DEPARTMENT OF ENVIRONMENTAL PROTECTION
Air Quality

DOCUMENT NUMBER: 273-4000-001

TITLE: Compliance Assurance Policy for Cement Kilns with CEMS

AUTHORITY: 35 P.S. Sec. 4001-4005 (Air Pollution Control Act) and Act 95 (75 PA C.S. Section 4706(I))

POLICY: Actions to be taken for opacity emission and data availability violations on cement kilns with CEMS.

PURPOSE:

The purpose of this policy is to establish uniform criteria for assessing monetary penalties for exceedances of emission standards and data availability requirements through agreements rather than criminal citations or civil penalty actions. The Department has found agreements to be effective in resolving violations without resorting to litigation. The benefit of this policy to the source owner is certainty in determining liabilities should violations occur.

DISCLAIMER:

The policies and procedures outlined in this guidance document are intended to supplement existing requirements. Nothing in the policies or procedures shall affect applicable statutory or regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of the Department to give these rules that weight or deference. This document establishes the framework for the exercise of DEP's administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

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SECTION 1: GENERAL CONCEPTS

I. Scope

A. This policy addresses:

1. Exceedances of visible emission (opacity) standards as indicated from certified Continuous Emission Monitoring Systems (CEMS), and

2. Exceedances of data availability requirements for obtaining such data.

B. The Department reserves the right to take enforcement action beyond that which is specified in this policy for, but not limited to the following situations:

1. Emission exceedances that would result in imposition of a maximum penalty specified by this policy;

2. Data availability exceedances that would result in imposition of a maximum penalty specified by this policy;

3. A CEMS which has not been certified or for which certification has been rescinded; or

4. Emissions which result in soiling beyond the property line.

II. Applicability

A. This policy will apply beginning _____ 2026.

B. This policy applies to cement kilns required by the Department to install, maintain and operate opacity CEMS's.

III. Purpose

The purpose of this policy is to establish uniform criteria for assessing monetary penalties for exceedances of emission standards and data availability requirements through agreements rather than criminal citations or civil penalty actions. The Department has found agreements to be effective in resolving violations without resorting to litigation. The

benefit of this policy to the source owner is certainty in determining liabilities should violations occur.

Source owners are not required to sign a consent order and agreement or a letter agreement to resolve past or future violations; however, the Department intends to take criminal and/or civil action to resolve exceedances of standards for which an agreement has not been reached. Generally, a consent order and agreement will be negotiated only when corrective steps are required such as, operational hardware changes or new CEMS installations. Otherwise, a letter agreement will be used to settle penalties indicated by this policy. The various leniency factors built into this policy are applicable only to agreement settlements. They have no applicability in litigation.

IV. Penalties

A. If violation criteria are exceeded, penalties will be assessed according to the following:

1. Emission violation penalties will be assessed on a daily basis and totaled for the quarter; and

2. Data availability violation penalties will be assessed based on a total exceedance index for the quarter.

B. The following penalty factors for cement kiln capacities will be applied to all daily emission exceedance penalties and to all quarterly data availability exceedance penalties indicated by the penalty equations in this policy:

PENALTY FACTOR, F:

Cement Kiln Rated Capacity (tons/day)	When Also Firing Hazardous Waste Fuels	Normal Fuels Only
< 600	2	1
600 - 1,199	3	2
1,200 - 2,399	4	3
>= 2,400	5	4

When combined emissions from two or more kilns are monitored by one CEMS, the penalty factor, F, is determined from the above table by the sum of the rated capacities of all kilns.

C. Penalty Adjustments

1. The Regional Air Quality Program Manager may forgive a total facility penalty of $500 or less .

2. Upon receiving adequate documentation from a source owner, the Regional Air Quality Program Manager may make penalty adjustments in accordance with the following:

   a. Both emission and data availability penalties may be reduced in a multiple unit situation with one CEMS when one or more units are shut down. The penalty factor will be based upon the rated capacity of units operating at the time of the violation.

   b. Data availability penalty adjustments may be made under the following circumstances:

      i. If a source owner demonstrates compliance with applicable opacity emission standards by alternate means. The amount of the reduction depends on the degree of confidence with which compliance can be demonstrated.

      ii. If the source owner demonstrates that the penalty was due to events or circumstances beyond the control of the source owner. The amount of the reduction depends on the extent to which the situation was uncontrollable.

      iii. If the source owner demonstrates that extraordinary measures were taken to minimize the outage and/or to prevent a recurrence of a similarly caused outage.

      A previous data availability problem for which a penalty reduction has been granted may limit or preclude subsequent penalty reductions for similar problems.

3. The Chief of the Division of Compliance and Enforcement may adjust any penalty. Requests for such adjustments must be referred through the appropriate Regional Air Quality Program Manager.

4. Inflation Adjustment:

   For penalty calculations occurring after [EFFECTIVE DATE OF REVISED POLICY], use the 2026 Guidance to calculate an initial penalty assessment for each violation. An initial penalty assessment should be calculated by multiplying the total of the Part I penalty assessments for all violations by the current inflation multiplier. The inflation adjustment multiplier will be 1 through December 31, 2027.

   Beginning January 1, 2028, and every 2 years thereafter, an inflation adjustment multiplier will be calculated by the Department based on the Consumer Price Index for All-Urban Consumers (CPI-U) to account for inflation from

[EFFECTIVE DATE OF REVISED POLICY].

The penalty adjustment factor is not applied to the economic benefit of noncompliance or the cost to the Department portions of the penalty because the calculations for those factors under Section 9.1(a) already take inflation into account.

Note: The penalty calculated may never exceed the statutory maximum per day for each violation under Section 9.1 of the APCA.

V. Procedures

A. Quarterly Report Submittals

1. Format

a. Opacity data reports shall be submitted quarterly in the format specified by the Department during the Phase I review process. The Phase I process is described in the "Continuous Source Monitoring Manual" (Manual).

b. Reports not conforming to the format requirements will be returned to the source for resubmission in the proper format.

2. Time Limit

a. Initial data reports are to be submitted in duplicate to the Division of Source Testing and Monitoring within 30 days following the end of each quarter as required in the Record Keeping and Reporting sections of the Manual.

b. Subsequent data report changes must be submitted in duplicate to the appropriate regional office. The regional office will forward all approved changes to the Division of Source Testing and Monitoring. Data resubmittals must be submitted to the regional office within 60 days following the end of the quarter.

3. Delinquent Reports

a. A data report not submitted in the proper format by the time limit indicated in A.2.a. above will be considered delinquent.

b. A data resubmittal submitted beyond the time limit indicated in A.2.b. above will be considered delinquent.

c. Delinquent reports will be considered in violation of the reporting requirements specified in the Manual and subject to a penalty of $250 per day of delinquency per CEMS report. However, this penalty will be forgiven for reports delinquent for seven or less days. That is, the penalty on the eighth day of delinquency would be $2000; on the ninth, $2250, etc.

B. Significant Outages of a CEMS

Continuous periods of data unavailability exceeding 3 days should be reported to the appropriate regional office on the fourth day (or the next working day if the fourth day is on a weekend or a holiday).

SECTION 2: VISIBLE EMISSION CEMS PROVISIONS

I. Visible Emission Standards

Visible Emission Standards for sources pursuant to 25 Pa. Code §123.41 are exceeded if opacity is equal to or greater than:

A. "20% for a period or periods aggregating more than 3 minutes in any one hour; or"

B. "60% at any time."

II. Data Availability Requirements

A. The provisions of 25 Pa. Code §123.46 (requiring opacity monitors to be properly operated and maintained) do not provide any exemption for data non-availability. However, CEMS achieving either of the following data availability levels will not be subject to data availability penalties:

1. The valid hours during each month are at least ninety percent of the total hours in the month; or,

2. The valid hours in each calendar quarter are at least ninety-five percent of the total hours in the quarter.

B. Definitions and Clarifications

1. A valid hour is defined in the Manual as containing "... at least 75 percent valid data readings" or 45 valid one-minute average opacities.

2. Hours of process downtime and invalid hours caused by Department conducted Level II or III audits will be considered valid hours for this purpose.

III. Penalty Criteria

A. Emission Criteria

In recognition of the potential for some excess emissions during start-up, shutdown and some minor malfunctions, some excess emission times will not be subject to penalty. Adjustments will be made in accordance with the following:

Up to 0.500% of the operating time in a quarter will be available to reduce excess emission times.

a. Up to 30.00% of this adjustment time will be applied to any daily excess emissions of the 60% opacity standard. No more than 24 minutes of adjustment may be applied to any day.

b. The 70.00% of the adjustment time plus any remaining adjustment time from the 60% opacity adjustments will be applied to any daily excess emission times of the 20% opacity standard. No more than 72 minutes of adjustment may be applied to any day.

2. After all adjustments in 1. are made, any remaining excess emission times are subject to penalty assessments.

B. Invalid Data Criterion

Invalid data exceedances will be subject to penalty if more than 10.% of the hours in any month are invalid and more than 5.00% of the hours in the quarter are invalid. If this criterion is met, only those months with more than 10% invalid hours are considered for penalty assessment.

IV. Penalty Assessment

A. Emission Penalty

1. The total daily penalty, E_d, is the sum of the daily penalties assessed for each of the two opacity standards:

$$E_d = E_{20} + E_{60}$$

a. For each hour, any excess emission time of the 20% opacity standard, t, is considered for penalty assessment. The total daily excess emission time, T_{20}, is the sum of all t_{20}'s in that day. That is:

$$T_{20} = \sum_{i=1}^{H_{20}} (t20)_i$$

Where: H_{20} = hours in the day when a 20% opacity exceedance occurred.

t_{20} = minutes, in excess of the 3 allowed, in the i^{th} hour when the opacity was between 20% and 100% inclusive.

i. The base penalty, B_{20}, is determined from the following equation by this T_{20}:

$$B_{20} = \$100 * 2^{(T_{20}-1)/150} \text{ up to a maximum of } \$1200 \ (T_{20} >= 539 \text{ min.})$$

ii. The penalty factor for size, F, is applied to this B_{20} to yield E_{20}:

$$E_{20} = F * B_{20}$$

b. For each hour, any emission time equal to or greater than the 60% opacity standard, t_{60}, is considered for penalty assessment. The total daily excess emission time, T_{60}, is the sum of all t_{60}'s in that day. That is:

$$T_{60} = \sum_{i=1}^{H_{60}} (t_{60})i$$

Where: H_{60} = hours in the day where the opacity >= 60%, and t_{60} = minutes in the i^{th} hour when the opacity was between 60% and 100% inclusive.

i. The base penalty, B_{60}, is determined from the following equation by this T_{60}:

$$B_{60} = \$100 * 2^{(T_{60}-1)/75} \text{ up to a maximum of } \$1200 \ (T_{60} >= 270 \text{ min.})$$

ii. The penalty factor for size, F, is applied to this B_{60} to yield E_{60}:

$$E_{60} = F * B_{60}$$

2. Penalty Adjustments (for III.A.1. above)

After all E_{60} and E_{20} penalties have been calculated for the quarter, penalty adjustments are made by first adjusting the T_{60} and T_{20} times according to the schemes below. Adjusted penalties are then calculated using the adjusted T_{60} and T_{20} values.

If during any adjustment, the adjusted penalty is unchanged (i.e. the original excess time is too high for the limited adjustment time to make any differences), the excess time for that day is not adjusted. That is, adjustment times are only applied when the resulting adjusted penalty is reduced.

The total 0.500% adjustment time in minutes, A, is given by:

$$A = 0.00500\ (24\ n - H_D)\ 60$$

Where: n = days in the quarter, and
H_D = hours of process down in the quarter.

a. Adjustment scheme for T_{60}'s:

The 30.00% adjustment time available, A_{60}, is given by:

$$A_{60} = 0.300 * A$$

Adjustments will be made beginning with the first T_{60} value in the quarter and will continue chronologically until either the entire adjustment time, A_{60}, is used or there are no more T_{60}'s to adjust. The 24 minute daily limit applies to all T_{60} adjustments.

b. Adjustment scheme for T_{20}'s:

The adjustment time available, A_{20}, is given by: $A_{20} = 0.700\ A + A'_{60}$

Where A'_{60} = any remaining A_{60} after adjusting all T_{60}'s.

Adjustments are made beginning with the first T_{20} value in the quarter and will continue chronologically until either all available adjustment time, A_{20}, is used or there are no more T_{20}'s to adjust. The 72 minute daily limit applies to all T_{20} adjustments.

3. The total quarterly emission penalty E_q is the sum of the daily penalties, E_d, for all days, n, in the quarter:

$$E_q = \sum_{d=1}^{n} E_d$$

B. Invalid Data Penalties

For each month subject to penalty assessment as defined in the criterion in III.B., N_m is the number of invalid hours in excess of the 10.00% allowed. The sum of N_m's for all such months, M, in the quarter is the penalty index sum, N_q:

$$N_q = \sum_{m=1}^{M} N_m$$

a. The quarterly invalid data base penalty, B_q, is determined from the following equation by this total penalty index, N_q:

$B_q = \$400 * 2^{(N-1)/48}$ up to a maximum of \$25,600 ($N_q >= 289$)

b. The penalty factor for size, F, is applied to this B_q to yield the total invalid data penalty, V_q:

$$V_q = F * B_q$$

C. The total opacity quarterly penalty, P_q, is the sum of the emission and invalid data penalties:

$$P_q = E_q + V_q$$

APPENDIX 1

CEMS QUARTERLY REPORT CODING CLARIFICATIONS FOR CEMENT KILNS

Code definitions:

Process Down (13)

The process is considered down when the exhaust flow in the stack is less than 30% of maximum design flow rate. A readily measurable, surrogate parameter correlating with the exhaust flow rate may be used to indicate this condition (such as fan current). When a surrogate parameter level is used, a demonstration of correlation must be made to the satisfaction of the Department.

DEP Conducted Audit (22)

Invalid time caused by DEP conducted Level II or III audit of the CEMS.