



Florida Department of Environmental Protection

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September 27, 2007

Sent by electronic mail.

Mr. Gregg Worley, Chief
Air Permits Section
U.S. EPA Region 4
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-8960

Re: Alternate Opacity Monitoring Procedure, NSPS Subpart Db
U.S. Sugar Corporation, Clewiston Sugar Mill and Refinery
Existing Boiler 7, Proposal to Fire Wood Chips (Draft Permit No. PSD-FL-389)

Dear Mr. Worley:

The U.S. Sugar Corporation requests an alternate opacity monitoring procedure for existing Boiler 7 at the Clewiston Sugar Mill and Refinery. The request is part of Draft Permit No. PSD-FL-389, which will authorize a limited amount of wood chips to be fired in this unit. The project is described below.

Background

Boiler 7 currently fires bagasse as the primary fuel and distillate oil ($\leq 0.05\%$ sulfur by weight) as a startup and restricted supplemental fuel. When firing distillate oil, it is subject to the applicable standards for particulate matter (PM) and opacity established in NSPS Subpart Db of 40 CFR 60. The Subpart Db provisions also require a continuous opacity monitoring system (COMS) to demonstrate compliance with the opacity standards. However, EPA Region 4 previously did not require a COMS, but approved an alternate opacity monitoring plan because distillate oil was limited to an annual capacity factor of 10% or less. See Control No. 9700048 in EPA's Applicability Determination Index.

For the new project, U.S. Sugar proposes to fire limited amounts of wood chips with an annual capacity factor of less than 25%. Wood chips would be fired in a blend with bagasse at the startup of each crop season until the mill is self sustaining. Wood chips may also be fired in a blend with bagasse to displace distillate oil during the refinery season when only one boiler is needed to meet steam demands. The firing of wood chips imposes emissions standards for particulate matter and opacity as well as a COMS. However, there is concern that liquid droplets in the flue gas will interfere with reliable opacity measurements. Moisture would come from bagasse which contains approximately 50% moisture, from wood chips which may contain more than 20% moisture, and from the wet sand separator pre-control device which injects approximately 7800 gph of water. Because of moisture interference and restricted operation, U.S. Sugar proposes the following alternate opacity monitoring procedure in lieu of the NSPS Subpart Db requirement to install and operate a COMS.

Proposed Alternate Opacity Monitoring Procedure

1. For each field of the electrostatic precipitator, continuously monitor and record the secondary voltage and amperage.

2. For each 8-hour block of operation, calculate and record the total secondary power input to the electrostatic precipitator.
3. Maintain the total secondary power input to the electrostatic precipitator at a minimum of 44kW based on an 8-hour block average.
4. If the total secondary power input to the electrostatic precipitator falls below the minimum of 44kW based on an 8-hour block average (excursion), investigate to determine the cause of the excursion and take the corrective action if necessary to regain the minimum total secondary power input.
5. For each excursion, record the following information in a log: date and time of excursion; cause of excursion (if determined); corrective action taken (if any); and date and time of regaining the minimum total secondary power input.
6. Within 30 days following each semiannual period (January through June and July through December), the permittee shall submit a report to the Compliance Authority summarizing the following information: each 8-hour block average of the total secondary power input to the electrostatic precipitator; each excursion of the minimum total secondary power input to the electrostatic precipitator and corrective actions; percentage of monitoring data not available; and maintenance of the electrostatic precipitator and monitoring system.
7. All records shall be maintained on site and made available upon request.

Rationale

Pursuant to 40 CFR 60.43b(h)(1), the applicable PM standard is 0.03 lb/MMBtu of heat input with compliance demonstrated by EPA Method 5 testing. Boiler 7 was constructed in accordance with PSD preconstruction review and the original BACT standard was established as 0.03 lb PM/MMBtu for firing bagasse. Boiler 7 has successfully demonstrated compliance with the PM BACT standard for bagasse since startup for ten consecutive years. This is important because the dust loading rate from firing bagasse is nearly 4 times that for firing wood. This is based on EPA's AP-42 document, which identifies the uncontrolled PM emission factor (Table 1.8-1) for bagasse as 2.2 lb/MMBtu and the uncontrolled PM emission factor (Table 1.6-1) for wood as 0.56 lb/MMBtu.

The Subpart Db visible emissions standard for wood firing is 20% opacity (6-minute average) except for one 6-minute period per hour not to exceed 27% opacity with compliance demonstrated by a COMS. This is also consistent with the previous BACT standard established for opacity. Boiler 7 has successfully demonstrated compliance with the opacity BACT standard for bagasse since startup for ten consecutive years with EPA Method 9. U.S. Sugar requests an alternate monitoring procedure for opacity due to concerns of moisture interference resulting from the firing high-moisture fuels (bagasse and wood chips) and the addition of up to 7800 gph of water from the wet sand separator that serves as a pre-control to the electrostatic precipitator. In addition, wood chips will generally be fired only when the supply of bagasse is low and will be limited to an annual capacity factor of 25% or less.

The provisions of 40 CFR 60.13(i) allow approval of alternatives to any Part 60 monitoring procedures including:

- Alternative monitoring requirements when installation of a continuous monitoring system or monitoring device specified by this part would not provide accurate measurements due to liquid water or other interferences caused by substances in the effluent gases.
- Alternative monitoring requirements when the affected facility is infrequently operated.

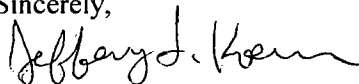
EPA Region 4 has previously approved alternate opacity monitoring procedures for wet control systems based on parametric monitoring. As examples, see Control Numbers 0500093 and 09700041 in EPA's Applicability Determination Index.

As an alternate opacity monitoring procedure for wood firing, the applicant proposes to maintain the total secondary power input to the electrostatic precipitator at a minimum of 44kW based on an 8-hour block average. U.S. Sugar based this minimum level on continuous monitoring and recording of the voltage and amperage

during successful PM compliance tests conducted while firing bagasse at more than 90% of maximum permitted capacity. This monitoring approach is nearly identical to that specified in NESHAP Subpart DDDDD as the Maximum Achievable Control Technology for solid fuel fired industrial boilers. This regulation states, "This option is only for boilers and process heaters that operate *additional wet control systems*. Maintain the minimum voltage and secondary current or total power input of the electrostatic precipitator at or above the operating limits established during the performance test according to § 63.7530(c) and Table 7 to this subpart that demonstrated compliance with the applicable emission limit for particulate matter." In addition, this monitoring approach is consistent with the Compliance Assurance Monitoring plan submitted with the application to renew the Title V air operation permit.

The Department agrees that moisture interference is a valid concern given the high-moisture fuels and the wet pre-control system. The proposed minimum total power input to the electrostatic precipitator appears to be conservative for firing wood chips, which has a much lower uncontrolled dust loading rate than bagasse (0.56 lb/MMBtu vs. 2.2 lb/MMBtu). The Department requests approval of the above alternate opacity monitoring procedure as proposed or with additional recommendations by EPA Region 4. As previously mentioned, this request is part of a pending permit project. Your timely review would be greatly appreciated.

Sincerely,



Jeffery F. Koerner, Air Permitting North
Bureau of Air Regulation

This document was sent electronically to the following people with received receipt requested:

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