



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

AUG - 5 2002

OFFICE OF  
AIR AND RADIATION

Ms. Lorraine Roberts  
Environmental Manager, AAR  
Lafarge Building Materials, Inc.  
Post Office Box 3  
Ravena, NY 12143

Re: Petition for Monitoring Alternatives for Lafarge's Portland Cement Kiln

Dear Ms. Roberts,

The United States Environmental Protection Agency (EPA) has reviewed the petition submitted for the Lafarge Building Materials, Inc. (Lafarge) on April 17, 2002 under 40 CFR 75.66(a). The petition addresses several issues concerning the monitoring of Lafarge's 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 accuracy 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 described below, EPA approves the petition in part.

### Background

Lafarge is required to monitor and report nitrogen oxides (NO<sub>x</sub>) mass emissions in accordance with the requirements of 40 CFR Part 75, Subpart H as part of the NO<sub>x</sub> Budget Trading Program under the State of New York's State Implementation Plan (SIP). Lafarge operates a portland cement facility consisting of two wet process cement kilns that share a common stack, where emissions are monitored.

The process involves the feeding of a slurry of ground limestone and water into rotary cement kilns, where the slurry is heated to approximately 2700 degrees Fahrenheit. This promotes the creation of clinker, which is an intermediate product in the portland cement manufacturing process. The gaseous byproducts of this process include stack emissions of NO<sub>x</sub>, and a substantial amount of water vapor.

1. Stack Moisture Content Monitoring

Lafarge currently uses a default moisture value for monitoring. Lafarge requests to continue the use of a default value in the NO<sub>x</sub> mass calculations to be used for compliance with the NO<sub>x</sub> Budget Trading Program.

## 2. Heat Input Monitoring

Lafarge 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 the gross calorific value (GCV) if the unit combusts either oil or gas. Coal fired units are required to determine their heat input from monitoring of the stack flow and diluent (i.e., oxygen (O<sub>2</sub>) or carbon dioxide (CO<sub>2</sub>)) and the use of an F-factor. Due to the added CO<sub>2</sub> that is produced during the calcination process, which is not due to combustion, this methodology would overstate heat input unless the amount of CO<sub>2</sub> produced in the calcination reaction were accurately monitored and subtracted from the total CO<sub>2</sub>. Part 75 supplies no methods for accurately accounting for the CO<sub>2</sub> from calcination.

Lafarge states that the 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. Lafarge currently measures the continuous feed rate of solid fuels fired in the kilns using calibrated weigh scales for each of the coal mills. Lafarge also samples and tests the solid fuel mixture feed to the kilns on a daily basis to determine the GCV. The company requests that it be permitted to continue the current procedure for tracking heat input as an alternative methodology for reporting heat input.

## 3. RATA testing levels

Since portland cement kilns do not have electrical or steam load, Lafarge requests to use an alternative to load, in order to conduct the required 3 load RATA of the stack flow monitoring system. Specifically, the petition requests that the following three operational scenarios be permitted in lieu of load for when the stack flow RATA is performed.

- 1) High - Both Kilns on - process feed rate at approximately 650 gallons per minute
- 2) Mid - Both Kilns on - process feed rate reduced to approximately 400 gallons per minute
- 3) Low - One Kiln on - process feed rate at approximately 650 gallons per minute

## 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, Lafarge 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	Kiln #1 on and Kiln #2 off
2	Kiln #1 off and Kiln #2 on
3	Kiln #1 off and Kiln #2 on producing BWS clinker
4	Kiln #1 on and Kiln #2 on producing normal clinker
5	Kiln #1 on and Kiln #2 on producing BWS clinker

\* Bins are ranked from lowest to highest expected NOx emissions (lb/hr)

5. EDR issues

Lafarge requests the accommodations listed in Table 2 to enable the company to accurately complete the monitoring plan portion of the EDR required under Part 75. Lafarge also asks that the software that EPA uses to evaluate the EDR submissions be revised as to allow for those accommodations.

**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.
510	Weigh scales for HI Methodology	Request appropriate codes for system and component types to represent weigh scales
520	Weigh scales for HI Formula Codes	Request appropriate formula codes for using weigh scales to calculate HI
535	Load units for the Maximum hourly load	Request that this not be applied to cement kilns, or that EPA revise the record type to accept references to operational scenarios.
536	Upper and Lower Boundary of Operation and the Two most frequently used load levels	Request that this not be applied to cement kilns, or that EPA revise the record type to accept references to operational scenarios.

## EPA's Determination

### 1. Stack Moisture Content Monitoring

Based on the moisture content stack testing data provided in the petition, EPA concludes that an appropriate moisture default for the facility is 28.9%. This value was determined by averaging the data and subtracting the 95% confidence coefficient obtained.

### 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 kilns 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 on the amount of clinker produced, and future allocations will also not be based on heat input, NYDEC is not requiring Lafarge to report heat input. Similarly, EPA is not requiring heat input to be reported for the Lafarge portland cement kilns.

### 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.

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.

Lafarge may use the proposed operating modes for the purpose of conducting the three load stack flow RATA, provided that they meet the separation criteria described above. Lafarge

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

4. Operational scenarios for substitute data lookbacks

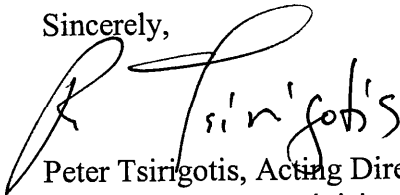
EPA approves the operational bins proposed by Lafarge for use in conducting operational based missing data substitution.

5. Electronic Data Reporting (EDR) issues

EPA is deferring its response to Lafarge 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 Lafarge. The requested modifications to record types 510 and 520 to accommodate the use of weigh scales to measure hourly solid fuel flow for the purpose of calculating heat input are not being considered since the reporting of heat input will not be required for the portland cement kilns.

EPA's determination in this letter relies on the accuracy and completeness of Lafarge 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,

A handwritten signature in black ink, appearing to read "Peter Tsirigotis". The signature is fluid and cursive, with a large initial "P" and "T".

Peter Tsirigotis, Acting Director  
Clean Air Markets Division

cc: Ann Zownir, Region 2  
Dennis Sullivan, NYDEC