

Regulatory Analysis Form

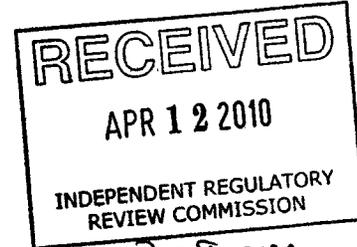
(Completed by Promulgating Agency)



IRRC

Independent Regulatory Review Commission

SECTION I: PROFILE



IRRC Number: 2682

(1) Agency:

Environmental Protection

(2) Agency Number:

Identification Number: 7-419

(3) Short Title:

Control of NOx Emissions from Cement Kilns

(4) *Pa. Code* Cite:

25 *Pa. Code* Chapter 145, Subchapter C

(5) Agency Contacts (List Telephone Number, Address, Fax Number and Email Address):

Primary Contact: Michele Tate, 783-8727

Secondary Contact: Kelly J. Heffner, 783-8727

(6) Primary Contact for Public Comments (List Telephone Number, Address, Fax Number and Email Address) – Complete if different from #5:

Environmental Quality Board

PO Box 8477

Harrisburg, PA 17105-8477

Phone: 717.787.4526

(All Comments will appear on IRRC'S website)

(7) Type of Rulemaking (check applicable box):

- Proposed Regulation
- Final Regulation
- Final Omitted Regulation
- Emergency Certification Regulation;
 - Certification by the Governor
 - Certification by the Attorney General

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(8) Briefly explain the regulation in clear and nontechnical language. (100 words or less)

The final-form rulemaking will amend Subchapter C (relating to emissions of NO_x from cement manufacturing) of Chapter 145 (relating to interstate pollution transport reduction) by revising the existing nitrogen oxide (NO_x) emission limits for cement kilns. The final-form amendments establish allowable NO_x emission limits based on the type of process for the following types of cement kilns:

1. Long wet-process cement kilns.
2. Long dry-process cement kilns.
3. Preheater and precalciner cement kilns.

The final-form amendments provide several options for demonstrating compliance with the allowable NO_x emission limits, including on a kiln-by-kiln basis, a facility-wide basis and a system-wide basis. The amendments to Subchapter C also include definitions for six new terms, including five terms that relate to the different types of cement kilns. The rulemaking revisions and NO_x emission limits proposed under 25 Pa. Code Chapter 129 (relating to standards for sources) have been deleted and in the final-form rulemaking are incorporated under Chapter 145, Subchapter C, to amend the existing cement kilns regulation effective December 11, 2004 (34 Pa.B. 6509) under §§ 145.141 – 145.144 (relating to emissions of NO_x from cement manufacturing) and amended effective April 12, 2008 (38 Pa.B. 1705) under § 145.143 (relating to standard requirements).

The existing requirements and NO_x emission limits in Chapter 145, Subchapter C, for cement kilns will remain in effect through April 30, 2011. The compliance date for the NO_x emission limits and provisions contained in the final-form amendments is May 1, 2011. The compliance date in the final-form rulemaking by which the continuous emissions monitoring system (CEMS) equipment must be installed, operating and maintained is April 15, 2011.

(9) Include a schedule for review of the regulation including:

- | | |
|---|-----------------------------|
| A. The date by which the agency received public comments: | <u>June 23, 2008</u> |
| B. The date or dates on which public meetings or hearings were held: | <u>May 19, 21, 23, 2008</u> |
| C. The expected date of promulgation of the proposed regulation as a final-form regulation: | <u>2nd Quarter 2010</u> |
| D. The expected effective date of the final-form regulation: | <u>2nd Quarter 2010</u> |
| E. The date by which compliance with the final-form regulation will be required: | <u>April 15, 2011</u> |
| F. The date by which required permits, licenses or other approvals must be obtained: | <u>Not applicable</u> |

(10) Provide the schedule for continual review of the regulation.

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

SECTION II: STATEMENT OF NEED

(11) State the statutory authority for the regulation. Include specific statutory citation.

This final-form rulemaking is authorized under section 5(a)(1) of the Air Pollution Control Act (APCA) (35 P.S. § 4005(a)(1)), which grants the Board the authority to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth. Section 4.2 of the APCA also authorizes the Board to adopt regulations more stringent than Federal requirements when the control measures are reasonably necessary to attain and maintain the ambient air quality standards. (35 P.S. § 4004.2)

(12) Is the regulation mandated by any federal or state law or court order, or federal regulation? Are there any relevant state or federal court decisions? If yes, cite the specific law, case or regulation as well as any deadlines for action.

No.

(13) State why the regulation is needed. Explain the compelling public interest that justifies the regulation. Describe who will benefit from the regulation. Quantify the benefits as completely as possible and approximate the number of people who will benefit.

NOx emissions are a precursor to the formation of ground-level ozone and fine particulate matter (PM2.5) pollution and to the formation of regional haze. The approximately 12 million residents and diverse animal and plant populations of this Commonwealth will benefit from improved air quality through reduced concentrations of ground-level ozone and PM2.5, and reduced formation of regional haze. This final-form rulemaking will reduce NOx emissions from cement kilns during the ozone season by approximately 1,300 tons or 10% from 2005 levels. Installation and operation of add-on controls would create jobs in addition to reducing air contaminants that have adverse environmental and health impacts.

Ozone exposure is harmful to people, including children and the elderly, with asthma or other respiratory diseases. Ozone exposure can aggravate asthma, resulting in increased medication use and emergency room visits, especially for minorities, and it can increase susceptibility to respiratory infections. Certain areas of this Commonwealth continue to exceed the health-based 8-hour National Ambient Air Quality Standard (NAAQS) for ozone. The final-form regulation will result in additional NOx emission reductions that are necessary to support attaining and maintaining the health-based 8-hour ozone NAAQS in this Commonwealth and downwind areas. The final-form amendments will also reduce concentrations of PM2.5 and the formation of regional haze. Elevated levels of PM2.5 have been linked to premature mortality and other important health effects, while both PM2.5 and regional haze have major environmental impacts such as visibility impairment, soiling, and materials damage. This regulation is reasonably necessary to attain and maintain the ozone standards in this Commonwealth and to make progress in attaining and maintaining the PM2.5 NAAQS and reducing the formation of regional haze. Recently, the U.S. Environmental Protection Agency (EPA) announced its intent to propose a more protective 8-hour ozone standard in December 2009; the final revised ozone NAAQS is expected in March 2010.

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(14) If scientific data, studies, references are used to justify this regulation, please submit material with the regulatory package. Please provide full citation and/or links to internet source.

The NO_x emission limits for cement kilns in the final-form rulemaking are those recommended by the Ozone Transport Commission (OTC). The OTC member states (which include this Commonwealth) formed a workgroup to discuss additional control measures for cement kilns during a series of conference calls and workshops held from the spring of 2004 through the autumn of 2006. The OTC workgroup collected and evaluated information regarding emission benefits, cost-effectiveness and implementation issues. This technical information is found in the OTC report: *Identification and Evaluation of Candidate Control Measures, Final Technical Support Document*, February 28, 2007. The internet link to the OTC main webpage where this report resides is: <http://www.otcair.org/>.

(15) Describe who and how many will be adversely affected by the regulation. How are they affected?

There are currently nine cement plants with 21 kilns in operation in this Commonwealth. The owners and operators of these facilities will be directly affected by the requirements. The final-form amendments include several compliance options to allow owners and operators a choice of lower-cost compliance approaches. The revised NO_x emission limits and other requirements for cement kilns in the final-form rulemaking will not affect any other groups directly. Purchasers of cement may see slightly higher prices for the product, but because of market competition these cost increases are expected to be negligible.

SECTION III: COST AND IMPACT ANALYSIS

(16) List the persons, groups or entities that will be required to comply with the regulation. Approximate the number of people who will be required to comply.

There are nine cement plants in operation in this Commonwealth, with a total of 21 kilns, employing approximately 1,390 persons in total. All of the facilities are major sources, with owners or operators that are familiar with the Department's regulatory, monitoring and permitting program requirements. All of the owners or operators have a high level of technical capacity for implementing the program.

(17) Provide a specific estimate of the costs and/or savings to the **regulated community** associated with compliance, including any legal, accounting or consulting procedures which may be required. Explain how the dollar estimates were derived.

Control technologies are readily available to achieve NO_x emission reductions of greater than 20% from cement kilns. These technologies include: conversion to indirect firing systems with low-NO_x burners with approximately 20-30% reduction; mid-kiln firing of whole tires in long kilns with approximately 20-40% reduction; staged combustion in precalciner kilns with approximately 30-45% reduction; selective noncatalytic reduction (SNCR) in precalciner kilns with approximately 30-70% reduction; and selective catalytic reduction (SCR) with approximately 80-90% reduction. SNCR has been used on preheater kilns and has been proposed for long kiln applications. All of these technologies, except SCR, are demonstrated on kilns in the United States.

The final-form rulemaking includes emissions averaging and use of CAIR NO_x allowances, as authorized by the Department under the CAIR NO_x Trading Program (§§ 145.201 – 145.223 (relating to CAIR NO_x and SO₂ Trading Programs)), as near-term compliance options. This will allow an owner or

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operator of an affected cement kiln to elect the least-cost compliance alternative, including emissions averaging on a kiln-by-kiln, facility-wide or system-wide basis, or the use of CAIR NOx allowances, to demonstrate compliance with the NOx emission limits. Based on 2005 ozone season emissions, implementation of the final-form rulemaking is estimated to result in a reduction of 1,300 tons of NOx per compliance period of May 1 through September 30 of each year. Based on a long-term average CAIR NOx Trading Program allowance price of \$500, the compliance option of purchasing NOx allowances would cost the regulated industry approximately \$650,000 per year (approximately 1,300 excess tons NOx emissions removed * 1 NOx allowance/ton of excess NOx emissions * \$500/NOx allowance).

The final-form rulemaking includes minor changes to existing data reporting and administrative requirements. These changes are not expected to have a significant cost.

(18) Provide a specific estimate of the costs and/or savings to **local governments** associated with compliance, including any legal, accounting or consulting procedures which may be required. Explain how the dollar estimates were derived.

This final-form rulemaking does not apply to local governments. Therefore local governments should not be affected by this proposal.

(19) Provide a specific estimate of the costs and/or savings to **state government** associated with the implementation of the regulation, including any legal, accounting, or consulting procedures which may be required. Explain how the dollar estimates were derived.

The final-form rulemaking is not expected to increase costs to the Commonwealth because it is a revision of existing emission limits for cement kilns. No new staff resources will be necessary to implement the final-form rulemaking.

(20) In the table below, provide an estimate of the fiscal savings and costs associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years.

	Current FY Year (09/10)	FY +1 Year (10/11)	FY +2 Year (11/12)	FY +3 Year (12/13)	FY +4 Year (13/14)	FY +5 Year (14/15)
SAVINGS:	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Regulated Community	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Local Government	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
State Government	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Savings	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
COSTS:						
Regulated Community	\$0.00	\$0.00	\$650,000	\$650,000	\$650,000	\$650,000
Local Government	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
State Government	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Costs	\$0.00	\$0.00	\$650,000	\$650,000	\$650,000	\$650,000

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REVENUE LOSSES:						
Regulated Community	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Local Government	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
State Government	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Revenue Losses	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

(20a) Provide the past three year expenditure history for programs affected by the regulation.

Program	FY-3 (06/07)	FY-2 (07/08)	FY-1 (08/09)	Current FY (09/10)
Clean Air Fund Major Emission Facilities (#215-20077)	\$26,218,000	\$18,353,000	\$24,053,000	\$22,939,000

(21) Explain how the benefits of the regulation outweigh any cost and adverse effects.

NOx is a precursor for the formation of ground-level ozone, PM2.5 and regional haze. Implementation of this ozone control measure is necessary so that the citizens and environment of this Commonwealth continue to experience the improved ozone air pollution reduction benefits of lower NOx emissions. Improved ozone air quality results in reduced health costs and environmental damages. The final-form amendments will also reduce levels of PM2.5 and the formation of regional haze. Reduced levels of PM2.5 and regional haze provide important health benefits, as well as reduced visibility impairment, soiling and materials damage, and acid deposition.

(22) Describe the communications with and input from the public and any advisory council/group in the development and drafting of the regulation. List the specific persons and/or groups who were involved.

The OTC member states formed a workgroup to discuss additional control measures for cement kilns during a series of conference calls and workshops held from the spring of 2004 through the autumn of 2006. The OTC workgroup collected and evaluated information regarding emission benefits, cost-effectiveness and implementation issues. Based on the analysis by the workgroup, the OTC Commissioners at the OTC Commissioners' meetings of June and November 2006, made recommendations to the OTC Member Jurisdictions to consider additional emission reductions from cement kilns.

Further, section 7.4 of the APCA (35 P.S. § 4007.4) requires the Commonwealth, through its representatives on an interstate transport commission formed under the Clean Air Act (CAA), to provide public review of recommendations for additional control measures prior to final commission action consistent with the commission's public review requirements under section 184(c)(1) of the CAA (42 U.S.C. § 7511c(c)(1)). The Department held three public meetings on May 22, 23 and 25, 2006,

regarding control measures under consideration for adoption by the OTC. The control measures reviewed at these meetings included the OTC cement kilns model rule. Notice of these meetings was published in the *Pennsylvania Bulletin* on April 29, 2006 (36 Pa.B. 2071).

The Department consulted with the Air Quality Technical Advisory Committee (AQTAC) on the proposed rulemaking on May 17 and July 26, 2007. On July 26, 2007, the AQTAC concurred, through a

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unanimous vote, with the Department's recommendation to present the rulemaking to the Board at its February 19, 2008, meeting for consideration as a proposed rulemaking for publication and comment, with the provision that comment be solicited on allowing owners and operators of a cement kiln to demonstrate compliance on an inter-company emissions averaging basis. The Department also consulted with the Citizens Advisory Council (CAC) Air Committee on July 17, 2007.

The proposed cement kilns rulemaking was published in the *Pennsylvania Bulletin* on April 19, 2008, with a 66-day public comment period (39 *Pa.B.* 1838). Three public hearings were held on May 19, 21 and 23, 2008, in Harrisburg, Wilkes-Barre, and Pittsburgh, PA, respectively. Seven commentators representing six organizations commented on the proposed rulemaking, including the:

- Independent Regulatory Review Commission.
- Senate Environmental Resources and Energy Committee.
- Lehigh Cement Company.
- Essroc Cement Company.
- Armstrong Cement & Supply Corp.
- CEMEX Cement Company.

The final-form amendments were discussed with the AQTAC on October 30, 2008, and with the CAC Air Committee on October 27, 2008. The AQTAC concurred with the Department's recommendation to move the final-form rulemaking forward to the Board for consideration as a final-form rulemaking.

(23) Include a description of any alternative regulatory provisions which have been considered and rejected and a statement that the least burdensome acceptable alternative has been selected.

This Commonwealth participated in a multi-state collaboration through the OTC to identify cost-effective control measures for mobile, stationary and area sources to be considered by states in the Ozone Transport Region (OTR) in the development of plans to address 8-hour ozone NAAQS nonattainment. The OTC process initially identified approximately 1000 ozone control measures. After analysis of these initial measures, the cost-effective ozone control measures recommended by the OTC for implementation by member jurisdictions include reducing NO_x emissions from cement kilns located in the OTR. The NO_x emission limits for cement kilns in the final-form rulemaking are those recommended by the OTC. There are no other regulatory schemes available that will achieve the level of additional NO_x emission reductions necessary from cement kilns. The measures recommended by the OTC are reasonably necessary to attain and maintain the 8-hour ozone NAAQS in the OTR.

(24) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulations.

The EPA identified cement kilns as major sources of NO_x and required states to address their emissions in Phase II of the NO_x SIP Call (63 FR 57356, October 27, 1998). NO_x emissions are a precursor to the formation of ozone, PM_{2.5} and regional haze. This final-form rulemaking is more stringent than Federal standards because companion Federal regulations do not exist for cement kilns. However, states that are regulated under the NO_x SIP call, including this Commonwealth, are required to reduce the emissions from these sources. The Commonwealth is amending its previous cement kiln regulation, which was required under the NO_x SIP Call, to implement the NO_x emission limits recommended by the OTC. The cement kilns in this Commonwealth emitted 12,967 tons of NO_x into the atmosphere in 2005. This final-form rulemaking is reasonably necessary to attain and maintain the 8-hour ozone NAAQS.

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(25) How does this regulation compare with those of other states? How will this affect Pennsylvania's ability to compete with other states?

The NOx emission limits for cement kilns in the final-form rulemaking are those recommended by the OTC to be considered by states in the OTR in the development of regulations to address emissions of NOx from cement kilns. Four states in the OTR have cement kilns: Maine, Maryland, New York and this Commonwealth. Regulations based on the OTC recommendations are being pursued by Maryland, New York and this Commonwealth. Maine has one cement kiln permitted to convert to a dry process. The converted kiln will be subject to best available control technology, which is typically more stringent than requirements for existing sources, under the prevention of significant deterioration program. Therefore, it is not anticipated that this final-form rulemaking will place units in this Commonwealth at a competitive disadvantage.

(26) Will the regulation affect any other regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

The final-form rulemaking will amend existing Chapter 145, Subchapter C, by adding new NOx limits, definitions and provisions for cement kilns. The existing NOx limits in Chapter 145, Subchapter C, will remain in effect until April 30, 2011. Regulations of other Commonwealth agencies are not impacted.

(27) Submit a statement of legal, accounting or consulting procedures and additional reporting, recordkeeping or other paperwork, including copies of forms or reports, which will be required for implementation of the regulation and an explanation of measures which have been taken to minimize these requirements.

The final-form rulemaking will change current paperwork requirements. Compliance demonstrations under the final-form rulemaking require reporting the difference between actual and allowable NOx emissions during the interval from May 1 through September 30 of each year from each cement kiln. Calculations and data used to show compliance will also be required to be reported.

(28) Please list any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, elderly, small businesses, and farmers.

The final-form rulemaking would allow owners or operators of cement kilns to select from a variety of compliance alternatives, including emissions averaging on a kiln-by-kiln, facility-wide or system-wide basis, or purchase of CAIR NOx allowances. These alternatives would allow operators to select the least-cost compliance option.

The amendments to the NOx emission limits and addition of other requirements for cement kilns will not affect any other groups directly. Purchasers of cement may see slightly higher prices for the product, but because of market competition these cost increases are expected to be negligible.

**FACE SHEET
FOR FILING DOCUMENTS
WITH THE LEGISLATIVE REFERENCE
BUREAU**

(Pursuant to Commonwealth Documents Law)

DO NOT WRITE IN THIS SPACE

Copy below is hereby approved as to form and legality.
Attorney General

By: _____
(Deputy Attorney General)

DATE OF APPROVAL _____

Check if applicable
Copy not approved. Objections attached.

Copy below is hereby certified to be true and
correct copy of a document issued, prescribed or
promulgated by:

DEPARTMENT OF ENVIRONMENTAL
PROTECTION
ENVIRONMENTAL QUALITY BOARD

(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-419

DATE OF ADOPTION MARCH 16, 2010

BY John Hanger

TITLE JOHN HANGER
CHAIRMAN

EXECUTIVE OFFICER CHAIRMAN OR SECRETARY

Copy below is hereby approved as to form and legality
Executive or Independent Agencies

BY Andrew C. Clark

DATE OF APPROVAL MAR 26 2010

(Deputy General Counsel)
(~~Chief Counsel - Independent Agency~~)
(Strike inapplicable title)

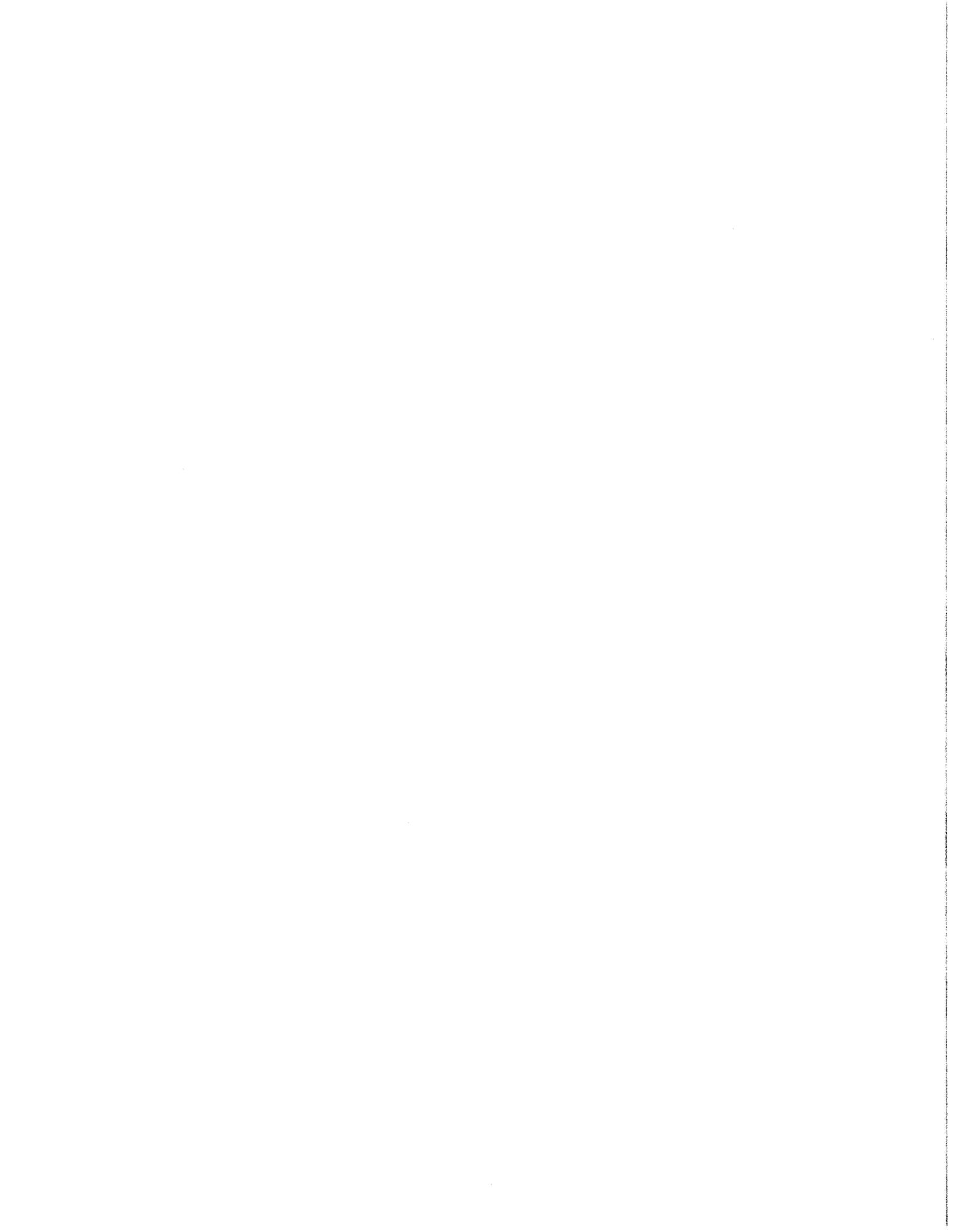
Check if applicable. No Attorney General Approval
or objection within 30 days after submission.

NOTICE OF FINAL RULEMAKING

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD

CONTROL OF NO_x EMISSIONS FROM CEMENT KILNS

25 Pa. Code, Chapter 145



Order of Final Rulemaking
Department of Environmental Protection
Environmental Quality Board
25 Pa. Code Chapter 145, Subchapter C

The Environmental Quality Board (Board) amends Subchapter C (relating to emissions of NO_x from cement manufacturing) under Chapter 145 (relating to interstate pollution transport reduction) as set forth in Annex A.

This order was adopted by the Board order at its meeting of March 16, 2010.

A. Effective Date

These amendments will be effective upon publication in the *Pennsylvania Bulletin* as final rulemaking.

These final-form amendments will be submitted to the United States Environmental Protection Agency (EPA) as a revision to the Pennsylvania State Implementation Plan (SIP).

B. Contact Persons

For further information, contact Jane Mahinske, Air Quality Program Specialist, Division of Air Resource Management, Bureau of Air Quality, 12th Floor, Rachel Carson State Office Building, P.O. Box 8468, Harrisburg, PA 17105-8468, telephone: 717-787-9495, or Robert “Bo” Reiley, Assistant Counsel, Bureau of Regulatory Counsel, 9th floor, Rachel Carson State Office Building, P.O. Box 8464, Harrisburg, PA 17105-8464, telephone: 717-787-7060.

C. Statutory Authority

This final-form rulemaking is being adopted under the authority of section 5(a)(1) of the Air Pollution Control Act (35 P.S. §4005(a)(1)), which grants to the Board the authority to adopt regulations for the prevention, control, reduction and abatement of air pollution.

D. Background and Summary

The purpose of this final-form rulemaking is to reduce emissions of nitrogen oxides (NO_x) from cement kilns in order to reduce levels of ground-level ozone. Ground-level ozone is not directly emitted by pollution sources, but is created as a result of the chemical reaction of NO_x and volatile organic compounds in the presence of light and heat. The reduction of NO_x emissions will also help protect the public health from high levels of fine particulate matter (PM_{2.5}), of which NO_x is a precursor component. Fine particulates, as well as ozone, are health hazards. The reduction of NO_x emissions also reduces visibility impairment and acid deposition.

When ground-level ozone is present in concentrations in excess of the Federal health-based standards, public health is adversely affected. The EPA has concluded that there is an association between ambient ozone concentrations and increased hospital admissions for respiratory ailments, such as asthma. Further, although children, the elderly and those with respiratory problems are

most at risk, even healthy individuals may experience increased respiratory ailments and other symptoms when they are exposed to ambient ozone while engaged in activity that involves physical exertion. Though these symptoms are often temporary, repeated exposure could result in permanent lung damage. The implementation of additional measures to address ozone air quality nonattainment in this Commonwealth, including the reduction of NO_x emissions from cement kilns, is necessary to protect the public health.

This Commonwealth, along with the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont and Virginia, and the District of Columbia, are members of the Ozone Transport Commission (OTC), which was created under Section 184 of the Federal Clean Air Act, 42 U.S.C. § 7511c, to develop and implement regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic regions. To date, states from the OTC, including this Commonwealth, have established a number of regulatory programs to reduce ozone precursor emissions, including programs related to portable fuel containers, architectural and industrial maintenance coatings and consumer products. Consistent with its strategy to achieve equitable ozone precursor emission reductions from all industrial sectors, this Commonwealth, along with other OTC states, has met with representatives of the cement industry to discuss reductions of NO_x emissions from their kilns.

In this Commonwealth there are 21 cement kilns, which in 2005 emitted 12,967 tons of NO_x emissions in this Commonwealth. Of these 21 kilns in this Commonwealth, 14 of them are "long" kilns. These are older technology kilns that are less energy efficient than preheater kilns and the newest technology, pre-calciner kilns. The higher energy efficiencies of the preheater and precalciner kilns result in inherently lower NO_x emissions than those from long wet and dry kilns, per ton of product.

Control technologies are readily available to achieve NO_x emission reductions of greater than 20% from cement kilns. These technologies include: conversion to indirect firing systems with low-NO_x burners with approximately 20-30% reduction; mid-kiln firing of whole tires in long kilns with approximately 20-40% reduction; staged combustion in precalciner kilns with approximately 30-45% reduction; selective noncatalytic reduction (SNCR) in precalciner kilns with approximately 30-70% reduction; and selective catalytic reduction (SCR) with approximately 80-90% reduction. SNCR has been used on preheater kilns and has been proposed for long kiln applications. All of these technologies, except SCR, are demonstrated on kilns in the United States.

The final-form amendments will allow a number of this Commonwealth's cement manufacturers to develop and implement compliance strategies without the need for widespread installation of control equipment on the older technology long kilns, which will likely be replaced with more energy efficient technologies, like preheater or precalciner technologies, over time. An additional compliance option allows the purchase of Clean Air Interstate Rule (CAIR) NO_x allowances to account for emissions in excess of the proposed limits, as a near term compliance option.

The Department of Environmental Protection (Department) worked with the Air Quality Technical Advisory Committee (AQTAC) in the development of these final-form regulations.

At its October 30, 2008, meeting, the AQTAC concurred with the Department's recommendation that the Board consider the adoption of these final-form regulations, with certain changes. These recommended changes to the final-form rulemaking included requiring written approval from the Department for substituted monitoring data and clarification regarding how cement kilns that commence operation after the effective date of adoption of the final-form rulemaking may determine their emissions to average. The change recommended by the AQTAC to require written approval by the Department for substituted monitoring data has been made to the final-form rulemaking. The change concerning the emissions averaging provision for new kilns was considered by the Department, and a decision was made to delete from the final-form rulemaking the emissions averaging provision for new kilns commencing operation after the effective date of adoption of the final-form rulemaking. The Department maintains that allowing new cement kilns to average their emissions with existing cement kilns in order to meet the regulatory obligation for the existing kilns is inconsistent with the Best Available Technology (BAT) regulatory obligation for new cement kilns, which is to control emissions to the maximum degree possible. Therefore, the Department determined that the emissions averaging provision for new cement kilns in the proposed rulemaking is inconsistent with existing regulatory obligations, and this provision has been deleted from the final-form rulemaking.

The Department also conferred with the Citizens Advisory Council (CAC) concerning the final-form rulemaking on October 27, 2008. The CAC concurred with the Department's recommendation that the Board consider the adoption of these final-form regulations.

To the extent that this final-form rulemaking is more stringent than any corresponding Federal requirements, the Board has determined that this final-form rulemaking is reasonably necessary to attain and maintain the ozone and PM_{2.5} National Ambient Air Quality Standards (NAAQS).

E. Summary of Comments and Responses

The rulemaking amendments that were proposed in the *Pennsylvania Bulletin* on April 19, 2008 (38 Pa.B. 1838), under 25 Pa. Code Chapter 129 (§§ 129.401 – 129.405 (relating to emissions of NO_x from cement manufacturing)) have been deleted at final and in the final-form rulemaking the requirements are incorporated under Chapter 145, Subchapter C, to amend the cement kilns requirements that were effective December 11, 2004 (34 Pa.B. 6509) (§§ 145.141 – 145.144 (relating to emissions of NO_x from cement manufacturing)), and amended effective April 12, 2008 (38 Pa.B. 1705) (§ 145.143 (relating to standard requirements)). The decision to incorporate the final-form amendments for cement kilns in Chapter 145, Subchapter C, was editorial because the existing provisions in Subchapter C regulate emissions of NO_x from cement kilns. Where appropriate, responses to comments reflect the nature of this editorial change.

Commentators support the goal of the proposed regulation to lower ozone in this Commonwealth and support efforts in reducing NO_x and ozone-related pollutants to reduce ground-level ozone. The Board appreciates the commentators' support of this rulemaking. The final-form rulemaking is consistent with regulatory initiatives recommended by the OTC to address transport of ozone precursor emissions, including NO_x, throughout the Ozone Transport

Region (OTR). These measures are reasonably necessary to attain and maintain the health-based 8-hour ozone NAAQS in this Commonwealth.

A commentator supports the facility-wide emissions averaging compliance option among kilns under common control of the same owner in this Commonwealth. The Board appreciates the commentator's support to allow facility-wide emissions averaging as a compliance option. The Department is allowing this option to provide cement kiln owners and operators with greater flexibility to demonstrate compliance with the allowable NOx emission limits.

The commentator supports the use of CAIR NOx Ozone Season allowances as an economical compliance alternative. The Board appreciates the commentator's support of allowing the use of CAIR NOx Ozone Season allowances as part of the proposed rule's compliance alternatives available to cement kiln owners and operators. The rulemaking amendments that were proposed in the *Pennsylvania Bulletin* on April 19, 2008 (38 *Pa.B.* 1838), under §§ 129.401 – 129.405, have been deleted at final and in the final-form rulemaking the requirements are incorporated under Chapter 145, Subchapter C, as amendments to the cement kilns requirements that were effective December 11, 2004 (34 *Pa.B.* 6509), under §§ 145.141 – 145.144 and amended effective April 12, 2008 (38 *Pa.B.* 1705), under § 145.143. The use of CAIR NOx Ozone Season allowances as a compliance strategy is preserved in the final-form rulemaking under existing § 145.143(d), which provides that the owners or operators of Portland cement kilns shall surrender CAIR NOx Ozone Season and CAIR NOx annual allowances if the actual NOx emissions from their kiln or kilns exceed the allowable NOx emissions calculated for the kiln or kilns.

A commentator believes that the proposed emission limits are derived from a 60% emissions reduction (from uncontrolled levels) based on SNCR control technology that should not be applied to wet kilns. The commentator believes that NOx limits for wet kilns should be based on a 50% reduction from uncontrolled levels because a 50% reduction from uncontrolled levels of NOx is consistent with the EPA cement New Source Performance Standard (NSPS) rule that was proposed in the Federal Register on June 16, 2008 (73 FR 34072). The Board disagrees with the commentator. The Board proposed emission limits based on the OTC recommended limits. The Board is not requiring a specific reduction efficiency from the installation of a SNCR should an affected cement owner or operator decide to install a SNCR in order to comply with the emission limits proposed.

A commentator urges the addition of a compliance option which allows a cement company to establish a site-specific emission limit in tons of NOx during the ozone season. The Board disagrees with the commentator. A site-specific emission limit based on a kiln's applicable emission factor and its clinker production is in effect a cap-based emission limit rather than a rate-based emission limit. The final-form rulemaking emission limits are rate-based, not cap-based, and are emission limits recommended by the OTC.

Commentators want the Board to provide the basis for limiting new cement kilns subject to the proposed regulation to a lower emission limit than existing kilns, as specified under proposed § 129.404(d) (relating to compliance demonstration). Prior to publishing the proposed rulemaking for public comment on April 19, 2008 (38 *Pa.B.* 1838), the Board reviewed a number of technical documents and concluded that new cement kilns should have a lower emission limit than existing kilns. Moreover, when the OTC recommended to the states the NOx

emission limits for cement kilns in Resolution 06-02 of the Ozone Transport Commission Concerning Coordination and Implementation of Regional Ozone Control Strategies for Certain Source Categories, adopted June 7, 2006 (OTC Resolution 06-02), two separate limits were proposed for preheater and precalciner kilns, 2.36 lb NOx/ton clinker and 1.52 lb NOx/ton clinker, respectively (see page 2, OTC Resolution 06-02, June 7, 2006). The Board chose to adopt the 2.36 limit for both preheater and precalciner kilns because the Commonwealth has only one existing precalciner kiln, which is of an early precalciner kiln technology that is more like a preheater kiln from an energy use perspective, and to require that new cement kilns meet the limit of 1.52 lb NOx/ton clinker. Under the EPA's proposed NSPS rule for Portland cement kilns, the EPA found that according to the industry, all new kilns will be preheater or precalciner kilns (73 FR p. 34075). Therefore, proposing to limit new cement kilns, assumed to be precalciner, to 1.52 lb NOx/ton clinker is in line with the NOx limits for new cement kilns proposed by the EPA on June 16, 2008. The annual NOx emission limit proposed in the NSPS by the EPA is 1.50 lb/ton clinker (see 73 FR pages 34074, 34075 and 34089). The Board maintains that all new kilns in this Commonwealth would be the precalciner type, and would therefore be required to meet not only the NOx limit established in the EPA's final NSPS but also the BAT regulatory requirement for new cement kilns, which is to control emissions to the maximum degree possible. The NSPS will apply to all new cement kilns that commence operation in this Commonwealth. Therefore, the Board determined that the NOx emission limit for new cement kilns in the proposed rulemaking is unnecessary, and this requirement has been deleted from the final-form regulation.

A commentator finds that the Board should provide the technical basis for the allowable emission limits and explain the data used to make the determination. If the emission limits are based upon an OTC resolution, then the Order to the final-form regulation should compare the Commonwealth's program with how other OTC states are complying with this resolution. The Board agrees. The NOx emission limits for cement kilns in the proposed rulemaking are those recommended by the OTC. The technical basis for the emission limits are based on OTC Resolution 06-02. This resolution used data and analysis from the following report prepared for the OTC: *Identification and Evaluation of Candidate Control Measures, Final Technical Support Document*, prepared by MACTEC Federal Programs, Inc. (February 28, 2007). The Board independently reviewed this information and concurred with the data and the decisions in the OTC resolution that recommended the emission limits. Regulations based on the OTC recommendations are being pursued by Maryland, New York and this Commonwealth. Maine has one cement kiln permitted to convert to a dry process, and this converted kiln will be subject to Best Available Control Technology, which is typically more stringent than requirements for existing sources, under the Prevention of Significant Deterioration Program. Maryland, Maine, New York and this Commonwealth are the only states in the OTR that have cement kilns. Therefore, it is not anticipated that the final-form rulemaking will place cement plants in this Commonwealth at a competitive disadvantage.

The commentator questioned if the cement emission limits proposed by the EPA on June 16, 2008, impact the proposed regulation and will they result in additional changes to the Commonwealth's NOx emission limits in the future. The NSPS proposed by the EPA on June 16, 2008 (73 FR 34072), caused a minor change to the Board's proposed rulemaking. The EPA proposed an annual NOx emission limit of 1.50 lb/ton clinker. (See 73 FR pages 34074, 34075 and 34089.) The Board maintains that all new kilns in this Commonwealth would be the precalciner type, and therefore must meet not only the NOx limit established in the EPA's final

NSPS but also the BAT regulatory requirement for new cement kilns, which is to control emissions to the maximum degree possible. Therefore, the Board determined that the NOx emission limit for new cement kilns in the proposed rulemaking is unnecessary and this requirement has been deleted from the final-form rulemaking. Additionally, the decision was made to delete from the final-form regulation the emissions averaging provision for existing kilns with new kilns commencing operation after the effective date of adoption of the final regulation. The Board maintains that allowing new cement kilns to average their emissions with existing cement kilns in order to meet the existing kilns' regulatory obligation is inconsistent with the BAT regulatory obligation for new cement kilns, which is to control emissions to the maximum degree possible. Therefore, the Board determined that the proposed regulation's emissions averaging provision for new cement kilns is inconsistent with existing regulatory obligations, and this provision has also been deleted from the final-form regulation.

The commentator notes that while other sections of the proposal mention an exact date for compliance with emission requirements, §§ 129.402(a) and (b) (relating to emission requirements) and 129.404(a)(1), (c)(1), (d) and (g)(1) refer to the period of May 1 through September 30. The final-form regulation should explain the need for this distinction and how it applies to each of the relevant sections listed above. The Board disagrees with the commentator that the final-form regulation should explain the distinction. The compliance period for determining allowable emissions of NOx, regardless of year, is from May 1 through September 30. The requirements under proposed §§ 129.402(a) and (b), (which have been moved to paragraphs 145.143(b)(1) and (2) at final) and 129.404(a)(1), (c)(1), (d) and (g)(1), (which have been both moved under new paragraph 145.145(a)(1) (relating to compliance demonstration and reporting requirements) and retained under existing subsections 145.143(d), (e) and (h)(1) at final) refer to the first year of the compliance period under the regulation, and each year thereafter.

Commentators are concerned about the ability of the Board to move forward with the regulation if the Court vacated the CAIR budget and allowance system for NOx emissions in Pennsylvania and other states. The decision by the Court in *North Carolina v. EPA* only addressed the EPA's CAIR (70 FR 25162, May 12, 2005), and did not address NOx emission limits for cement kilns. On December 23, 2008, the Court decided to remand the EPA's CAIR rather than to vacate, leaving it in place until the EPA revises it. The final Federal rule, expected in 2011, must be revised to be consistent with the Court's July 11, 2008, decision in *State of North Carolina v. Environmental Protection Agency*, 531 F.3d 896 (D.C. Cir. 2008). Therefore, the Board's statutory authority to propose a rulemaking to control NOx emissions from cement kilns is not limited and the Board may move forward with a final rulemaking. On May 23, 2008, the Department submitted to the EPA a SIP revision for the Department's CAIR regulatory requirements under §§ 145.201-145.223 (relating to CAIR NOx and SO₂ trading programs), effective April 12, 2008 (38 Pa.B. 1705), that provide for a CAIR NOx Ozone Season Trading Program and a CAIR NOx Annual Trading Program. The Department's CAIR regulation also included amendments to existing § 145.143 to require the owners or operators of Portland cement kilns to surrender CAIR NOx Ozone Season and CAIR NOx annual allowances if their actual NOx emissions exceed their allowable NOx emissions. The EPA approved the Department's CAIR regulation as a SIP revision effective December 10, 2009 (74 FR 65446).

A commentator suggests that, based on the CAIR vacatur, if the regulation requires substantial changes, to consider submitting an Advance Notice of Final Rulemaking or

publishing the changes as a new proposed regulation in the *Pennsylvania Bulletin*. The final-form rulemaking will not require substantial changes as a result of the initial vacatur of the EPA's CAIR on July 11, 2008. On December 23, 2008, the Court decided to remand the EPA's CAIR rather than to vacate, leaving it in place until the EPA revises it. The final Federal rule, expected in 2011, must be revised to be consistent with the Court's July 11, 2008, decision in *State of North Carolina v. Environmental Protection Agency*, 531 F.3d 896 (D.C. Cir. 2008). On May 23, 2008, the Department submitted to the EPA a SIP revision for the Department's CAIR regulation, including requirements under §§ 145.143 and 145.201-145.223, effective April 12, 2008 (38 Pa.B. 1705), that provides for a CAIR NOx Ozone Season Trading Program and a CAIR NOx Annual Trading Program. The EPA approved the Department's CAIR regulation as a SIP revision effective December 10, 2009 (74 FR 65446). The Board believes that the approval of the CAIR NOx allowance provisions as a revision to the Commonwealth's SIP will preserve the requirement proposed under subsection 129.404(c) on April 19, 2008 (38 Pa.B.1838) for the surrender of CAIR NOx allowances if the actual NOx emissions from a kiln exceed its allowable NOx emissions.

Commentators support the concept of NOx trading, and would favor removing the requirement for being "under common control of the same owner or operator in this Commonwealth" from the system-wide averaging section of the rulemaking. The Board disagrees. The option to demonstrate compliance with the emission limits by averaging the NOx emissions of several cement kilns under the common control of the same owner or operator in this Commonwealth provides flexibility to the cement kiln owners and operators in this Commonwealth with more than one facility. Allowing multiple owners and operators of cement kilns in this Commonwealth to average their emissions in concert with each other in order to demonstrate compliance would essentially provide them the larger framework of an emissions trading program, which is beyond the scope of the final-form rulemaking provision to provide them an emissions averaging option.

A commentator believes that the use of different types of control technologies to achieve NOx emissions greater than 20% implies that facilities can use these technologies without the need for a permitting process. It is not the intent of the Board to imply that there is not a need for a permitting process for the use of NOx emission control technologies. The permitting requirements for the installation of a control technology will be determined in accordance with Subchapter B (relating to plan approval requirements) of 25 Pa Code Chapter 127 (relating to construction, modification, reactivation and operation of sources). The Department has several permit streamlining procedures in place, and plan approval applications are always acted on by the Department as expeditiously as possible.

A commentator thinks that the permitting process for installing the NOx control technologies to achieve the emission results of the proposed rulemaking should be streamlined. The authorizations should be issued within 30 days after an application is submitted. The Board disagrees. The permitting requirements for the installation of a control technology will be determined in accordance with the provisions under Chapter 127, Subchapter B. The Department has several permit streamlining procedures in place, and plan approval applications are always acted on by the Department as expeditiously as possible.

Commentators think the proposed rule contains punitive and unreasonable data substitution provisions for invalid data by substituting missing data with data calculated using

the potential emission rate for the kiln, or with the highest valid 1-hour emission value. The Board recognizes that substituted data should be representative of the actual emissions from the source during the time frame in question and not punitive in nature. The data substitution language in the final-form regulation has been modified to ensure that representative data is substituted while maintaining consistency with the procedures outlined in the Department's Continuous Source Monitoring Manual (DEP 274-0300-001).

A commentator believes that all kilns subject to the proposed rule will be subject to Title V reporting and compliance certification requirements, and additional reporting requirements are unnecessary and only add to the administrative burden. The Board disagrees and does not believe that maintaining records of daily clinker production will present a significant inconvenience to an owner or operator. Daily records may be needed to enable the Department to verify the relationship between NOx emissions recorded by CEMS, and clinker produced during the compliance period of May 1 through September 30 of each year. The Board maintains that records sufficiently precise to quantify clinker produced by each kiln during that period are necessary to enable owners and operators to demonstrate compliance and determine allowances for surrender.

A commentator commented on whether it is feasible for a cement kiln to report their emission data to the Department by October 31, 2009, and then be required to surrender their NOx allowances one day later, which is November 1, 2009. The Board disagrees with the commentator. The requirement to report information to the Department by October 31 of every compliance year is consistent with reporting requirements in the current regulation for cement kilns found under Chapter 145, Subchapter C. The affected owners and operators of cement kilns will know prior to October 31 of every compliance year whether they are required to surrender NOx allowances, because they will have the entire month of October to calculate their emissions for the previous May 1 through September 30 compliance period and determine if and how many allowances they need to surrender by or on the succeeding November 1 to comply with the regulation.

The commentator commented that the proposed regulation requires cement kiln operators to report various information to the Department "by October 31, 2009," while other sections of the regulation require compliance with emission limits by September 30, 2009, and questioned if owners or operators of cement plants would be able to collect and deliver the reports within a month. The Board disagrees with the commentator. The requirement to report information to the Department by October 31 of each year is consistent with reporting requirements in the current regulation for cement kilns found under Chapter 145, Subchapter C.

The commentator commented that the proposed regulation requires cement kiln operators to submit a report to the Department "in a format approved, in writing, by the Department," and stated that this phrase is vague, and the final-form regulation should provide more detail on the type of format. The Board disagrees with the commentator. The requirement to submit a report to the Department in a format approved, in writing, by the Department, is a standard requirement. This requirement is found in many Board-approved rulemakings, and neither the Department nor the regulated sources have had problems understanding or complying with this requirement.

The commentator asked whether the cement kilns in this Commonwealth would be able to meet the May 1, 2009, compliance deadline. Due to the remand of the EPA's CAIR, and the Commonwealth's lengthy rulemaking process, the final-form regulation has an effective compliance date of May 1, 2011, for owners and operators of Portland cement kilns to meet the revised NOx emission limits. The date in the final-form regulation by which the CEMS must be installed, operating and maintained is April 15, 2011.

The commentator commented that the difference between subsections 129.404(b) and (c) is unclear and stated that the final-form regulation should clarify what circumstances necessitate compliance with subsection (c). The Board believes that the final-form regulation clearly specifies what circumstances would necessitate compliance with these subsections. Proposed subsection 129.404(c) has been deleted at final and the requirements retained under existing subsection 145.143(d). Proposed subsection 129.404(b) has been deleted at final and the same requirements are specified at final under new subsection 145.145(b) and in the definition of the new term "system-wide" under § 145.142 (relating to definitions). New subsection 145.145(b) lists three options to demonstrate compliance with the allowable NOx emission limits. Cement kiln owners or operators shall choose one compliance option from the three listed to use as the basis for determining the amount of allowable and actual NOx emissions from their kiln or kilns. Existing subsection 145.143(d) lists the requirements that a cement kiln owner or operator shall follow to surrender NOx allowances if the owner or operator determines, after calculating the amount of actual NOx emissions in accordance with the requirements under §§ 145.144 (relating to compliance determination) and 145.145, that the actual NOx emissions from the kiln or kilns exceed the amount of allowable NOx emissions for the kiln or kilns, determined in accordance with the requirements under subsection 145.143(b).

The commentator notes that subsection 129.404(b) refers to "a Portland cement kiln or multiple Portland cement kilns," and subsection (c) only references "a Portland cement kiln," and questions if the latter subsection should also apply to multiple kilns. The final-form rulemaking has been incorporated as amendments to the existing cement kilns regulation under Chapter 145, Subchapter C. The Board believes that the existing provisions of Subchapter C and the final-form regulation's amendments to Subchapter C accurately reflect that the final-form rulemaking applies to a Portland cement kiln or multiple kilns.

The commentator finds that subsection 129.404(e) requires cement kiln operators to surrender the required CAIR NOx ozone allowances by "November 1, 2009, and each year thereafter." Subsection (c) includes this surrender as a possible method of compliance. The final-form regulation should explain when each of these subsections would apply. The Board believes that the final-form regulation clearly specifies when the requirements are applicable. Proposed subsection 129.404(c) has been deleted at final and the requirements are retained under existing subsection 145.143(d). Proposed subsection 129.404(e) has been deleted at final and the requirements are retained under existing subsection 145.143(f). Existing subsection 145.143(d) lists the requirements that a cement kiln owner or operator shall follow to surrender NOx allowances if their actual NOx emissions exceed their allowable NOx emissions. Existing subsection 145.143(f) specifies the date by when a cement kiln owner or operator shall surrender the NOx allowances, if needed, to comply with subsection 145.143(d).

The commentator notes that paragraph 129.404(g)(1) explains how to determine the number of days of violation if the facility has excess emissions for the period May 1 through

September 30, and states that “each day in that period...constitutes a day in violation unless the owner or operator of the Portland cement kiln demonstrates that a lesser number of days should be considered.” The Board should explain what circumstances would warrant such consideration. The Board disagrees with the commentator. The Board maintains that it is the responsibility of the affected cement kiln owner to demonstrate to the satisfaction of the Department what circumstance or circumstances would warrant consideration of a lesser number of days in violation. The requirements that were proposed under paragraph 129.404(g)(1) and deleted at final are consistent with the requirements specified under existing paragraph 145.143(h)(1) for determining the number of days of violation in the current regulation for cement kilns found under Chapter 145, Subchapter C. At final these requirements are retained under existing paragraph 145.143(h)(1).

The commentator stated the program referenced in the Preamble, the Regional Compliance Assistance Program, did not appear to be defined by regulation or statute, and questioned how cement kiln owners and operators would access the program. The Board agrees with the commentator that the term “Regional Compliance Assistance Program” is not defined by regulation or statute. The term refers to the Department’s regional, or “field,” staff who regularly assist their respective facilities in understanding and complying with applicable Department regulations.

The commentator commented on the CEMS definition as it relates to an earlier, “original” definition that references Chapter 127, Subchapter E, and the proposed regulation’s reference to standards under Subchapter C (relating to requirements for source monitoring for stationary sources) of 25 *Pa. Code* Chapter 139 (relating to sampling and testing), and suggests the Department explain why a different chapter of Title 25 of the Pennsylvania Code now applies to the proposed definition. The Board agrees with the commentator. The intent of the revision of the definition for the term “CEMS” in the proposed rulemaking under 25 *Pa. Code* § 121.1 (relating to definitions) is for the CEMS definition to apply more broadly to the entire air quality regulatory program. However, subsequent to the close of the public comment period for the proposed cement kilns rulemaking, the Department proposed a revised definition of the term “CEMS” under § 121.1 in a proposed rulemaking as part of the amendments to the air quality fee schedules (see 39 *Pa.B.* 6049, October 17, 2009). Therefore, the revision of the definition for the term “CEMS” under § 121.1 in the proposed cement kilns rulemaking was deleted at final, and the existing definition of CEMS under § 145.142 that applies to cement kilns has been retained in the final-form rulemaking. The existing CEMS definition under § 145.142 ensures that the monitoring equipment complies with the requirements under Chapter 139.

The commentator says that the final-form regulation should include a definition for “invalidated data.” In addition, the Board also should explain the difference between an “invalid data period” and an “alternative reporting period” as mentioned in subparagraph 129.403(b)(2)(ii) (relating to compliance determination). The Board disagrees with the commentator that the final-form regulation should include a definition for “invalidated data.” Conditions that render data invalid, and procedures for substituting the invalid data with valid data, are defined throughout the Continuous Source Monitoring Manual (DEP 274-0300-001). Owners or operators of each Portland cement kiln subject to this rule are familiar with those provisions, since they already operate Department-certified CEMS. An “alternative reporting period” is not specifically defined, since it is provided under proposed subparagraph

129.403(b)(2)(ii) (new subparagraph 145.144(b)(2)(ii) at final) as a means for an owner or operator to propose a unique alternative for the Department's consideration.

The commentator notes that paragraph 129.403(b)(1) refers to the "potential emission rate" for the cement kiln, but does not explain how this rate is determined. The final-form regulation should define this term. The Board disagrees. Proposed paragraph 129.403(b)(1) (new subsection 145.144(b) of the final-form regulation) has been modified to ensure that representative data is substituted and to maintain consistency with the procedures outlined in the Continuous Source Monitoring Manual. The modifications made to this section necessitated deleting the provision for the substitution of invalidated data with the potential emission rate for the kiln. Therefore, a definition for the term "potential emission rate" is not necessary.

The commentator says that subsection 129.403(c) states that Portland cement kiln operators shall submit quarterly reports of CEMS monitoring data in "pounds of NOx emitted per hour," and thinks that this data should refer to "pounds of NOx per ton of clinker." The Board disagrees with the commentator. The CEMS currently operated by the cement kiln owners and operators monitor NOx emissions. A CEMS cannot measure tons of clinker produced, since by definition, a CEMS can only monitor emissions per unit of time.

The commentator finds that paragraph 129.404(c)(1) refers to "CAIR NOx Ozone Season allowance," as defined in § 145.202 (relating to definitions), but this section of the Code does not include a definition for this term. The final-form regulation should provide the appropriate cross-reference in this subsection. The Board agrees with the commentator. The final-form rulemaking, in existing subsection 145.143(d), includes the appropriate Code of Federal Regulations reference for the definitions of the terms "CAIR NOx Ozone Season allowance" and "CAIR NOx allowance."

The commentator finds that subsection 129.405(c) (relating to recordkeeping) requires cement kiln owners or operators to maintain records for 5 years, and wonders how the Board determined this was an appropriate timeframe. Requiring regulated facilities to maintain records for 5 years is a standard requirement. This requirement is found in many Board-approved regulations, including §§ 127.11(b)(2) and 139.101(5) (relating to plan approval requirements; and general requirements). Regulated sources have had no problems complying with this requirement.

A commentator states their kilns are long dry-process cement kilns and are subject to the allowable emission limit of 3.44 lb NOx/ton clinker. Their kilns are not preheater kilns because the systems do not contain a series or multiple cyclones as defined by the EPA in its 1993 NOx Alternative Control Technologies Document (which was updated in September 2000). The commentator requests the Department establish its new NOx limit during the ozone season at 3.44 lbs/ton clinker starting with the 2009 Ozone Season. The Board disagrees with the commentator. The comment is an implementation issue. The commentator must have discussions with the Department prior to the effective compliance date of the final-form regulation on how the final regulation will be implemented and complied with by their facility.

A commentator states that a provision to the proposed rule should be added to indicate that this rulemaking should supersede the case-by-case reasonably available control technology (RACT) determinations for cement kilns in this Commonwealth. The Board disagrees with the

commentator. Should the final rulemaking requirements be more stringent than a RACT requirement previously established on a case-by-case basis, complying with the final regulation's more stringent provisions would ensure compliance with the other RACT requirements.

A commentator states that the proposal requires owners or operators of cement kilns to "install, operate and maintain CEMS for NO_x emissions" by May 1, 2009. The commentator asks what the costs will be for owners and operators as a result of requiring this device to be installed on kilns in less than a year. The owners and operators of the cement kilns in this Commonwealth who are affected by the proposed rulemaking currently have a CEMS as part of the existing cement regulation requirement that limits NO_x emissions from cement kilns during the ozone season to 6.0 lbs/ton clinker (see subsection 145.143(b) (34 *Pa.B.* 6509, December 11, 2004)). The existing cement regulation was effective December 11, 2004 (34 *Pa.B.* 6509), with a compliance date of May 1, 2005 (see § 145.141 (relating to applicability)). Therefore, there are no costs to the owners and operators of affected cement kilns to install a CEMS. In the final-form rulemaking, the compliance date under new subsection 145.144(a) by when the CEMS must be installed, operating and maintained is April 15, 2011, for the owner or operator of a Portland cement kiln subject to new paragraph 145.143(b)(2). This date ensures that the CEMS equipment is running properly before May 1, 2011, which is the first day of the first compliance period for affected owners and operators for the determination of allowable emissions for Portland cement kilns using the new emission limits specified under the final-form rulemaking paragraph 145.143(b)(2).

F. Summary of Final Rulemaking

The final-form amendments delete the revisions proposed to the applicability date under § 145.141. The existing regulation containing NO_x emission limits for cement kilns in Chapter 145, Subchapter C, will remain in effect through April 30, 2011. The compliance date for the final-form amendments to Chapter 145, Subchapter C, is May 1, 2011. The compliance date in the final-form rulemaking by which the CEMS must be installed, operating and maintained is April 15, 2011.

The following regulatory language relating to new terms and definitions in § 145.142 was published at proposed rulemaking as amendments to § 121.1 to support the proposed amendments to Chapter 129. This final-form rulemaking removes those terms and definitions from § 121.1 and places them at § 145.142 to support the final-form amendments to Chapter 145, Subchapter C. Subsequent to the close of the public comment period for the cement kilns proposed rulemaking, the Board proposed for public comment a revised definition of the term "CEMS-continuous emissions monitoring system" under § 121.1 in a proposed rulemaking as part of the amendments to the air quality fee schedules (see 39 *Pa.B.* 6049, October 17, 2009). Therefore, the revision of the definition of the term "CEMS" under § 121.1 in the cement kilns proposed rulemaking was removed, and the existing definition of the term "CEMS" under § 145.142 that applies to cement kilns has been retained in the final-form rulemaking.

The final-form amendments add definitions for the following new terms to § 145.142 to support the substantive provisions under §§ 145.141 – 145.146 (relating to emissions of NO_x from cement manufacturing): "calcine," "long dry-process cement kiln," "long wet-process cement kiln," "precalciner cement kiln," "preheater cement kiln" and "system-wide."

No substantive changes were made to the definitions of the terms between proposed and final rulemaking.

A definition for a new term, "system-wide," was added between proposed and final rulemaking.

The following regulatory language relating to standard requirements under paragraphs 145.143(b)(1) and (2) was published at proposed rulemaking under subsections 129.402(a) and (b). This final-form rulemaking moves the substantive language from subsections 129.402(a) and (b) to 145.143(b)(1) and (2).

The final-form subsection 145.143(b) now provides that the owner or operator of a Portland cement kiln may not operate that kiln in a manner that results in NO_x emissions in excess of its allowable emissions. Paragraph 145.143(b)(2) requires that the owner or operator of a Portland cement kiln determine allowable emissions of NO_x by multiplying the tons of clinker produced by the Portland cement kiln for the period from May 1 through September 30, 2011, and for each year thereafter by: 3.88 pounds of NO_x per ton of clinker produced for long wet-process cement kilns; 3.44 pounds of NO_x per ton of clinker produced for long dry-process cement kilns; and 2.36 pounds per ton of clinker produced for preheater cement kilns and for precalciner cement kilns.

Minor clarifying changes are made under subsection 145.143(c).

The following regulatory language relating to standard requirements in subsection 145.143(d) was published at proposed rulemaking under paragraph 129.404(c)(1). This final-form rulemaking retains unchanged the substantive language under subsection 145.143(d).

The final-form subsection 145.143(d) is unchanged and provides that the owner or operator of a Portland cement kiln subject to this section shall surrender to the Department one CAIR NO_x allowance and one CAIR NO_x Ozone Season allowance, as defined in 40 CFR 96.102 and 96.302 (relating to definitions), for each ton of NO_x by which the combined actual emissions exceed the allowable emissions of the Portland cement kilns subject to this section at a facility from May 1 through September 30.

The following regulatory language relating to compliance determination in § 145.144 was published at proposed rulemaking as § 129.403. This final-form rulemaking moves the regulatory language from § 129.403 to § 145.144.

The final-form § 145.144 requires, among other things, that not later than April 15, 2011, the owner or operator of a Portland cement kiln shall install, operate and maintain CEMS for NO_x emissions, and report CEMS emissions data to the Department in accordance with the CEMS requirements of Chapter 139, Subchapter C.

The Board has modified the compliance date under this section between proposed and final rulemaking. The new compliance date under this section is now 2011, and not 2009, as proposed. CEMS must be installed, operated, and maintained by April 15, 2011, rather than May 1, 2009, as originally proposed. This change was made to ensure that the CEMS is operational before the compliance date of May 1, 2011, which is the first day of the first compliance period

for affected owners and operators for the determination of allowable emissions for the Portland cement kilns using the new emission limits specified under paragraph 145.143(b)(2). In addition, the Board has changed certain data substitution requirements under subsection (b). For example, subsection (b) now provides that data invalidated shall be substituted either by the highest valid 1-hour emission value that occurred under similar source operating conditions during the reporting quarter for an invalid data period during that quarter or an alternative method of data substitution as approved by the Department in writing.

Additionally under this section, the owner or operator of a Portland cement kiln subject to this section shall submit to the Department quarterly reports of CEMS monitoring data in pounds of NO_x emitted per hour, in a format approved by the Department, which is in compliance with Chapter 139, Subchapter C. Also the CEMS for NO_x installed under the requirements of this section must meet the minimum data availability requirements in Chapter 139, Subchapter C.

The following regulatory language relating to compliance demonstration and reporting requirements in § 145.145 was published at proposed rulemaking as § 129.404. This final-form rulemaking moves the regulatory language from § 129.404 and places it under § 145.145.

Final-form § 145.145 provides, among other things, that by October 31, 2011, and each year thereafter, the owner or operator of a Portland cement kiln shall report certain information in writing to the Department, in a format approved by the Department. The owner or operator of a Portland cement kiln or multiple Portland cement kilns shall demonstrate compliance with the emission requirements specified in § 145.143 on either a kiln-by-kiln basis, a facility-wide basis or a system-wide basis among Portland cement kilns under the common control of the same owner or operator in this Commonwealth.

The Board has decided to delete the averaging provision for new cement kilns under proposed § 129.404(d), which would have been placed under § 145.145. Under § 127.1 (relating to purpose), new cement kilns, like all new sources, are required to control emissions to the maximum extent, consistent with BAT as determined by the Department at the date of issuance of the plan approval for the new source. The term “best available technology” is defined under § 121.1 as equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available. To allow new sources to average with existing sources to meet the regulatory obligations of the existing sources would be inconsistent with the intent of the BAT regulatory obligation of the new sources, which is to control emissions to the maximum degree possible. Consequently, the Board believes that the proposed averaging section is inconsistent with existing regulatory obligations, and this provision has been deleted from the final rule.

The Board has modified the compliance date under this section between proposed and final rulemaking. The new compliance date under this section is now October 31, 2011, and not October 31, 2009, as proposed.

The following regulatory language relating to recordkeeping in § 145.146 (relating to recordkeeping) was published at proposed rulemaking as § 129.405. This final-form rulemaking moves the regulatory language from § 129.405 to § 145.146.

The final-form § 145.146 provides that the owner or operator of a Portland cement kiln shall maintain an operating log for each Portland cement kiln that includes certain monthly information, and maintain records of certain other information. The records required under this section must be maintained for five years, be kept onsite, and be made available to the Department upon request.

G. Benefits, Costs and Compliance

Benefits

Overall, the citizens of this Commonwealth will benefit from these proposed amendments because the amendments will result in improved air quality by reducing ozone precursor emissions and will encourage new technologies and practices, which will reduce emissions.

The reductions in NOx emissions from Portland cement kilns will also help protect the public health and welfare from high levels of fine particulate matter (PM2.5) pollution and the formation of regional haze, of which NOx is a precursor component. Reductions in NOx emissions also reduces visibility impairment, soiling and materials damage, and acid deposition.

Compliance Costs

The final-form regulation will include emissions averaging and use of CAIR NOx Ozone Season Trading Program Allowances and CAIR NOx Annual Trading Program Allowances as near term compliance options. This will allow an owner or operator of an affected cement kiln to elect the least-cost compliance alternative, including emissions averaging or the use of CAIR NOx allowances, to demonstrate compliance with the NOx emission limits. Based on 2005 ozone season emissions, implementation of the final-form rule is estimated to result in a reduction of 1,300 tons of NOx. Based on a 2009 average CAIR NOx Ozone Season Trading Program and CAIR NOx Annual Trading Program allowance price of \$500, the cost of 1,300 NOx allowances would be \$650,000 per year.

Compliance Assistance Plan

The Department plans to educate and assist the public and regulated community in understanding the newly revised requirements and how to comply with them. This will be accomplished through the Department's ongoing compliance assistance program.

Paperwork Requirements

The final-form regulations will not significantly increase the paperwork that is already generated during the normal course of business operations.

H. Pollution Prevention

The Federal Pollution Prevention Act of 1990 established a National policy that promotes pollution prevention as the preferred means for achieving state environmental protection goals. The Department encourages pollution prevention, which is the reduction or elimination of

pollution at its source, through the substitution of environmentally friendly materials, more efficient use of raw materials, and the incorporation of energy efficiency strategies. Pollution prevention practices can provide greater environmental protection with greater efficiency because they can result in significant cost savings to facilities that permanently achieve or move beyond compliance. This final-form rulemaking will provide the owners and operators of all cement kilns in this Commonwealth the opportunity to improve the energy efficiency at their operations, which will result in lower NOx emissions.

I. Sunset Review

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

J. Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on April 7, 2008, the Department submitted a copy of the notice of proposed rulemaking, published at 38 *Pa.B.* 1838, to the Independent Regulatory Review Commission (IRRC) and to the Chairpersons of the House and Senate Environmental Resources and Energy Committees for review and comment.

Under section 5(c) of the Regulatory Review Act, IRRC and the Committees were provided with copies of the comments received during the public comment period, as well as other documents when requested. In preparing the final-form regulations, the Department has considered all comments from IRRC, the Committees and the public.

Under section 5.1(j.2) of the Regulatory Review Act, on xxxx, these final-form regulations were deemed approved by the House and Senate Committees. Under section 5.1(e) of the Regulatory Review Act, IRRC met on xxxx and approved the final-form regulations.

K. Findings of the Board

The Board finds that:

- (1) Public notice of proposed rulemaking was given under sections 201 and 202 of the act of July 31, 1968 (P.L. 769, No. 240) (45 P.S. §§1201 and 1202) and regulations promulgated thereunder at 1 *Pennsylvania Code* §§7.1 and 7.2.
- (2) At least a 60-day public comment period was provided as required by law, and all comments were considered.
- (3) These regulations do not enlarge the purpose of the proposal published at 38 *Pa.B.* 1838 (April 19, 2008).
- (4) These regulations are necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this order.

- (5) These regulations are reasonably necessary to attain and maintain the ozone and PM2.5 National Ambient Air Quality Standards (NAAQS).

L. Order of the Board

The Board, acting under the authorizing statutes, orders that:

- (a) The regulations of the Department of Environmental Protection, 25 *Pennsylvania Code*, Chapter 145 is amended by amending §§ 145.141-145.146 to read as set forth in Annex A.
- (b) The Chairperson of the Board shall submit this order and Annex A to the Office of General Counsel and the Office of Attorney General for review and approval as to legality and form, as required by law.
- (c) The Chairperson of the Board shall submit this order and Annex A to the Independent Regulatory Review Commission and the Senate and House Environmental Resources and Energy Committees as required by the Regulatory Review Act.
- (d) The Chairperson of the Board shall certify this order and Annex A and deposit them with the Legislative Reference Bureau, as required by law.
- (e) These final-form amendments will be submitted to the U.S. EPA as an amendment to the Pennsylvania State Implementation Plan.
- (f) This order shall take effect immediately upon publication in the *Pennsylvania Bulletin*.

BY:

JOHN HANGER
Chairman
Environmental Quality Board

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION

PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION

Subpart C. PROTECTION OF NATURAL RESOURCES

ARTICLE III. AIR RESOURCES

CHAPTER 121. GENERAL PROVISIONS

§ 121.1. Definitions.

The definitions in section 3 of the act (35 P. S. § 4003) apply to this article. In addition, the following words and terms, when used in this article, have the following meanings, unless the context clearly indicates otherwise:

* * * * *

~~CEMS--Continuous emissions monitoring system--~~**[For purposes of Chapter 127, Subchapter E, all of the equipment that may be required to meet the data acquisition and availability requirements of Chapter 127, Subchapter E to sample, condition, analyze and provide a record of emissions on a continuous basis.]** [All of the equipment required to meet applicable data acquisition and availability requirements in this article (relating to Air Resources) to sample, condition (if applicable), analyze, measure and provide a permanent record of emissions of air contaminants to the outdoor atmosphere, in accordance with the standards set forth by the Department under Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources).]

* * * * *

~~[Calcine--To heat a substance to a high temperature, but below its melting or fusing point, to bring about thermal decomposition or a phase transition in its physical or chemical constitution.]~~

* * * * *

~~[Clinker--The product of a Portland cement kiln from which finished cement is manufactured by milling and grinding.]~~

* * * * *

~~[Long-dry-process cement kiln--A Portland cement kiln that employs no preheating of the feed. The inlet feed to the kiln is dry.]~~

~~Long wet process cement kiln—A Portland cement kiln that employs no preheating of the feed. The inlet feed to the kiln is a slurry.]~~

* * * * *

~~Portland cement—A hydraulic cement produced by pulverizing clinker consisting essentially of hydraulic calcium silicates, usually containing one or more of the forms of calcium sulfate as an interground addition.~~

~~Portland cement kiln—A system, including solid, gaseous or liquid fuel combustion equipment, used to calcine and fuse raw materials, including limestone and clay, to produce Portland cement clinker.]~~

* * * * *

~~Preheater cement kiln—A Portland cement kiln where the feed to the kiln system is preheated in cyclone chambers and a second burner is used to calcine material in a separate vessel attached to the preheater prior to the final fusion in a kiln that forms clinker.~~

~~Preheater cement kiln—A Portland cement kiln where the feed to the kiln system is preheated in cyclone chambers prior to the final fusion in a kiln that forms clinker.]~~

* * * * *

CHAPTER 129. STANDARDS FOR SOURCES

EMISSIONS OF NO_x FROM CEMENT MANUFACTURING

§ 129.401. Applicability.

~~Beginning May 1, 2009, an owner or operator of a Portland cement kiln shall comply with the requirements in this section and §§ 129.402–129.405.~~

§ 129.402. Emission requirements.

~~(a) During the period from May 1 through September 30, 2009, and for each year thereafter, the owner or operator of a Portland cement kiln may not operate a Portland cement kiln in a manner that results in NO_x emissions in excess of the allowable limits established under subsection (b).~~

~~(b) The owner or operator of a Portland cement kiln shall determine allowable emissions of NO_x by multiplying the tons of clinker produced by the Portland cement kiln for the period from May 1 through September 30, 2009, and for each year thereafter by:~~

~~—(1) 3.88 pounds of NOx per ton of clinker produced for long wet process cement kilns.~~

~~—(2) 3.44 pounds of NOx per ton of clinker produced for long dry process cement kilns.~~

~~—(3) 2.36 pounds of NOx per ton of clinker produced for:~~

~~—(i) Preheater cement kilns.~~

~~—(ii) Precalciner cement kilns.~~

~~§ 129.403. Compliance determination.~~

~~—(a) By May 1, 2009, the owner or operator of a Portland cement kiln shall:~~

~~—(1) Install, operate and maintain CEMS for NOx emissions.~~

~~—(2) Report CEMS emissions data, in accordance with the CEMS requirements of Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources), to the Department.~~

~~—(3) Calculate actual emissions using the CEMS data reported to the Department.~~

~~—(b) Data invalidated under Chapter 139, Subchapter C, shall be substituted with either of the following:~~

~~—(1) Data calculated using the potential emission rate for the kiln.~~

~~—(2) If approved by the Department, in writing, the highest valid 1-hour emission value that occurred during the reporting quarter for an invalid data period during that quarter. If no valid data were collected during the reporting quarter, one of the following shall be reported to the Department:~~

~~—(i) The highest valid 1-hour emission value that occurred during the most recent quarter for which valid data were collected.~~

~~—(ii) If approved by the Department, in writing, the highest valid 1-hour emission value that occurred during an alternative reporting period.~~

~~—(c) The owner or operator of a Portland cement kiln subject to this section shall submit to the Department quarterly reports of CEMS monitoring data in pounds of NOx emitted per hour, in a format approved by the Department, in writing, and in compliance with Chapter 139, Subchapter C.~~

~~— (d) The CEMS for NO_x installed under the requirements of this section must meet the minimum data availability requirements in Chapter 139, Subchapter C.~~

§ 129.404. Compliance demonstration.

~~— (a) By October 31, 2009, and each year thereafter, the owner or operator of a Portland cement kiln shall report to the Department, in a format approved, in writing, by the Department:~~

~~— (1) The difference between the actual NO_x emissions from the kiln during the interval from May 1 through September 30 and the allowable emissions for that period.~~

~~— (2) The calculations used to determine the difference in emissions, including the CEMS data and clinker production data used to show compliance with the allowable emission limits in § 129.402 (relating to emission requirements). The clinker production data must consist of the quantity of clinker, in tons, produced per day for each kiln.~~

~~— (b) The owner or operator of a Portland cement kiln or multiple Portland cement kilns shall demonstrate compliance with the emission requirements in § 129.402 on either:~~

~~— (1) A kiln-by-kiln basis.~~

~~— (2) A facility-wide emissions averaging basis.~~

~~— (3) A system-wide averaging basis among Portland cement kilns under the common control of the same owner or operator in this Commonwealth.~~

~~— (c) The owner or operator of a Portland cement kiln may demonstrate compliance with the emission requirements of § 129.402 in accordance with the following:~~

~~— (1) For the period from May 1 through September 30, 2009, and each year thereafter, the owner or operator of a Portland cement kiln shall surrender to the Department one CAIR NO_x Ozone Season allowance, as defined in § 145.202 (relating to definitions), for each ton of NO_x by which the combined actual emissions exceed the allowable emissions of the Portland cement kilns at a facility subject to this section.~~

~~— (2) The surrendered CAIR NO_x Ozone Season allowances shall be of current year vintage.~~

~~— (3) For purposes of determining the amount of allowances to surrender, any remaining fraction of a ton equal to or greater than 0.50 ton is deemed to equal 1 ton and any fraction of a ton less than 0.50 ton is deemed to equal zero tons.~~

~~—(d) If the combined allowable emissions from Portland cement kilns at a facility from May 1 through September 30 exceed the combined actual emissions from Portland cement kilns at the facility subject to this section and §§ 129.401–129.403 and 129.405 (relating to applicability; emission requirements; and compliance determination; and recordkeeping) during the same period, the owner or operator may deduct the difference or a portion of the difference from the amount of actual emissions from Portland cement kilns for that period at the owner or operator's other facilities located in this Commonwealth. The owner or operator of a kiln that commences operation after _____ (Editor's Note: The blank refers to the effective date of adoption of this proposal.) may average only those emissions that are below the permitted NO_x limit for the kiln or below 1.52 pounds of NO_x per ton of clinker, whichever is lower.~~

~~—(e) By November 1, 2009, and each year thereafter, an owner or operator of a Portland cement kiln subject to this section and §§ 129.401–129.403 and 129.405 shall surrender the required CAIR NO_x Ozone Season allowances to the Department's designated NATS NO_x allowance tracking system account as defined in § 121.1 (relating to definitions) and shall provide to the Department, in writing, the following:~~

~~—(1) The serial number of each CAIR NO_x Ozone Season allowance surrendered.~~

~~—(2) The calculations used to determine the quantity of CAIR NO_x Ozone Season allowances required to be surrendered.~~

~~—(f) If an owner or operator of a Portland cement kiln fails to comply with subsection (e), the owner or operator shall by December 31 surrender three CAIR NO_x Ozone Season allowances of the current or later year vintage for each CAIR NO_x Ozone Season allowance that was required to be surrendered by November 1 of that year.~~

~~—(g) The surrender of CAIR NO_x Ozone Season allowances under subsection (f) does not affect the liability of the owner or operator of the Portland cement kiln for any fine, penalty or assessment, or an obligation to comply with any other remedy for the same violation, under the CAA, or the act.~~

~~—(1) For purposes of determining the number of days of violation, if a facility has excess emissions for the period May 1 through September 30, each day in that period (153 days) constitutes a day in violation unless the owner or operator of the Portland cement kiln demonstrates that a lesser number of days should be considered.~~

~~—(2) Each ton of excess emissions is a separate violation.~~

~~§ 129.405. Recordkeeping.~~

~~—(a) The owner or operator of a Portland cement kiln shall maintain an operating log for each Portland cement kiln. The operating log must include the following on a monthly basis:~~

~~—(1) The total hours of operation.~~

~~—(2) The type and quantity of fuel used.~~

~~—(3) The quantity of clinker produced.~~

~~—(b) The records maintained by the owner or operator of a Portland cement kiln must include the following:~~

~~—(1) Source tests and operating parameters established during the initial source test and subsequent testing~~

~~—(2) The date, time and duration of any start-up, shutdown or malfunction of a Portland cement kiln or emissions monitoring system.~~

~~—(3) The date and type of maintenance, repairs or replacements performed on the kilns, control devices and emission monitoring systems.~~

~~—(c) The owner or operator of a Portland cement kiln shall maintain the records required under this section onsite for 5 years. The records shall be made available to the Department upon request.]~~

CHAPTER 145. INTERSTATE POLLUTION TRANSPORT REDUCTION

Subchapter C. EMISSIONS OF NO_x FROM CEMENT MANUFACTURING

§ 145.141. Applicability.

Beginning May 1, 2005, ~~[until April 30, 2009,]~~ an owner or operator of a Portland cement kiln shall comply with this subchapter. ~~[Beginning May 1, 2009, an owner or operator of a Portland cement kiln shall comply with §§ 129.401-129.405 (relating to emissions of NO_x from cement manufacturing).]~~

§ 145.142. Definitions.

The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise:

CALCINE—TO HEAT A SUBSTANCE TO A HIGH TEMPERATURE, BUT BELOW ITS MELTING OR FUSING POINT, TO BRING ABOUT THERMAL DECOMPOSITION OR A PHASE TRANSITION IN ITS PHYSICAL OR CHEMICAL CONSTITUTION.

CEMS—Continuous Emission Monitoring System—The equipment required under this subchapter or Chapter 139 (relating to sampling and testing) to sample, analyze, measure and provide, by readings taken at least every 15 minutes of the measured parameters, a permanent record of NOx emissions.

Clinker—The product of a Portland cement kiln from which finished cement is manufactured by milling and grinding.

LONG DRY-PROCESS CEMENT KILN--A PORTLAND CEMENT KILN THAT EMPLOYS NO PREHEATING OF THE FEED. THE INLET FEED TO THE KILN IS DRY.

LONG WET-PROCESS CEMENT KILN--A PORTLAND CEMENT KILN THAT EMPLOYS NO PREHEATING OF THE FEED. THE INLET FEED TO THE KILN IS A SLURRY.

Portland cement—A hydraulic cement produced by pulverizing clinker consisting essentially of hydraulic calcium silicates, usually containing one or more of the forms of calcium sulfate as an interground addition.

Portland cement kiln—A system, including any solid, gaseous or liquid fuel combustion equipment, used to calcine and fuse raw materials, including limestone and clay, to produce Portland cement clinker.

PRECALCINER CEMENT KILN--A PORTLAND CEMENT KILN WHERE THE FEED TO THE KILN SYSTEM IS PREHEATED IN CYCLONE CHAMBERS AND A SECOND BURNER IS USED TO CALCINE MATERIAL IN A SEPARATE VESSEL ATTACHED TO THE PREHEATER PRIOR TO THE FINAL FUSION IN A KILN THAT FORMS CLINKER.

PREHEATER CEMENT KILN--A PORTLAND CEMENT KILN WHERE THE FEED TO THE KILN SYSTEM IS PREHEATED IN CYCLONE CHAMBERS PRIOR TO THE FINAL FUSION IN A KILN THAT FORMS CLINKER.

SYSTEM-WIDE—TWO OR MORE PORTLAND CEMENT KILNS UNDER THE COMMON CONTROL OF THE SAME OWNER OR OPERATOR, OR MULTIPLE OWNERS, IN THIS COMMONWEALTH.

§ 145.143. Standard requirements.

(a) By October 31, 2005, and each year thereafter, the owner or operator of a Portland cement kiln shall calculate the difference between the actual emissions from the unit during the period from May 1 through September 30 and the allowable emissions for that period.

(b) The OWNER OR OPERATOR OF A PORTLAND CEMENT KILN MAY NOT OPERATE A PORTLAND CEMENT KILN IN A MANNER THAT RESULTS IN NO_x EMISSIONS IN EXCESS OF ITS ALLOWABLE EMISSIONS, EXCEPT AS OTHERWISE SPECIFIED IN THIS SECTION.

(1) BEGINNING MAY 1 THROUGH SEPTEMBER 30, 2005, AND EACH YEAR THEREAFTER, THE owner or operator shall determine allowable emissions by multiplying the tons of clinker produced by the Portland cement kiln for the period by 6 pounds per ton of clinker produced.

(2) BEGINNING MAY 1 THROUGH SEPTEMBER 30, 2011, AND EACH YEAR THEREAFTER, THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SHALL DETERMINE ALLOWABLE EMISSIONS OF NO_x BY MULTIPLYING THE TONS OF CLINKER PRODUCED BY THE PORTLAND CEMENT KILN FOR THE PERIOD BY:

(i) 3.88 POUNDS OF NO_x PER TON OF CLINKER PRODUCED FOR LONG WET-PROCESS CEMENT KILNS.

(ii) 3.44 POUNDS OF NO_x PER TON OF CLINKER PRODUCED FOR LONG DRY-PROCESS CEMENT KILNS.

(iii) 2.36 POUNDS OF NO_x PER TON OF CLINKER PRODUCED FOR:

(A) PREHEATER CEMENT KILNS.

(B) PRECALCINER CEMENT KILNS.

(c) The owner or operator **OF A PORTLAND CEMENT KILN SUBJECT TO PARAGRAPH (b)(1)** shall install and operate a CEMS, and shall report CEMS emissions data, in accordance with the CEMS requirements of either Chapter 139 or 145 (relating to sampling and testing; and interstate pollution transport reduction) and calculate actual emissions using the CEMS data reported to the Department. Any data invalidated under Chapter 139 shall be substituted with data calculated using the potential emission rate for the unit or, if approved by the Department in writing, an alternative amount of emissions that is more representative of actual emissions that occurred during the period of invalid data.

(d) The owner or operator of a Portland cement kiln subject to this section shall surrender to the Department one CAIR NO_x allowance and one CAIR NO_x Ozone Season allowance, as defined in 40 CFR 96.102 and 96.302 (relating to definitions), for each ton of NO_x by which the combined actual emissions exceed the allowable emissions of the Portland cement kilns subject to this section at a facility from May 1 through September 30. The surrendered allowances shall be of current year vintage. For the purposes of determining the amount of allowances to surrender, any remaining fraction of

a ton equal to or greater than 0.50 ton is deemed to equal 1 ton and any fraction of a ton less than 0.50 ton is deemed to equal zero tons.

(e) If the combined allowable emissions from Portland cement kilns at a facility from May 1 through September 30 exceed the combined actual emissions from Portland cement kilns subject to this section at the facility during the same period, the owner or operator may deduct the difference or any portion of the difference from the amount of actual emissions from Portland cement kilns at the owner or operator's other facilities located in this Commonwealth for that period.

(f) By November 1, 2005, and each year thereafter, an owner or operator subject to this subchapter shall surrender the required NOx allowances to the Department's designated NOx allowance tracking system account, as defined in § 121.1 (relating to definitions), and shall provide in writing to the Department, the following:

(1) The serial number of each NOx allowance surrendered.

(2) The calculations used to determine the quantity of NOx allowances required to be surrendered.

(g) If an owner or operator fails to comply with subsection (f), the owner or operator shall by December 31 surrender three NOx allowances of the current or later year vintage for each NOx allowance that was required to be surrendered by November 1.

(h) The surrender of NOx allowances under subsection (g) does not affect the liability of the owner or operator of the Portland cement kiln for any fine, penalty or assessment, or an obligation to comply with any other remedy for the same violation, under the CAA or the act.

(1) For purposes of determining the number of days of violation, if a facility has excess emissions for the period May 1 through September 30, each day in that period (153 days) constitutes a day in violation unless the owner or operator of the Portland cement kiln demonstrates that a lesser number of days should be considered.

(2) Each ton of excess emissions is a separate violation.

§ 145.144. COMPLIANCE DETERMINATION.

(a) BY APRIL 15, 2011, THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SUBJECT TO § 145.143(b)(2) (RELATING TO STANDARD REQUIREMENTS) SHALL:

- (1) INSTALL, OPERATE AND MAINTAIN CEMS FOR NO_x EMISSIONS.
- (2) REPORT CEMS EMISSIONS DATA, IN ACCORDANCE WITH THE CEMS REQUIREMENTS OF CHAPTER 139, SUBCHAPTER C (RELATING TO REQUIREMENTS FOR SOURCE MONITORING FOR STATIONARY SOURCES), TO THE DEPARTMENT.
- (3) CALCULATE ACTUAL EMISSIONS USING THE CEMS DATA REPORTED TO THE DEPARTMENT.
- (b) IF APPROVED BY THE DEPARTMENT IN WRITING, DATA INVALIDATED UNDER CHAPTER 139, SUBCHAPTER C, SHALL BE SUBSTITUTED WITH ONE OF THE FOLLOWING:
- (1) THE HIGHEST VALID 1-HOUR EMISSION VALUE THAT OCCURRED UNDER SIMILAR SOURCE OPERATING CONDITIONS DURING THE REPORTING QUARTER FOR AN INVALID DATA PERIOD DURING THAT QUARTER.
- (2) IF NO VALID DATA WERE COLLECTED DURING THE REPORTING QUARTER, ONE OF THE FOLLOWING SHALL BE REPORTED TO THE DEPARTMENT:
- (i) THE HIGHEST VALID 1-HOUR EMISSION VALUE THAT OCCURRED UNDER SIMILAR SOURCE OPERATING CONDITIONS DURING THE MOST RECENT QUARTER FOR WHICH VALID DATA WERE COLLECTED.
- (ii) THE HIGHEST VALID 1-HOUR EMISSION VALUE THAT OCCURRED UNDER SIMILAR SOURCE OPERATING CONDITIONS DURING AN ALTERNATIVE REPORTING PERIOD.
- (3) AN ALTERNATIVE METHOD OF DATA SUBSTITUTION.
- (c) THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SUBJECT TO THIS SECTION SHALL SUBMIT TO THE DEPARTMENT QUARTERLY REPORTS OF CEMS MONITORING DATA IN POUNDS OF NO_x EMITTED PER HOUR, IN A FORMAT APPROVED BY THE DEPARTMENT, WHICH IS IN COMPLIANCE WITH CHAPTER 139, SUBCHAPTER C.
- (d) THE CEMS FOR NO_x INSTALLED UNDER THE REQUIREMENTS OF THIS SECTION MUST MEET THE MINIMUM DATA AVAILABILITY REQUIREMENTS IN CHAPTER 139, SUBCHAPTER C.

§ 145.145. COMPLIANCE DEMONSTRATION AND REPORTING REQUIREMENTS.

(a) BY OCTOBER 31, 2011, AND EACH YEAR THEREAFTER, THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SUBJECT TO § 145.143(b)(2) (RELATING TO STANDARD REQUIREMENTS) SHALL SUBMIT A WRITTEN REPORT TO THE DEPARTMENT, IN A FORMAT APPROVED BY THE DEPARTMENT, WHICH INCLUDES THE FOLLOWING:

(1) THE DIFFERENCE BETWEEN THE ACTUAL NO_x EMISSIONS FROM THE KILN DURING THE INTERVAL FROM MAY 1 THROUGH SEPTEMBER 30 AND THE ALLOWABLE EMISSIONS FOR THAT PERIOD.

(2) THE CALCULATIONS USED TO DETERMINE THE DIFFERENCE IN EMISSIONS, INCLUDING THE CEMS DATA AND CLINKER PRODUCTION DATA USED TO SHOW COMPLIANCE WITH THE ALLOWABLE EMISSION LIMITS IN § 145.143(b)(2). THE CLINKER PRODUCTION DATA MUST CONSIST OF THE QUANTITY OF CLINKER, IN TONS, PRODUCED PER DAY FOR EACH KILN.

(b) THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SHALL DEMONSTRATE COMPLIANCE WITH THE STANDARD REQUIREMENTS IN § 145.143(b)(2) ON ONE OF THE FOLLOWING:

(1) A KILN-BY-KILN BASIS.

(2) A FACILITY-WIDE BASIS.

(3) A SYSTEM-WIDE BASIS.

§ 145.146. RECORDKEEPING.

(a) THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SHALL MAINTAIN AN OPERATING LOG FOR EACH PORTLAND CEMENT KILN. THE OPERATING LOG MUST INCLUDE THE FOLLOWING ON A MONTHLY BASIS:

(1) THE TOTAL HOURS OF OPERATION.

(2) THE TYPE AND QUANTITY OF FUEL USED.

(3) THE QUANTITY OF CLINKER PRODUCED.

(b) THE RECORDS MAINTAINED BY THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN MUST INCLUDE THE FOLLOWING:

(1) SOURCE TESTS AND OPERATING PARAMETERS ESTABLISHED DURING THE INITIAL SOURCE TEST AND SUBSEQUENT TESTING.

(2) THE DATE, TIME AND DURATION OF ANY START-UP, SHUTDOWN OR MALFUNCTION OF A PORTLAND CEMENT KILN OR EMISSIONS MONITORING SYSTEM.

(3) THE DATE AND TYPE OF MAINTENANCE, REPAIRS OR REPLACEMENTS PERFORMED ON THE KILNS, CONTROL DEVICES AND EMISSION MONITORING SYSTEMS.

(c) THE OWNER OR OPERATOR OF A PORTLAND CEMENT KILN SHALL MAINTAIN THE RECORDS REQUIRED UNDER THIS SECTION ONSITE FOR 5 YEARS. THE RECORDS SHALL BE MADE AVAILABLE TO THE DEPARTMENT UPON REQUEST.

CONTROL OF NO_x EMISSIONS
FROM CEMENT KILNS

25 Pa. Code Chapters 121, 129 and 145

38 Pa.B. 1838 (April 19, 2008)

Environmental Quality Board Regulation #7-419
(Independent Regulatory Review Commission #2682)

Comment/Response Document

Control of NOx Emissions from Cement Kilns

On April 19, 2008, the Environmental Quality Board (Board, EQB) published a notice of public hearing and comment period on a proposed rulemaking concerning revisions to 25 *Pa. Code* Chapters 121, 129 and 145 (relating to general provisions; standards for sources; and interstate pollution transport reduction) to control the emissions of nitrogen oxides (NOx) from cement kilns during the ozone season (38 *Pa. B.* 1838). The public comment period closed on June 23, 2008.

Three public hearings were held on the proposed rulemaking as follows:

May 19, 2008
10:00 a.m. Department of Environmental Protection
Rachel Carson State Office Building
Room 105
400 Market Street
Harrisburg, PA 17105

May 21, 2008
10:00 a.m. Department of Environmental Protection
Northeast Regional Office
Susquehanna Room A, Second Floor
2 Public Square
Wilkes-Barre, PA 18711

May 23, 2008
10:00 a.m. Department of Environmental Protection
Southwest Regional Office
Waterfront A & B Conference Room
400 Waterfront Drive
Pittsburgh, PA 15222

This document summarizes the testimony received during the public hearings and the written comments received from the public during the public comment period. Each public comment is listed with the identifying commentator number for each commentator that made the comment. A list of the commentators, including name and affiliation (if any) can be found at the beginning of this document. The Board invited each commentator to prepare a one-page summary of the commentator's comments. One one-page summary was submitted to the Board for this rulemaking. The proposed rulemaking revisions to Chapter 129 have been deleted and incorporated in the final-form rulemaking into Chapter 145, Subchapter C (relating to emissions of NOx from cement manufacturing), to amend the existing cement kilns requirements that were effective December 11, 2004 (34 *Pa.B.* 6509) (§§ 145.141 – 145.144 (relating to emissions of NOx from cement manufacturing)) and amended effective April 12, 2008 (38 *Pa.B.* 1705) (§ 145.143 (relating to standard requirements)). The decision to incorporate the final-form amendments for cement kilns in Chapter 145, Subchapter C, was editorial because the existing provisions in Subchapter C regulate emissions of NOx from cement kilns. If adopted by the Board, the final regulation will be submitted to the U.S. Environmental Protection Agency (EPA) as a revision to the State Implementation Plan (SIP).

Table of Commentators to the Environmental Quality Board
Control of NOx Emissions from Cement Kilns Rulemaking # 7-419
(IRRC # 2682)

ID	Name/Address	One Page Summary Submitted for Distribution to EQB	Provided Testimony	Requested Copy of Final Rulemaking after EQB Action
1.	Christoph Streicher Plant Manager Lehigh Cement Company Evansville Plant			
2.	Gary A. Molchan Vice President Environmental Affairs Essroc			
3.	Michael H. Winek Babst, Calland, Clements & Zomnir, P.C. (submitted comments on behalf of: Armstrong Cement & Supply Corp.)	√		
4.	Amarjit Singh Gill, P.E Director, Environmental Affairs CEMEX			
5.	Senator Mary Jo White Chairperson Senate Environmental Resources and Energy Committee			
6.	Senator Raphael J. Musto Democratic Chairman Senate Environmental Resources and Energy Committee			
7.	Independent Regulatory Review Commission			

General Support

1. **Comment:** The commentators support the proposed regulation to lower ozone in the Commonwealth and support efforts in reducing NO_x and ozone related pollutants to reduce ground-level ozone. (1, 2)

Response: The Department of Environmental Protection (Department) appreciates the commentators' support of this rulemaking. The proposed rulemaking is consistent with regulatory initiatives recommended by the Ozone Transport Commission (OTC) to address transport of ozone precursor emissions, including NO_x, throughout the Ozone Transport Region (OTR). The measures recommended by the OTC are reasonably necessary to attain and maintain the health-based 8-hour ozone National Ambient Air Quality Standard (NAAQS) in this Commonwealth. Furthermore, on March 12, 2008, the EPA issued a more protective 8-hour ozone standard that could require additional emission reductions. Additionally, on September 16, 2009, the EPA filed a notice with the United States Court of Appeals for the District of Columbia Circuit explaining that the agency will reconsider the 2008 8-hour ozone NAAQS and announced its intent to propose a revised 8-hour ozone standard in December 2009; the final revised 8-hour ozone NAAQS is expected in March 2010. If the EPA acts to significantly tighten the 8-hour ozone standard, more areas of this Commonwealth could be in violation.

2. **Comment:** The commentator supports the facility-wide emissions averaging compliance option among kilns under common control of the same owner in this Commonwealth. (2)

Response: The Department appreciates the commentator's support to allow facility-wide emissions averaging as a compliance option. The Department is allowing this option to provide cement kiln owners and operators with greater flexibility to demonstrate compliance with the allowable NO_x emission limits.

3. **Comment:** The commentator supports the use of Clean Air Interstate Rule (CAIR) NO_x Ozone Season allowances as an economical compliance alternative. (2)

Response: The Department appreciates the commentator's support of allowing the use of CAIR NO_x Ozone Season allowances as part of the proposed rule's compliance options available to cement kiln owners and operators. The rulemaking amendments that were proposed in the *Pennsylvania Bulletin* on April 19, 2008 (38 Pa.B. 1838), under §§ 129.401 – 129.405 (relating to emissions of NO_x from cement manufacturing), have been deleted at final and in the final-form rulemaking the requirements are incorporated under Chapter 145, Subchapter C, as amendments to the cement kilns requirements that were effective December 11, 2004 (34 Pa.B. 6509) under §§ 145.141 – 145.144 (relating to emissions of NO_x from cement manufacturing) and amended effective April 12, 2008 (38 Pa.B. 1705) under § 145.143 (relating to standard requirements). The use of CAIR NO_x Ozone Season allowances as a compliance strategy is preserved in the final-form rulemaking under existing § 145.143(d), which provides that the owners or operators of Portland cement kilns shall surrender CAIR NO_x Ozone Season and CAIR NO_x annual allowances if the actual NO_x emissions from the kilns exceed the allowable NO_x emissions calculated for the kilns.

Proposed NOx Emission Limits

4. **Comment:** The proposed emission limits are derived from a 60% emissions reduction (from uncontrolled levels) based on SNCR (selective non-catalytic reduction) control technology that should not be applied to wet kilns. The two reports cited as support for the OTC Resolution and recommended NOx emission limit of 3.88 lb/ton clinker for wet kilns both indicate that SNCR is not available for wet kilns. Most published reports state that SNCR technology is not available for wet process kilns due to the difficulty of injecting the reagent in the proper place. The commentator recommends that the NOx limit for wet kilns should be based on a 50% reduction from uncontrolled levels (4.85 lb NOx/ton clinker) because a 50% reduction from uncontrolled levels of NOx is consistent with the EPA cement New Source Performance Standard (NSPS) rule that was proposed in the Federal Register on June 16, 2008 (73 FR 34072). (3)

Response: The Department disagrees with the commentator. The Department is proposing emission limits based on the OTC recommended limits. The Department is not requiring a specific reduction efficiency from the installation of an SNCR should an affected cement owner or operator decide to install an SNCR in order to comply with the emission limits proposed. Further, a review based on available emissions data indicate that in order to meet the proposed emission limits for a wet kiln, the wet kilns at the commentator's facility would require less than a 20% reduction from uncontrolled emission levels.

5. **Comment:** The Department is urged to add a compliance option which allows a cement company to establish a site-specific emission limit in tons of NOx during the ozone season. The site-specific emission limit should be based on the applicable emission factor for the kiln and the clinker production of the kiln based on the design rating or the highest historical actual production during the previous 10 years. (4)

Response: The Department disagrees with the commentator. The proposed rulemaking establishes emission **rates** per ton of clinker produced, based on kiln type, that are not to be exceeded during the ozone season. A site-specific emission limit based on a kiln's applicable emission factor and its clinker production, either using the kiln's design rating or historical actual production data from the previous 10 years, is in effect a **cap**-based emission limit rather than a rate-based emission limit. The Department's proposed emission limits are rate-based, not cap-based, and are emission limits recommended by the OTC.

6. **Comment:** The Department should state if it considered a compliance method of establishing a site-specific emission limit in tons of NOx during the ozone season. (7)

Response: Yes, the Department considered site-specific emission limits as a compliance option. Please see the response to comment # 5.

7. **Comment:** The Department should provide the basis for limiting new cement kilns subject to the proposed regulation to a lower emission limit (1.52 lb NOx/ton clinker) than existing kilns, as specified under proposed § 129.404(d) (relating to compliance determination). (4,7)

Response: Prior to developing the proposed rulemaking, the Department reviewed a number of technical documents and independently concluded that new cement kilns should have a lower emission limit than existing kilns. Under the EPA's proposed NSPS rule for Portland cement kilns (73 FR 34072, June 16, 2008), the EPA found that according to the industry, all new kilns will be preheater/precalciner kilns. The agency confirmed this by reviewing a detailed listing of Portland cement kilns which indicates that since 2000 all kilns constructed or modernized are of the preheater/precalciner design. Moreover, when the OTC recommended to the states the NOx emission limits for cement kilns in Resolution 06-02 of the Ozone Transport Commission Concerning Coordination and Implementation of Regional Ozone Control Strategies for Certain Source Categories, adopted June 7, 2006 (OTC Resolution 06-02), two separate limits were proposed for preheater and precalciner kilns, 2.36 lb NOx/ton clinker and 1.52 lb NOx/ton clinker, respectively. The Department chose to adopt the 2.36 limit for both preheater and precalciner kilns because the Commonwealth has only one existing precalciner kiln, but of an early precalciner kiln technology. This kiln is more like a preheater kiln from an energy use perspective. The OTC, the EPA and the Department understand that the newest technology for kiln-types is precalciner. The annual NOx emission limit proposed by the EPA is 1.50 lb/ton clinker for new cement kilns constructed, modified, or reconstructed after June 16, 2008. (See 73 FR pages 34074, 34075 and 34089.) The Department maintains that all new kilns in this Commonwealth would be the precalciner type, and would therefore be required to meet not only the NOx limit established in the EPA's final NSPS but also the Best Available Technology (BAT) regulatory requirement for new cement kilns, which is to control emissions to the maximum degree possible. The NSPS will apply to all new cement kilns that commence operation in this Commonwealth, therefore, the Department determined that the NOx emission limit for new cement kilns in the proposed rulemaking is unnecessary and this requirement has been deleted from the final-form rulemaking.

8. **Comment:** The Department should provide the technical basis for the allowable emission limits and explain the data used to make the determination. If the emission limits are based upon an OTC resolution, then the Preamble to the final-form regulation should compare Pennsylvania's program with how other OTC states are complying with this resolution. (7)

Response: The NOx emission limits for cement kilns in the proposed rulemaking are those recommended by the OTC. The technical basis for the emission limits are based on OTC Resolution 06-02. This resolution used data and analysis from the following report prepared for the OTC: *Identification and Evaluation of Candidate Control Measures, Final Technical Support Document*, prepared by MACTEC Federal Programs, Inc. (February 28, 2007). The OTC's Control Measures workgroups collected pollutant data and source category information, and evaluated information regarding emission benefits, cost-effectiveness and implementation issues to determine the allowable limits that were published in the proposed rulemaking. The Department independently reviewed this information and concurred with the data and the decisions in the OTC resolution that recommended the emission limits. Regulations based on the OTC recommendations are being pursued by New York and Maryland. Maine has one cement kiln permitted to convert to a dry process, and this new kiln will be subject to Best Available Control Technology (BACT) under the Prevention of Significant Deterioration Program. This Commonwealth, New York, Maryland and Maine are the only states in the OTR that have

cement kilns. Therefore, it is not anticipated that the Department's final-form rulemaking will place cement plants in this Commonwealth at a competitive disadvantage.

9. **Comment:** Will the cement emission limits proposed by the EPA on June 16, 2008 (73 FR 34072), impact the proposed regulation and will they result in additional changes to Pennsylvania's NOx emission limits in the future? (7)

Response: The NSPS proposed by the EPA on June 16, 2008 (73 FR 34072), caused a minor change to the Department's final-form rulemaking. The cement emission limits proposed by the EPA on June 16, 2008, for Portland cement kilns apply to new cement kilns constructed, modified or reconstructed after June 16, 2008. The EPA proposed an annual NOx emission limit of 1.50 lb/ton clinker. (See 73 FR pages 34074, 34075 and 34089.) The Department maintains that all new kilns in this Commonwealth would be the precalciner type, and therefore must meet not only the NOx limit established in the EPA's final NSPS but also the Best Available Technology (BAT) regulatory requirement for new cement kilns, which is to control emissions to the maximum degree possible. Therefore, the Department determined that the NOx emission limit in the proposed rulemaking for new cement kilns is unnecessary and this requirement has been deleted from the final-form rulemaking. Additionally, the decision was made to delete from the final-form rulemaking the emissions averaging provision for new kilns commencing operation after the effective date of adoption of the final-form rulemaking. The Department maintains that allowing owners or operators of new cement kilns to average the NOx emissions from the new kilns with NOx emissions from existing cement kilns in order to meet the regulatory obligation of existing kilns is inconsistent with the BAT regulatory obligation for new cement kilns, which is to control emissions to the maximum degree possible. Therefore, the Department determined that the emissions averaging provision in the proposed rulemaking for new cement kilns is inconsistent with existing regulatory obligations and this provision has also been deleted from the final-form rulemaking.

10. **Comment:** While other sections of the proposal mention an exact date for compliance with emission requirements, §§ 129.402(a) and (b), and 129.404(a)(1), (c)(1), (d) and (g)(1) refer to the period of May 1 through September 30 (2009). The final-form regulation should explain the need for this distinction and how it applies to each of the relevant sections listed above. (7)

Response: The Department disagrees with the commentator that the final-form rulemaking should explain the distinction. The compliance period for determining allowable emissions of NOx, regardless of year, is from May 1 through September 30. The requirements under proposed §§ 129.402(a) and (b) (relating to emission requirements), (which have been moved under new §§ 145.143(b)(1) and (2) (relating to standard requirements) at final) and 129.404(a)(1), (c)(1), (d) and (g)(1) (relating to compliance demonstration), (which have been both moved under new § 145.145(a)(1) (relating to compliance demonstration and reporting requirements) and retained under existing §§ 145.143(d), (e) and (h)(1) at final) refer to the first year of the compliance period under the regulation, and each year thereafter.

Vacatur of the EPA's CAIR

11. **Comment:** The IRRC questioned the Board's statutory authority for the use of CAIR NOx allowances and revised NOx emission limits in the proposed regulation due to the fact that CAIR was vacated on July 11, 2008, by the D.C. Circuit Court. The Court in its ruling stated that the analysis done by the EPA was "fundamentally flawed" and that the agency (EPA) must start its analysis anew. (7)

Response: The decision by the D.C. Circuit Court in *North Carolina v. EPA* only addressed the EPA's CAIR (70 FR 25162, May 12, 2005), and did not address NOx emission limits for cement kilns. In its decision vacating the EPA's CAIR, the Court continued the NOx Budget Trading Program to "mitigate" any disruption that may result from the Court's vacatur of the CAIR program. However, in a later ruling on petitions for rehearing (December 23, 2008) the Court decided to remand the EPA's CAIR rather than to vacate, leaving it in place until the EPA revises it. The final Federal rule, expected in 2011, must be revised to be consistent with the Court's July 11, 2008, decision in *State of North Carolina v. Environmental Protection Agency*, 531 F.3d 896 (D.C. Cir. 2008). Therefore, the Board's statutory authority to propose a rulemaking to control NOx emissions from cement kilns is not limited and the Board may move forward with a final-form rulemaking. On May 23, 2008, the Department submitted to the EPA a SIP revision for the Department's CAIR regulatory requirements under §§ 145.201-145.223 (relating to CAIR NOx and SO₂ trading programs), effective on April 12, 2008 (38 *Pa.B.* 1705), that provide for a CAIR NOx Ozone Season Trading Program and a CAIR NOx Annual Trading Program. The Department's CAIR regulation also included amendments to existing § 145.143 to require the owners or operators of Portland cement kilns to surrender CAIR NOx Ozone Season and CAIR NOx annual allowances if the actual NOx emissions from the kilns exceed the allowable NOx emissions calculated for the kilns. The EPA approved the Department's CAIR regulation as a SIP revision effective December 10, 2009 (74 FR 65446).

12. **Comment:** The Senate Committee commented on the ability of the Board to move forward with the regulation if the D.C. Court vacated the CAIR budget and allowance system for NOx emissions in Pennsylvania and other states. Their concern is that on July 11, 2008, the U.S. Court of Appeals for the District of Columbia overturned CAIR, and specifically that the Court found that the state NOx budgets as determined by the EPA were "arbitrary and capricious." (5,6)

Response: Please see the response to comment # 11.

13. **Comment:** The commentator believes that the Department should address the concerns by the Senate Committee on the CAIR vacatur, and suggests that if the regulation requires substantial changes, to consider submitting an Advanced Notice of Final Rulemaking or publishing the changes as a new proposed regulation in the *Pennsylvania Bulletin*. (7)

Response: The final-form rulemaking will not require substantial changes as a result of the initial vacatur of the EPA's CAIR on July 11, 2008. In a later ruling on petitions for rehearing (December 23, 2008), the Court decided to remand the EPA's CAIR rather than to vacate, leaving it in place until the EPA revises it. The final Federal rule, expected in 2011, must be

revised to be consistent with the Court's July 11, 2008, decision in *State of North Carolina v. Environmental Protection Agency*, 531 F.3d 896 (D.C. Cir. 2008). On May 23, 2008, the Department submitted to the EPA a SIP revision for the Department's CAIR regulation, including requirements under § 145.143 that were effective on April 12, 2008 (38 Pa.B. 1705), that provide for a CAIR NOx Ozone Season Trading Program and a CAIR NOx Annual Trading Program. These amendments to § 145.143 require the owners or operators of Portland cement kilns to surrender CAIR NOx Ozone Season and CAIR NOx annual allowances if the actual NOx emissions from the kilns exceed the allowable NOx emissions calculated for the kilns. The EPA approved the Department's CAIR regulation as a SIP revision effective December 10, 2009 (74 FR 65446). The Department believes that the SIP-approved CAIR NOx Ozone Season and CAIR NOx allowance program under § 145.143 will preserve the requirement of the proposed rulemaking for an owner or operator of a Portland cement kiln or kilns to surrender CAIR NOx allowances for each ton of NOx by which the combined actual emissions of NOx from the kiln or kilns exceed the allowable emissions of NOx for the kiln or kilns at the facility.

System-Wide Averaging of NOx Emissions

14. **Comment:** The Senate Committee and the IRRC commented on the proposed provision to allow facilities under common ownership to trade NOx allowances for system-wide averaging of NOx emissions, while prohibiting the trading of NOx allowances to average NOx emissions between facilities not under common corporate ownership. The Senate Committee commented that they support the concept of NOx allowance trading, and would favor removing the requirement for being "under common control of the same owner or operator in this Commonwealth" from the system-wide averaging section of the rulemaking. (5,6,7)

Response: The Department disagrees with the Senate Committee's suggestion to remove the requirement for being "under common control of the same owner or operator in this Commonwealth" from the system-wide averaging option under the compliance demonstration section of the rulemaking. The option to demonstrate compliance with the emission limits by averaging the NOx emissions of several cement kilns under the common control of the same owner or operator in this Commonwealth provides flexibility to the cement kiln owners and operators in this Commonwealth with more than one facility. Allowing multiple owners and operators of cement kilns in this Commonwealth to average their emissions in concert with each other in order to demonstrate compliance would essentially provide them the larger framework of an emissions trading program, which is beyond the scope of the final-form rulemaking provision to provide them an emissions averaging option.

Permitting of NOx Controls

15. **Comment:** The use of different types of control technologies to achieve NOx emission reductions greater than 20% implies that facilities can use these technologies without the need for a permitting process. Is this the Board's intent? If this is not the Board's intent, has the Board considered streamlining the permitting process for installing the NOx reducing technologies? (7)

Response: The Department disagrees that the use of different types of control technologies to achieve NOx emission reductions greater than 20% implies that facilities can use these technologies without the need for a permitting process. It is not the intent of the Department to imply that there is not a need for a permitting process for the use of NOx control technologies. The permitting requirements for the installation of a control technology will be determined in accordance with 25 *Pa Code* Chapter 127, Subchapter B (relating to plan approval requirements). The Department has several permit streamlining procedures in place, and plan approval applications are always acted on by the Department as expeditiously as possible, especially those that involve the installation of control equipment in order to meet a regulatory requirement.

16. **Comment:** The permitting process for installing the NOx control technologies to achieve the emission results of the proposed rulemaking should be streamlined. The authorizations should be issued within 30 days after an application is submitted. (4)

Response: The Department disagrees with the commentator that the authorizations should be issued within 30 days after an application is submitted. The permitting requirements for the installation of a control technology will be determined in accordance with the provisions under Chapter 127, Subchapter B. The Department has several permit streamlining procedures in place, and plan approval applications are always acted on by the Department as expeditiously as possible, especially those that involve the installation of control equipment in order to meet a regulatory requirement.

Invalid Data Substitution and Data Reporting Provisions

17. **Comment:** The proposed rule contains punitive and unreasonable data substitution provisions for invalid data by substituting missing data with data calculated using the potential emission rate for the kiln, or with the highest valid 1-hour emission value. The provision is designed to substitute missing data with unfairly high emissions data. The data substitution provision should be revised to reasonably use the data from before and after the missing data period, or as previously agreed to under the current NOx rule (data based on a 30-day average), or at the very least pursuant to agreement with the Department. The Department should explain what method was used to determine the data substitution requirements. (3,7)

Response: The Department recognizes that substituted data should be representative of the actual emissions from the source during the time frame in question and not punitive in nature. The data substitution language in the final-form regulation has been modified to ensure that representative data is substituted while maintaining consistency with the procedures outlined in the Department's Continuous Source Monitoring Manual (DEP 274-0300-001). In addition, the data substitution procedures outlined in the final-form regulation are a combination of those contained in § 145.143 and the standard data substitution procedure contained in the Continuous Source Monitoring Manual. The Department believes that this change to the final-form rulemaking alleviates the concerns identified by the commentators related to unreasonable data substitution.

18. **Comment:** All kilns subject to the proposed rule will be subject to Title V reporting and compliance certification requirements, and additional reporting requirements are unnecessary and only add to the administrative burden. The proposed rule specifies certain information that must be included in the report to the Department, including the difference between the actual NO_x emissions and the allowable NO_x emissions over the ozone season, the CEMS data, and the clinker production data on a daily basis. The self-implementing and reporting under the Title V compliance certifications provision in the current NO_x cement rule is sufficient to demonstrate compliance, and the proposed rule contains unnecessary and burdensome reporting requirements. (3)

Response: The Department disagrees with the commentator. The Department does not believe that maintaining records of daily clinker production will present a significant inconvenience to any owner or operator. Daily records may be needed to enable the Department to verify the relationship between NO_x emissions recorded by CEMS, and clinker produced during the compliance period of May 1 through September 30 of each year. Records sufficiently precise to quantify clinker produced by each Portland cement kiln during that period are necessary to enable owners and operators to demonstrate compliance and determine allowances for surrender. Continuous emission monitoring is the most precise means of determining emissions over extended time periods. All Portland cement kilns subject to this rule are already equipped with CEMS that are either certified by the Department, or operating under a pending certification application, to monitor NO_x in pounds per hour. Because CEMS data is recorded and reported quarterly, and the compliance period of May 1 through September 30 does not coincide precisely with the second and third calendar quarters, a separate report is required to make the required compliance demonstrations and calculate any allowances to be surrendered.

19. **Comment:** The IRRC commented on whether it is feasible for the owner or operator of a cement kiln to report their emission data to the Department by 10/31/09 and then be required to surrender their NO_x allowances one day later (11/1/09). (7)

Response: The Department disagrees that this requirement is infeasible. The requirement to report information to the Department by October 31 of every compliance year is consistent with the same reporting requirements in the current regulation for cement kilns found under Chapter 145, Subchapter C. The affected owners and operators of cement kilns will know prior to October 31 of every compliance year whether they are required to surrender NO_x allowances, because they will have the entire month of October to calculate their emissions for the previous May 1 through September 30 compliance period and determine if and how many allowances they need to surrender by or on the succeeding November 1 to comply with the regulation.

20. **Comment:** The IRRC commented that the proposed regulation requires cement kiln operators to report various information to the Department "by October 31, 2009," while other sections of the regulation require compliance with emission limits by September 30, 2009. Will the owners or operators of cement plants be able to collect and deliver all the required reports within a month? (7)

Response: The Department believes that these reports can be delivered within a month. The requirement to report information to the Department by October 31 of each year is consistent

with the reporting requirements in the current regulation for cement kilns found under Chapter 145, Subchapter C. Reporting of CEMS data for the third calendar quarter (July through September) by October 30 of each year is already required by 25 Pa. Code § 139.101 (relating to general requirements) and the Continuous Source Monitoring Manual.

21. **Comment:** The IRRC commented that the proposed regulation requires cement kiln operators to submit a report to the Department “in a format approved, in writing, by the Department,” and stated that this phrase is vague. The final-form regulation should provide more detail on the type of format. (7)

Response: The Department disagrees. The requirement to submit a report to the Department in a format approved, in writing, by the Department, is a standard requirement. This requirement is found in many Board-approved rulemakings, and neither the Department nor the regulated sources have had problems understanding or complying with this requirement. Portland cement kiln owners and operators already submit to the Department quarterly reports of CEMS monitoring data in pounds of NO_x emitted per hour, in a format approved by the Department, in writing, and in compliance with Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources). Section 139.101(1) states that “The submittal procedures specified in the publication entitled “Continuous Source Monitoring Manual,” available from the Department, shall be utilized to obtain Department approval.”

Each Portland cement kiln owner or operator in this Commonwealth currently has a certified CEMS installed on the kiln, and reports emissions in pounds of NO_x emitted per hour, in a format approved by the Department. Portland cement kiln owners and operators will also provide sufficient documentation to demonstrate compliance with § 129.404 (new § 145.145). The Department will review each submittal and request additional information or clarification, as needed.

22. **Comment:** The IRRC commented that the proposed regulation requires cement kiln operators to submit a report to the Department “in a format approved, in writing, by the Department.” How will the cement kiln operators be notified of the acceptable reporting format? Will the report form be accessible on the Department’s website? This information should be included in the final-form regulation. (7)

Response: The Department disagrees that this information should be included in the final-form rulemaking. Cement kilns owners and operators should be provided the flexibility to discuss this report format with their Department contact personnel, and not be required to use a prescriptive format specified in the final-form rulemaking. This is a standard practice for other regulatory programs that benefits both the Department and the regulated industry.

Compliance Deadline Date

23. **Comment:** The IRRC asked whether the cement kilns in this Commonwealth would be able to meet the May 1, 2009, compliance deadline. (7)

Response: Due to the remand of the EPA's CAIR, the delayed proposed approval by the EPA of the Department's CAIR regulation SIP revision and the lengthy rulemaking process overall, the final-form rulemaking has a revised compliance date of May 1, 2011, for the owners or operators of Portland cement kilns to meet the revised NOx emission limits. The compliance date in the final-form rulemaking by which the CEMS must be installed, operating and maintained is April 15, 2011.

Compliance Demonstration

24. **Comment:** The IRRC commented that the difference between subsections 129.404(b) and (c) is unclear. Subsection (b) lists compliance options that cement kiln owners or operators **must** follow, while subsection (c) includes various requirements cement kiln owners or operators **may** fulfill. The final-form regulation should clarify what circumstances would necessitate compliance with subsection (c). (7)

Response: The Department believes that the final-form rulemaking clearly specifies what circumstances would necessitate compliance with these subsections. Proposed subsection 129.404(c) has been deleted at final and the requirements retained under existing subsection 145.143(d). Proposed subsection 129.404(b) has been deleted at final and the same requirements are specified at final under new subsection 145.145(b) and in the definition of the new term "system-wide" under § 145.142 (relating to definitions). New subsection 145.145(b) lists three options to demonstrate compliance with the allowable NOx emission limits. Cement kiln owners or operators shall choose one compliance option from the three listed to use as the basis for determining the amount of allowable and actual NOx emissions from their kiln or kilns. Existing subsection 145.143(d) lists the requirements that a cement kiln owner or operator shall follow to surrender NOx allowances if the owner or operator determines, after calculating the amount of actual NOx emissions in accordance with the requirements under §§ 145.144 (relating to compliance determination) and 145.145, that the actual NOx emissions from the kiln or kilns exceed the amount of allowable NOx emissions for the kiln or kilns, determined in accordance with the requirements under subsection 145.143(b).

25. **Comment:** Proposed subsection 129.404(b) refers to "a Portland cement kiln or multiple Portland cement kilns," and subsection (c) only references "a Portland cement kiln." Does this subsection also apply to multiple kilns? (7)

Response: The final-form rulemaking has deleted the requirements proposed under Chapter 129. The proposed requirements have been incorporated at final as amendments to the existing cement kiln regulatory provisions that were effective on December 11, 2004 (34 *Pa.B.* 6509) under Chapter 145, Subchapter C. The Department believes that the existing provisions of Subchapter C and the final-form amendments to Subchapter C accurately reflect that the final-form rulemaking applies to a Portland cement kiln or multiple kilns.

26. **Comment:** Proposed subsection 129.404(e) requires cement kiln operators to surrender the required CAIR NOx ozone allowances by "November 1, 2009, and each year thereafter."

Subsection (c) includes this surrender as a possible method of compliance. The final-form regulation should explain when each of these subsections would apply. (7)

Response: The Department believes that the final-form regulation clearly specifies when the requirements are applicable. Proposed subsection 129.404(c) has been deleted at final and the requirements are retained under existing subsection 145.143(d) at final. Proposed subsection 129.404(e) has been deleted at final and the requirements are retained under existing subsection 145.143(f). Existing subsection 145.143(d) lists the requirements that a cement kiln owner or operator shall follow to surrender NOx allowances if their actual NOx emissions exceed their allowable NOx emissions. Existing subsection 145.143(f) specifies the date by when a cement kiln owner or operator shall surrender the NOx allowances if needed to comply with subsection 145.143(d).

27. **Comment:** Proposed subsection 129.404(g)(1) explains how to determine the number of days of violation if the facility has excess emissions for the period May 1 through September 30, and states that “each day in that period...constitutes a day in violation **unless the owner or operator of the Portland cement kiln demonstrates that a lesser number of days should be considered.**” The Board should explain what circumstances would warrant such consideration. (7)

Response: The Department disagrees. The Department maintains that it is the responsibility of the owner or operator of the affected cement kiln to demonstrate to the satisfaction of the Department what circumstance or circumstances would warrant consideration of a lesser number of days in violation. The requirements that were proposed under paragraph 129.404(g)(1) and deleted at final are consistent with the requirements specified under existing paragraph 145.143(h)(1) for determining the number of days of violation in the current regulation for cement kilns found under Chapter 145, Subchapter C. At final these requirements are retained under existing paragraph 145.143(h)(1).

Definitions – Reasonableness and Clarity

28. **Comment:** The IRRC stated the program referenced in the Preamble, the Regional Compliance Assistance Program, did not appear to be defined by regulation or statute, and questioned how would cement operators access the program. (7)

Response: The Department agrees with the commentator that the term “Regional Compliance Assistance Program” is not defined by regulation or statute. The term refers to the Department’s regional, or “field,” staff that regularly assist their respective facilities in understanding and complying with applicable Department regulations.

29. **Comment:** The IRRC commented on the CEMS definition as it relates to an earlier, “original” definition that references Chapter 127, Subchapter E, and the reference in the proposed revision of the term in the proposed rulemaking to standards under Chapter 139, Subchapter C, and suggests the Department explain why a different chapter of Title 25 of the Pennsylvania Code now applies to the proposed definition. (7)

Response: The intent of the revision of the definition for the term “CEMS” in the proposed rulemaking under 25 Pa. Code § 121.1 (relating to definitions) is for the CEMS definition to apply more broadly to the entire air quality regulatory program. However, subsequent to the close of the public comment period for the proposed cement kilns rulemaking, the Department proposed a revised definition of the term “CEMS” under § 121.1 in a proposed rulemaking as part of the amendments to the air quality fee schedules (see 39 Pa.B. 6049, October 17, 2009). Therefore, the revision of the definition for the term “CEMS” in the proposed cement kilns rulemaking was deleted at final, and the existing definition of CEMS under § 145.142 that applies to cement kilns has been retained in the final-form rulemaking. The existing CEMS definition under § 145.142 ensures that the monitoring equipment complies with the requirements under Chapter 139 (relating to sampling and testing).

30. **Comment:** The final-form regulation should include a definition for “invalidated data.” In addition, the Board also should explain the difference between an “invalid data period” and an “alternative reporting period” as mentioned under § 129.403(b)(2)(ii). (7)

Response: The Department disagrees with the commentator that the final-form rulemaking should include a definition for “invalidated data.” Conditions that render data invalid, and procedures for substituting the invalid data with valid data, are defined throughout the Continuous Source Monitoring Manual. Owners or operators of each Portland cement kiln subject to this rule are familiar with those provisions, since they already operate Department-certified CEMS. An “alternative reporting period” is not specifically defined, since it is provided under proposed subparagraph 129.403(b)(2)(ii) (new subparagraph 145.144(b)(2)(ii) (relating to compliance determination)) as a means for an owner or operator to propose a unique alternative for the Department’s consideration. The phrase “under similar source operating conditions” was added in the final-form rulemaking to new subsections 145.144(b)(1) and (2)(i) and (ii) to provide added flexibility to the owners or operators of cement facilities proposing a data substitution method to the Department.

31. **Comment:** Proposed paragraph 129.403(b)(1) refers to the “potential emission rate” for the cement kiln, but does not explain how this rate is determined. The final-form regulation should define this term. (7)

Response: The Department disagrees. Proposed paragraph 129.403(b)(1) (new subsection 145.144(b) of the final-form rulemaking) has been modified to ensure that representative data is substituted and to maintain consistency with the procedures outlined in the Continuous Source Monitoring Manual. The modifications made to this section necessitated deleting the provision for the substitution of invalidated data with the potential emission rate for the kiln. Therefore, a definition for the term “potential emission rate” is not necessary.

32. **Comment:** Proposed subsection 129.403(c) states that Portland cement kiln operators shall submit quarterly reports of CEMS monitoring data in “pounds of NO_x emitted per hour.” Why does this subsection not refer to data in “pounds of NO_x per **ton of clinker**”, as proposed subsection 129.402(b) does? The final-form regulation should clarify this distinction. (7)

Response: The Department disagrees with the commentator that the final-form regulation should clarify this distinction. The CEMS currently being operated by the cement kiln owners and operators monitor emissions of NOx. CEMS cannot measure tons of clinker produced, since by definition, a CEMS can only monitor emissions per unit of time. Quarterly reports of pounds of NOx per ton of clinker would not satisfy the reporting requirements of proposed § 129.404 (new § 145.145 at final), since the compliance period of May 1 through September 30 does not coincide precisely with the second and third calendar quarters. The Department is not responsible for examining possible compliance implications for all compliance options available under proposed subsection 129.404(b) (new subsection 145.145(b) at final) for each Portland cement kiln. Owners or operators must select a compliance option and submit a report to demonstrate how that option is fulfilled.

33. **Comment:** Proposed paragraph 129.404(c)(1) refers to “CAIR NOx Ozone Season allowance,” as defined in § 145.202 (relating to definitions),” but this section of the Code does not include a definition for this term. The final-form regulation should provide the appropriate cross-reference in this subsection. (7)

Response: The Department agrees with the commentator. The final-form rulemaking, in existing subsection 145.143(d), includes the appropriate Code of Federal Regulations reference for the definitions of the terms “CAIR NOx Ozone season allowance” and “CAIR NOx allowance.”

Recordkeeping

34. **Comment:** Proposed subsection 129.405(c) requires cement kiln owners or operators to maintain records for 5 years. How did the Board determine this was an appropriate timeframe? (7)

Response: Requiring regulated facilities to maintain records for 5 years is a standard requirement. This requirement is found in many Board-approved regulations, including §§ 127.11(b)(2) (relating to plan approval requirements) and 139.101(5). Neither the Department nor the regulated sources have had difficulty understanding or complying with this requirement.

35. **Comment:** Proposed subsection 129.405(c) requires cement kiln owners or operators to make their records available to the Department “upon request.” Since it is unclear if the Department’s requests will be in writing, the final-form regulation should specify that the Department will make these requests in writing. (7)

Response: The Department disagrees with the commentator that the final-form rulemaking should specify that the Department will make these requests in writing. The Department has never limited itself to requiring that requests for records from the regulated industry be made in writing. At site inspections, regulated industries are required to make all records available to the Department upon request. The commentator’s suggestion that the Department will make these requests in writing could severely hamper the Department’s investigative powers. Moreover,

section 4 of the Commonwealth's Air Pollution Control Act provides the Department with broad authority related to access and the production of documents.

Other Comments

36. **Comment:** The commentator states their kilns are long dry-process cement kilns and are subject to the allowable emission limit of 3.44 lb NO_x/ton clinker. Their kilns are not preheater kilns because the systems do not contain a series of multiple cyclones as defined by the EPA in its 1993 NO_x Alternative Control Technologies (ACT) Document (which was updated in September 2000). The commentator requests that the Department establish its new NO_x limit during the ozone season at 3.44 lbs/ton clinker starting with the 2009 Ozone Season. (1)

Response: The Department disagrees with the commentator. The comment is an implementation issue. The commentator must have discussions with the Department prior to the effective compliance date of the final regulation, if the final-form rulemaking is adopted by the Board, on how the final regulation will be implemented and complied with by their facility.

37. **Comment:** A provision to the proposed rule should be added to indicate that this rulemaking should supersede the case-by-case reasonably available control technology (RACT) determinations for cement kilns in this Commonwealth. The proposed rule should be more stringent than any existing NO_x RACT requirement because this rulemaking provides an opportunity to streamline NO_x requirements and "clean up" previous NO_x requirements in various RACT plan approvals and permits. (3)

Response: The Department disagrees with the commentator. Should the final-form rulemaking requirements be more stringent than a RACT requirement previously established for the cement kiln on a case-by-case basis, complying with the more stringent provisions in the final-form rulemaking would ensure compliance with the other RACT requirements. Streamlining these NO_x requirements could be done at the next renewal of the facility's Title V permit. In the event that there is a need to remove a restriction included as part of the RACT requirements, such a removal could only be done by a revision to the SIP, since the case-by-case RACT determinations were approved by the EPA as revisions to the Pennsylvania SIP. The owner or operator of a cement kiln may submit a request to revise their current NO_x RACT requirements under the SIP revision process.

38. **Comment:** The proposal requires owners or operators of cement kilns to "install, operate and maintain CEMS for NO_x emissions" by May 1, 2009. What will the costs be for owners and operators as a result of requiring this device to be installed on kilns in less than a year? (7)

Response: The owners and operators of the cement kilns in this Commonwealth who are affected by the proposed rulemaking currently have a CEMS as part of the existing cement kiln regulation requirement that limits NO_x emissions from cement kilns during the period of May 1 through September 30 of each year to 6.0 lbs/ton clinker (see subsection 145.143(b) (34 *Pa.B.* 6509, December 11, 2004); this requirement is found under paragraph 145.143(b)(1) of the final-form rulemaking). The existing cement kiln requirements were effective December 11, 2004

(34 Pa.B. 6509), with a compliance date of May 1, 2005 (see § 145.141 (relating to applicability)) and amended effective April 12, 2008 (38 Pa.B. 1705). Therefore, there are no costs to the owners and operators of affected cement kilns to install a CEMS. In the final-form rulemaking, the compliance date under new subsection 145.144(a) by when the CEMS must be installed, operating and maintained is April 15, 2011, for the owner or operator of a Portland cement kiln subject to new paragraph 145.143(b)(2). This date will ensure that the CEMS equipment is running properly before the compliance date of May 1, 2011, which is the first day of the first compliance period for affected owners and operators for the determination of allowable emissions for the Portland cement kilns using the new emission limits specified under paragraph 145.143(b)(2) of the final-form rulemaking.



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

POLICY OFFICE

April 12, 2010

Mr. Kim Kaufman, Executive Director
Independent Regulatory Review Commission
14th Floor
333 Market Street
Harrisburg, PA 17120

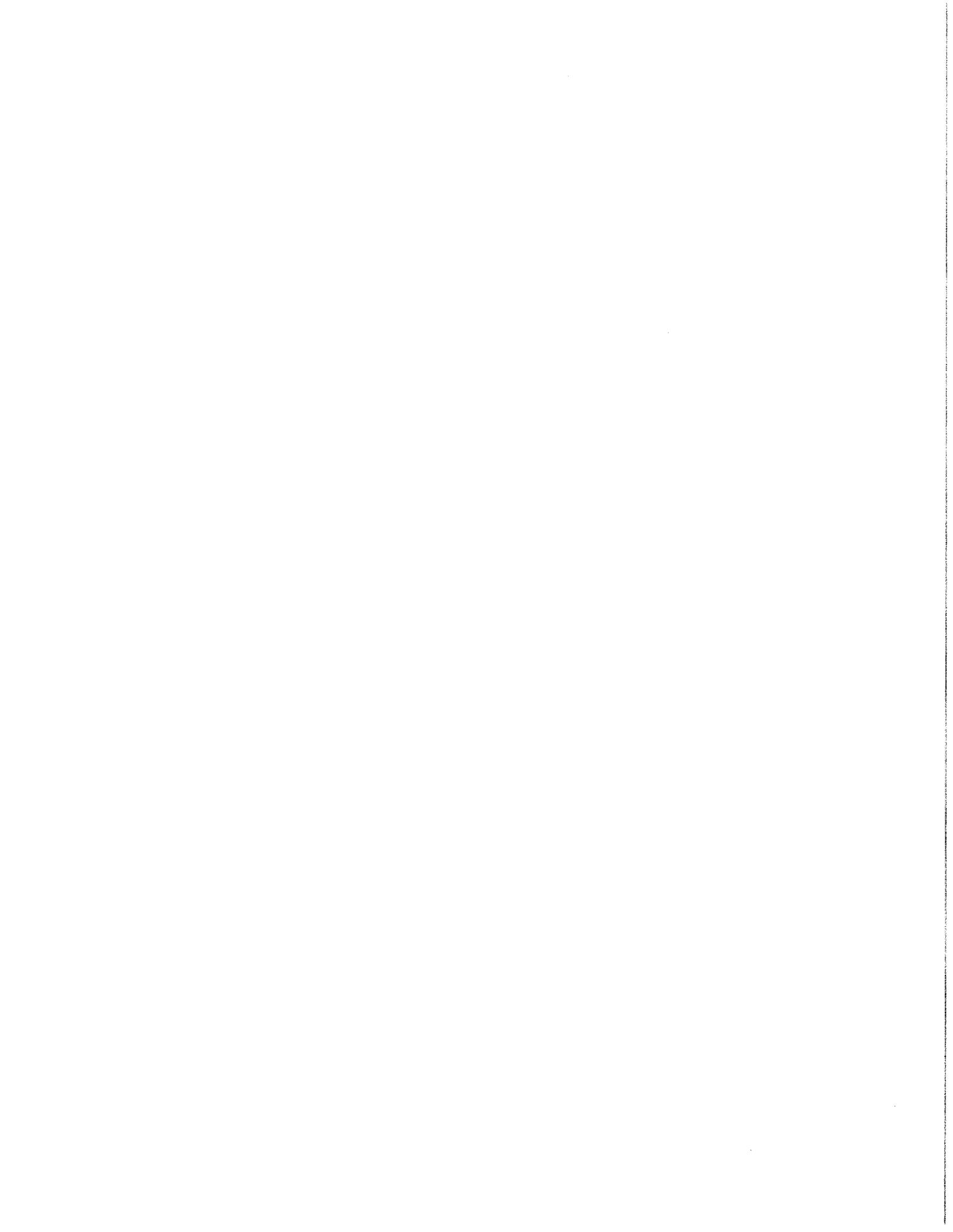
Re: Final-Form Rulemaking – Control of NO_x Emissions from Cement Kilns (#7-419); and
Final-Form Rulemaking – Control of NO_x Emissions from Glass Melting Furnaces (#7-420)

Dear Mr. Kaufman:

Pursuant to Section 5.1(a) of the Regulatory Review Act, please find enclosed copies of two final-form rulemakings for review and comment by the Independent Regulatory Review Commission (IRRC). The Environmental Quality Board (EQB) approved these is final-form rulemakings at its March 16, 2010, meeting.

The Control of NO_x Emissions from Cement Kilns final rulemaking amends existing requirements in *25 Pa Code*, Chapter 145 in order to further reduce NO_x emissions from Portland cement kilns in Pennsylvania during the ozone season (May 1 – September 30). Emissions of NO_x are precursors to the formation of ground-level ozone and fine particulate matter (PM_{2.5}) pollution, both of which are serious human health and public welfare threats. In Pennsylvania, there are nine cement plants with 21 cement kilns. These kilns are one of the largest industrial NO_x emission source categories, and account for approximately 29% of the more than 45,000 tons per year of NO_x emitted into the air from all nonelectric generating unit sources in the Commonwealth. Adoption of the revised NO_x emission limits for cement kilns in this rulemaking is part of the Commonwealth's strategy, in concert with other Ozone Transport Reduction (OTR) jurisdictions, to reduce the transport of ozone in order to attain and maintain the health-based 2008 8-hour ozone National Ambient Air Quality Standards (NAAQS) of 0.075 parts per million in this state and throughout the OTR. If approved, the revised NO_x emission limits in the final-form rulemaking must be met by owners and operators of Portland cement kilns by May 1, 2011.

The regulations were approved by the Board at proposed rulemaking on February 19, 2008. A 66-day public comment period commenced on April 19, 2008, and three public hearings were respectively held on the proposed rulemaking in Wilkes-Barre, Pittsburgh and Harrisburg. During the comment period, seven commentators provided comments on the proposal, including comments submitted by Senators Mary Jo White and Raphael J. Musto and the Independent Regulatory Review Commission (IRRC). Although some commentators expressed their support of the goal of the regulations to lower ozone in the Commonwealth, some questioned several



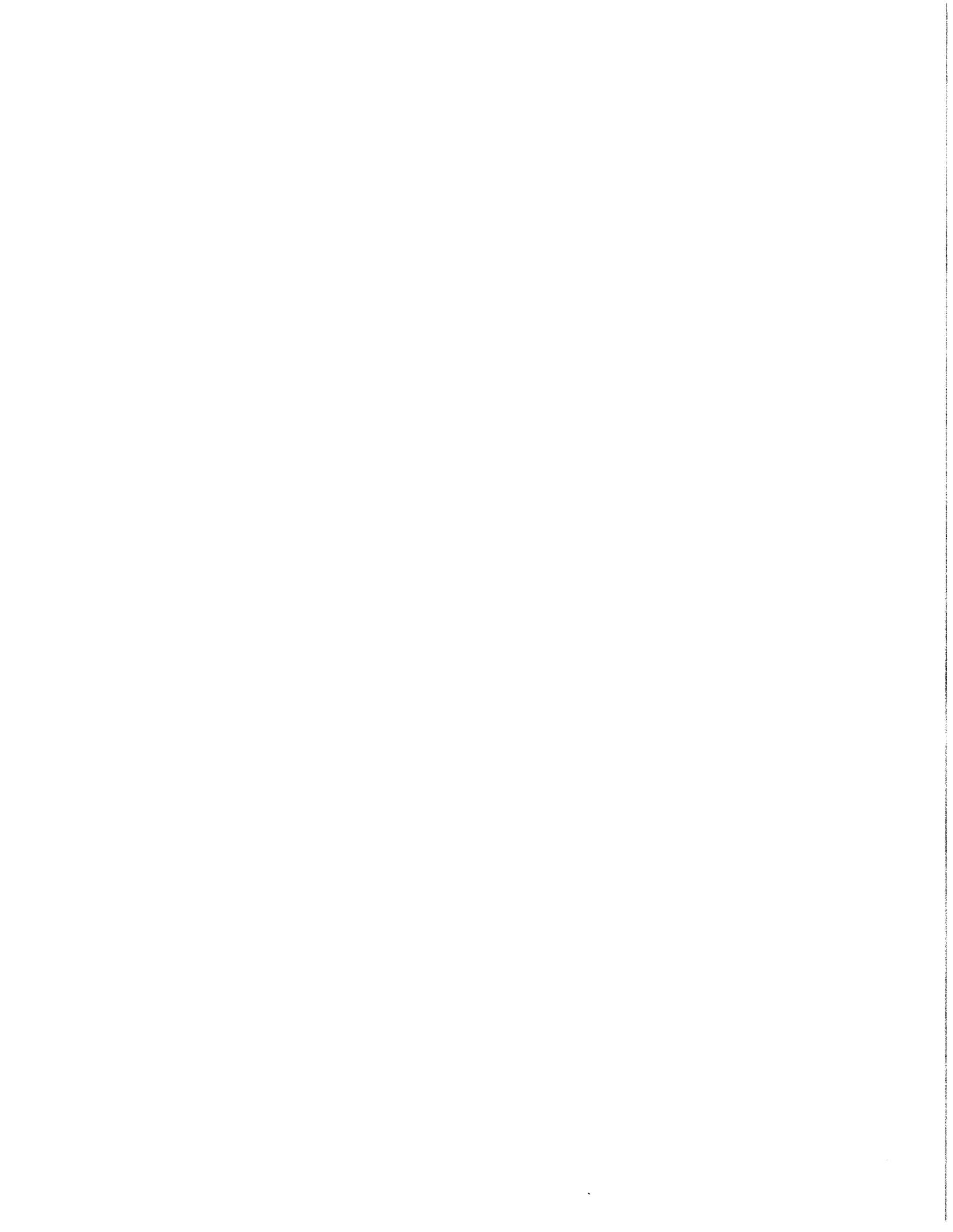
aspects of the rulemaking including provisions that subject new cement kilns to lower emission limits than existing cement kilns and the necessity for restricting NOx emissions trading to only those kilns owned or operated under common control. The rulemaking includes a Comment and Response document that summarizes the comments received by the Board and the Department's responses.

At final rulemaking, editorial changes were made to the regulations, including deleting all proposed amendments under Chapter 129 and incorporating those amendments under Chapter 145, as well as adding several new terms and definitions. An additional compliance option was also added at final rulemaking which allows the purchase of Clean Air Interstate Rule (CAIR) NOx allowances to account for emissions in excess of the proposed limits. The Citizens Advisory Council (CAC) and the Air Quality Technical Advisory Committee (AQTAC) reviewed the draft final regulations. The CAC concurred with the Department's recommendation to forward the final-form rulemaking to the Board for consideration. The AQTAC shared the position of the CAC, but recommended certain changes be made to the rulemaking before its submission to the Board. The Department has addressed the AQTAC's recommendations, which are elaborated in the Order of the final rulemaking.

When implemented, it is expected the final regulations will provide approximately 1,300 tons per year of additional NOx emission reductions in Pennsylvania. Control technologies are readily available to achieve NOx emission reductions of greater than 20% from cement kilns. The final-form amendments will allow a number of this Commonwealth's cement manufacturers to develop and implement compliance strategies without the need for widespread installation of control equipment on the older technology long kilns, which will likely be replaced with more energy efficient technologies, like preheater or precalciner technologies, over time.

The Control of NOx Emissions from Glass Melting Furnaces final-form rulemaking establishes year-round NOx emission control requirements, emissions standards and emission limitations and related administrative requirements for the owners and operators of glass melting furnaces for the purpose of reducing NOx emissions. As elaborated above, NOx emissions are precursors to the formation of ground-level ozone and fine particulate (PM2.5), both of which in excess can cause serious public health concerns. In Pennsylvania, there are 16 glass melting facilities with 26 glass melting furnaces operating. Glass melting furnaces are one of the largest industrial NOx emission source categories in the Commonwealth and, according to 2005 figures, account for approximately 21% of the more than 45,000 tons per year of NOx emitted into the air from all nonelectric generating units in the Commonwealth. When implemented, this final-form rulemaking will reduce NOx emissions from glass melting furnaces by approximately 2,500 tons per year or 25% from 2005 levels. Adoption of the NOx emission limits for glass melting furnaces in this rulemaking is part of the Commonwealth's strategy, in concert with other Ozone Transport Region (OTR) jurisdictions, to reduce the transport of ozone to attain and maintain the health-based 8-hour ozone National Ambient Air Quality Standard (NAAQS).

The proposed regulations were approved for public comment by the Board on February 19, 2008. A 66-day public comment period on the proposal opened on April 19, 2008, and three public hearings in Harrisburg, Wilkes-Barre and Pittsburgh, respectively, were held. Ten individuals

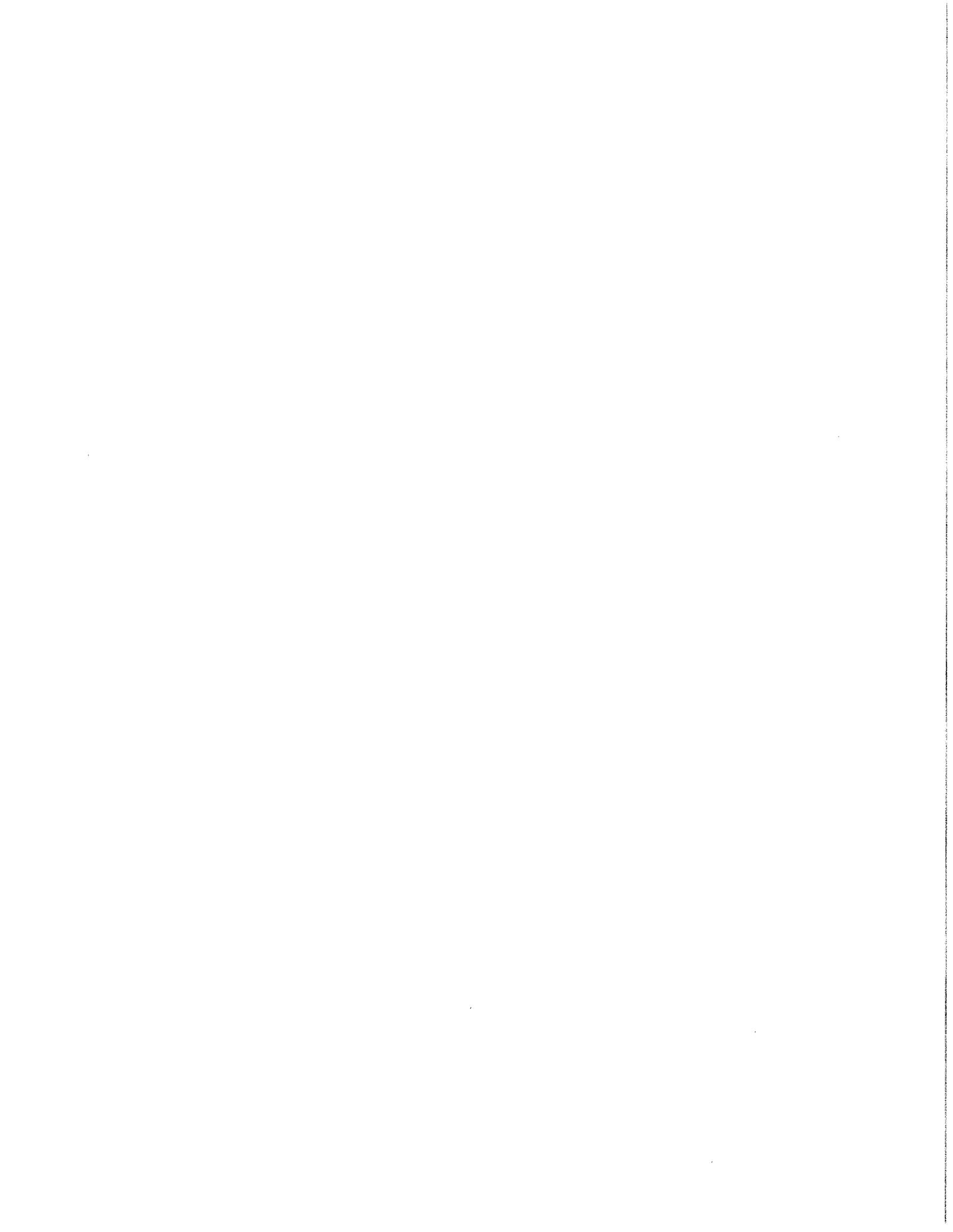


provided comments to the Board on the proposed rulemaking, including Senators Mary Jo White and Raphael Musto, Representative Hutchinson, and IRRC. Although some commentators lauded the Department's efforts to reduce NOx emissions in the state through the rulemaking, some commentators expressed specific concerns with the regulations, including the lack of a variance provision in the rulemaking where a glass melting furnace facility could demonstrate that the regulations were economically unreasonable under certain conditions. Other commentators expressed concern that the rulemaking could cause economic disruption at affected furnaces and that the regulations should allow an existing furnace to operate through its full life cycle before requiring it to be replaced or rebuilt with control technology in order to meet the NOx emission limits in the rulemaking. The final rulemaking package includes a Comment and Response document that summarizes the comments received by the Board during the proposed comment period and the Department's responses. To solicit additional comment on the rulemaking, the Department published an Advance Notice of Final Rulemaking (ANFR) on September 12, 2009, at 39 *Pa.B.* 5318. As a result of this subsequent comment period, the final rulemaking package also includes a Comment and Response Document for comments the Department received during the ANFR.

At final rulemaking, several significant changes to the regulations are included. Due to significant concerns expressed by EPA, including the possible denial of the Commonwealth's CAIR SIP revision, the proposed compliance option allowing glass furnace owners and operators to purchase CAIR NOx allowances is deleted from the rulemaking. Other significant changes also include the removal of the provision in the rulemaking that required compliance with the emission limits during the ozone season from May 1 – September 30. Because NOx is a precursor to the formation of PM2.5, which is monitored year-round, the Department amended the rulemaking to require compliance with the NOx emission limits year-round. At final rulemaking, the Department has also added a NOx emission limit applicable to a glass melting furnace that produces a glass product other than flat, container, fiberglass or pressed, or blow, and has included a petition process for an alternative compliance deadline to any glass melting furnaces that demonstrates it is economically or technologically infeasible to meet the January 1, 2012, compliance deadline.

The Department conferred with AQTAC and the CAC during the development of the final-form rulemaking. At the November 18, 2009, meeting, AQTAC recommended revisions to the final-form regulations and concurred with the Department's recommendation to advance the regulations to the Board for consideration as a final-form rulemaking. At the December 15, 2009, CAC meeting, the Council concurred with the Department to present the final regulations to the Board.

The Department will provide assistance as necessary to facilitate the Commission's review of these final-form rulemakings under Section 5.1(e) of the Regulatory Review Act. Please contact me at the number above if you have any questions or need additional information.



Mr. Kim Kaufman, Executive Director

- 4 -

April 12, 2010

Sincerely,

Michele L. Tate

Michele L. Tate
Regulatory Coordinator

Enclosures

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes the need for transparency and accountability in financial reporting.

2. The second part of the document outlines the various methods and techniques used to collect and analyze data. It includes a detailed description of the experimental procedures and the statistical tools employed.

3. The third part of the document presents the results of the study, including a comparison of the different methods and a discussion of the implications of the findings. It also includes a section on the limitations of the study and suggestions for future research.

4. The final part of the document provides a summary of the key findings and conclusions. It highlights the main points of the study and offers some practical recommendations based on the results.



**TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO
THE REGULATORY REVIEW ACT**

I.D. NUMBER: 7-419
 SUBJECT: Control of NOx Emissions from Cement Kilns
 AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION

TYPE OF REGULATION

- Proposed Regulation
- Final Regulation
- Final Regulation with Notice of Proposed Rulemaking Omitted
- 120-day Emergency Certification of the Attorney General
- 120-day Emergency Certification of the Governor
- Delivery of Tolled Regulation
 - a. With Revisions
 - b. Without Revisions

RECEIVED
 APR 12 2010
 INDEPENDENT REGULATORY
 REVIEW COMMISSION

308 p.m.

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
4-12-10		Majority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY <i>Rep. Camille George</i>
4-12-10		Minority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
9-12-18		Majority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY <i>Senator Mary Jo White</i>
4-12-10		Minority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
4/12/10		INDEPENDENT REGULATORY REVIEW COMMISSION
_____	_____	ATTORNEY GENERAL (for Final Omitted only)
_____	_____	LEGISLATIVE REFERENCE BUREAU (for Proposed only)

