UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG - 5 2002

OFFICE OF
AIR AND RADIATION

Mr. Richard Moss
Vice President of Engineering, AAR
Glens Falls Lehigh Cement Company
P.O. Box 440
313 Warren Street
Glens Falls, NY 12801

Re: Petition for Monitoring Alternatives for Glens Falls' Portland Cement Kiln

Dear Mr. Moss,

The United States Environmental Protection Agency (EPA) has reviewed the petition submitted for the Glens Falls Lehigh Cement Company (Glens Falls) on April 17, 2002 under 40 CFR 75.66(a). The petition addresses several issues concerning the monitoring of Glens Falls' portland cement kiln, including requests for a default moisture value (in lieu of moisture monitoring), and an alternative methodology for determining and reporting heat input. The petition also proposes alternatives to load for conducting the relative audit test audit (RATA) on the flow monitoring system, operational bins to be used for data substitution purposes, and changes to the Monitoring Data Checking Software and the Electronic Data Report (EDR) format to accommodate the portland cement kilns. As discussed below, EPA approves the petition in part.

Background

Glens Falls is required to monitor and report nitrogen oxides (NO_X) mass emissions in accordance with the requirements of 40 CFR Part 75, Subpart H as part of the NO_X Budget Trading Program under the State of New York's State Implementation Plan (SIP). Glens Falls operates a portland cement facility consisting of a single cement kiln, which typically combusts bituminous coal with a nominal rated heat input of 280 mmBtu/hr. Natural gas is utilized as a secondary fuel during startup and coal mill outages. The process involves the use of a roller mill that supplies ground raw material through a pre-heater and into the kiln for calcination and fusing into clinkers. Grinding of the clinkers to produce the final product is conducted after cooling and other raw materials are added. During normal operations the kiln exhaust gases are routed through a pre-heater and spray tower prior to the electrostatic precipitator. The electrostatic precipitator has two exhaust ducts of identical configuration. A time-share NO_X continuous

emissions monitoring system (CEMS) is used to monitor each of the stacks. Flow is measured in each duct leading to the respective stacks. A moisture constant has been used to make the appropriate moisture corrections for the dry pollutant measurements.

1. Stack Moisture Content Monitoring

Currently, Glens Falls uses default moisture values from previous stack tests. Glens Falls is petitioning to continue the use of a default value in the NO_X mass calculations to be used for compliance with the NOx Budget Trading Program. The company proposes to use two defaults based upon whether the kiln is operated with the roller mill on (compound) or off (direct).

2. Heat Input Monitoring

Glens Falls states that none of the prescribed methods for measuring heat input under 40 CFR Part 75 are practical for cement kilns. Part 75, Subpart H only allows for heat input to be determined from fuel usage and gross calorific value (GCV) if the unit combusts either oil or gas. Under Part 75, coal-fired units are required to determine their heat input from monitoring of the stack flow and diluent (i.e., oxygen (O_2) or carbon dioxide (CO_2)) and use an F-factor. Due to the added CO_2 that is produced during the calcination process, which is not due to combustion, this would overstate heat input unless the amount of CO_2 produced in the calcination reaction were accurately measured and subtracted from the total CO_2. Part 75 supplies no methods for accurately accounting for the CO_2 from calcination.

Glens Falls states that the coal heat input to the kiln is controlled by the feed rate to the coal mill, which provides solid fuel to the kiln for combustion purposes. There is no scale system for measurement of the coal feed to the kiln. The daily average coal feed is calculated by tracking the number of truckloads of coal put in the day tank each day, as well as the inventory of the day tank that is taken at the same time each day. It is stated that one truckload of coal weighs approximately 19 tons. Glens Falls proposes to track the coal usage as described above to calculate heat input for the kiln. The GCV of the coal would be based upon a vendor supplied value.

3. RATA testing levels

Since portland cement kilns do not have electrical or steam load, Glens Falls requests to use an alternative to load in order to conduct the required 3-load RATA of the stack flow monitoring system. Glens Falls requests that the following three operational scenarios be used in lieu of load for the stack flow RATA.

1) Operation with the roller mill on (compound);
2) Operation with the roller mill off (direct); and
3) Operation with reduced feed to the kiln and with the roller mill off

4. Operational scenarios for substitute data lookbacks

The Part 75 standard missing data substitution procedures utilize the concept of load bins based upon either steam production or electric generation. Since portland cement kilns do not have electrical or steam load, Glens Falls requests that the operational scenarios in Table 1 be used in lieu of load.

Table 1. Proposed Operational Scenarios for Defining Substitute Data Lookbacks

Bin No.	Operational Scenarios
1	Gas on, Feed off (preheating)
2	Gas and Coal on, Feed off (preheating)
3*	Gas on, Feed on, Roller Mill off
4*	Gas on, Feed on, Roller Mill on
5	Coal on, Feed on, Roller Mill off (direct)
6	Coal on, Feed on, Roller Mill on (compound)

* Occurs only during coal mill repair

5. EDR issues

Glens Falls requests the EDR changes in Table 2 to enable the company to accurately complete the monitoring plan portion of the EDR. Glens Falls also asks that the MDC software that EPA uses to evaluate the EDR submissions be revised as to allow for these EDR changes.

Table 2. EDR/MDC Issues

Record Type	Issue	Description
102	SIC Code	The SIC code "3241 (hydraulic cement manufacture)" needs to be added.
	Source Category	"Portland Cement Plant" needs to be added.
504	Unit Type	"Cement Kiln" needs to be added.
535	Load units for the Maximum hourly load	This should not be applied to cement kilns
536	Upper and Lower Boundary of Operation and the Two most frequently used load levels	This should not be applied to cement kilns

EPA's Determination

1. Stack Moisture Content Monitoring

Based upon the moisture content stack testing data provided in the petition, EPA concludes that a default moisture value of 14.8% should be used for calculating NO_x mass emissions for all modes of operation. The default moisture value reflects the weighted average of the test data collected from both compound operation and direct operation of the process. The average value for compound operation is 14.2% and for direct operation is 18.2%. These individual averages were determined by averaging the data for each mode of operation and subtracting the 95% confidence coefficient. According to Glens Falls, the facility operates approximately 85% of the time in compound mode. The EDR version 2.1 reporting format does not support multiple moisture default values. Therefore, EPA concludes that the weighted average moisture value is an appropriate default value for monitoring the Glens Falls kiln.

If Glens Falls should ever switch to natural gas as the primary fuel, then a new moisture default must be determined and approved by EPA and the State of New York.

2. Heat Input Monitoring

EPA concludes, based on consultation with the New York Department of Environmental Conservation (NYDEC), that the monitoring and reporting of heat input to the portland cement kiln is not necessary. The general purpose of monitoring heat input is to collect data on which to base allowance allocations. Since the initial allocations for the portland cement kilns in the NOx Budget Trading Program were based on the amount of clinker, and future allocations will also not be based on heat input, NYDEC is not requiring Glens Falls to report heat input. Similarly, EPA is not requiring heat input to be reported for the Glens Falls portland cement kiln.

3. RATA testing levels

Part 75 requires that a RATA be performed at three flue gas velocities for initial certification of a stack flow monitoring system. Further, units with electrical or thermal output must perform RATAs at three loads (high, mid, and low), and the loads are to be separated by no less than 25.0% of the range of operation. This assures that the flow monitor is challenged at three distinct flow velocities over the range that might be expected for the unit.

Under Part 75, for units without electrical or thermal output, the flue gas velocity should be used in lieu of load for the purpose of defining the range of operation. [Part 75, Appendix A, Section 6.5.2.1] Further, any operational levels selected should also produce flue gas velocities separated by no less than 25.0% of the range of operation. For non-load based units, the lower boundary of the range of operation should be the minimum expected flue gas velocity during normal operation. Alternatively 0.0 ft/sec may be used as the lower boundary of the range of operation. The upper boundary should be the maximum expected flue gas velocity during normal operation.

From the data in Table 1 of the petition, EPA concludes that Glens Falls' proposal to use the operational scenario of roller mill on (compound) as the high level and roller mill off (direct)

as the mid-level seems to meet the velocity separation criteria. However, the proposed low level, which would consist of operating with the roller mill off (direct) with reduced feed to the kiln, would not result in enough distinction between the low and mid-levels to meet the separation criteria. Further, it is EPA's understanding that the proposed low level does not represent a normal state of operation as the facility.

However, Part 75 provides that for flow monitors installed on units that do not produce electrical or thermal output, the flow RATAs for initial certification or recertification can be done at fewer than three operating levels if the facility provides an acceptable technical justification. [Part 75, Appendix A, Section 6.5.2(e)] Such technical justification must be included in the hardcopy portion of the monitoring plan and demonstrate that the unit operates at only one or two levels during normal operation. Appropriate documentation and data should be provided to support the claim of single-level or two-level operation.

Therefore, Glens Falls may elect to certify the stack flow monitoring system using a two-load RATA provided the appropriate documentation is provided in the hardcopy portion of the monitoring plan to support the claim of two-level operation.

4. Operational scenarios for substitute data lookbacks

EPA approves the operational bins proposed by Glens Falls for use in conducting operational based missing data substitution.

5. Electronic Data Reporting (EDR) issues

EPA is deferring its response to Glens Falls' petition on these issues. EPA is working on modifications to the EDR reporting instructions, to address non-load based units. Future updates to the EDR reporting format should adequately address the concerns raised by Glens Falls.

EPA's determination in this letter relies on the accuracy and completeness of Glens Falls April 17, 2002 submission and is appealable under Part 78. If you have any questions regarding this correspondence, please contact Matthew Boze at (202) 564-1975.

Sincerely,

Peter Tsirigotis, Acting Director
Clean Air Markets Division

cc: Ann Zownir, Region 2
Dennis Sullivan, NYDEC