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

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OFFICE OF
AIR AND RADIATION

Ms. Fariel Benameur
Environmental Manager, AAAR
St. Lawrence Cement
Post Office Box 31
Route 9W
Catskill, NY 12414

Re: Petition for Monitoring Alternatives for St. Lawrence's Portland Cement Kiln

Dear Ms. Benameur,

The United States Environmental Protection Agency (EPA) has reviewed the petition submitted for St. Lawrence Cement (St. Lawrence) on April 18, 2002 under 40 CFR 75.66(a). The petition addresses several issues concerning the monitoring of St. Lawrence'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 single load relative accuracy test audit (RATA) testing for the flow monitoring system and operational bins to be used for data substitution purposes. In addition, the petition requests that NOx emissions be reported using the existing data acquisition and handling system (DAHS) and paper support until EPA resolves issues about reporting for non-load based units in the Electronic Data Reports (EDR). As described below, EPA approves the petition in part.

Background

St. Lawrence 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). St. Lawrence operates a portland cement facility consisting of a single wet process cement kiln. The monitoring system includes a dry-extractive continuous emissions monitoring system (CEMS) measuring NOx concentration, opacity, flow, CO, and stack temperature. This system is operated in conformance with 40 CFR 60.

1. Stack Moisture Content Monitoring

Currently, St. Lawrence uses a default moisture value of 20% for monitoring. St. Lawrence requests 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 24.8% as calculated from the mean of the last two years of test data.

2. Heat Input Monitoring

St. Lawrence states that heat input data do not necessarily correlate with NOx emissions in the case of a cement plant. The NOx emissions are claimed to be more closely related to the facility's clinker production. 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.

St. Lawrence requests that it be permitted to report daily clinker production in lieu of heat input for compliance with its monitoring obligation. Specifically, St. Lawrence proposes to measure clinker output as follows:

- Raw materials feed to the kiln will be measured on a daily basis.
- Moisture content will be measured on a daily basis.
- Daily clinker output will be calculated on a daily basis, using the raw material feed data, moisture content in the slurry, and a decarbonation factor.
- A physical inventory will be conducted on a monthly basis and used to adjust the calculated monthly clinker values.
- The adjustment factor (physical inventory vs calculated production) will be applied equally to all daily clinker output values for reporting.

3. RATA testing levels

Since portland cement kilns do not have electrical or steam load, and St. Lawrence typically operates under one operating scenario, the company requests to perform a single load RATA of the stack flow monitoring system in lieu of a three load RATA. This single load will be performed under conditions representative of normal operation.

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, St. Lawrence 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	No fuel fed to the kiln
2	Oil fed to the kiln
3	Oil and solid fuel fed to the kiln
4*	Solid fuel fed to the kiln
5	Oil and solid fuel fed to the kiln and solid fuel preheating
6	Solid fuel fed to the kiln and solid fuel preheating

* Normal operational bin

5. Data handling and reporting

St. Lawrence requests that its NOx emissions be reported using the existing DAHS and paper support until EPA resolves issues with the reporting of non-load based units in the EDR.

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 23.7%. This values was determined by averaging the distinct run values observed over the three years of testing 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 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 St. Lawrence to report heat input. Similarly, EPA is not requiring heat input to be reported for the St. Lawrence 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.

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.

St. Lawrence may conduct its flow RATA at a single operating level, provided it includes an acceptable technical justification in the hardcopy portion of the monitoring plan demonstrating that the unit normally only operates at only one level.

4. Operational scenarios for substitute data lookbacks

EPA approves the operational bins proposed by St. Lawrence for use in conducting operational based missing data substitution. However, since St. Lawrence states that the facility only normally operates in one mode of operation and all other modes are only transitional modes, the company should consider not using certain transitional operational bins, which would simplify the substitute data algorithms needed to perform the appropriate data lookbacks.

5. Data handling and reporting

EPA is deferring its response to St. Lawrence 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 instructions should adequately address the concerns raised by St. Lawrence. EPA notes that some of the issues, including substitute data requirements for non-load based units, are addressed in the Part 75 rule revisions. In order to give St. Lawrence time, EPA grants the request to use the existing data systems until a DAHS, capable of reporting in the EDR 2.1 format, is installed. The new DAHS must be installed prior to the end of the 2002 ozone season. At that time both 2nd and 3rd quarter reports must be submitted in EDR v2.1 no later than the

October 30 reporting deadline.

EPA's determination in this letter relies on the accuracy and completeness of St. Lawrence April 18, 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