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BUREAU OF AIR REGULATION

**APPLICATION TO REVISE  
ANNUAL FUEL OIL FIRING LIMIT  
BOILER NO. 4  
U.S. SUGAR CORPORATION  
CLEWISTON, FLORIDA**

**Prepared For:  
United States Sugar Corporation  
111 Ponce DeLeon Ave.  
Clewiston, Florida 33440**

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

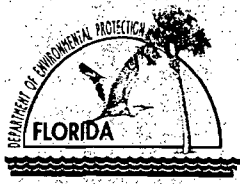
**July 2006**

**0637573-0400**

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1 Copy – FDEP, Ft. Myers  
2 Copies – U.S. Sugar  
1 Copy – Golder Associates Inc.**

**APPLICATION FOR AIR PERMIT – LONG FORM**



# Department of Environmental Protection

## Division of Air Resource Management

### APPLICATION FOR AIR PERMIT - LONG FORM

#### I. APPLICATION INFORMATION

**Air Construction Permit** – Use this form to apply for an air construction permit at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air permit. Also use this form to apply for an air construction permit:

- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- Where the applicant proposes to establish, revise, or renew a plantwide applicability limit (PAL).

**Air Operation Permit** – Use this form to apply for:

- an initial federally enforceable state air operation permit (FESOP); or
- an initial/revised/renewal Title V air operation permit.

**Air Construction Permit & Title V Air Operation Permit (Concurrent Processing Option)** – Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

#### Identification of Facility

1. Facility Owner/Company Name: <b>United States Sugar Corporation</b>	
2. Site Name: <b>Clewiston Mill</b>	
3. Facility Identification Number: <b>0510003</b>	
4. Facility Location...: Street Address or Other Locator: <b>W.C. Owens Ave. and S.R. 832</b> City: <b>Clewiston</b> County: <b>Hendry</b> Zip Code: <b>33440</b>	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

#### Application Contact

1. Application Contact Name: <b>Neil Smith, V.P. and General Manager, Sugar Processing Operations</b>	
2. Application Contact Mailing Address... Organization/Firm: <b>United States Sugar Corporation</b> Street Address: <b>111 Ponce de Leon Avenue</b> City: <b>Clewiston</b> State: <b>Florida</b> Zip Code: <b>33440</b>	
3. Application Contact Telephone Numbers... Telephone: <b>(863) 902-2703</b> ext.      Fax: <b>(863) 902-2729</b>	
4. Application Contact Email Address: <b>nsmith@ussugar.com</b>	

#### Application Processing Information (DEP Use)

1. Date of Receipt of Application:	3. PSD Number (if applicable):
2. Project Number(s):	4. Siting Number (if applicable):

**APPLICATION INFORMATION**

**Purpose of Application**

**This application for air permit is submitted to obtain: (Check one)**

**Air Construction Permit**

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

**Air Operation Permit**

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

**Air Construction Permit and Revised/Renewal Title V Air Operation Permit  
(Concurrent Processing)**

- Air construction permit and Title V permit revision, incorporating the proposed project.
- Air construction permit and Title V permit renewal, incorporating the proposed project.

**Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:**

- I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

**Application Comment**

**Application to increase the annual fuel oil firing limit in Boiler No. 4 from 500,000 gallons per year to 6,000,000 gallons per year. The new limit will represent a cap for Boiler Nos. 1, 2, and 4 combined for fuel oil burning.**

**APPLICATION INFORMATION**

**Scope of Application**

<b>Emissions Unit ID Number</b>	<b>Description of Emissions Unit</b>	<b>Air Permit Type</b>	<b>Air Permit Proc. Fee</b>
009	Clewiston Boiler No. 4		

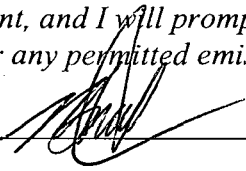
**Application Processing Fee**

Check one:  Attached - Amount: \$ \_\_\_\_\_  Not Applicable

**APPLICATION INFORMATION**

**Owner/Authorized Representative Statement**

**Complete if applying for an air construction permit or an initial FESOP.**

1. Owner/Authorized Representative Name : <b>Neil Smith, Vice President and General Manager, Sugar Processing Operations</b>
2. Owner/Authorized Representative Mailing Address... Organization/Firm: <b>United States Sugar Corporation</b> Street Address: <b>111 Ponce de Leon Avenue</b> City: <b>Clewiston</b> State: <b>Florida</b> Zip Code: <b>33440</b>
3. Owner/Authorized Representative Telephone Numbers... Telephone: <b>(863) 902-2703</b> ext. Fax: <b>(863) 902-2729</b>
4. Owner/Authorized Representative Email Address: <b>nsmith@ussugar.com</b>
5. Owner/Authorized Representative Statement:  <i>I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. 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 and all other requirements identified in this application to which the facility is subject. 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 the facility or any permitted emissions unit.</i>  Signature  Date <u>7/24/06</u>

**APPLICATION INFORMATION**

**Application Responsible Official Certification**

**Complete if applying for an initial/revise/renewal Title V permit or concurrent processing of an air construction permit and a revised/renewal Title V permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."**

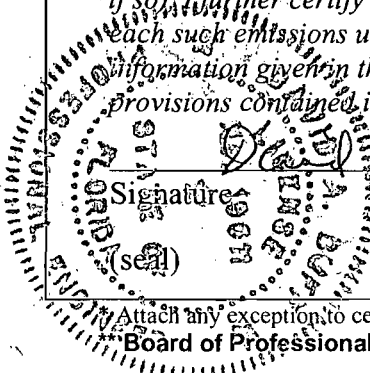
1. Application Responsible Official Name:
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source.
3. Application Responsible Official Mailing Address... Organization/Firm: Street Address: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span>City:</span> <span>State:</span> <span>Zip Code:</span> </div>
4. Application Responsible Official Telephone Numbers... Telephone: (    )    -    ext.    Fax:    (    )    -
5. Application Responsible Official Email Address:
6. Application Responsible Official Certification: I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. 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 and all other applicable requirements identified in this application to which the Title V source is subject. 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 the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.
<div style="display: flex; justify-content: space-between; margin-top: 20px;"> <span>_____ Signature</span> <span>_____ Date</span> </div>



**APPLICATION INFORMATION**

**Professional Engineer Certification**

1. Professional Engineer Name: <b>David A. Buff</b> Registration Number: <b>19011</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Golder Associates Inc.**</b> Street Address: <b>6241 NW 23<sup>rd</sup> Street, Suite 500</b> City: <b>Gainesville</b> State: <b>FL</b> Zip Code: <b>32653-1500</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(352) 336-5600</b> ext. <b>545</b> Fax: <b>(352) 336-6603</b>
4. Professional Engineer Email Address: <b>dbuff@golder.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i>  (1) <i>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</i>  (2) <i>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.</i>  (3) <i>If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, 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 plan and schedule is submitted with this application.</i>  (4) <i>If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, 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.</i>  (5) <i>If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, 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.</i>  Signature: <u>David A. Buff</u> Date: <u>7/21/06</u>



Attach any exception to certification statement.  
Board of Professional Engineers Certificate of Authorization #00001670

## EMISSIONS UNIT INFORMATION

Section [1]

Boiler No. 4

### III. EMISSIONS UNIT INFORMATION

**Title V Air Operation Permit Application** – For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

**Air Construction Permit or FESOP Application** – For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an “unregulated emissions unit” does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

**Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application** – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

**EMISSIONS UNIT INFORMATION**

**Section [1]  
Boiler No. 4**

**A. GENERAL EMISSIONS UNIT INFORMATION**

**Title V Air Operation Permit Emissions Unit Classification**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)
- 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.

**Emissions Unit Description and Status**

1. Type of Emissions Unit Addressed in this Section: (Check one)
- 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.

2. Description of Emissions Unit Addressed in this Section:  
**Boiler No. 4**

3. Emissions Unit Identification Number: **009**

4. Emissions Unit Status Code: <b>A</b>	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: <b>20</b>	8. Acid Rain Unit? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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9. Package Unit:  
Manufacturer: \_\_\_\_\_ Model Number: \_\_\_\_\_

10. Generator Nameplate Rating: **MW**

11. Emissions Unit Comment:  
**Traveling grate boiler fired by carbonaceous fuel and fuel oil with a maximum sulfur content of 0.05 percent by weight. Fuel oil can include facility-generated, on-specification used oil.**

**EMISSIONS UNIT INFORMATION**

**Section [1]**

**Boiler No. 4**

**Emissions Unit Control Equipment**

1. Control Equipment/Method(s) Description:

**Joy Turbulaire Impingement Scrubber, Size 200, Type D**

2. Control Device or Method Code(s): **001**

**EMISSIONS UNIT INFORMATION**

Section [1]

Boiler No. 4

**B. EMISSIONS UNIT CAPACITY INFORMATION**

**(Optional for unregulated emissions units.)**

**Emissions Unit Operating Capacity and Schedule**

1. Maximum Process or Throughput Rate:
2. Maximum Production Rate: <b>300,000 lb/hr steam</b>
3. Maximum Heat Input Rate: <b>633 million Btu/hr</b>
4. Maximum Incineration Rate:             pounds/hr tons/day
5. Requested Maximum Operating Schedule: <b>24 hours/day</b> <b>7 days/week</b> <b>52 weeks/year</b> <b>8,760 hours/year</b>
6. Operating Capacity/Schedule Comment:  <p><b>Maximum heat input rate based on 1-hour maximum steam rate of 300,000 lb/hr for carbonaceous fuel firing. The maximum permitted 24-hour average heat input rate for firing carbonaceous fuel is 600 MMBtu/hr, and the maximum permitted 1-hour average heat input rate for firing No. 2 fuel oil is 326 MMBtu/hr (Permit No. 0510003-018-AC). Maximum annual heat input is limited to 2,880,000 MMBtu/yr (Permit No. 0510003-010/PSD-FL-272A).</b></p>

**EMISSIONS UNIT INFORMATION**

Section [1]

Boiler No. 4

**C. EMISSION POINT (STACK/VENT) INFORMATION**  
 (Optional for unregulated emissions units.)

**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: <b>BLR-4</b>		2. Emission Point Type Code: <b>1</b>	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: <b>V</b>	6. Stack Height: <b>150</b> feet	7. Exit Diameter: <b>8.2</b> feet	
8. Exit Temperature: <b>160 °F</b>	9. Actual Volumetric Flow Rate: <b>281,000</b> acfm	10. 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 Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:  <b>Stack parameters based on test data.</b>			

**EMISSIONS UNIT INFORMATION**

Section [1]

Boiler No. 4

**D. SEGMENT (PROCESS/FUEL) INFORMATION**

**Segment Description and Rate: Segment 1 of 2**

1. Segment Description (Process/Fuel Type):  <b>External combustion boilers; Industrial; Bagasse; All boiler sizes</b>		
2. Source Classification Code (SCC): <b>1-02-011-01</b>		3. SCC Units: <b>Tons Burned</b>
4. Maximum Hourly Rate: <b>87.92</b>	5. Maximum Annual Rate: <b>400,000</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>0.24 (dry)</b>	8. Maximum % Ash: <b>8.4 (dry basis)</b>	9. Million Btu per SCC Unit: <b>7.2</b>
10. Segment Comment: <b>Based on 633 MMBtu/hr and 3,600 Btu/lb wet bagasse. Annual rate is maximum allowable from Permit No. 0510003-010-AC/PSD-FL-272A, equivalent to 2,880,000 MMBtu/yr @ 3,600 Btu/lb for wet bagasse. Bagasse may include incidental amounts of on-specification used oil.</b>		

**Segment Description and Rate: Segment 2 of 2**

1. Segment Description (Process/Fuel Type):  <b>External combustion boilers; Industrial; Distillate Oil; Grades 1 and 2</b>		
2. Source Classification Code (SCC): <b>1-02-005-01</b>		3. SCC Units: <b>1,000 Gallons Burned</b>
4. Maximum Hourly Rate: <b>2.417</b>	5. Maximum Annual Rate: <b>6,000</b>	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: <b>0.05</b>	8. Maximum % Ash:	9. Million Btu per SCC Unit: <b>135</b>
10. Segment Comment: <b>Maximum hourly and annual rates based on 326 MMBtu/hr and 6,000,000 gallons of fuel oil per year (Permit No. 0510003-018-AC). Includes combustion of facility-generated, on-specification used oil. Annual rate represents cap for Boiler Nos. 1, 2, and 4 combined.</b>		

**EMISSIONS UNIT INFORMATION**

Section [1]

Boiler No. 4

**E. EMISSIONS UNIT POLLUTANTS**

**List of Pollutants Emitted by Emissions Unit**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	001		EL
PM <sub>10</sub>	001		NS
SO <sub>2</sub>	001		EL
NO <sub>x</sub>			EL
CO			EL
VOC			EL
SAM			NS



**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

Section [1]  
Boiler No. 4

Page [1] of [5]  
Particulate Matter Total - PM

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: <b>PM</b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>95 lb/hour</b> <b>216 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.15 lb/MMBtu</b>  Reference: <b>Permit No. 0510003-017-AV</b>		7. Emissions Method Code: <b>0</b>	
8.a. Baseline Actual Emission (if required): tons/year		8.b. Baseline 24-month Period: From:                      To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:  <b>Bagasse: 633 MMBtu/hr x 0.15 lb/MMBtu = 95 lb/hr</b>  <b>Annual emissions based on heat input rate of 2,880,000 MMBtu during consecutive any 12 months.</b>  <b>2,880,000 MMBtu/yr x 0.15 lb/MMBtu x 1 ton/2,000 lb = 216 ton/yr</b>  <b>Fuel Oil:</b> <b>326 MMBtu/hr x 0.1 lb/MMBtu = 32.6 lb/hr</b> <b>6,000,000 gal/yr x 139,000 Btu/gal = 834,000 MMBtu/yr</b> <b>834,000 MMBtu/yr x 0.1 lb/MMBtu x 1 ton/2,000 lb = 41.7 ton/yr</b>			
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Maximum emissions representative of bagasse firing.</b>			

**EMISSIONS UNIT INFORMATION**

Section [1]  
Boiler No. 4

**POLLUTANT DETAIL INFORMATION**

Page [1] of [5]  
Particulate Matter Total - PM

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

**Allowable Emissions** Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.15 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>95 lb/hour                      216 tons/year</b>
5. Method of Compliance: <b>EPA Method 5 or 17</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0510003-017-AV. Emissions representative of bagasse firing only.</b>	

**Allowable Emissions** Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.10 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>32.6 lb/hour                      41.7 tons/year</b>
5. Method of Compliance: <b>EPA Method 5 or 17</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Rule 62-296.406, F.A.C. Emissions representative of fuel oil firing. Annual emissions based on 6,000,000 gallons per any consecutive 12 months.</b>	

**Allowable Emissions** Allowable Emissions      of     

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: <b>lb/hour                      tons/year</b>
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

## EMISSIONS UNIT INFORMATION

## POLLUTANT DETAIL INFORMATION

Section [1]  
Boiler No. 4

Page [2] of [5]  
Sulfur Dioxide - SO<sub>2</sub>

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: SO <sub>2</sub>	2. Total Percent Efficiency of Control:
3. Potential Emissions: 38.0 lb/hour          86.4 tons/year	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to          tons/year	
6. Emission Factor: 0.06 lb/MMBtu for bagasse  Reference: Permit No. 0510003-017-AV	7. Emissions Method Code: 0
8. Calculation of Emissions:  Hourly: Bagasse – 633 MMBtu/hr x 0.06 lb/MMBtu = 38.0 lb/hr Fuel Oil -- 326 MMBtu/hr x 0.0533 lb/MMBtu = 17.4 lb/hr  Annual: Bagasse – 2,880,000 MMBtu/yr x 0.06 lb/MMBtu ÷ 2,000 lb/ton = 86.4 TPY Fuel Oil -- 6,000,000 gal/yr x 139,000 Btu/gal = 834,000 MMBtu/yr 834,000 MMBtu/yr x 0.0533 lb/MMBtu ÷ 2,000 lb/ton = 22.2 TPY	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: Factors based on carbonaceous fuel firing. Fuel oil sulfur content limited to 0.05 percent: 7.2 lb/gal x 0.05/100 lb S/lb oil x 2 lb SO <sub>2</sub> /lb S ÷ 135,000 Btu/gal = 0.0533 lb SO <sub>2</sub> /MMBtu.	

**EMISSIONS UNIT INFORMATION**

Section [1]  
Boiler No. 4

**POLLUTANT DETAIL INFORMATION**

Page [2] of [5]  
Sulfur Dioxide - SO<sub>2</sub>

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

**Allowable Emissions** Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.06 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>38 lb/hour                      86.4 tons/year</b>
5. Method of Compliance: <b>EPA Method 6, 6c, or 8.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0510003-017-AV. Emissions representative of bagasse firing only. Based on carbonaceous fuel and maximum heat input of 2,880,000 MMBtu during any consecutive 12 months.</b>	

**Allowable Emissions** Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.05% S oil</b>	4. Equivalent Allowable Emissions: <b>17.4 lb/hour                      22.2 tons/year</b>
5. Method of Compliance: <b>Fuel oil analysis</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Emissions representative of fuel oil firing. Hourly emissions based on firing 2,417 gal/hr. Annual emissions based on 6,000,000 gallons per any consecutive 12 months.</b>	

**Allowable Emissions** Allowable Emissions      of     

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: <b>lb/hour                      tons/year</b>
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

Section [1]  
Boiler No. 4

Page [3] of [5]  
Nitrogen Oxides - NO<sub>x</sub>

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: <b>NO<sub>x</sub></b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>126.6 lb/hour                      288 tons/year</b>	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor: <b>0.20 lb/MMBtu</b>  Reference: <b>Permit Nos. 0510003-017-AV and 0510003-018-AC.</b>	7. Emissions Method Code: <b>0</b>
8. Calculation of Emissions:  <b>Bagasse: 633 MMBtu/hr x 0.20 lb/MMBtu = 126.6 lb/hr</b>  <b>Annual emissions based on heat input rate of 2,880,000 MMBtu during any consecutive 12 months.</b>  <b>2,880,000 MMBtu/yr x 0.20 lb/MMBtu x 1 ton/2,000 lb = 288.0 TPY</b>  <b>Fuel Oil:</b> <b>326 MMBtu/hr x 0.20 lb/MMBtu = 65.2 lb/hr</b> <b>834,000 MMBtu/yr x 0.20 lb/MMBtu x 1 ton/2,000 lb = 83.4 TPY</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Maximum emissions representative of bagasse firing only.</b>	

**EMISSIONS UNIT INFORMATION**

Section [1]  
Boiler No. 4

**POLLUTANT DETAIL INFORMATION**

Page [3] of [5]  
Nitrogen Oxides - NO<sub>x</sub>

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

**Allowable Emissions** Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.20 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>126.6 lb/hour      288 tons/year</b>
5. Method of Compliance: <b>EPA Method 7 or 7E</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0510003-017-AV. Based on carbonaceous fuel firing and maximum heat input of 2,880,000 MMBtu during any consecutive 12 months.</b>	

**Allowable Emissions** Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.20 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>65.2 lb/hour      83.4 tons/year</b>
5. Method of Compliance: <b>EPA Method 7E</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0510003-018-AC. Based on firing of No. 2 distillate fuel oil.</b>	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [1]  
Boiler No. 4

**POLLUTANT DETAIL INFORMATION**

Page [4] of [5]  
Carbon Monoxide - CO

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: <b>CO</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>4,114.5 lb/hour      9,360.0 tons/year</b>	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to      tons/year	
6. Emission Factor: <b>6.5 lb/MMBtu</b>  Reference: <b>Permit No. 0510003-017-AV</b>	7. Emissions Method Code: <b>0</b>
8. Calculation of Emissions:  <b>633 MMBtu/hr x 6.5 lb/MMBtu = 4,114.5 lb/hr</b>  <b>Annual emissions based on heat input rate of 2,880,000 MMBtu during any consecutive 12 months.</b>  <b>2,880,000 MMBtu/yr x 6.5 lb/MMBtu x 1 ton/2,000 lb = 9,360 TPY</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Maximum emissions representative of bagasse firing only.</b>	

**EMISSIONS UNIT INFORMATION**

Section [1]  
Boiler No. 4

**POLLUTANT DETAIL INFORMATION**

Page [4] of [5]  
Carbon Monoxide - CO

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>6.5 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>4,114.5 lb/hour 9,360.0 tons/year</b>
5. Method of Compliance: <b>EPA Method 10</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0510003-017-AV. Emissions representative of bagasse firing only.</b>	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	



**EMISSIONS UNIT INFORMATION**

Section [1]  
Boiler No. 4

**POLLUTANT DETAIL INFORMATION**

Page [5] of [5]  
Volatile Organic Compounds - VOC

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –  
POTENTIAL/ESTIMATED FUGITIVE EMISSIONS**

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

1. Pollutant Emitted: <b>VOC</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>316.5 lb/hour                      720 tons/year</b>	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor: <b>0.50 lb/MMBtu</b>  Reference: <b>Permit No. 0510003-017-AV</b>	7. Emissions Method Code: <b>0</b>
8. Calculation of Emissions:  <b>633 MMBtu/hr x 0.50 lb/MMBtu = 316.5 lb/hr</b>  <b>Annual emissions based on heat input rate of 2,880,000 MMBtu during any consecutive 12 months.</b>  <b>2,880,000 MMBtu/yr x 0.50 lb/MMBtu x 1 ton/2,000 lb = 720 TPY</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Maximum emissions representative of bagasse firing only.</b>	

**EMISSIONS UNIT INFORMATION**

Section [1]  
Boiler No. 4

**POLLUTANT DETAIL INFORMATION**

Page [5] of [5]  
Volatile Organic Compounds - VOC

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.50 lb/MMBtu</b>	4. Equivalent Allowable Emissions: <b>316.5 lb/hour      720 tons/year</b>
5. Method of Compliance: <b>EPA Method 18 and 25A</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit No. 0510003-017-AV. Emissions representative of bagasse firing only.</b>	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour      tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

**EMISSIONS UNIT INFORMATION**

Section [1]

Boiler No. 4

**G. VISIBLE EMISSIONS INFORMATION**

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

**Visible Emissions Limitation:** Visible Emissions Limitation 1 of 2

1. Visible Emissions Subtype: <b>VE20</b>	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>20 %</b> Exceptional Conditions: <b>40 %</b> Maximum Period of Excess Opacity Allowed: <b>2 min/hour</b>	
4. Method of Compliance: <b>DEP Method 9</b>	
5. Visible Emissions Comment: <b>Applies to carbonaceous fuel burning only. Permit 0510003-017-AV.</b>	

**Visible Emissions Limitation:** Visible Emissions Limitation 2 of 2

1. Visible Emissions Subtype: <b>VE20</b>	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: <b>20 %</b> Exceptional Conditions: <b>27 %</b> Maximum Period of Excess Opacity Allowed: <b>6 min/hour</b>	
4. Method of Compliance: <b>DEP Method 9</b>	
5. Visible Emissions Comment: <b>Applies to fuel oil burning only. Permit No. 0510003-018-AC.</b>	

**EMISSIONS UNIT INFORMATION**

Section [1]

Boiler No. 4

**H. CONTINUOUS MONITOR INFORMATION****Complete if this emissions unit is or would be subject to continuous monitoring.****Continuous Monitoring System:** Continuous Monitor 1 of 9

1. Parameter Code: <b>PRS</b>	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Custom Design</b> Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Monitors pressure drop across wet scrubber. Monitored to ensure proper operation of scrubber. Permit No. 0510003-017-AV.</b>	

**Continuous Monitoring System:** Continuous Monitor 2 of 9

1. Parameter Code: <b>Nozzle PRESSURE</b>	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>ABB-Kent Taylor or equivalent</b> Model Number: <b>621G</b> Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Monitors wet scrubber spray nozzle pressure. Permit No. 0510003-017-AV.</b>	

**EMISSIONS UNIT INFORMATION**

Section [1]

Boiler No. 4

**H. CONTINUOUS MONITOR INFORMATION**

Complete if this emissions unit is or would be subject to continuous monitoring.

**Continuous Monitoring System:** Continuous Monitor 3 of 9

1. Parameter Code: <b>FLOW</b>	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Rosemount, Inc., or equivalent</b> Model Number: <b>8711/8712</b> Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Monitors wet scrubber liquid flow rate. Permit No. 0510003-017-AV.</b>	

**Continuous Monitoring System:** Continuous Monitor 4 of 9

1. Parameter Code: <b>Steam TEMP</b>	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Preferred Instruments or equivalent</b> Model Number: <b>PCC-III Controller</b> Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Monitors steam temperature. Permit No. 0510003-017-AV.</b>	

**EMISSIONS UNIT INFORMATION**

Section [1]

Boiler No. 4

**H. CONTINUOUS MONITOR INFORMATION**

Complete if this emissions unit is or would be subject to continuous monitoring.

**Continuous Monitoring System:** Continuous Monitor 5 of 9

1. Parameter Code: <b>Steam PRESSURE</b>	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>ABB-Kent Taylor or equivalent</b> Model Number: <b>621G</b> Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Monitors steam pressure. Permit No. 0510003-017-AV.</b>	

**Continuous Monitoring System:** Continuous Monitor 6 of 9

1. Parameter Code: <b>FLOW</b>	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>ABB-Kent Taylor or equivalent</b> Model Number: <b>621D</b> Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Monitors steam flow rate. Permit No. 0510003-017-AV.</b>	

**EMISSIONS UNIT INFORMATION**

Section [1]

Boiler No. 4

**H. CONTINUOUS MONITOR INFORMATION**

Complete if this emissions unit is or would be subject to continuous monitoring.

**Continuous Monitoring System:** Continuous Monitor 7 of 9

1. Parameter Code: <b>O<sub>2</sub></b>	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Rosemount Analytical, Inc., or equivalent</b> Model Number: <b>3000</b> Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Monitors flue gas oxygen content. Permit No. 0510003-017-AV.</b>	

**Continuous Monitoring System:** Continuous Monitor 8 of 9

1. Parameter Code: <b>CO</b>	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>Thermo Environmental Instruments, Inc., or equivalent</b> Model Number: <b>48C</b> Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Monitors flue gas carbon monoxide content. Permit No. 0510003-017-AV.</b>	

**EMISSIONS UNIT INFORMATION**

Section [1]

Boiler No. 4

**H. CONTINUOUS MONITOR INFORMATION**

Complete if this emissions unit is or would be subject to continuous monitoring.

**Continuous Monitoring System:** Continuous Monitor 9 of 9

1. Parameter Code: <b>FLOW</b>	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
4. Monitor Information... Manufacturer: <b>ITT Barton or equivalent</b> Model Number: <b>Flowco F500</b> Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:  <b>Monitors fuel oil flow to Boiler No. 4. No serial number or installation date provided because monitors are routinely replaced to ensure optimum performance. Permit No. 0510003-017-AV.</b>	

**Continuous Monitoring System:** Continuous Monitor \_\_\_\_ of \_\_\_\_

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	



# EMISSIONS UNIT INFORMATION

Section [1]

Boiler No. 4

## I. EMISSIONS UNIT ADDITIONAL INFORMATION

### Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>USS-EU3-11</u> <input type="checkbox"/> Previously Submitted, Date _____
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>USS-EU3-12</u> <input type="checkbox"/> Previously Submitted, Date _____
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>USS-EU3-13</u> <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date <u>May 2005</u> <input type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

## EMISSIONS UNIT INFORMATION

Section [1]

Boiler No. 4

### Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

### Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
2. Compliance Assurance Monitoring <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
3. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
5. Acid Rain Part Application <input type="checkbox"/> Certificate of Representation (EPA Form No. 7610-1) <input type="checkbox"/> Copy Attached, Document ID: _____ <input type="checkbox"/> Acid Rain Part (Form No. 62-210.900(1)(a)) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input type="checkbox"/> Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable

**EMISSIONS UNIT INFORMATION**

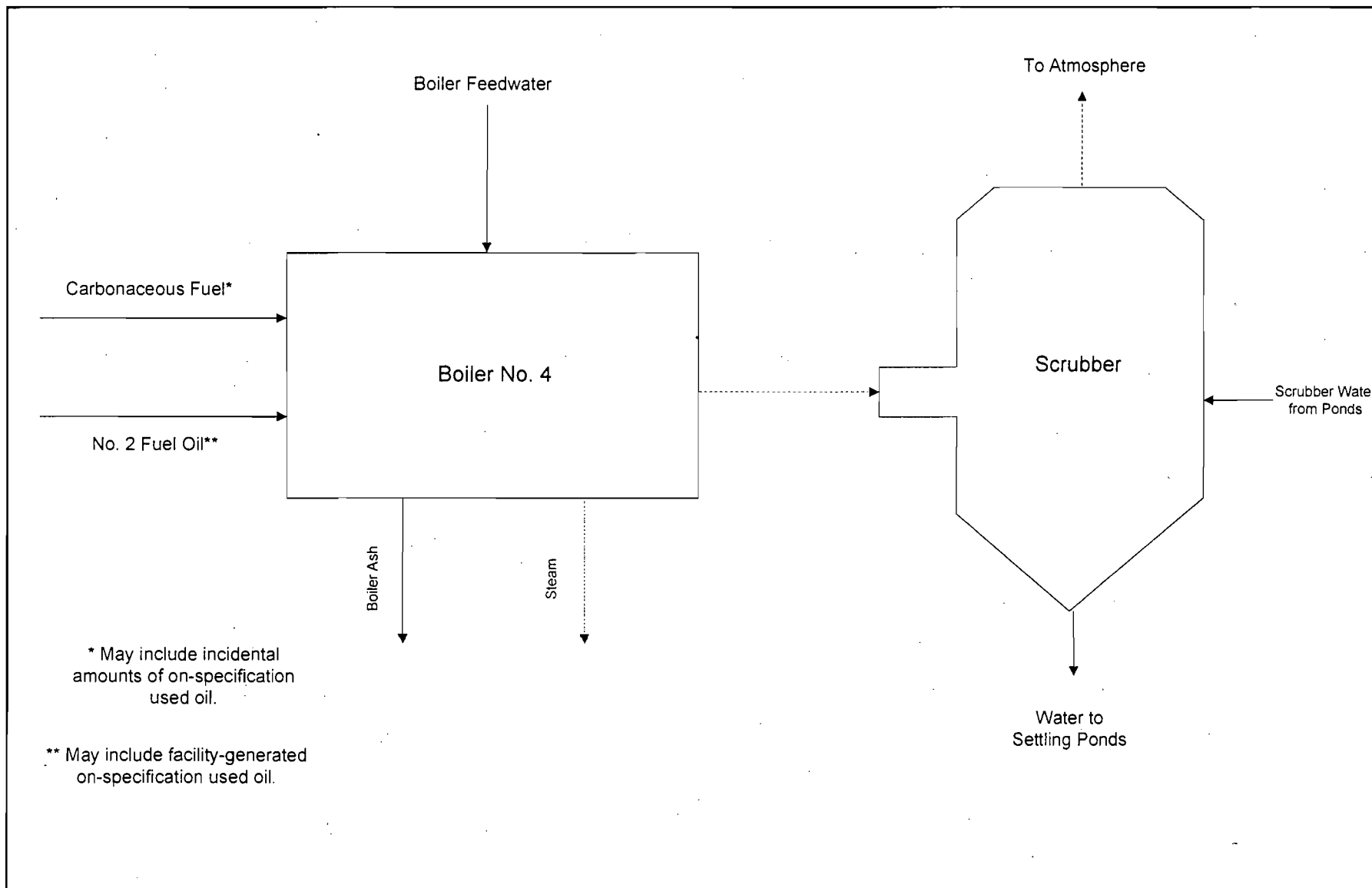
**Section [3]**

**Boiler No. 4**

**Additional Requirements Comment**

**ATTACHMENT USS-EU1-I1**

**PROCESS FLOW DIAGRAM**



Attachment USS-EU1-11  
 Process Flow Diagram  
 U.S. Sugar Corporation  
 Boiler No. 4

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

0637573/4.4/USS-EU1-11.VSD

Date: 07/20/06



**ATTACHMENT USS-EU1-12**

**FUEL ANALYSIS**

**ATTACHMENT USS-EU1-I2  
BOILER NO. 4 FUEL ANALYSIS**

Parameter	Fuel	
	Carbonaceous Fuel <sup>a</sup>	No. 2 Fuel Oil (0.05% S max)
Density (lb/gal)	--	6.83 <sup>c</sup>
Approximate Heating Value (Btu/lb)	3,600 <sup>b</sup>	19,910 <sup>c</sup>
Approximate Heating Value (Btu/gal)	--	135,000 <sup>c</sup>
<u>Ultimate Analysis (dry basis):</u>		
Carbon	48.1%	84.7% <sup>d</sup>
Hydrogen	5.9%	15.3% <sup>d</sup>
Nitrogen	0.35%	0.18% <sup>d</sup>
Oxygen	40.9%	0.38% <sup>d</sup>
Sulfur	0.08% - 0.24%	0.05% <sup>e</sup>
Ash/Inorganic	0.87% - 8.4%	0.06% <sup>c</sup>
Moisture	49% - 55%	0.51% <sup>c</sup>

## Footnotes:

<sup>a</sup> Source: Clewiston Mill fuel analysis averages.

<sup>b</sup> Wet basis for bagasse. Represents normal minimum.

<sup>c</sup> Source: Perry's Chemical Engineer's Handbook. Sixth Edition, 1984. Represents average fuel characteristics.

<sup>d</sup> Source: fuel analysis from Coastal Fuels Marketing, Inc. (9/21/00).

<sup>e</sup> Proposed maximum.

**ATTACHMENT UC-EU1-I3**  
**DETAILED DESCRIPTION OF**  
**CONTROL EQUIPMENT**



**ATTACHMENT USS-EU3-I3****U.S. SUGAR CORPORATION****BOILER NO. 4 SCRUBBER EQUIPMENT DESIGN PARAMETERS**

Scrubber Type	Impingement Scrubber
Scrubber Model	Joy Turbulaire
Scrubbant	Water
Packing Material	Type D, Size 200
Outlet Gas Temp (°F)	160
Outlet Gas Flow Rate (acfm)	281,000
Differential Pressure Drop (inches of water)	8 – 11
Scrubbant Flow Rate (gpm)	375 minimum <sup>a</sup>
Scrubbant Pressure (psi)	40 – 55

<sup>a</sup>Based on a 3-hour block average.

**ATTACHMENT A**

**SUPPLEMENTAL INFORMATION FOR  
CONSTRUCTION PERMIT APPLICATION**

**ATTACHMENT A**

United States Sugar Corporation (U.S. Sugar) owns and operates a sugar mill and refinery located in Clewiston, Hendry County, Florida. The mill and refinery currently operate under Permit No. 0510003-017-AV. U.S. Sugar harvests sugarcane and transports it to the Clewiston Mill, where the cane is processed into raw sugar in the mill. U.S. Sugar processes most of the raw sugar into refined white sugar in an onsite sugar refinery, while the remaining raw sugar is shipped to customers.

U.S. Sugar operates five sugar mill boilers at the Clewiston Mill. The five boilers provide steam to the sugar mill as well as to the sugar refinery. Boiler Nos. 1, 2 and 4 operate primarily during the crop season, which is typically October through June, to provide steam to the sugar mill and refinery. Boilers No. 7 and No. 8 can operate year-round to provide steam to the sugar mill during the crop season and steam to the sugar refinery during the off-crop season. Boiler Nos. 1, 2 and 4 also operate as backup units during the off-season when Boiler No. 7 is down for maintenance, repair, or during periods of unusually low steam demand.

Boiler No. 4 is currently permitted to burn bagasse and No. 2 fuel oil. The maximum sulfur content of the fuel oil is limited to 0.4 percent. The maximum heat input due to bagasse is 633 million British thermal units per hour (MMBtu/hr), and the maximum heat input from fuel oil only is 326 MMBtu/hr [equivalent to 2,417 gallons per hour (gal/hr)].

When Boiler No. 4 was initially constructed in the mid-1980's, it was designed to burn No. 6 fuel oil instead of No. 2 fuel oil. When originally permitted, the maximum annual fuel oil firing limit was 500,000 gallons per year (gal/yr) of No. 6 fuel oil with a maximum sulfur content of 2.5 percent. The annual limitation has stayed with the boiler throughout its operation, and remains in place today.

In December 2002, U.S. Sugar proposed to replace the existing No. 6 fuel oil burners on Boiler Nos. 4 and 7 with new No. 2 fuel oil burners. The new burner system for each boiler was to have two burners and be rated for a maximum heat input of 326 MMBtu/hr. The burner design emission rate for nitrogen oxides (NO<sub>x</sub>) was 0.20 pounds per million British thermal units (lb/MMBtu).

U. S. Sugar was granted air construction Permit No. 0510003-018-AC on June 6, 2003, for the upgrading of the fuel oil burning system on Boiler Nos. 4 and 7 at the Clewiston Mill. For Boiler No. 7, the modifications were completed, and the design capacity test and compliance testing was performed on October 1, 2003. For Boiler No. 4, however, the installation of the new oil burners

was delayed. After receiving the construction permit in June, 2003, U. S. Sugar proceeded to install the authorized equipment and entered the shakedown period for the equipment. Based on oil firing performance tests, the maximum desired steam rate when firing fuel oil only (225,200 lb/hr steam) could not be achieved. Through further investigation, it was determined that insufficient combustion air was being provided at the two burner windboxes to support the maximum firing rate. As a result, U.S. Sugar requested authorization to install an additional auxiliary fan to provide sufficient combustion air to the system. This request was granted by the Department on November 6, 2003.

The new windbox fan and ductwork were subsequently installed. Also installed were bypass solenoid valves for the atomizing steam and damper kits on the scotch valves to dampen their action as recommended by Sunbelt Energy. During subsequent testing it was found that the fuel oil pumps will not deliver the required flow rate of oil. The pumps were opened for inspection, and some damage on the shaft housing of the pumps was identified. Sunbelt, the supplier of the burner system, therefore supplied a new pump and installed it in early 2005.

The required capacity and compliance tests were then performed in February 2005. The tests demonstrated a capacity of 213,700 lb/hr steam at 308 MMBtu/hr heat input. NO<sub>x</sub> emissions averaged 0.11 lb/MMBtu.

Although the performance of the Boiler No. 4 fuel oil firing system is adequate, the annual limitation of 500,000 gal/yr (12-month rolling average) of No. 2 fuel oil is proving to be problematic. The annual limitation is rather low compared to all the other boilers, i.e., 6,000,000 gal/yr for Boiler Nos. 1 and 2 combined; 4,600,000 gal/yr for Boiler No. 7, and 6,073,600 gal/yr for Boiler No.8. U.S. Sugar has been reaching the fuel oil firing limit on the boiler, and during 2005 actually exceeded the limit (the exceedance was reported to FDEP Fort Myers).

Generally, the 500,000 gal/yr fuel oil limit on Boiler No. 4 is not a concern. However, problems arise when Boiler No. 4 has to be operated an unusual amount of time during the off-season. This can occur when both Boiler No. 7 and No. 8 are down for repairs, as is currently the situation. Boiler No. 7 lost its front wall in April of this year, and has not operated since. Now, Boiler No. 8 is being taken down for repairs, which will necessitate the increased operation of Boiler No. 4 during the current off-season. Therefore, U.S. Sugar is requesting that the annual fuel oil cap on Boiler No. 4 be increased.

It is stressed that U.S. Sugar takes all measures possible to minimize the use of fuel oil, since it has a significant economic impact on operations. However, the boilers must reliably supply the sugar mill

and refinery with adequate steam in the event that bagasse becomes unavailable. Also, in the off-season, if the bagasse supply is interrupted, it is not possible to quickly startup one of the other mill boilers to provide additional steam, because of the period of time required for startup. Therefore, fuel oil must be fired in the boiler to maintain steam production. Maintaining steam production under conditions when bagasse supply is interrupted is critical to the reliable and efficient operation of the sugar mill and refinery.

Recently, Boiler Nos. 1 and 2 were issued draft air construction Permit No. 0510000-036-AC to revise the fuel oil burning design and limits for those boilers. Included in the limits is an annual cap over the two boilers of 6,000,000 gal/yr. U.S. Sugar is requesting that Boiler No. 4 be included as part of this annual fuel oil cap, i.e., that Boiler Nos. 1, 2 and 4 have a total combined annual cap of 6,000,000 gal/yr of No. 2 fuel oil. This will give U.S. Sugar the flexibility to burn an adequate amount of fuel oil in any of these three boilers, as operations dictate. U.S. Sugar is also requesting that the maximum sulfur content of the No. 2 fuel oil be reduced from the current 0.4 percent to 0.05 percent, to match the sulfur limits of the other boilers at the Clewiston Mill.

The estimated future potential hourly and annual emissions for Boiler No. 4 are presented in Table 1. These emissions reflect a maximum of 6,000,000 gal/yr of No. 2 fuel oil, since theoretically all fuel oil could be burned in Boiler No. 4 under the cap. Emissions due to bagasse firing will not change; and, therefore, emissions due to bagasse firing are not addressed.

The emission factors used for particulate matter (both PM and PM<sub>10</sub>), carbon monoxide (CO), volatile organic compounds (VOCs), sulfuric acid mist (SAM), lead, mercury, and beryllium are from the Environmental Protection Agency's (EPA's) Publication AP-42, Section 3, which presents factors for No. 2 fuel oil combustion. The activity factors are based on the proposed maximum fuel oil heat input of 326 MMBtu/hr and the proposed annual limit of 6,000,000 gal/yr of fuel oil for Boiler Nos. 1, 2 and 4 combined.

Emissions of sulfur dioxide (SO<sub>2</sub>) are based on a stoichiometric calculation, using the maximum future sulfur content of 0.05 percent, and the density for very low sulfur No. 2 fuel oil of 7.2 pounds per gallon (lb/gal). Emissions of NO<sub>x</sub> are based on the initial performance tests results plus a safety factor, i.e., 0.17 lb/MMBtu, to be conservative (actual NO<sub>x</sub> test results were 0.11 lb/MMBtu). This factor is also the same as used for Boiler Nos. 1 and 2 in the recent application for draft Permit No. 0510003-036-AC.

To determine if prevention of significant deterioration (PSD) review applies to the requested change, the same methodology used for revising the annual fuel oil limits for Boiler Nos. 1 and 2 was utilized. The past actual emissions from Boiler Nos. 1, 2 and 4 due to fuel oil firing are presented in Table 2. All three boilers are included since the annual cap affects all three boilers. Detailed calculations are shown in Attachment B. The past actual emissions are based on the average emissions from 2002 and 2003. The emissions are from U.S. Sugar's Annual Operating Reports (AORs) submitted to the FDEP for each respective year. Lead, beryllium, mercury, and SAM have not been required to be reported in the AORs, so these emissions were calculated using AP-42 factors for No. 2 fuel oil combustion and the activity factors for each respective year.

The future potential emissions due to No. 2 fuel oil firing in Boiler Nos. 1 and 2, up to 6,000,000 gal/yr, are shown in Attachment C (taken from application for Boiler Nos. 1 and 2). These emissions are the same as the fuel oil firing emissions for Boiler No. 4, since the emission factors for all three boilers are the same.

A "major modification" is defined under PSD regulations as a change at an existing major facility that increases emissions by greater than significant amounts. The net change in emissions due to the proposed project is presented in Table 3. The net increase due to the project is determined by subtracting the past actual emissions from Boiler Nos. 1, 2 and 4 due to fuel oil firing from the future potential emissions resulting from fuel oil firing. The worst-case potential emissions are the same regardless of which boiler the fuel oil is fired in, since they all have wet scrubbers and the emission factors for each boiler for fuel oil firing are identical. Emissions due to bagasse firing are not included since these emissions will not be affected by the proposed project.

The net increase due to the project is compared to PSD significant emission rates in Table 3. As shown in Table 3, the increases due to this project do not exceed any PSD significant emission rates and therefore, PSD review is not applicable. In addition, U.S. Sugar believes PSD review is not applicable for the following reasons:

- The maximum steam rate for the boilers will not be affected;
- Steam rates, heat input rates and firing rates for bagasse will not be affected;
- U.S. Sugar intends to burn bagasse when it is available; and
- Emission factors for No. 2 fuel oil in terms of lb/MMBtu are lower than for No. 6 fuel oil or for bagasse burning, so emissions will not increase while Boiler Nos. 1, 2 and 4 are firing very low sulfur No. 2 fuel oil.

**TABLE 1**  
**FUTURE POTENTIAL EMISSIONS DUE TO FIRING 6,000,000 GAL/YR OF FUEL OIL IN BOILER NO. 4**  
**U. S. Sugar Corporation Clewiston**

Regulated Pollutant	No. 2 Fuel Oil Combustion					
	Emission Factor (lb/MMBtu)	Ref.	Activity Factor		Hourly Emissions (lb/hr)	Annual Emissions (TPY)
			Hourly <sup>a</sup> MMBtu/hr	Annual <sup>b</sup> MMBtu/yr		
Particulate Matter (PM)	0.015	1	326	834,000	4.8	6.2
Particulate Matter (PM <sub>10</sub> )	0.007	2	326	834,000	2.4	3.1
Sulfur dioxide (SO <sub>2</sub> )	0.0533	3	326	834,000	17.4	22.2
Nitrogen oxides (NO <sub>x</sub> )	0.17	4	326	834,000	55.4	70.9
Carbon monoxide (CO)	0.037	1	326	834,000	12.1	15.4
Volatile Organic Compounds (VOC)	1.5E-03	1	326	834,000	0.5	0.62
Sulfuric acid mist (SAM)	0.0026	1	326	834,000	0.8	1.1
Lead (Pb)	9.0E-06	5	326	834,000	2.9E-03	3.8E-05
Beryllium (Be)	3.0E-06	5	326	834,000	9.8E-04	1.3E-05
Mercury (Hg)	3.0E-06	5	326	834,000	9.8E-04	1.3E-03

## References:

- Factors for No. 2 fuel oil combustion: AP-42 Tables 1.3-1 and 1.3-3 (9/98). For sulfuric acid mist, factor shown is for SO<sub>3</sub>. Convert to H<sub>2</sub>SO<sub>4</sub> by multiplying by 98/80. Factors were converted to lb/MMBtu by dividing by 135,000 Btu/gal (min).  
 PM = 2 lb/1000 gal  
 CO = 5 lb/1000 gal  
 SO<sub>3</sub> = 5.75 lb/1000 gal, where S = 0.05      VOC = 0.2 lb/1000 gal
- Factors for distillate fuel oil, PM<sub>10</sub> is 50% of PM based on AP-42, Table 1.3-6 (9/98).
- Based on stoichiometric calculation: 7.2 lbs/gal; 135,000 Btu/gal (min); 0.05% sulfur.
- Based on stack testing conducted on Boiler No. 4 on February 9, 2005.
- Factors for No. 2 fuel oil combustion, AP-42 Table 1.3-10 (9/98).

## Footnotes:

- <sup>a</sup> Based on maximum heat input due to No. 2 fuel oil combustion, from manufacturer specifications.
- <sup>b</sup> Based on No. 2 fuel oil usage of 6,000,000 gallons per year and heating value of 139,000 Btu/gal (max).

**TABLE 2**  
**PAST ACTUAL EMISSIONS DUE TO FUEL OIL BURNING, BOILER NOS. 1, 2, AND 4**  
**U.S. Sugar Corporation, Clewiston Mill**

Regulated Pollutant	Boiler No. 1		Boiler No. 2		Boiler No. 4		Boiler No. 1 + No. 2 + No. 4 2-Yr Average (TPY)
	Actual Emissions <sup>a</sup> (TPY)		Actual Emissions <sup>a</sup> (TPY)		Actual Emissions <sup>a</sup> (TPY)		
	2002	2003	2002	2003	2002	2003	
Particulate Matter (PM)	6.18	5.06	5.63	4.09	1.49	1.21	11.83
Particulate Matter (PM <sub>10</sub> )	5.25	4.30	4.79	3.48	1.27	1.03	10.06
Sulfur Dioxide (SO <sub>2</sub> )	46.41	38.64	42.28	31.27	8.44	5.79	86.41
Nitrogen Oxides (NO <sub>x</sub> )	18.90	15.67	17.22	12.68	7.32	7.85	39.82
Carbon Monoxide (CO)	2.01	1.67	1.83	1.35	0.78	1.17	4.40
Volatile Organic Compound (VOC)	0.11	0.09	0.10	0.08	0.04	0.06	0.24
Sulfur Acid Mist (SAM)	2.05	1.70	1.86	1.38	0.32	0.25	3.78
Lead - Total	6.07E-04	5.04E-04	5.53E-04	4.08E-04	2.4E-04	1.5E-04	1.23E-03
Beryllium (Be)	1.12E-05	9.27E-06	1.02E-05	7.50E-06	4.3E-06	2.7E-06	2.26E-05
Mercury (Hg)	4.54E-05	3.77E-05	4.14E-05	3.05E-05	1.8E-05	1.1E-05	9.19E-05

## Footnotes:

<sup>a</sup> Based on Annual Operating Report submitted to FDEP for 2002 and 2003, except for:

SAM, Be and Hg not reported on the AOR; emissions based on AP-42 factors, see Attachment B.



**TABLE 3**  
**NET CHANGE IN EMISSIONS DUE TO BURNING 6,000,000 GAL/YR OF FUEL OIL IN BOILER NOS. 1, 2 AND 4**  
**U.S. Sugar Corporation Clewiston**

Regulated Pollutant	Boiler Nos. 1, 2 & 4			PSD Significant Emission Rate (TPY)	PSD Review Applies?
	Boiler Nos. 1, 2 & 4 Past Actual Emissions <sup>a</sup> (TPY)	Future Potential Emissions <sup>b</sup> (TPY)	Net Change in Emissions (TPY)		
Particulate Matter (PM)	11.83	6.2	-5.7	25	NO
Particulate Matter (PM <sub>10</sub> )	10.06	3.1	-7.0	15	NO
Sulfur Dioxide (SO <sub>2</sub> )	86.41	22.2	-64.2	40	NO
Nitrogen Oxides (NO <sub>x</sub> )	39.82	70.9	31.1	40	NO
Carbon Monoxide (CO)	4.40	15.4	11.0	100	NO
Volatile Organic Compound (VOC)	0.24	0.6	0.4	40	NO
Sulfur Acid Mist (SAM)	3.78	1.1	-2.70	0.6	NO
Lead (Pb)	1.23E-03	3.8E-05	-1.2E-03	7	NO
Beryllium (Be)	2.26E-05	1.3E-05	-1.0E-05	4.0E-04	NO
Mercury (Hg)	9.19E-05	1.3E-03	1.2E-03	0.1	NO

## Footnotes:

<sup>a</sup> Based on emissions due to fuel oil firing in Boiler Nos. 1, 2 and 4 for calendar years 2002 and 2003. See Table 1.

<sup>b</sup> Based on firing a total combined 6,000,000 gal/yr of fuel oil in Boiler Nos. 1, 2 and 4.

**ATTACHMENT B**

**2002 AND 2003 EMISSIONS INFORMATION  
FROM ANNUAL OPERATING REPORTS**

**TABLE B-1**  
**2002 EMISSIONS OF CRITERIA POLLUTANTS FOR U.S. SUGAR CORPORATION CLEWISTON BOILER NO. 1**

Regulated Pollutant	Carbonaceous Fuel			No. 6 Fuel Oil			Total Annual Emissions (TPY)		
	Emission Factor (lb/ton)	Ref.	Annual Fuel Usage (TPY)	Annual Emissions (TPY)	Emission Factor (lb/1,000 gal)	Ref.		Annual Fuel Usage (gal/yr)	Annual Emissions (TPY)
<u>Criteria and Precursor Air Pollutants</u>									
Particulate Matter (PM)	1.296	1	188,782	122.33	15.36	4 (b)	804,298	6.18	128.51
Particulate Matter (PM <sub>10</sub> )	1.205	(a)	188,782	113.77	13.06	(a)	804,298	5.25	119.02
Sulfur Dioxide (SO <sub>2</sub> )	0.073	1	188,782	6.89	115.40	5 (b)	804,298	46.41	53.30
Nitrogen Oxides (NO <sub>x</sub> )	0.677	1	188,782	63.90	47	5	804,298	18.90	82.80
Carbon Monoxide (CO)	49.262	1	188,782	4,649.89	5	5	804,298	2.01	4,651.90
Volatile Organic Compounds (VOC)	1.668	2	188,782	157.44	0.28	6	804,298	0.11	157.56
Sulfuric Acid Mist (SAM)	0.0032	8	188,782	0.30	5.09	8	804,298	2.05	2.35
Lead - Total (PB)	4.45E-04	3	188,782	0.04	1.51E-03	7	804,298	6.07E-04	0.04
Beryllium (Be)	--	--	--	--	2.78E-05	7	804,298	1.12E-05	1.12E-05
Mercury (Hg)	--	--	--	--	1.13E-04	7	804,298	4.54E-05	4.54E-05

Note:

(a) Assuming 93% of PM is PM<sub>10</sub> for bagasse, and 85% of PM is PM<sub>10</sub> for No. 6 fuel oil.

(b) Average sulfur content of the fuel mix is 1.47%.

Unless otherwise specified, heating values for each fuel are as follows: 3,600 Btu/lb for wet bagasse and 153,645 Btu/gal for No. 6 fuel oil.

1. Based on compliance test data, conducted by Air Consulting and Engineerin PM	0.180 lb/MMBtu	11/20/2002
SO <sub>2</sub>	0.0101 lb/MMBtu	12/8/2000
NO <sub>x</sub>	0.094 lb/MMBtu	1/3/1995
CO	6.842 lb/MMBtu	1994 - 1995

2. Based on test data for similar bagasse boiler. (Bryant Boilers 1, 2, and 3 average = 0.232 lb/MMBtu.)

3. Based on EPA's AP-42 Table 1.6-5, "Emission Factors for Trace Elements from Wood Waste Combustion with PM controls" (2/99).

4. Based on emission limit of 0.1 lb/MMBtu for PM while firing No. 6 fuel oil.

5. Based on AP-42 Table 1.3-1, "Criteria Pollutant Emission Factors for Fuel Oil Combustion" (9/98), No. 6 fuel oil, normal firing. Assume 50% SO<sub>2</sub> removal from scrubber.

6. Based on AP-42 Table 1.3-3, "Emission Factors for Total Organic Compounds (TOC), Methane, and Nonmethane TOC (NMTOC) from Uncontrolled Fuel Oil Combustion" (9/98).

7. Based on AP-42 Table 1.3-11, "Emission Factors for Metals from Uncontrolled No. 6 Fuel Oil Combustion" (9/98).

8. From AP-42 Table 1.3-1: SO<sub>3</sub> represents 3.6% of SO<sub>2</sub>; then convert to H<sub>2</sub>SO<sub>4</sub> (x 98/80).

**TABLE B-2**  
**2002 EMISSIONS OF CRITERIA POLLUTANTS FOR U.S. SUGAR CORPORATION CLEWISTON BOILER NO. 2**

Regulated Pollutant	Carbonaceous Fuel			No. 6 Fuel Oil			Total Annual Emissions (TPY)		
	Emission Factor (lb/ton)	Ref.	Annual Fuel Usage (TPY)	Annual Emissions (TPY)	Emission Factor (lb/1,000 gal)	Ref.		Annual Fuel Usage (gal/yr)	Annual Emissions (TPY)
<u>Criteria and Precursor Air Pollutants</u>									
Particulate Matter (PM)	1.296	1	225,369	146.04	15.36	5 (b)	732,805	5.63	151.67
Particulate Matter (PM <sub>10</sub> )	1.205	(a)	225,369	135.82	13.06	(a)	732,805	4.79	140.60
Sulfur Dioxide (SO <sub>2</sub> )	0.073	2	225,369	8.23	115.40	6 (b)	732,805	42.28	50.51
Nitrogen Oxides (NO <sub>x</sub> )	0.727	1	225,369	81.92	47	6	732,805	17.22	99.14
Carbon Monoxide (CO)	70.834	1	225,369	7,981.89	5	6	732,805	1.83	7,983.73
Volatile Organic Compounds (VOC)	1.668	3	225,369	187.96	0.28	7	732,805	0.10	188.06
Sulfuric Acid Mist (SAM)	0.0032	9	225,369	0.36	5.09	9	732,805	1.86	2.23
Lead - Total	4.45E-04	4	225,369	0.05	1.51E-03	8	732,805	5.53E-04	0.05
Beryllium (Be)	--	--	--	--	2.78E-05	8	732,805	1.02E-05	1.02E-05
Mercury (Hg)	--	--	--	--	1.13E-04	8	732,805	4.14E-05	4.14E-05

## Note:

(a) Assuming 93% of PM is PM<sub>10</sub> for bagasse, and 85% of PM is PM<sub>10</sub> for No. 6 fuel oil.

(b) Average sulfur content of the fuel mix is 1.47%.

Unless otherwise specified, heating values for each fuel are as follows: 3,600 Btu/lb for wet bagasse and 153,645 Btu/gal for No. 6 fuel oil.

- Based on compliance test data, conducted by Air Consulting and Engineering
 

PM	0.180 lb/MMBtu	12/17/2002
NO <sub>x</sub>	0.101 lb/MMBtu	1/4/1995
CO	9.838 lb/MMBtu	1994 - 1995
- Based on compliance test data, conducted by Air Consulting and Engineering for Boiler No. 1, 0.0101 lb/MMBtu (12/8/00).
- Based on test data for similar bagasse boiler. (Bryant Boilers 1, 2, and 3 average = 0.232 lb/MMBtu.)
- Based on EPA's AP-42 Table 1.6-5, "Emission Factors for Trace Elements from Wood Waste Combustion with PM Controls", (2/99).
- Based on emission limit of 0.1 lb/MMBtu for PM while firing No. 6 fuel oil.
- Based on AP-42 Table 1.3-1, "Criteria Pollutant Emission Factors for Fuel Oil Combustion" (9/98), No. 6 fuel oil, normal firing. Assume 50% SO<sub>2</sub> removal from scrubber.
- Based on AP-42 Table 1.3-3, "Emission Factors for Total Organic Compounds (TOC), Methane, and Nonmethane TOC (NMTOC) from Uncontrolled Fuel Oil Combustion" (9/98).
- Based on AP-42 Table 1.3-11, "Emission Factors for Metals from Uncontrolled No. 6 Fuel Oil Combustion" (9/98).
- From AP-42 Table 1.3-1: SO<sub>3</sub> represents 3.6% of SO<sub>2</sub>; then convert to H<sub>2</sub>SO<sub>4</sub> (x 98/80).

**TABLE B-3**  
**2003 EMISSIONS OF CRITERIA POLLUTANTS FOR U.S. SUGAR CORPORATION CLEWISTON BOILER NO. 1**

Regulated Pollutant	Carbonaceous Fuel				No. 6 Fuel Oil			Total Annual Emissions (TPY)	
	Emission Factor (lb/ton)	Ref.	Annual Fuel Usage (TPY)	Annual Emissions (TPY)	Emission Factor (lb/1,000 gal)	Ref.	Annual Fuel Usage (gal/yr)		Annual Emissions (TPY)
<u>Criteria and Precursor Air Pollutants</u>									
Particulate Matter (PM)	1.267	1	176,732	111.96	15.17	4 (b)	666,974	5.06	117.02
Particulate Matter (PM <sub>10</sub> )	1.178	(a)	176,732	104.12	12.89	(a)	666,974	4.30	108.42
Sulfur Dioxide (SO <sub>2</sub> )	0.073	1	176,732	6.45	115.87	5 (b)	666,974	38.64	45.09
Nitrogen Oxides (NO <sub>x</sub> )	0.677	1	176,732	59.82	47	5	666,974	15.67	75.50
Carbon Monoxide (CO)	49.262	1	176,732	4,353.09	5	5	666,974	1.67	4,354.75
Volatile Organic Compounds (VOC)	1.778	2	176,732	157.11	0.28	6	666,974	0.09	157.21
Sulfuric Acid Mist (SAM)	0.0032	8	176,732	0.28	5.11	8	666,974	1.70	1.99
Lead - Total (PB)	2.45E-05	3	176,732	0.002	1.51E-03	7	666,974	5.04E-04	0.003
Beryllium (Be)	--	--	--	--	2.78E-05	7	666,974	9.27E-06	9.27E-06
Mercury (Hg)	--	--	--	--	1.13E-04	7	666,974	3.77E-05	3.77E-05

Note:

(a) Assuming 93% of PM is PM<sub>10</sub> for bagasse, and 85% of PM is PM<sub>10</sub> for No. 6 fuel oil.

(b) Average sulfur content of the fuel mix is 1.476%.

Unless otherwise specified, heating values for each fuel are as follows: 3,600 Btu/lb for wet bagasse and 151,704 Btu/gal for No. 6 fuel oil.

- Based on compliance test data, conducted by Air Consulting and Engineering; PM 0.176 lb/MMBtu 11/14/2003  
SO<sub>2</sub> 0.0101 lb/MMBtu 12/8/2000  
NO<sub>x</sub> 0.094 lb/MMBtu 1/3/1995  
CO 6.842 lb/MMBtu 1994 - 1995
- Based on test data for similar bagasse boiler. (Bryant Boilers 1, 2, and 3 average = 0.247 lb/MMBtu.)
- Based on average industry test data of 3.4E-06 lb/MMBtu or less.
- Based on emission limit of 0.1 lb/MMBtu for PM while firing No. 6 fuel oil.
- Based on AP-42 Table 1.3-1, "Criteria Pollutant Emission Factors for Fuel Oil Combustion" (9/98), No. 6 fuel oil, normal firing. Assume 50% SO<sub>2</sub> removal from scrubber.
- Based on AP-42 Table 1.3-3, "Emission Factors for Total Organic Compounds (TOC), Methane, and Nonmethane TOC (NMTOC) from Uncontrolled Fuel Oil Combustion" (9/98).
- Based on AP-42 Table 1.3-11, "Emission Factors for Metals from Uncontrolled No. 6 Fuel Oil Combustion" (9/98).
- From AP-42 Table 1.3-1: SO<sub>3</sub> represents 3.6% of SO<sub>2</sub>; then convert to H<sub>2</sub>SO<sub>4</sub> (x 98/80).

**TABLE B-4  
2003 EMISSIONS OF CRITERIA POLLUTANTS FOR U.S. SUGAR CORPORATION CLEWISTON BOILER NO. 2**

Regulated Pollutant	Carbonaceous Fuel				No. 6 Fuel Oil				Total Annual Emissions (TPY)
	Emission Factor (lb/ton)	Ref.	Annual Fuel Usage (TPY)	Annual Emissions (TPY)	Emission Factor (lb/1,000 gal)	Ref.	Annual Fuel Usage (gal/yr)	Annual Emissions (TPY)	
<u>Criteria and Precursor Air Pollutants</u>									
Particulate Matter (PM)	1.433	1	216,540	155.15	15.17	5 (b)	539,742	4.09	159.24
Particulate Matter (PM <sub>10</sub> )	1.333	(a)	216,540	144.29	12.89	(a)	539,742	3.48	147.77
Sulfur Dioxide (SO <sub>2</sub> )	0.360	2	216,540	38.98	115.87	6 (b)	539,742	31.27	70.25
Nitrogen Oxides (NO <sub>x</sub> )	0.727	1	216,540	78.71	47	6	539,742	12.68	91.40
Carbon Monoxide (CO)	70.834	1	216,540	7,669.20	5	6	539,742	1.35	7,670.55
Volatile Organic Compounds (VOC)	1.778	3	216,540	192.50	0.28	7	539,742	0.08	192.58
Sulfuric Acid Mist (SAM)	0.0159	9	216,540	1.72	5.11	9	539,742	1.38	3.10
Lead - Total	2.45E-05	4	216,540	0.003	1.51E-03	8	539,742	4.08E-04	0.003
Beryllium (Be)	--	--	--	--	2.78E-05	8	539,742	7.50E-06	7.50E-06
Mercury (Hg)	--	--	--	--	1.13E-04	8	539,742	3.05E-05	3.05E-05

Note:

(a) Assuming 93% of PM is PM<sub>10</sub> for bagasse, and 85% of PM is PM<sub>10</sub> for No. 6 fuel oil.

(b) Average sulfur content of the fuel mix is 1.476%.

Unless otherwise specified, heating values for each fuel are as follows: 3,600 Btu/lb for wet bagasse and 151,704 Btu/gal for No. 6 fuel oil.

1. Based on compliance test data, conducted by Air Consulting and Engineerin PM 0.199 lb/MMBtu 11/18/2003  
     NO<sub>x</sub> 0.101 lb/MMBtu 1/4/1995  
     CO 9.838 lb/MMBtu 1994 - 1995
2. Based on average industry test data of 0.05 lb/MMBtu or less.
3. Based on test data for similar bagasse boiler. (Bryant Boilers 1, 2, and 3 average = 0.247 lb/MMBtu.)
4. Based on average industry test data of 3.4E-06 lb/MMBtu or less.
5. Based on emission limit of 0.1 lb/MMBtu for PM while firing No. 6 fuel oil.
6. Based on AP-42 Table 1.3-1, "Criteria Pollutant Emission Factors for Fuel Oil Combustion" (9/98), No. 6 fuel oil, normal firing. Assume 50% SO<sub>2</sub> removal from scrubber.
7. Based on AP-42 Table 1.3-3, "Emission Factors for Total Organic Compounds (TOC), Methane, and Nonmethane TOC (NMTOC) from Uncontrolled Fuel Oil Combustion" (9/98).
8. Based on AP-42 Table 1.3-11, "Emission Factors for Metals from Uncontrolled No. 6 Fuel Oil Combustion" (9/98).
9. From AP-42 Table 1.3-1: SO<sub>3</sub> represents 3.6% of SO<sub>2</sub>; then convert to H<sub>2</sub>SO<sub>4</sub> (x 98/80).

**ATTACHMENT B-5**  
**2002 EMISSIONS OF CRITERIA POLLUTANTS FOR U.S. SUGAR CORPORATION CLEWISTON BOILER NO. 4**

Regulated Pollutant	Carbonaceous Fuel				No. 6 Fuel Oil				Total Annual Emissions (TPY)
	Emission Factor (lb/ton)	Ref.	Annual Fuel Usage (TPY)	Annual Emissions (TPY)	Emission Factor (lb/1,000 gal)	Ref.	Annual Fuel Usage (gal/yr)	Annual Emissions (TPY)	
<u>Criteria and Precursor Air Pollutants</u>									
Particulate Matter (PM)	0.713	1	230,042	82.01	9.56	3 (b)	311,554	1.49	83.50
Particulate Matter (PM <sub>10</sub> )	0.663	(a)	230,042	76.27	8.13	(a)	311,554	1.27	77.54
Sulfur Dioxide (SO <sub>2</sub> )	0.00094	1	230,042	0.11	54.165	3 (b)	311,554	8.44	8.55
Nitrogen Oxides (NO <sub>x</sub> )	0.670	1	230,042	77.06	47	3	311,554	7.32	84.39
Carbon Monoxide (CO)	20.578	1	230,042	2,366.90	5	3	311,554	0.78	2,367.68
VOC	1.022	1	230,042	117.55	0.28	4	311,554	0.04	117.60
Lead - Total	4.45E-04	2	230,042	0.051	1.51E-03	5	311,554	2.35E-04	0.051
Sulfuric Acid Mist (SAM)	4.13E-05	6	230,042	0.0047	2.07	6	311,554	0.32	0.33
Beryllium (Be)	--	--	--	--	2.78E-05	5	311,554	4.33E-06	4.33E-06
Mercury (Hg)	--	--	--	--	1.13E-04	5	311,554	1.76E-05	1.76E-05

## Footnotes:

- (a) Assuming 93% of PM is PM<sub>10</sub> for bagasse, and 85% of PM is PM<sub>10</sub> for No. 6 fuel oil.  
(b) Sulfur content of the fuel is 0.69%.

Unless otherwise specified, heating values for each fuel are as follows: 3,600 Btu/lb for wet bagasse and 150,764 Btu/gal for No. 6 fuel oil.

- Based on compliance test data, collected by Air Consulting and Engineering:

PM	0.099 lb/MMBtu	12/19/2002
SO <sub>2</sub>	0.00013 lb/MMBtu	1/5/2000
VOC	0.142 lb/MMBtu	12/19/2002
NO <sub>x</sub>	0.093 lb/MMBtu	12/19/2002
CO	2.858 lb/MMBtu	12/19/2002
- Based on EPA's AP-42 Table 1.6-5, "Emission Factors for Trace Elements from Wood Waste Combustion with PM Controls" (2/99).
- Based on AP-42 Table 1.3-1, "Criteria Pollutant Emission Factors for Fuel Oil Combustion" (9/98), No. 6 fuel oil, normal firing. Assume 50% SO<sub>2</sub> removal from scrubber.
- Based on AP-42 Table 1.3-3, "Emission Factors for Total Organic Compounds (TOC), Methane, and Nonmethane TOC (NMTOC) from Uncontrolled Fuel Oil Combustion" (9/98).
- Based on AP-42 Table 1.3-11, "Emission Factors for Metals from Uncontrolled No. 6 Fuel Oil Combustion" (9/98).
- From AP-42 Table 1.3-1: SO<sub>3</sub> represents 3.6% of SO<sub>2</sub>; then convert to H<sub>2</sub>SO<sub>4</sub> (x 98/80).

**ATTACHMENT B-6  
2003 EMISSIONS OF CRITERIA POLLUTANTS FOR U.S. SUGAR CORPORATION CLEWISTON BOILER NO. 4**

Regulated Pollutant	Carbonaceous Fuel			No. 6 Fuel Oil			No. 2 Fuel Oil			Total Annual Emissions (TPY)			
	Emission Factor (lb/ton)	Ref.	Annual Fuel Usage (TPY)	Annual Emissions (TPY)	Emission Factor (lb/1,000 gal)	Ref.	Annual Fuel Usage (Gallons/yr)	Annual Emissions (TPY)	Emission Factor (lb/1,000 gal)		Ref.	Annual Fuel Usage (Gallons/yr)	Annual Emissions (TPY)
<u>Criteria and Precursor Air Pollutants</u>													
Particulate Matter (PM)	0.914	1	269,658	123.23	9.56	3 (b)	196,123	0.94	2	6	270,109	0.27	124.44
Particulate Matter (PM <sub>10</sub> )	0.850	(a)	269,658	114.61	8.13	(a)	196,123	0.80	1.70	(a)	270,109	0.23	115.63
Sulfur Dioxide (SO <sub>2</sub> )	0.00094	1	269,658	0.13	54.165	3 (b)	196,123	5.31	3.55	6 (c)	270,109	0.48	5.92
Nitrogen Oxides (NO <sub>x</sub> )	0.972	1	269,658	131.05	47	3	196,123	4.61	24	6	270,109	3.24	138.90
Carbon Monoxide (CO)	28.267	1	269,658	3,811.21	5	3	196,123	0.49	5	6	270,109	0.68	3812.38
VOC	3.190	1	269,658	430.10	0.28	4	196,123	0.03	0.2	4	270,109	0.03	430.16
Lead - Total	2.45E-05	2	269,658	0.00	1.51E-03	5	196,123	1.48E-04	1.224E-09	7	270,109	1.65E-10	3.45E-03
Sulfuric Acid Mist (SAM)	4.13E-05	6	269,658	0.0056	2.39	6	196,123	0.23	0.16	6	270,109	2.11E-02	0.26
Beryllium (Be)	--	--	--	--	2.78E-05	5	196,123	2.73E-06	--	--	--	--	2.73E-06
Mercury (Hg)	--	--	--	--	1.13E-04	5	196,123	1.11E-05	--	--	--	--	1.11E-05

Footnotes:

- (a) Assuming 93% of PM is PM<sub>10</sub> for bagasse, and 85% of PM is PM<sub>10</sub> for No. 6 and No. 2 fuel oil.
- (b) Sulfur content of No. 6 fuel oil is 0.69%.
- (c) Sulfur content of No. 2 fuel oil is 0.05%.

Unless otherwise specified, heating values for each fuel are as follows: 3,600 Btu/lb for wet bagasse, 150,764 Btu/gal for No. 6 fuel oil, and 135,000 Btu/gal for No. 2 fuel oil.

1. Based on compliance test data, collected by Air Consulting and Engineering:
 

PM	0.127 lb/MMBtu	11/21/2003
SO <sub>2</sub>	0.00013 lb/MMBtu	1/5/2000
VOC	0.443 lb/MMBtu	11/21/2003
NO <sub>x</sub>	0.135 lb/MMBtu	11/21/2003
CO	3.926 lb/MMBtu	11/21/2003
2. Based on average industry test data of 3.4E-06 lb/MMBtu or less.
3. Based on AP-42 Table 1.3-1, "Criteria Pollutant Emission Factors for Fuel Oil Combustion" (9/98), No. 6 fuel oil, normal firing. Assume 50% SO<sub>2</sub> removal from scrubber.
4. Based on AP-42 Table 1.3-3, "Emission Factors for Total Organic Compounds (TOC), Methane, and Nonmethane TOC (NMTOC) from Uncontrolled Fuel Oil Combustion" (9/98).
5. Based on AP-42 Table 1.3-11, "Emission Factors for Metals from Uncontrolled No. 6 Fuel Oil Combustion" (9/98).
6. Based on AP-42 Table 1.3-1, "Criteria Pollutant Emission Factors for Fuel Oil Combustion" (9/98), No. 2 fuel oil, normal firing. Assume 50% SO<sub>2</sub> removal from scrubber.
7. Based on AP-42 Table 1.3-10, "Emission Factors for Trace Elements From Distillate Fuel Oil Combustion Sources" (9/98).
8. From AP-42 Table 1.3-1: SO<sub>3</sub> represents 3.6% of SO<sub>2</sub>; then convert to H<sub>2</sub>SO<sub>4</sub> (x 98/80).



**ATTACHMENT C**

**FUTURE POTENTIAL EMISSIONS**

**TABLE C-1**  
**FUTURE POTENTIAL EMISSIONS DUE TO FUEL OIL FIRING BOILER NO. 1**  
**U. S. Sugar Corporation Clewiston**

Regulated Pollutant	No. 2 Fuel Oil Combustion					
	Emission Factor (lb/MMBtu)	Ref.	Activity Factor		Hourly Emissions (lb/hr)	Annual Emissions (TPY)
			Hourly <sup>a</sup> MMBtu/hr	Annual <sup>b</sup> MMBtu/yr		
Particulate Matter (PM)	0.015	1	130	834,000	1.9	6.2
Particulate Matter (PM <sub>10</sub> )	0.007	2	130	834,000	1.0	3.1
Sulfur dioxide (SO <sub>2</sub> )	0.053	3	130	834,000	6.9	22.2
Nitrogen oxides (NO <sub>x</sub> )	0.17	4	130	834,000	22.1	70.9
Carbon monoxide (CO)	0.037	1	130	834,000	4.8	15.4
Volatile Organic Compounds (VOC)	1.5E-03	1	130	834,000	0.2	0.62
Sulfuric acid mist (SAM)	0.0026	1	130	834,000	0.3	1.1
Lead (Pb)	9.0E-06	5	130	834,000	1.2E-03	3.8E-05
Beryllium (Be)	3.0E-06	5	130	834,000	3.9E-04	1.3E-05
Mercury (Hg)	3.0E-06	5	130	834,000	3.9E-04	1.3E-03

## References:

- Factors for No. 2 fuel oil combustion: AP-42 Tables 1.3-1 and 1.3-3 (9/98). For sulfuric acid mist, factor shown is for SO<sub>3</sub>. Convert to H<sub>2</sub>SO<sub>4</sub> by multiplying by 98/80. Factors were converted to lb/MMBtu by dividing by 135,000 Btu/gal (min).  
 PM = 2 lb/1000 gal  
 CO = 5 lb/1000 gal  
 SO<sub>3</sub> = 5.7S lb/1000 gal, where S = 0.05      VOC = 0.2 lb/1000 gal
- Factors for distillate fuel oil, PM<sub>10</sub> is 50% of PM based on AP-42, Table 1.3-6 (9/98).
- Based on stoichiometric calculation: 7.2 lbs/gal; 135,000 Btu/gal (min); 0.05% sulfur.
- Based on stack testing conducted on Boiler No. 1 and 2 on Feb. 10-11, 2006.
- Factors for No. 2 fuel oil combustion, AP-42 Table 1.3-10 (9/98).

## Footnotes:

- <sup>a</sup> Based on maximum heat input due to No. 2 fuel oil combustion, from manufacturer specifications.
- <sup>b</sup> Based on No. 2 fuel oil usage of 6,000,000 gallons per year and heating value of 139,000 Btu/gal (max).

**TABLE C-2**  
**FUTURE POTENTIAL EMISSIONS DUE TO FUEL OIL FIRING, BOILER NO. 2,**  
**U. S. Sugar Corporation Clewiston**

Regulated Pollutant	No. 2 Fuel Oil Combustion					
	Emission Factor (lb/MMBtu)	Ref.	Activity Factor		Hourly Emissions (lb/hr)	Annual Emissions (TPY)
			Hourly <sup>a</sup> MMBtu/hr	Annual <sup>b</sup> MMBtu/yr		
Particulate Matter (PM)	0.015	1	130	834,000	1.9	6.2
Particulate Matter (PM <sub>10</sub> )	0.007	2	130	834,000	1.0	3.1
Sulfur dioxide (SO <sub>2</sub> )	0.053	3	130	834,000	6.9	22.2
Nitrogen oxides (NO <sub>x</sub> )	0.17	4	130	834,000	22.1	70.9
Carbon monoxide (CO)	0.037	1	130	834,000	4.8	15.4
Volatile Organic Compounds (VOC)	1.5E-03	1	130	834,000	0.2	0.62
Sulfuric acid mist (SAM)	0.0026	1	130	834,000	0.3	1.1
Lead (Pb)	9.0E-06	5	130	834,000	1.2E-03	3.8E-05
Beryllium (Be)	3.0E-06	5	130	834,000	3.9E-04	1.3E-05
Mercury (Hg)	3.0E-06	5	130	834,000	3.9E-04	1.3E-03

## References:

- Factors for No. 2 fuel oil combustion: AP-42 Tables 1.3-1 and 1.3-3 (9/98). For sulfuric acid mist, factor shown is for SO<sub>3</sub>. Convert to H<sub>2</sub>SO<sub>4</sub> by multiplying by 98/80. Factors were converted to lb/MMBtu by dividing by 135,000 Btu/gal (min).  
 PM = 2 lb/1000 gal  
 CO = 5 lb/1000 gal  
 SO<sub>3</sub> = 5.7S lb/1000 gal, where S = 0.05      VOC = 0.2 lb/1000 gal
- Factors for distillate fuel oil, PM<sub>10</sub> is 50% of PM based on AP-42, Table 1.3-6 (9/98).
- Based on stoichiometric calculation: 7.2 lbs/gal; 135,000 Btu/gal (min); 0.05% sulfur.
- Based on stack testing conducted on Boiler No. 1 and 2 on Feb. 10-11, 2006.
- Factors for No. 2 fuel oil combustion, AP-42 Table 1.3-10 (9/98).

## Footnotes:

- <sup>a</sup> Based on maximum heat input due to No. 2 fuel oil combustion, from manufacturer specifications.
- <sup>b</sup> Based on No. 2 fuel oil usage of 6,000,000 gallons per year and heating value of 139,000 Btu/gal (max).