



# Department of Environmental Protection

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Colleen M. Castille  
Secretary

June 5, 2006

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. William A. Raiola, Vice President of Sugar Processing Operations  
U.S. Sugar Corporation  
111 Ponce DeLeon Avenue  
Clewiston, Florida 33440

Re: **Request for Additional Information**  
Project Nos. 0510003-0031-AC and 0510003-032-AV  
Clewiston Sugar Mill and Refinery / Bryant Sugar Mill  
Title V Renewal Projects

Dear Raiola:

The Department is currently processing your application for a permit to renew the Title V air operation permits for the Clewiston Sugar Mill and Refinery and the Bryant Sugar Mill. The application is incomplete. In order to continue processing your application, the Department will need the additional information requested below. Should your response to any of the items below require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. Please review "Attachment A – Summary of CAM Plans Proposed by Applicant" of this request for accuracy. The following questions refer to this attachment and the CAM Plans.
  - a. Explain why the proposed monitoring values were reduced by 90%.
  - b. Explain why some of the proposed indicator ranges are so much lower than the annual averages identified in the application. (i.e., Clewiston Boilers 1, 2 and 4, and Bryant Boilers 1 and 5. etc.)
  - c. Provide a technical justification for reducing the monitoring frequency from 4 times/hour for units with potential emissions greater than 100 tons per year (i.e., units operate under relatively steady operational loads; control equipment parameters are "dialed-in" and only reset for large swings in operation; proposed monitoring frequency will be increased from current monitoring frequency; unit has shown relatively low emissions for proposed indicator range; etc.). Explain any difficulties with continuously monitoring the total secondary power input to the ESP for Clewiston Boiler 7.
  - d. Clewiston Boiler 7 and 8 have wet cyclones as pre-control devices prior to the ESP. Although pressure drop was an important parameter in selecting and designing the wet cyclones, it is not a controllable parameter and is dependent on boiler load/flue gas exhaust rate. However, the water flow rate to the wet cyclones is a controllable parameter and monitoring for a minimum flow rate will ensure proper operation. Please identify the minimum operational flow rate (CAM indicator range) for these devices.
  - e. Although Boiler 8 is subject to a NESHAP promulgated after 11/15/90, it is necessary to establish a CAM Plan for the PM BACT standard. However, these monitoring requirements can be the same because the emissions standards and averaging period are identical. Please comment.
  - f. As was previously discussed, the Department identified Clewiston Boilers 4, 7 and 8 as possibly being subject to CAM Plan requirements for SO<sub>2</sub> emissions because these units have a specific SO<sub>2</sub> emissions standard. Also as discussed, the Department reviewed SO<sub>2</sub> emissions data and control options for the Clewiston Boilers (some wet controls) and the Okeelanta Cogeneration Boilers (dry controls). Based on our conversation and available information, the following is a summary of this review:

"For the Clewiston Mill, bagasse typically contains 0.08% to 0.24% with an average of approximately 0.1% sulfur by weight on a dry basis. Based on a heating value of 7200 Btu per dry lb of bagasse, this is equivalent to

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estimated uncontrolled emissions of approximately 0.22 to 0.66 lb SO<sub>2</sub> per MMBtu. However, stack test data for these units show actual SO<sub>2</sub> emissions ranging from 0.01 to 0.06 lb/MMBtu. This represents estimated reductions ranging from 40% to 90%.

The sugar industry typically uses surface water from ponds for wet scrubber and wet cyclone water. The applicant indicates that the typical pH of the pond water is 6.8. No chemicals are added to treat and control the pH levels of the scrubber water, which is used and then discharged back into the pond. According to the industry, the mechanism providing the reduction is adsorption of the SO<sub>2</sub> onto ash particles generated from bagasse combustion, which is then removed by the particulate matter control device.

To evaluate this mechanism, data from the Okeelanta Cogeneration Boilers were reviewed. These units are spreader-stoker boilers similar in size to the Clewiston Boilers (760 MMBtu per hour) and fire roughly a 50%-50% blend of bagasse and wood chips as the primary fuel. However, water is not used in the particulate control device. Instead, particulate matter is removed with dry multi-classes followed by a dry electrostatic precipitator (ESP). For the Okeelanta Mill, the important parameters are:

- Bagasse: 3600 Btu/lb, wet; 50% moisture; and an average sulfur content of 0.03% by weight
- Wood Chips: 4500 Btu/lb, wet; 40% moisture; and an average sulfur content of 0.07% by weight

Assuming a 50%-50% biomass blend by weight provides a fuel blend with an average heating value of 7350 MMBtu/lb and an average sulfur content of 0.05% sulfur by weight. This is equivalent to an uncontrolled emission rate of approximately 0.135 lb SO<sub>2</sub> per MMBtu. However, the cogeneration boilers are equipped with monitors to continuously measure and record SO<sub>2</sub> emissions. Based on CEMS data collected in 2000 for the cogeneration boilers, the average annual SO<sub>2</sub> emission rate for these units was approximately 0.03 lb/MMBtu. This represents an estimated reduction of approximately 78%, which tends to validate that the SO<sub>2</sub> removal mechanism as adsorption onto ash particles with removal by the particulate matter control device.

This information supports the contention that SO<sub>2</sub> emissions are not being removed as a result of the "wet" scrubbing process. Nevertheless, the conclusion is that a properly functioning particulate matter control device is necessary to achieve the SO<sub>2</sub> emission standards. Therefore, the Department intends to establish the same CAM monitoring program as identified for particulate matter for Clewiston Boilers 4, 7 and 8."

Please correct any inaccuracies and comment.

- g. For the granular carbon regenerative furnace (GCRF), Permit No. PSD-FL-272 specified a particulate matter emission standard of 0.7 lb/hour and a design control efficiency of 97%. Based on these parameters, the uncontrolled emission rate would be 102 tons/year. The permit specifies that the venturi scrubber shall be designed for a pressure drop of between 20 to 30 inches of water column and the wet tray scrubber shall be designed for a pressure drop of between 3 to 5 inches of water column. The permit requires these parameters to be monitored once per 8-hour shift. Please provide a CAM Plan for this control device. What is the "capacity" of this unit?
2. Based on the revisions to NSPS Subpart Kb, do you want to consolidate all fuel storage tanks into a single emissions unit to simplify reporting for the Annual Operating Report? If so, please identify the tanks, identification numbers, storage volume, and materials stored.
  3. White Sugar Dryer 2 (EU-029) has not yet conducted a satisfactory compliance test. Do you want to include this unit in the Title V renewal or proceed without it? If included, please submit a compliance plan for conducting the test and submitting the test report. (Once satisfied, the requirements of the compliance plan will become obsolete.)
  4. The PSD permit for Boiler 8 was recently modified (Project 0510003-032-AC) and updated for the NESHAP revisions. Please submit only the revised Title application pages for this unit.
  5. The Department's South District Office issued Permit No. 0510003-033-AC to install a new lime silo. If constructed, please submit the revised Title V application pages for this new unit. If not yet constructed, you may submit the revised Title V application pages for this new unit with a compliance plan. For minor units such as this, the compliance plan would likely cover any notification and initial testing requirements. (Once satisfied, the requirements of the compliance plan will become obsolete.)
  6. The Bureau of Air Regulation recently issued Permit No. 0510003-034-AC to install the railcar loading/unloading/storage system at the refinery. You may submit the revised Title V application pages for this new

unit with a compliance plan. The permit requires only an opacity test and the submittal of the test report. (Once satisfied, the requirements of the compliance plan will become obsolete.)

7. The Bureau of Air Regulation recently issued Draft Permit No. 0510003-035-AC to install a dry cyclone dust collector for Boiler 8. The only requirement is a notification of completion of construction, which would be listed as the compliance plan and become obsolete once submitted. Please submit only the revised application pages for the proposed dry cyclone dust collector for Boiler 8.
8. You have recently submitted a request to EPA Region 4 to remove the NESAHP requirement to monitor pressure drop across the wet cyclones. Do you want to include this request as part of the Title V renewal project or proceed without these revisions?
9. On May 19, 2006, we received your request to revise the original permit that modified the oil firing systems for Boilers 1 and 2. The Department intends to issue a revised permit shortly based on your request. The revision must be included in the Title V renewal project because all construction and testing is now complete. Please submit only the revised Title V application pages for these units.
10. You had previously indicated you would request a revision of the bagasse handling system regarding the installation of dust collectors as well as a revision to increase the maximum steam production rate for Boiler 8. Do you plan to submit this request shortly and include it as part of the Title V renewal project or proceed without these revisions?
11. Please review the previously submitted compliance plan and update as necessary.

The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. For any material changes to the application, please include a new certification statement by the authorized representative or responsible official. You are reminded that Rule 62-4.055(1), F.A.C. requires applicants to respond to requests for information within 90 days or provide a written request for an additional period of time to submit the information.

If you have any questions regarding this matter, please call me at 850/921-9536.

Sincerely,



Jeffery F. Koerner, P.E.  
BAR - Air Permitting North

cc: Mr. Don Griffin, U.S. Sugar Corporation  
Mr. David Buff, P.E., Golder Associates  
Mr. Ron Blackburn, SD Office  
Mr. James Stormer, PBCHD  
Ms. Kathleen Forney, EPA Region 4

## Wet Impingement Scrubbers

Clewiston Boiler 1 (EU-001)	Indicator #1	Indicator #2
Indicator (PM)	Pressure drop across scrubber	Total scrubber water flow rate
Measurement Approach	Manometer (or equivalent)	Flow Meter
Indicator Range	6 inches water column, minimum <b>Average: 9" w.c.</b>	50 gpm, minimum <b>Average: 300 gpm</b>
Monitoring Frequency	Continuous readout	Continuous readout
Data Collection	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>

Clewiston Boiler 2 (EU-002)	Indicator #1	Indicator #2
Indicator (PM)	Pressure drop across scrubber	Total scrubber water flow rate
Measurement Approach	Manometer (or equivalent)	Flow Meter
Indicator Range	5 inches water column, minimum <b>Average: 9" w.c.</b>	58 gpm, minimum <b>Average: 300 gpm</b>
Monitoring Frequency	Continuous readout	Continuous readout
Data Collection	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>

Clewiston Boiler 4 (EU-009)	Indicator #1	Indicator #2
Indicator (PM and SO <sub>2</sub> )	Pressure drop across scrubber	Total scrubber water flow rate
Measurement Approach	Manometer (or equivalent)	Flow Meter
Indicator Range	7.6 inches w. c., minimum <b>Average: 8" w.c.</b>	220 gpm, minimum <b>Average: 375 gpm</b>
Monitoring Frequency	Continuous readout	Continuous readout
Data Collection	Recorded once per 8-hour shift <b>Current: Every 3 hours</b>	Recorded once per 8-hour shift <b>Current: Every 3 hours</b>

Bryant Boiler 1 (EU-001)	Indicator #1	Indicator #2
Indicator (PM)	Pressure drop across scrubber	Total scrubber water flow rate
Measurement Approach	Manometer (or equivalent)	Flow Meter
Indicator Range	4.5 inches w.c., minimum <b>Average: 8.8" w.c.</b>	200 gpm, minimum <b>Average: 240 gpm</b>
Monitoring Frequency	Continuous readout	Continuous readout
Data Collection	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>

Bryant Boiler 2 (EU-002)	Indicator #1	Indicator #2
Indicator (PM) per Scrubber (2 Scrubbers)	Pressure drop across scrubber	Total scrubber water flow rate
Measurement Approach	Manometer (or equivalent)	Flow Meter
Indicator Range	3.6 inches w.c., minimum <b>Average: 4.8" w.c.</b>	200 gpm, minimum <b>Average: 170 gpm</b>
Monitoring Frequency	Continuous readout	Continuous readout
Data Collection	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>

**Attachment A – Summary of CAM Plans Proposed by Applicant**

<b>Bryant Boiler 3 (EU-003)</b>	Indicator #1	Indicator #2
Indicator (PM)	Pressure drop across scrubber	Total scrubber water flow rate
Measurement Approach	Manometer (or equivalent)	Flow Meter
Indicator Range	5.4 inches w.c., minimum <b>Average: 7.2" w.c.</b>	216 gpm, minimum <b>Average: 240 gpm</b>
Monitoring Frequency	Continuous readout	Continuous readout
Data Collection	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>

<b>Bryant Boiler 5 (EU-005)</b>	Indicator #1	Indicator #2
Indicator (PM)	Pressure drop across scrubber	Total scrubber water flow rate
Measurement Approach	Manometer (or equivalent)	Flow Meter
Indicator Range	7.2 inches w.c., minimum <b>Average: 11.5" w.c.</b>	765 gpm, minimum <b>Average: 400 gpm</b>
Monitoring Frequency	Continuous readout	Continuous readout
Data Collection	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>

**Wet Cyclones - Pre-Controls**

<b>Clewiston Boiler 7 (EU-014)</b>	Indicator #1
Indicator (PM and SO <sub>2</sub> )	Total scrubber water flow rate
Measurement Approach	Flow Meter
Indicator Range	??? gpm, minimum <b>Average: 40 gpm</b>
Monitoring Frequency	Continuous readout
Data Collection	<b>Current: Not recorded</b>

<b>Clewiston Boiler 8 (EU-028)</b>	Indicator #2
Indicator (PM and SO <sub>2</sub> )	Total scrubber water flow rate
Measurement Approach	Flow Meter
Indicator Range	??? gpm, minimum <b>Average: 713 gpm</b>
Monitoring Frequency	Continuous readout
Data Collection	<b>Current: Not recorded</b>

**Electrostatic Precipitator – Primary Controls**

<b>Clewiston Boiler 7 (EU-014)</b>	Indicator #1
Indicator (PM)	Total Secondary Power Input
Measurement Approach	Amp/Volt Meter
Indicator Range	44 kW, minimum <b>Average:</b>
Monitoring Frequency	Continuous readout
Data Collection	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>

**Attachment A – Summary of CAM Plans Proposed by Applicant**

<b>Clewiston Boiler 8 (EU-028)</b>	Indicator #1
Indicator (PM)	Total Secondary Power Input
Monitoring Approach	Identical to NEHSAP Subpart DDDDD requirements

**Venturi Scrubber**

<b>Clewiston GCRF (EU-017)</b>	Indicator #1	Indicator #2
Indicator (PM)	Pressure drop across scrubber	Total scrubber water flow rate
Measurement Approach	Manometer (or equivalent)	Flow Meter
Indicator Range	??? inches w.c., minimum <b>Design: 20"-30" w.c.</b>	??? gpm, minimum <b>Design: 36 gpm</b>
Monitoring Frequency	Continuous readout	Continuous readout
Data Collection	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>	Not recorded <b>Current: Not recorded</b>

**Tray Scrubber**

<b>Clewiston GCRF (EU-017)</b>	Indicator #1	Indicator #2
Indicator (PM)	Pressure drop across scrubber	Total scrubber water flow rate
Measurement Approach	Manometer (or equivalent)	Flow Meter
Indicator Range	??? inches w.c., minimum <b>Design: 3" - 5" w.c.</b>	??? gpm, minimum <b>Design: 230 gpm</b>
Monitoring Frequency	Continuous readout	Continuous readout
Data Collection	Recorded once per 8-hour shift <b>Current: Every 8 hours</b>	??? <b>Current: Not recorded</b>

**Baghouse**

<b>Clewiston 3 Vacuum Pickups (EU-018)</b>	Indicator #1	Indicator #2
Indicator (PM) per Baghouse – 3 Units	Pressure drop across baghouse	Opacity
Measurement Approach	Manometer (or equivalent)	EPA Method 22
Indicator Range	?? inches water column, minimum <b>Average: ???</b>	Observed visible emissions
Monitoring Frequency	Continuous readout	Continuous readout
Data Collection	Recorded once per day <b>Current: No recording</b>	Recorded once per day <b>Current: No recording</b>

**Wet Vortex Scrubber**

<b>Clewiston White Sugar Dryer 2 (EU-029)</b>	Indicator #1	Indicator #2
Indicator (PM)	Pressure drop across scrubber	Total scrubber water flow rate
Measurement Approach	Manometer (or equivalent)	Flow Meter
Indicator Range	Under construction <b>Design: 8" w.c.</b>	Under construction <b>Design: 12 gpm</b>
Monitoring Frequency	Continuous readout	Continuous readout
Data Collection	Continuously, 3-hr block avg.	Continuously, 3-hr block avg.