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TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

PROJECT

Draft Air Construction Permit No. 0510003-039-AC
Clewiston Boilers 1, 2 and 4 – Combined Distillate Oil Firing Requirements

COUNTY

Hendry County, Florida

APPLICANT

United States Sugar Corporation
Clewiston Sugar Mill and Refinery
111 Ponce DeLeon Avenue
Clewiston, FL 33440

ARMS Facility ID No. 0510003

PERMITTING AUTHORITY
Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation
Air Permitting North

August 14, 2006

{Filename: 0510003-039-AC - TEPD}

1. GENERAL PROJECT INFORMATION

Facility Description and Location

The United States Sugar Corporation (USSC) operates an existing sugar mill (SIC No. 2061) and refinery (SIC No. 2062) in Clewiston at the intersection of W.C. Owens Avenue and State Road 832 in Hendry County, Florida. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to a National Ambient Air Quality Standard (NAAQS). The facility is regulated in accordance with the following facility categories:

Title III: The existing facility is a major source of hazardous air pollutants (HAP).

Title IV: The existing facility has no units subject to the acid rain provisions of the Clean Air Act.

Title V: The existing facility is a Title V major source in accordance with Chapter 213, F.A.C.

PSD: The existing facility is a PSD-major facility in accordance with Rule 62-212.400, F.A.C.

Project Description

Boilers 1 and 2 are vibrating grate units with total maximum heat input rates of 496 and 447 MMBtu per hour, respectively. The maximum heat input rate for each unit when firing distillate oil (0.05% sulfur) is 130 MMBtu/hour. Boiler 4 is a traveling grate unit with a total maximum heat input rate of 633 MMBtu per hour. The maximum heat input rate when firing distillate oil (0.40% sulfur) is 326 MMBtu/hour.

Bagasse is the primary fuel for these sugar mill boilers. However, distillate oil is used for startup and when necessary to supplement bagasse due to fuel quality issues or mill interruptions. In addition, these boilers operate as backup units to Boilers 7 and 8 during the refinery season. If bagasse is unavailable, the boilers fire distillate oil as necessary to meet the steam demands of the refinery, which are much less than the milling season.

On July 27, 2006, the Department received a complete application requesting consolidation of the distillate oil firing restrictions for existing Boilers 1, 2, and 4 into a single cap. Specifically, the applicant requests: a revised distillate oil cap of 6,000,000 gallons during any consecutive 12 months for all three boilers combined; a reduction in the maximum fuel sulfur concentration for Boiler 4 from 0.4% to 0.05% by weight to match the other boilers; and a reduction of the maximum NOx emission rate for Boiler 4 from 0.20 to 0.17 lb/MMBtu, which is equivalent to the modified oil firing systems for Boilers 1 and 2 and supported by initial performance testing. Currently, Boilers 1 and 2 are restricted to a combined total of 6,000,000 gallons during any consecutive 12 months and Boiler 4 is restricted to 500,000 gallons during any consecutive 12 months. The 500,000 gallon restriction originated with the original PSD permit to limit overall SO_2 emissions.

2. APPLICABLE REGULATIONS

PSD Applicability Review

The Department regulates major air pollution facilities in accordance with Florida's Prevention of Significant Deterioration (PSD) program, as approved by the EPA in Florida's State Implementation Plan and defined in Rule 62-212.400, F.A.C. A PSD review is required in areas currently in attainment with the state and federal Ambient Air Quality Standards (AAQS) or areas designated as "unclassifiable" for a given pollutant. A facility is considered "major" with respect to PSD if it emits or has the potential to emit: 250 tons per year or more of any regulated air pollutant; or 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the 28 PSD Major Facility Categories; or 5 tons per year of lead.

For new projects at existing PSD-major facilities, each regulated pollutant is reviewed for PSD applicability based on emissions thresholds known as the Significant Emission Rates defined in Rule 62-210.200, F.A.C. Pollutant emissions from the project exceeding these rates are considered "significant" and the applicant must employ the Best Available Control Technology (BACT) to minimize emissions of each such pollutant and evaluate the air quality impacts. Although a facility may be "major" with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

The existing Clewiston sugar mill and refinery is located in an area that is currently in attainment with the state and federal Ambient Air Quality Standards (AAQS) or otherwise designated as unclassifiable. The actual and potential emissions of several pollutants from the facility are greater than the applicability thresholds defined above. As such, the sugar mill and refinery is an existing PSD-major facility as defined in Rules 62-210.200 (Definitions), F.A.C. and 62-212.400 (PSD), F.A.C. Therefore, the project must be evaluated for the applicability of PSD preconstruction review. The following table shows the applicant's estimated changes in annual emissions from the proposed project.

Table 2A. Applicant's PSD Applicability Summary – Revised Project

Pollutant*	Boilers 1, 2 and 4 – Annual Emissions, TPY		Project Increase TPY	Project	
	Baseline Actual [a]	Future Potential [b]		PSD Significant Emission Rate	PSD?
CO	4.40	15.4	11	100	No
NOx	39.82	70.9	32	40	No
PM	11.83	6.2	(-) 6	25	No
PM_{10}	10.06	3.1	(-) 7	15	No
SAM	3.78	1.1	(-) 3	7	No
SO_2	86.41	22.2	(-) 64	40	No
VOC	0.24	0.6	< 1	40	No

a. Baseline emissions are estimated from: the actual oil firing rates in 2002 and 2003; the actual fuel sulfur content for Boilers 1 and 2 (~ 1.5% sulfur by weight); the actual fuel sulfur content for Boiler 4 (~ 0.7% sulfur by weight); the Annual Operating Reports for 2002 and 2003; and AP-42 emissions factors.

b. Future potential emissions are based on: the requested fuel oil firing rate of 6.0 million gallons total from all boilers; AP-42 emission factors for CO, PM, PM_{10}, and VOC emissions; a distillate oil heating value of 139,000 Btu/gallon; stoichiometric calculations for SO_2 and SAM emissions based on the maximum permitted fuel sulfur content of 0.05% sulfur by weight; and a maximum NOx emissions rate of 0.17 lb/MMBtu as specified by permit and verified by testing.

The above comparison of baseline actual emissions to future potential emissions from these units shows there will be no PSD-significant emissions increase as a result of this project. Based on the above analysis and proposed permit conditions, the project is not subject to PSD preconstruction review.

Other Regulations

The proposed project will not impose any new state or federal regulations.

3. DRAFT PERMIT CONDITIONS

In March of 2005, Permit No. 0510003-029-AC authorized completion of the modified oil firing system for Boiler 4 to accommodate distillate oil with a maximum sulfur content of 0.4% by weight. In July of 2006, Permit No. 0510003-036-AC revised the original permit for the oil firing systems for Boilers 1 and 2 as installed. The requirements of these permits will be combined into a new permit. This permit will include the following limitations.

- A cap for combined distillate oil firing from Boilers 1, 2 and 4 will be specified as 6,000,000 gallons during any consecutive 12 months.
- The maximum fuel sulfur content for all boilers will be specified as 0.05% sulfur by weight.
- The low-NOx burner design specifications for all three boilers will be specified as 0.17 lb/MMBtu.

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the revised project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Jeff Koerner is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.