.62	41.45	41.45	41.45
SO	BUILDHGT	Blr2	28.55	28.55	28.55	28.55	28.55	21.03
SO	BUILDWID	Blr2	33.73	41.76	46.05	30.69	31.14	30.65

SO BUILDWID	Blr2	29.22	26.91	49.07	26.91	40.07	59.79
SO BUILDWID	Blr2	62.36	63.03	54.72	44.52	53.78	67.67
SO BUILDWID	Blr2	99.58	103.78	46.05	30.69	31.14	30.65
SO BUILDWID	Blr2	29.22	26.91	79.52	46.59	56.20	64.10
SO BUILDWID	Blr2	62.36	63.03	61.79	58.68	53.78	67.67
SO BUILDLEN	Blr2	57.72	59.43	44.71	31.14	30.69	29.31
SO BUILDLEN	Blr2	27.03	23.94	47.85	23.94	61.75	68.50
SO BUILDLEN	Blr2	71.65	72.63	74.35	76.58	62.53	74.07
SO BUILDLEN	Blr2	80.77	87.73	44.71	31.14	30.69	29.31
SO BUILDLEN	Blr2	27.03	23.94	75.33	75.14	72.66	67.98
SO BUILDLEN	Blr2	71.65	72.63	71.40	68.00	62.53	74.07
SO XBADJ	Blr2	-113.60	-111.89	-28.46	-54.37	-57.71	-59.30
SO XBADJ	Blr2	-59.09	-57.08	-81.08	-52.11	-84.01	47.97
SO XBADJ	Blr2	52.88	56.19	35.17	37.18	55.72	37.80
SO XBADJ	Blr2	32.83	24.17	-16.25	23.22	27.02	29.99
SO XBADJ	Blr2	32.05	33.14	-194.37	-197.69	-194.99	-186.37
SO XBADJ	Blr2	-124.54	-128.82	-129.19	-125.63	-118.26	-111.86
SO YBADJ	Blr2	-7.36	-21.96	-8.63	23.95	16.85	9.23
SO YBADJ	Blr2	1.34	-6.59	-1.68	-21.62	-22.84	-38.76
SO YBADJ	Blr2	-24.48	-9.45	-24.35	-11.42	35.50	38.71
SO YBADJ	Blr2	40.28	52.97	8.63	-23.95	-16.85	-9.23
SO YBADJ	Blr2	-1.34	6.59	55.36	5.66	-22.23	-49.45
SO YBADJ	Blr2	24.48	9.45	-5.87	-21.00	-35.50	-38.71
SO BUILDHGT	Blr3	26.67	26.67	26.67	26.67	26.67	26.67
SO BUILDHGT	Blr3	26.67	26.67	26.67	26.67	26.67	21.03
SO BUILDHGT	Blr3	20.73	20.50	20.50	20.50	20.50	20.50
SO BUILDHGT	Blr3	26.67	26.67	26.67	26.67	26.67	26.67
SO BUILDHGT	Blr3	26.67	26.67	26.67	41.45	41.45	41.45
SO BUILDHGT	Blr3	28.55	28.55	28.55	28.55	21.03	20.73
SO BUILDWID	Blr3	55.65	27.03	29.31	30.69	31.14	30.65
SO BUILDWID	Blr3	29.22	26.91	49.07	26.91	40.07	85.57
SO BUILDWID	Blr3	105.13	47.03	46.05	43.68	39.97	35.05
SO BUILDWID	Blr3	55.65	27.03	29.31	30.69	31.14	30.65
SO BUILDWID	Blr3	29.22	26.91	49.07	46.59	56.20	64.10
SO BUILDWID	Blr3	62.36	63.03	61.79	58.68	32.97	24.69
SO BUILDLEN	Blr3	45.26	29.22	30.65	31.14	30.69	29.31
SO BUILDLEN	Blr3	27.03	23.94	47.85	23.94	61.75	93.35
SO BUILDLEN	Blr3	102.68	46.58	44.71	41.49	37.00	31.39
SO BUILDLEN	Blr3	45.26	29.22	30.65	31.14	30.69	29.31
SO BUILDLEN	Blr3	27.03	23.94	47.85	75.14	72.66	67.98
SO BUILDLEN	Blr3	71.65	72.63	71.40	68.00	76.49	54.25
SO XBADJ	Blr3	-39.44	-44.46	-48.13	-50.33	-51.01	-50.14
SO XBADJ	Blr3	-47.74	-43.89	-66.45	-36.48	-67.86	39.30
SO XBADJ	Blr3	37.57	1.68	1.55	1.38	1.17	0.91
SO XBADJ	Blr3	-5.82	15.24	17.48	19.19	20.32	20.83
SO XBADJ	Blr3	20.70	19.95	18.59	-213.31	-211.14	-202.55
SO XBADJ	Blr3	-140.25	-143.59	-142.57	-137.22	-124.00	-118.87
SO YBADJ	Blr3	40.37	19.63	14.14	8.23	2.07	-4.15
SO YBADJ	Blr3	-10.25	-16.04	-8.69	-25.99	-24.43	-50.41
SO YBADJ	Blr3	-41.83	3.92	8.19	12.22	15.88	19.05
SO YBADJ	Blr3	-40.37	-19.63	-14.14	-8.23	-2.07	4.15
SO YBADJ	Blr3	10.25	16.04	8.69	10.02	-20.65	-50.69
SO YBADJ	Blr3	20.44	2.75	-15.03	-32.35	-15.06	-7.16
SO BUILDHGT	Blr4	26.67	26.67	26.67	26.67	26.67	26.67
SO BUILDHGT	Blr4	26.67	26.67	26.67	26.67	26.67	26.67
SO BUILDHGT	Blr4	26.67	26.67	26.67	26.67	26.67	26.67

SO	BUILDHGT	Blr4	26.67	26.67	26.67	26.67	26.67	26.67
SO	BUILDHGT	Blr4	26.67	26.67	39.62	41.45	41.45	39.62
SO	BUILDHGT	Blr4	28.55	28.55	28.55	26.67	26.67	26.67
SO	BUILDWID	Blr4	55.65	27.03	29.31	30.69	31.14	30.65
SO	BUILDWID	Blr4	29.22	26.91	49.07	26.91	29.22	30.65
SO	BUILDWID	Blr4	31.14	30.69	29.31	27.03	45.64	47.85
SO	BUILDWID	Blr4	55.65	27.03	29.31	30.69	31.14	30.65
SO	BUILDWID	Blr4	29.22	26.91	79.52	46.59	56.20	90.49
SO	BUILDWID	Blr4	62.36	63.03	61.79	27.03	45.64	47.85
SO	BUILDLEN	Blr4	45.26	29.22	30.65	31.14	30.69	29.31
SO	BUILDLEN	Blr4	27.03	23.94	47.85	23.94	27.03	29.31
SO	BUILDLEN	Blr4	30.69	31.14	30.65	29.22	56.64	49.07
SO	BUILDLEN	Blr4	45.26	29.22	30.65	31.14	30.69	29.31
SO	BUILDLEN	Blr4	27.03	23.94	75.33	75.14	72.66	77.94
SO	BUILDLEN	Blr4	71.65	72.63	71.40	29.22	56.64	49.07
SO	XBADJ	Blr4	-29.01	-29.40	-28.90	-27.52	-25.30	-22.32
SO	XBADJ	Blr4	-18.65	-14.42	-37.49	-8.92	-7.81	-6.47
SO	XBADJ	Blr4	-4.92	-3.23	-1.45	0.39	-27.52	-21.34
SO	XBADJ	Blr4	-16.25	0.18	-1.75	-3.63	-5.39	-6.99
SO	XBADJ	Blr4	-8.38	-9.52	-237.96	-240.88	-236.47	-234.84
SO	XBADJ	Blr4	-158.90	-158.00	-152.30	-29.61	-29.11	-27.74
SO	YBADJ	Blr4	12.80	-5.71	-8.19	-10.42	-12.34	-13.88
SO	YBADJ	Blr4	-15.00	-15.66	-3.20	-15.56	-14.79	-13.57
SO	YBADJ	Blr4	-11.95	-9.95	-7.66	-5.13	-13.30	-13.56
SO	YBADJ	Blr4	-12.80	5.71	8.19	10.42	12.34	13.88
SO	YBADJ	Blr4	15.00	15.66	56.88	-0.41	-35.71	-56.73
SO	YBADJ	Blr4	-2.37	-22.96	-42.85	5.13	13.30	13.56

SO	BUILDHGT	Blr5	26.67	26.67	26.67	26.67	26.67	26.67
SO	BUILDHGT	Blr5	26.67	26.67	26.67	26.67	26.67	20.73
SO	BUILDHGT	Blr5	20.50	20.50	20.50	20.50	20.50	20.50
SO	BUILDHGT	Blr5	26.67	26.67	26.67	26.67	26.67	26.67
SO	BUILDHGT	Blr5	26.67	26.67	26.67	41.45	41.45	41.45
SO	BUILDHGT	Blr5	28.55	28.55	28.55	28.55	21.03	20.73
SO	BUILDWID	Blr5	55.65	27.03	29.31	30.69	31.14	30.65
SO	BUILDWID	Blr5	29.22	26.91	49.07	45.26	40.07	97.91
SO	BUILDWID	Blr5	46.58	47.03	46.05	43.68	39.97	35.05
SO	BUILDWID	Blr5	55.65	27.03	29.31	30.69	31.14	30.65
SO	BUILDWID	Blr5	29.22	26.91	49.07	46.59	56.20	64.10
SO	BUILDWID	Blr5	62.36	63.03	61.79	58.68	32.97	24.69
SO	BUILDLEN	Blr5	45.26	29.22	30.65	31.14	30.69	29.31
SO	BUILDLEN	Blr5	27.03	23.94	47.85	55.65	61.75	104.82
SO	BUILDLEN	Blr5	47.03	46.58	44.71	41.49	37.00	31.39
SO	BUILDLEN	Blr5	45.26	29.22	30.65	31.14	30.69	29.31
SO	BUILDLEN	Blr5	27.03	23.94	47.85	75.14	72.66	67.98
SO	BUILDLEN	Blr5	71.65	72.63	71.40	68.00	76.49	54.25
SO	XBADJ	Blr5	-40.64	-44.69	-47.38	-48.64	-48.41	-46.71
SO	XBADJ	Blr5	-43.60	-39.16	-61.26	-62.72	-62.26	33.38
SO	XBADJ	Blr5	7.10	6.65	5.99	5.16	4.17	3.05
SO	XBADJ	Blr5	-4.62	15.47	16.74	17.49	17.72	17.41
SO	XBADJ	Blr5	16.56	15.22	13.41	-218.79	-216.74	-208.10
SO	XBADJ	Blr5	-145.59	-148.56	-147.01	-141.00	-127.00	-121.01
SO	YBADJ	Blr5	34.89	14.03	8.59	2.89	-2.89	-8.59
SO	YBADJ	Blr5	-14.03	-19.04	-10.82	-18.01	-24.66	-55.84
SO	YBADJ	Blr5	1.22	6.51	11.61	16.36	20.61	24.23
SO	YBADJ	Blr5	-34.89	-14.03	-8.59	-2.89	2.89	8.59
SO	YBADJ	Blr5	14.03	19.04	10.82	11.23	-20.42	-51.44
SO	YBADJ	Blr5	18.75	0.15	-18.45	-36.49	-19.79	-12.34

Blr6	26.67	26.67	26.67	26.67	26.67	26.67
Blr6	26.67	26.67	26.67	26.67	26.67	26.67
Blr6	26.67	26.67	26.67	26.67	26.67	26.67
Blr6	26.67	26.67	26.67	26.67	26.67	26.67
Blr6	26.67	26.67	26.67	41.45	41.45	39.62
Blr6	28.55	28.55	28.55	26.67	26.67	26.67
Blr6	55.65	27.03	29.31	30.69	31.14	30.65
Blr6	29.22	26.91	49.07	26.91	29.22	30.65
Blr6	31.14	30.69	29.31	27.03	45.64	47.85
Blr6	55.65	27.03	29.31	30.69	31.14	30.65
Blr6	29.22	26.91	49.07	46.59	56.20	90.49
Blr6	62.36	63.03	61.79	27.03	45.64	47.85
Blr6	45.26	29.22	30.65	31.14	30.69	29.31
Blr6	27.03	23.94	47.85	23.94	27.03	29.31
Blr6	30.69	31.14	30.65	29.22	56.64	49.07
Blr6	45.26	29.22	30.65	31.14	30.69	29.31
Blr6	27.03	23.94	47.85	75.14	72.66	77.94
Blr6	71.65	72.63	71.40	29.22	56.64	49.07
Blr6	-38.63	-40.73	-41.59	-41.19	-39.54	-36.68
Blr6	-32.71	-27.75	-49.68	-19.60	-16.66	-13.21
Blr6	-9.37	-5.23	-0.94	3.38	-22.13	-13.72
Blr6	-6.63	11.51	10.95	10.05	8.85	7.37
Blr6	5.68	3.81	1.83	-230.19	-227.62	-228.09
Blr6	-154.46	-156.00	-152.80	-32.60	-34.50	-35.36
Blr6	23.49	3.14	-1.44	-5.98	-10.34	-14.38
Blr6	-17.99	-21.05	-10.82	-25.18	-26.12	-26.27
Blr6	-25.62	-24.19	-22.03	-19.20	-26.63	-25.76
Blr6	-23.49	-3.14	1.44	5.98	10.34	14.38
Blr6	17.99	21.05	10.82	9.21	-24.38	-44.04
Blr6	11.30	-8.72	-28.48	19.20	26.63	25.76

Blr7	26.67	26.67	26.67	26.67	26.67	26.67
Blr7	26.67	26.67	26.67	26.67	26.67	26.67
Blr7	26.67	26.67	26.67	26.67	26.67	26.67
Blr7	26.67	26.67	26.67	26.67	26.67	26.67
Blr7	26.67	26.67	26.67	41.45	41.45	39.62
Blr7	28.55	28.55	26.67	26.67	26.67	26.67
Blr7	55.65	61.75	65.98	68.20	68.35	66.43
Blr7	62.48	56.64	49.07	45.26	29.22	30.65
Blr7	31.14	30.69	29.31	27.03	45.64	47.85
Blr7	55.65	61.75	65.98	68.20	68.35	66.43
Blr7	62.48	56.64	49.07	46.59	56.20	90.49
Blr7	62.36	63.03	29.31	27.03	45.64	47.85
Blr7	45.26	40.07	33.66	31.14	31.17	37.18
Blr7	42.05	45.64	47.85	55.65	27.03	29.31
Blr7	30.69	31.14	30.65	29.22	56.64	49.07
Blr7	45.26	40.07	33.66	31.14	31.17	37.18
Blr7	42.05	45.64	47.85	75.14	72.66	77.94
Blr7	71.65	72.63	30.65	29.22	56.64	49.07
Blr7	-45.45	-41.97	-37.22	-31.33	-24.97	-24.78
Blr7	-23.83	-22.16	-19.81	-19.78	15.58	18.75
Blr7	21.35	23.31	24.55	25.05	-4.94	-1.52
Blr7	0.19	1.90	3.56	0.19	-6.20	-12.40
Blr7	-18.22	-23.49	-28.04	-261.73	-259.86	-260.06
Blr7	-185.18	-184.54	-55.20	-54.27	-51.70	-47.55
Blr7	-8.05	-11.74	-15.07	-17.94	-20.27	-21.99
Blr7	-23.03	-23.38	-23.01	-22.82	-27.36	-21.89
Blr7	-15.76	-9.15	-2.26	4.70	0.66	4.11

SO XBADJ	S-2	-13.89	-9.99	-5.79	-1.41	1.67	-0.66
SO YBADJ	S-2	-0.87	1.56	3.95	6.22	16.32	15.42
SO YBADJ	S-2	-7.58	12.81	-11.93	7.57	4.87	13.40
SO YBADJ	S-2	12.51	11.24	9.63	7.73	5.59	3.28
SO YBADJ	S-2	0.87	-1.56	-3.95	-6.22	-16.32	-15.42
SO YBADJ	S-2	7.58	-12.81	11.93	-7.57	-4.87	-13.40
SO YBADJ	S-2	-12.51	-11.24	-9.63	-7.73	-5.59	-3.28

SO BUILDHGT	S-3	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-3	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-3	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDHGT	S-3	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-3	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-3	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDWID	S-3	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-3	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-3	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDWID	S-3	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-3	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-3	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDLEN	S-3	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-3	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-3	40.22	36.58	31.82	26.10	22.27	28.49
SO BUILDLEN	S-3	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-3	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-3	40.22	36.58	31.82	26.10	22.27	28.49
SO XBADJ	S-3	-2.98	-5.20	-7.27	-9.11	-40.71	-44.27
SO XBADJ	S-3	-46.49	-14.03	-51.03	-52.48	-52.34	-25.27
SO XBADJ	S-3	-26.33	-26.58	-26.03	-24.69	-23.94	-27.83
SO XBADJ	S-3	-30.87	-32.97	-34.07	-34.14	-33.17	-31.19
SO XBADJ	S-3	-28.26	-25.21	-24.30	-22.66	-20.32	-17.37
SO XBADJ	S-3	-13.89	-9.99	-5.79	-1.41	1.67	-0.66
SO YBADJ	S-3	-0.87	1.56	3.95	6.22	16.32	15.42
SO YBADJ	S-3	-7.58	12.81	-11.93	7.57	4.87	13.40
SO YBADJ	S-3	12.51	11.24	9.63	7.73	5.59	3.28
SO YBADJ	S-3	0.87	-1.56	-3.95	-6.22	-16.32	-15.42
SO YBADJ	S-3	7.58	-12.81	11.93	-7.57	-4.87	-13.40
SO YBADJ	S-3	-12.51	-11.24	-9.63	-7.73	-5.59	-3.28

SO BUILDHGT	S-4	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-4	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-4	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDHGT	S-4	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-4	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-4	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDWID	S-4	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-4	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-4	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDWID	S-4	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-4	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-4	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDLEN	S-4	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-4	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-4	40.22	36.58	31.82	26.10	22.27	28.49
SO BUILDLEN	S-4	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-4	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-4	40.22	36.58	31.82	26.10	22.27	28.49
SO XBADJ	S-4	-11.54	-17.31	-22.56	-27.12	-60.90	-66.01

SO XBADJ	S-4	-69.12	-36.87	-73.39	-73.68	-71.73	-42.26
SO XBADJ	S-4	-40.40	-37.31	-33.10	-27.87	-23.14	-23.08
SO XBADJ	S-4	-22.31	-20.86	-18.78	-16.13	-12.99	-9.45
SO XBADJ	S-4	-5.63	-2.36	-1.94	-1.46	-0.94	-0.38
SO XBADJ	S-4	0.18	0.74	1.28	1.77	0.87	-5.42
SO YBADJ	S-4	20.32	20.95	20.94	20.29	27.05	22.48
SO YBADJ	S-4	-4.39	12.01	-16.68	-0.99	-7.24	-1.89
SO YBADJ	S-4	-5.50	-8.94	-12.11	-14.91	-17.25	-19.08
SO YBADJ	S-4	-20.32	-20.95	-20.94	-20.29	-27.05	-22.48
SO YBADJ	S-4	4.39	-12.01	16.68	0.99	7.24	1.89
SO YBADJ	S-4	5.50	8.94	12.11	14.91	17.25	19.08

SO BUILDHGT	S-5	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-5	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-5	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDHGT	S-5	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-5	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-5	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDWID	S-5	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-5	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-5	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDWID	S-5	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-5	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-5	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDLEN	S-5	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-5	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-5	40.22	36.58	31.82	26.10	22.27	28.49
SO BUILDLEN	S-5	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-5	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-5	40.22	36.58	31.82	26.10	22.27	28.49
SO XBADJ	S-5	-2.98	-5.20	-7.27	-9.11	-40.71	-44.27
SO XBADJ	S-5	-46.49	-14.03	-51.03	-52.48	-52.34	-25.27
SO XBADJ	S-5	-26.33	-26.58	-26.03	-24.69	-23.94	-27.83
SO XBADJ	S-5	-30.87	-32.97	-34.07	-34.14	-33.17	-31.19
SO XBADJ	S-5	-28.26	-25.21	-24.30	-22.66	-20.32	-17.37
SO XBADJ	S-5	-13.89	-9.99	-5.79	-1.41	1.67	-0.66
SO YBADJ	S-5	-0.87	1.56	3.95	6.22	16.32	15.42
SO YBADJ	S-5	-7.58	12.81	-11.93	7.57	4.87	13.40
SO YBADJ	S-5	12.51	11.24	9.63	7.73	5.59	3.28
SO YBADJ	S-5	0.87	-1.56	-3.95	-6.22	-16.32	-15.42
SO YBADJ	S-5	7.58	-12.81	11.93	-7.57	-4.87	-13.40
SO YBADJ	S-5	-12.51	-11.24	-9.63	-7.73	-5.59	-3.28

SO BUILDHGT	S-6	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-6	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-6	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDHGT	S-6	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-6	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-6	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDWID	S-6	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-6	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-6	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDWID	S-6	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-6	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-6	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDLEN	S-6	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-6	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-6	40.22	36.58	31.82	26.10	22.27	28.49

SO BUILDLEN	S-6	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-6	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-6	40.22	36.58	31.82	26.10	22.27	28.49
SO XBADJ	S-6	-2.98	-5.20	-7.27	-9.11	-40.71	-44.27
SO XBADJ	S-6	-46.49	-14.03	-51.03	-52.48	-52.34	-25.27
SO XBADJ	S-6	-26.33	-26.58	-26.03	-24.69	-23.94	-27.83
SO XBADJ	S-6	-30.87	-32.97	-34.07	-34.14	-33.17	-31.19
SO XBADJ	S-6	-28.26	-25.21	-24.30	-22.66	-20.32	-17.37
SO XBADJ	S-6	-13.89	-9.99	-5.79	-1.41	1.67	-0.66
SO YBADJ	S-6	-0.87	1.56	3.95	6.22	16.32	15.42
SO YBADJ	S-6	-7.58	12.81	-11.93	7.57	4.87	13.40
SO YBADJ	S-6	12.51	11.24	9.63	7.73	5.59	3.28
SO YBADJ	S-6	0.87	-1.56	-3.95	-6.22	-16.32	-15.42
SO YBADJ	S-6	7.58	-12.81	11.93	-7.57	-4.87	-13.40
SO YBADJ	S-6	-12.51	-11.24	-9.63	-7.73	-5.59	-3.28

SO BUILDHGT	S-7	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-7	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-7	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDHGT	S-7	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-7	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-7	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDWID	S-7	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-7	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-7	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDWID	S-7	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-7	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-7	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDLEN	S-7	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-7	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-7	40.22	36.58	31.82	26.10	22.27	28.49
SO BUILDLEN	S-7	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-7	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-7	40.22	36.58	31.82	26.10	22.27	28.49
SO XBADJ	S-7	1.39	2.39	3.32	4.14	-25.19	-26.95
SO XBADJ	S-7	-27.90	5.27	-31.61	-33.54	-34.44	-8.96
SO XBADJ	S-7	-12.10	36.58	-17.20	-19.00	-21.57	-28.84
SO XBADJ	S-7	-35.24	-40.56	-44.66	-47.40	-48.69	-48.51
SO XBADJ	S-7	-46.85	-44.50	-43.72	-41.60	-38.22	-33.68
SO XBADJ	S-7	-28.12	36.58	-14.62	-7.10	-0.71	0.35
SO YBADJ	S-7	-19.82	-16.34	-12.36	-8.01	4.61	6.59
SO YBADJ	S-7	-13.27	10.43	-10.92	11.94	12.46	23.99
SO YBADJ	S-7	25.77	36.58	26.95	26.32	24.89	22.70
SO YBADJ	S-7	19.82	16.34	12.36	8.01	-4.61	-6.59
SO YBADJ	S-7	13.27	-10.43	10.92	-11.94	-12.46	-23.99
SO YBADJ	S-7	-25.77	36.58	-26.95	-26.32	-24.89	-22.70

SO BUILDHGT	S-8	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-8	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-8	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDHGT	S-8	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-8	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-8	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDWID	S-8	42.93	42.93	42.64	40.22	52.63	42.42
SO BUILDWID	S-8	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-8	42.93	42.93	42.93	41.07	39.23	42.04
SO BUILDWID	S-8	42.93	42.93	42.64	40.22	52.63	42.42
SO BUILDWID	S-8	74.18	22.27	79.52	46.59	56.20	41.34

SO BUILDWID	S-8	42.93	42.93	42.93	41.07	39.23	42.04
SO BUILDLEN	S-8	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-8	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-8	40.22	36.58	31.82	26.10	22.27	28.49
SO BUILDLEN	S-8	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-8	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-8	40.22	36.58	31.82	26.10	22.27	28.49
SO XBADJ	S-8	33.85	38.17	10.66	12.79	-15.50	-16.52
SO XBADJ	S-8	-17.03	16.24	-20.88	-23.36	-25.14	-0.81
SO XBADJ	S-8	40.22	36.58	31.82	-17.47	-21.95	-31.12
SO XBADJ	S-8	33.85	38.17	-52.00	-56.04	-58.38	-58.95
SO XBADJ	S-8	-57.72	-55.47	-54.45	-51.78	-47.53	-41.84
SO XBADJ	S-8	40.22	36.58	31.82	-8.63	-0.32	2.63
SO YBADJ	S-8	33.85	38.17	-20.51	-14.76	-0.54	3.20
SO YBADJ	S-8	-14.79	10.81	-8.64	16.05	18.28	31.33
SO YBADJ	S-8	40.22	36.58	31.82	37.19	35.85	33.43
SO YBADJ	S-8	33.85	38.17	20.51	14.76	0.54	-3.20
SO YBADJ	S-8	14.79	-10.81	8.64	-16.05	-18.28	-31.33
SO YBADJ	S-8	40.22	36.58	31.82	-37.19	-35.85	-33.43

SO BUILDHGT	S-9	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-9	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-9	45.72	41.45	41.45	41.45	41.45	41.45
SO BUILDHGT	S-9	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-9	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-9	45.72	41.45	41.45	41.45	41.45	41.45
SO BUILDWID	S-9	39.42	39.42	39.42	39.42	52.63	42.42
SO BUILDWID	S-9	74.18	22.27	79.52	46.59	56.20	39.42
SO BUILDWID	S-9	39.42	73.88	75.46	74.75	73.23	75.33
SO BUILDWID	S-9	39.42	39.42	39.42	39.42	52.63	42.42
SO BUILDWID	S-9	74.18	22.27	79.52	46.59	56.20	39.42
SO BUILDWID	S-9	39.42	73.88	75.46	74.75	73.23	75.33
SO BUILDLEN	S-9	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-9	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-9	40.22	52.63	42.42	30.92	23.46	35.56
SO BUILDLEN	S-9	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-9	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-9	40.22	52.63	42.42	30.92	23.46	35.56
SO XBADJ	S-9	33.85	38.17	41.34	43.25	-5.81	-6.08
SO XBADJ	S-9	-6.16	27.20	-10.14	-13.19	-15.83	42.64
SO XBADJ	S-9	40.22	-20.62	-21.02	-20.77	-22.33	-33.40
SO XBADJ	S-9	33.85	38.17	41.34	43.25	-68.07	-69.38
SO XBADJ	S-9	-68.59	-66.44	-65.18	-61.95	-56.83	42.64
SO XBADJ	S-9	40.22	-32.00	-21.40	-10.15	-1.13	-2.16
SO YBADJ	S-9	33.85	38.17	41.34	43.25	-5.69	-0.19
SO YBADJ	S-9	-16.32	11.20	-6.36	20.16	24.09	42.64
SO YBADJ	S-9	40.22	31.13	31.65	31.21	29.82	27.52
SO YBADJ	S-9	33.85	38.17	41.34	43.25	5.69	0.19
SO YBADJ	S-9	16.32	-11.20	6.36	-20.16	-24.09	42.64
SO YBADJ	S-9	40.22	-31.13	-31.65	-31.21	-29.82	-27.52

SO BUILDHGT	S-10	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-10	39.62	30.48	39.62	41.45	41.45	45.72
SO BUILDHGT	S-10	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDHGT	S-10	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-10	39.62	30.48	39.62	41.45	41.45	45.72
SO BUILDHGT	S-10	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDWID	S-10	43.57	43.77	42.64	40.22	52.63	42.42

SO BUILDWID	S-10	74.18	32.64	79.52	46.59	56.20	41.34
SO BUILDWID	S-10	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDWID	S-10	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-10	74.18	32.64	79.52	46.59	56.20	41.34
SO BUILDWID	S-10	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDLEN	S-10	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-10	74.75	30.22	75.33	75.14	72.66	42.64
SO BUILDLEN	S-10	40.22	36.58	31.82	26.10	22.27	28.49
SO BUILDLEN	S-10	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-10	74.75	30.22	75.33	75.14	72.66	42.64
SO BUILDLEN	S-10	40.22	36.58	31.82	26.10	22.27	28.49
SO XBADJ	S-10	11.45	8.85	5.99	2.94	-30.23	-35.68
SO XBADJ	S-10	-40.05	-28.63	-49.41	-53.38	-55.73	-31.05
SO XBADJ	S-10	-34.32	-36.55	-37.66	-37.64	-37.81	-42.20
SO XBADJ	S-10	-45.30	-47.03	-47.33	-46.19	-43.65	-39.78
SO XBADJ	S-10	-34.70	-1.59	-25.92	-21.76	-16.93	-11.59
SO XBADJ	S-10	-5.90	-0.03	5.84	11.54	15.54	13.70
SO YBADJ	S-10	0.02	4.95	9.73	14.21	26.28	27.05
SO YBADJ	S-10	5.37	-25.08	2.44	22.01	18.93	26.66
SO YBADJ	S-10	24.56	21.72	18.22	14.17	9.68	4.90
SO YBADJ	S-10	-0.02	-4.95	-9.73	-14.21	-26.28	-27.05
SO YBADJ	S-10	-5.37	25.08	-2.44	-22.01	-18.93	-26.66
SO YBADJ	S-10	-24.56	-21.72	-18.22	-14.17	-9.68	-4.90
SO BUILDHGT	S-11	16.76	16.76	16.76	16.76	16.76	16.76
SO BUILDHGT	S-11	16.76	16.76	16.76	16.76	16.76	16.76
SO BUILDHGT	S-11	16.76	16.76	16.76	16.76	16.76	16.76
SO BUILDHGT	S-11	16.76	16.76	16.76	16.76	16.76	16.76
SO BUILDHGT	S-11	16.76	16.76	16.76	16.76	16.76	16.76
SO BUILDHGT	S-11	16.76	16.76	16.76	16.76	16.76	16.76
SO BUILDWID	S-11	239.11	235.86	225.45	208.19	184.60	155.40
SO BUILDWID	S-11	121.48	83.87	43.71	83.87	121.48	155.40
SO BUILDWID	S-11	184.60	208.19	225.45	235.86	239.11	235.09
SO BUILDWID	S-11	239.11	235.86	225.45	208.19	184.60	155.40
SO BUILDWID	S-11	121.48	83.87	43.71	83.87	121.48	155.40
SO BUILDWID	S-11	184.60	208.19	225.45	235.86	239.11	235.09
SO BUILDLEN	S-11	83.87	121.48	155.40	184.60	208.19	225.45
SO BUILDLEN	S-11	235.86	239.11	235.09	239.11	235.86	225.45
SO BUILDLEN	S-11	208.19	184.60	155.40	121.48	83.87	43.71
SO BUILDLEN	S-11	83.87	121.48	155.40	184.60	208.19	225.45
SO BUILDLEN	S-11	235.86	239.11	235.09	239.11	235.86	225.45
SO BUILDLEN	S-11	208.19	184.60	155.40	121.48	83.87	43.71
SO XBADJ	S-11	-78.21	-114.45	-147.21	-175.51	-198.46	-215.39
SO XBADJ	S-11	-225.78	-229.30	-225.86	-223.14	-213.65	-197.66
SO XBADJ	S-11	-175.67	-148.34	-116.50	-81.12	-43.28	-4.12
SO XBADJ	S-11	-5.66	-7.03	-8.18	-9.09	-9.72	-10.06
SO XBADJ	S-11	-10.09	-9.81	-9.23	-15.97	-22.22	-27.79
SO XBADJ	S-11	-32.52	-36.26	-38.90	-40.36	-40.59	-39.59
SO YBADJ	S-11	103.59	95.72	84.94	71.57	56.04	38.80
SO YBADJ	S-11	20.38	1.34	-17.73	-36.27	-53.71	-69.51
SO YBADJ	S-11	-83.21	-94.37	-102.67	-107.85	-109.75	-108.31
SO YBADJ	S-11	-103.59	-95.72	-84.94	-71.57	-56.04	-38.80
SO YBADJ	S-11	-20.38	-1.34	17.73	36.27	53.71	69.51
SO YBADJ	S-11	83.21	94.37	102.67	107.85	109.75	108.31
SO BUILDHGT	S-12	45.72	45.72	45.72	45.72	39.62	39.62
SO BUILDHGT	S-12	39.62	30.48	28.55	28.55	28.55	28.55
SO BUILDHGT	S-12	28.55	28.55	41.45	41.45	41.45	45.72

SO BUILDHGT	S-12	45.72	45.72	45.72	45.72	39.62	39.62
SO BUILDHGT	S-12	39.62	30.48	12.19	12.19	0.00	0.00
SO BUILDHGT	S-12	0.00	28.55	41.45	41.45	41.45	45.72
SO BUILDWID	S-12	43.57	43.77	42.64	40.22	80.94	78.76
SO BUILDWID	S-12	74.18	32.64	55.17	57.98	59.03	59.79
SO BUILDWID	S-12	62.36	63.03	75.46	74.75	73.23	42.04
SO BUILDWID	S-12	43.57	43.77	42.64	40.22	80.94	78.76
SO BUILDWID	S-12	74.18	32.64	65.31	66.35	0.00	0.00
SO BUILDWID	S-12	0.00	63.03	75.46	74.75	73.23	42.04
SO BUILDLEN	S-12	33.85	38.17	41.34	43.25	84.24	77.21
SO BUILDLEN	S-12	74.75	30.22	47.24	56.11	63.26	68.50
SO BUILDLEN	S-12	71.65	72.63	42.42	30.92	23.46	28.49
SO BUILDLEN	S-12	33.85	38.17	41.34	43.25	84.24	77.21
SO BUILDLEN	S-12	74.75	30.22	37.26	46.22	0.00	0.00
SO BUILDLEN	S-12	0.00	72.63	42.42	30.92	23.46	28.49
SO XBADJ	S-12	77.39	76.70	73.68	68.42	20.69	17.79
SO XBADJ	S-12	7.43	9.66	-115.21	-125.21	-131.41	-133.62
SO XBADJ	S-12	-131.77	-125.92	-88.01	-91.19	-94.04	-104.23
SO XBADJ	S-12	-111.24	-114.88	-115.02	-111.67	-104.93	-95.00
SO XBADJ	S-12	-82.18	-39.89	-71.84	-70.89	0.00	0.00
SO XBADJ	S-12	0.00	53.29	45.59	60.27	70.59	75.73
SO YBADJ	S-12	-16.73	-0.10	16.54	32.67	41.68	48.63
SO YBADJ	S-12	54.10	31.15	40.12	25.88	10.86	-5.24
SO YBADJ	S-12	-23.00	-40.06	57.27	44.80	30.98	32.85
SO YBADJ	S-12	16.73	0.10	-16.54	-32.67	-41.68	-48.63
SO YBADJ	S-12	-54.10	-31.15	-26.64	-35.48	0.00	0.00
SO YBADJ	S-12	0.00	40.06	-57.27	-44.80	-30.98	-32.85

SO BUILDHGT	S-13	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-13	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-13	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDHGT	S-13	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-13	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-13	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDWID	S-13	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-13	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-13	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDWID	S-13	43.57	43.77	42.64	40.22	52.63	42.42
SO BUILDWID	S-13	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-13	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDLEN	S-13	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-13	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-13	40.22	36.58	31.82	26.10	22.27	28.49
SO BUILDLEN	S-13	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-13	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-13	40.22	36.58	31.82	26.10	22.27	28.49
SO XBADJ	S-13	-15.34	-12.80	-9.87	-6.64	-33.24	-32.03
SO XBADJ	S-13	-29.84	6.52	-27.21	-26.12	-24.23	3.73
SO XBADJ	S-13	2.68	1.56	0.38	-0.80	-3.31	-11.08
SO XBADJ	S-13	-18.51	-25.38	-31.47	-36.62	-40.64	-43.44
SO XBADJ	S-13	-44.91	-45.75	-48.12	-49.02	-48.43	-46.37
SO XBADJ	S-13	-42.90	-38.13	-32.20	-25.30	-18.96	-17.42
SO YBADJ	S-13	-27.24	-26.55	-25.05	-22.79	-11.82	-10.99
SO YBADJ	S-13	-31.46	-7.83	-28.68	-4.79	-2.72	10.80
SO YBADJ	S-13	14.99	18.72	21.88	24.38	26.13	27.10
SO YBADJ	S-13	27.24	26.55	25.05	22.79	11.82	10.99
SO YBADJ	S-13	31.46	7.83	28.68	4.79	2.72	-10.80
SO YBADJ	S-13	-14.99	-18.72	-21.88	-24.38	-26.13	-27.10

SO BUILDHGT	S-14	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-14	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-14	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDHGT	S-14	45.72	45.72	45.72	45.72	41.45	41.45
SO BUILDHGT	S-14	39.62	45.72	39.62	41.45	41.45	45.72
SO BUILDHGT	S-14	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDWID	S-14	42.64	42.64	42.64	40.22	52.63	42.42
SO BUILDWID	S-14	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-14	42.64	42.64	42.64	41.07	39.23	42.04
SO BUILDWID	S-14	42.64	42.64	42.64	40.22	52.63	42.42
SO BUILDWID	S-14	74.18	22.27	79.52	46.59	56.20	41.34
SO BUILDWID	S-14	42.64	42.64	42.64	41.07	39.23	42.04
SO BUILDLEN	S-14	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-14	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-14	40.22	36.58	31.82	26.10	22.27	28.49
SO BUILDLEN	S-14	33.85	38.17	41.34	43.25	73.88	75.46
SO BUILDLEN	S-14	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-14	40.22	36.58	31.82	26.10	22.27	28.49
SO XBADJ	S-14	33.85	38.17	-2.73	1.77	-23.82	-21.88
SO XBADJ	S-14	-19.27	17.18	-16.78	-16.23	-15.18	11.66
SO XBADJ	S-14	40.22	36.58	31.82	0.68	-3.68	-13.30
SO XBADJ	S-14	33.85	38.17	-38.61	-45.02	-50.07	-53.59
SO XBADJ	S-14	-55.48	-56.41	-58.55	-58.91	-57.48	-54.30
SO XBADJ	S-14	40.22	36.58	31.82	-26.78	-18.59	-15.20
SO YBADJ	S-14	33.85	38.17	-32.98	-29.36	-16.83	-14.29
SO YBADJ	S-14	-32.95	-7.45	-26.46	-0.79	2.93	17.94
SO YBADJ	S-14	40.22	36.58	31.82	34.94	36.80	37.53
SO YBADJ	S-14	33.85	38.17	32.98	29.36	16.83	14.29
SO YBADJ	S-14	32.95	7.45	26.46	0.79	-2.93	-17.94
SO YBADJ	S-14	40.22	36.58	31.82	-34.94	-36.80	-37.53

SO BUILDHGT	S-15	41.45	41.45	41.45	41.45	41.45	41.45
SO BUILDHGT	S-15	39.62	45.72	39.62	41.45	41.45	41.45
SO BUILDHGT	S-15	41.45	41.45	41.45	41.45	41.45	41.45
SO BUILDHGT	S-15	41.45	41.45	41.45	41.45	41.45	41.45
SO BUILDHGT	S-15	39.62	45.72	39.62	41.45	41.45	41.45
SO BUILDHGT	S-15	41.45	41.45	41.45	41.45	41.45	41.45
SO BUILDWID	S-15	75.14	72.66	41.51	41.51	52.63	42.42
SO BUILDWID	S-15	74.18	22.27	79.52	46.59	56.20	41.51
SO BUILDWID	S-15	41.51	41.51	75.46	74.75	73.23	75.33
SO BUILDWID	S-15	75.14	72.66	41.51	41.51	52.63	42.42
SO BUILDWID	S-15	74.18	22.27	79.52	46.59	56.20	41.51
SO BUILDWID	S-15	41.51	41.51	75.46	74.75	73.23	75.33
SO BUILDLEN	S-15	46.59	56.20	41.34	43.25	73.88	75.46
SO BUILDLEN	S-15	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-15	40.22	36.58	42.42	30.92	23.46	35.56
SO BUILDLEN	S-15	46.59	56.20	41.34	43.25	73.88	75.46
SO BUILDLEN	S-15	74.75	39.23	75.33	75.14	72.66	42.64
SO BUILDLEN	S-15	40.22	36.58	42.42	30.92	23.46	35.56
SO XBADJ	S-15	-19.52	-18.71	41.34	43.25	-13.05	-10.28
SO XBADJ	S-15	-7.20	29.36	-4.85	-4.92	-4.85	42.64
SO XBADJ	S-15	40.22	36.58	-3.15	-2.45	-4.11	-15.83
SO XBADJ	S-15	-27.07	-37.49	41.34	43.25	-60.83	-65.18
SO XBADJ	S-15	-67.55	-68.60	-70.48	-70.21	-67.82	42.64
SO XBADJ	S-15	40.22	36.58	-39.27	-28.47	-19.35	-19.73
SO YBADJ	S-15	-32.64	-31.48	41.34	43.25	-22.55	-18.06
SO YBADJ	S-15	-34.64	-7.03	-23.93	3.78	9.39	42.64
SO YBADJ	S-15	40.22	36.58	27.45	30.17	31.98	32.81

SO YBADJ	S-15	32.64	31.49	41.34	43.25	22.55	18.06
SO YBADJ	S-15	34.64	7.03	23.93	-3.78	-9.39	42.64
SO YBADJ	S-15	40.22	36.58	-27.45	-30.17	-31.98	-32.81

SO BUILDHGT	S-16	45.72	45.72	45.72	39.62	39.62	39.62
SO BUILDHGT	S-16	39.62	30.48	39.62	41.45	41.45	45.72
SO BUILDHGT	S-16	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDHGT	S-16	45.72	45.72	45.72	39.62	39.62	39.62
SO BUILDHGT	S-16	39.62	30.48	39.62	41.45	41.45	45.72
SO BUILDHGT	S-16	45.72	45.72	45.72	45.72	45.72	45.72
SO BUILDWID	S-16	43.57	43.77	42.64	80.66	80.94	78.76
SO BUILDWID	S-16	74.18	32.64	79.52	46.59	56.20	41.34
SO BUILDWID	S-16	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDWID	S-16	43.57	43.77	42.64	80.66	80.94	78.76
SO BUILDWID	S-16	74.18	32.64	79.52	46.59	56.20	41.34
SO BUILDWID	S-16	43.25	43.85	43.11	41.07	39.23	42.04
SO BUILDLEN	S-16	33.85	38.17	41.34	88.71	84.24	77.21
SO BUILDLEN	S-16	74.75	30.22	75.33	75.14	72.66	42.64
SO BUILDLEN	S-16	40.22	36.58	31.82	26.10	22.27	28.49
SO BUILDLEN	S-16	33.85	38.17	41.34	88.71	84.24	77.21
SO BUILDLEN	S-16	74.75	30.22	75.33	75.14	72.66	42.64
SO BUILDLEN	S-16	40.22	36.58	31.82	26.10	22.27	28.49
SO XBADJ	S-16	29.19	21.94	14.02	-39.78	-43.23	-45.37
SO XBADJ	S-16	-53.05	-46.29	-71.19	-78.63	-83.68	-60.84
SO XBADJ	S-16	-65.06	-67.29	-67.48	-65.62	-63.12	-64.05
SO XBADJ	S-16	-63.04	-60.11	-55.36	-48.93	-41.01	-31.84
SO XBADJ	S-16	-21.70	16.07	-4.14	3.49	11.01	18.20
SO XBADJ	S-16	24.84	30.72	35.66	39.53	40.84	35.56
SO YBADJ	S-16	25.27	32.90	39.52	45.74	42.87	38.70
SO YBADJ	S-16	33.36	0.22	24.29	39.75	32.01	34.69
SO YBADJ	S-16	27.30	19.08	10.28	1.17	-7.98	-16.88
SO YBADJ	S-16	-25.27	-32.90	-39.52	-45.74	-42.87	-38.70
SO YBADJ	S-16	-33.36	-0.22	-24.29	-39.75	-32.01	-34.69
SO YBADJ	S-16	-27.30	-19.08	-10.28	-1.17	7.98	16.88