Regulatory Analysis Form

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IRRC

IRRC Number: 2302

(1) Agency

Department of
Environmental Protection

(2) I.D. Number (Governor's Office Use)

7-378

(3) Short Title

Small Sources of NO_x, Cement Kilns, Large IC Engines

(4) PA Code Cite
25 *PA Code* Chapters 121, 129, and 145

(5) Agency Contacts & Telephone Numbers

Primary Contact: Marjorie Hughes, 783-8727

Secondary Contact: John C. Dernbach, 783-8727

(6) Type of Rulemaking (Check One)

____Proposed Rulemaking
__X__Final Order Adopting Regulation
____Final Order, Proposed Rulemaking Omitted

(7) Is a 120-Day Emergency Certification Attached?

__X__ No
____ Yes: By the Attorney General
____ Yes: By the Governor

(8) Briefly explain the regulation in clear and non-technical language.

The final-form regulation is intended to protect the public health by reducing precursor emissions that react to form ground level ozone. The final-form regulation establishes ozone season (May 1 through September 30) emission limits for nitrogen oxides (NO_x). Chapters 121 and 129 of the final-form regulation apply to certain boilers, turbines and stationary internal combustion engines located in the counties of Bucks, Chester, Delaware, Montgomery and Philadelphia. Chapters 121 and 129 of the final-form regulation do not affect large sources that are regulated under Chapter 145.

The Chapter 145, Subchapters B and C, provisions apply to sources statewide. Subchapter B applies to large stationary internal combustion engines that emit more than 1 ton NO_x per day. The final-form regulation will reduce NO_x emissions and subsequent ozone transport into nonattainment areas in Pennsylvania and downwind states. Subchapter C establishes ozone season NO_x emission limits and monitoring requirements for cement kilns.

(9) State the statutory authority for the regulation and any relevant state or federal court decisions.

This action is being taken under the authority of Section 5 of the Air Pollution Control Act (35 P.S § 4005.)

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(10) Is the regulation mandated by any federal or state law or court order, or federal regulation? If yes, cite the specific law, case or regulation, and any deadlines for action.

The final-form regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the 5-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005.

The Chapter 129 portion of the final-form regulation is based on a model rule developed by the Ozone Transport Commission and is consistent with the recommendations of the Southeast Pennsylvania Ozone Stakeholders Working Group.

In addition to meeting requirements of the Philadelphia SIP, the Chapter 145 portion of the final-form regulation satisfies the Commonwealth's remaining obligation to reduce ozone transport throughout the eastern United States under the NOx SIP call.

(11) Explain the compelling public interest that justifies the regulation. What is the problem it addresses?

Large areas of the Commonwealth continue to exceed the federal health-based national ambient air quality standards for ozone. Additional reductions of NO_x are necessary to continue to move toward attainment in those areas where the ozone levels exceed the NAAQS and where NOx reductions are necessary to meet the Commonwealth's obligations under the federal NOx SIP Call. This final-form regulation will help move the Commonwealth toward attainment and maintenance of the health-based standards for ozone, which is in the best interest of the public.

(12) State the public health, safety, environmental or general welfare risks associated with non-regulation.

Without the revisions to Chapters 121 and 129 and the achievement of the required emission reductions by May 1, 2005, the Commonwealth will not achieve and maintain the NAAQS in the 5-county Southeast Pennsylvania ozone nonattainment area resulting in a serious and cumulative adverse impact on health, general welfare, and the environment. In addition, failure to achieve the emission reductions will jeopardize the EPA- approved attainment demonstration for the Philadelphia 1-hour ozone nonattainment area. Failure to adopt the revisions to Chapter 145 would similarly impact health, welfare and the environment, and would result in continued transport of ozone and ozone precursors, prevent the attainment of the ozone standards and demonstrate a lack of leadership, and could result in the imposition of sanctions.

(13) Describe who will benefit from the regulation. (Quantify the benefits as completely as possible and approximate the number of people who will benefit.)

There are an estimated 3,800,000 people living in the 5-county Southeast Pennsylvania ozone nonattainment area that will benefit from the Chapter 129 and 145 final-form regulations. The emission reductions achieved by the final-form Chapter 145 regulations will affect all areas of Pennsylvania, which has a (2000) population of 12,287,150. EPA estimated the benefits of compliance with the NO_x SIP Call rule (40 CFR § 51.121). EPA projected benefits in ozone reduction (mortality, hospital admissions, acute respiratory symptoms, worker productivity, crops and forests) as well as resultant particulate and acidity reduction benefits (mortality, hospital admissions, chronic bronchitis, acute bronchitis, acute respiratory symptoms, work loss, soiling, visibility, and nitrogen deposition) at $4,170,000,000 per year in the region affected by the NOx SIP Call. Prorating this benefit to Pennsylvania, based on population, results in an estimated benefit of $336,500,000 per year for the entire NO_x SIP Call. Prorating this benefit to the emission reductions achieved by the final-form regulation results in an estimated benefit of $16,000,000 per year.

(14) Describe who will be adversely affected by the regulation. (Quantify the adverse effect as completely as possible and approximate the number of people who will be adversely affected.)

Adverse effects are not anticipated to occur as a result of this final-form regulation. The costs for implementation of the final-form regulation are quantified and discussed later in this analysis. These costs are not projected to cause adverse effects since no source owner or operator will suffer an adverse loss of business because the costs are not high in proportion to revenues and add minimally to operating expenses. In addition, the final-form regulation is to be applied uniformly on all similar facilities.

(15) 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.)

The Chapter 129 final-form regulation will impact owners and operators of certain existing and new boilers, turbines and stationary internal combustion engines in the 5-county Philadelphia region. These sources are and will be located at industrial, utility and commercial sites. The Chapter 145 Subchapter B final-form regulation will impact the owners and operators of an estimated 14 large stationary internal combustion engines owned by 4 companies and institutions. The Chapter 145 Subchapter C final-form regulation will impact the owners and operators of 21 cement kilns located in Pennsylvania.

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(16) Describe the communications with and input from the public in the development and drafting of the regulation. List the persons and/or groups who were involved, if applicable. The Chapter 121 and 129 final-form regulation is based on model rules developed by the OTC. Pennsylvania is a member of the OTC and actively participated in the development of the model rules. The model rules were developed with the input of the affected industry, environmentalists, and Environmental Protection Agency. The final-form Chapter 145 regulation is based on EPA emission limits and control technologies published on April 21, 2004 (69 FR 21604) and October 21, 1998 (63 FR 56394) (proposed). The final-form regulation was discussed with the Air Quality Technical Advisory Committee beginning on September 20, 2001 through April 27, 2004.
(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. The boilers, turbines and stationary internal combustion engines subject to the final-form Chapter 129 regulation are expected to reduce NO_x emissions by approximately 3 tons per day in the Southeast Pennsylvania Ozone nonattainment area. Emission reductions can be achieved through installation of control equipment, combustion unit modification, or fuel switching. Cost to reduce emissions for these sources has been estimated to be approximately: \$1,500 to \$3,500 per ton of NO_x for boilers; \$3,000 per ton of NO_x for turbines; and \$1,700 to \$4,400 per ton of NO_x for stationary internal combustion engines. Cost estimates for the boilers, turbines, and stationary internal combustion engines in the Southeast Pennsylvania Ozone nonattainment area are within the recommended control cost range made by the Southeast Pennsylvania Ozone Stakeholder Working Group. The enhanced and simplified averaging and allowance compliance mechanisms will reduce average costs well below these estimates for operators of multiple units. A single unit without averaging opportunities that relies on allowances would also likely encounter costs well below the maximum estimates by obtaining allowances at the 2005 projected allowance cost of \$2,000 per ton. Large stationary internal combustion engines regulated by the final-form Chapter 145 regulation may install control equipment to meet the emission reduction requirements. Controls are estimated to cost \$1,500 to \$2,000 per ton of NO_x reduced. Cement kilns may achieve emission reductions through improved fuel efficiency resulting in a potential cost savings. The operators of three kilns will need to install continuous emission monitors at a cost of approximately \$60,000 to \$100,000 each.
(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. The implementation of the final-form regulation is not expected to increase the costs to the county agencies since the agencies currently inspect and permit the facilities covered by the rule.
(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. There will be a small workload increase to state government for implementation of the final-form regulation. The increased workload will involve a one-time review of monitoring systems. The additional workload can be handled by the current staffing. After this effort, the implementation of the final-form regulation will involve regular facility inspections consistent with current practice. No new staffing needs are anticipated.

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(20) In the table below, provide an estimate of the fiscal savings and cost 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	FY +1 Year	FY +2 Year	FY +3 Year	FY +4 Year	FY +5 Year
SAVINGS:	**$**	**$**	**$**	**$**	**$**	**$**
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
General Public	0.00	0.00	0.00	16 M	16 M	16 M
Total Savings	0.00	0.00	0.00	16 M	16 M	16 M
COSTS:	$	$	$	$	$	$
Regulated Community	0.00	0.00	0.00	6.98 M to 10 M	6.98 M to 10 M	6.98 M to 10 M
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	0.00	6.98 M to 10 M	6.98 M to 10 M	6.98 M to 10 M
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) Explain how the cost estimates listed above were derived.

Cost estimates were derived from actual reported emission levels, reduction targets, and EPA and equipment vendor control cost estimates. These costs may be significantly lower if source operators elect to utilize averaging and/or allowances to demonstrate compliance with the emission requirements.

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

Program	FY-3 FY 2001-02	FY-2 FY 2002-03	FY-1 FY 2003-04	Current FY FY 2004-05
Env.Protection Operations (160)	75,074,000	75,559,000	72,665,000	85,897,000
Env. Program Management (161)	43,354,000	43,780,000	41,056,000	38,294,000

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(21) Using the cost-benefit information provided above, explain how the benefits of the regulation outweigh the adverse effects and costs.

Total estimated benefits are approximately $16,000,000 per year. Maximum costs are estimated to be $10,000,000 per year. The benefits outweigh the costs.

(22) Describe the nonregulatory alternatives considered and the costs associated with those alternatives. Provide the reasons for their dismissal.

Non-regulatory options are not sufficient.

Federal rules require these NOx emission reductions to be established by federally enforceable regulations.

(23) Describe alternative regulatory schemes considered and the costs associated with those schemes. Provide the reasons for their dismissal.

There are two alternatives to the final-form regulation in Chapters 121 and 129. First, the emission reduction goal could be achieved by requiring sources regulated under Chapter 145, Subchapter A to reduce emissions further. This was rejected as too costly and could negatively impact the market-based allowance system. The second alternative is to require the affected sources to submit new control applications, as specified in 25 Pa. Code §129.91, using a control threshold of $3,000 per ton of NO_x. This option was not selected because of the significant cost to industry in developing new applications and to government for the review of the applications.

(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 regulation.

There are no federal standards for the Chapter 121 and 129 revisions. These revisions are based on model rules for NO_x emission reduction developed by the OTC. The final-form regulation is necessary to satisfy the Commonwealth's commitments under the Philadelphia SIP and establishes emission reductions that are integral to maintaining EPA's approval of the 1-hour ozone attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005.

The Chapter 145 revisions are based on EPA emission limits and control technologies published on April 21, 2004 (69 FR 21604) and October 21, 1998 (63 FR 56394) (proposed). While some aspect of the final-form regulation may appear to be more stringent on its face, it is not more stringent because it allows flexibility not offered in the EPA publications by allowing sources to average their emissions and substitute allowances in lieu of directly controlling emissions.

The Portland cement kiln provisions in the final-form regulation require continuous emission monitoring (CEM). The proposed EPA rule does not specify the monitoring method. CEM monitoring is needed because of the variability of NO_x emissions from cement kilns, even under steady-state production.

The proposed EPA definition of a Portland cement kiln includes the size of the kiln. The Department did not include the size in the definition in the final-form regulation. This results in all Portland cement kilns in Pennsylvania being included in the program. EPA's analysis of their proposal assumed that all of the Pennsylvania Portland cement kilns would be included. Thus, the Department's proposal is consistent with EPA's intent.

(25) How does the regulation compare with those of other states? Will the regulation put Pennsylvania at a competitive disadvantage with other states?

The other states (Maryland, Delaware and New Jersey) in the 5-county Southeast Pennsylvania 1-hour ozone nonattainment area are adopting rules similar to the Chapter 121 and 129 final-form regulation. The Chapter 145, Subchapter B provisions for large stationary internal combustion engines in the final-form regulation are based on the EPA proposal. The Chapter 145, Subchapter C provisions for cement kilns in the final-form regulation adopt the least stringent control level applied to cement kilns in Pennsylvania's NOx SIP Call emission budget (every kiln in the Commonwealth is included with controls in the budget). Since most states are expected to adopt cement and large internal combustion engine rules, Commonwealth sources should not be placed at a competitive disadvantage.

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(26) Will the regulation affect existing or proposed regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations. The final-form regulation will amend section 145.42 (d), which provides a set-aside of NOx allowances for new sources. This amendment is necessary in order to provide source operators with credit for renewable energy production efforts.
(27) Will any public hearings or informational meetings be scheduled? Please provide the dates, times, and locations, if available. Three public hearings were held on the proposed revisions in Pittsburgh, Harrisburg, and Conshohocken in November 2002 during a 69-day public comment period. An Advance Notice of Final Rulemaking was published on December 20, 2003 with a 30-day public comment period.
(28) Will the regulation change existing reporting, record keeping, or other paperwork requirements? Describe the changes and attach copies of forms or reports which will be required as a result of implementation, if available. The final-form regulation requires an annual computation by owners or operators of affected units to demonstrate compliance. This will simplify and standardize averaging procedures that are intended to reduce overall compliance costs. The procedure is specified in the final-form regulation.
(29) 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. No special provisions have been developed.
(30) What is the anticipated effective date of the regulation; the date by which compliance with the regulation will be required; and the date by which any required permits, licenses or other approvals must be obtained? The final-form regulation will become effective upon publication in the Pennsylvania Bulletin. Owners and operators of affected sources must begin to comply with the regulation on May 1, 2005. No special permits or licenses are required.
(31) Provide the schedule for continual review of the regulation. The final-form 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 they were intended.

CDL-1

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. 7-378

DATE OF ADOPTION August 17, 2004

BY Kathleen A McGinty

TITLE KATHLEEN A MCGINTY
CHAIRPERSON

EXECUTIVE OFFICER CHAIRMAN OR SECRETARY

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

BY

9.28.04
DATE OF APPROVAL

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

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

ORDER ADOPTING REGULATIONS

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD

Small Sources of NOx, Cement Kilns, Large IC Engines

25 *Pa. Code*, Chapter 121, 129, and 145

Notice of Final Rulemaking
Department of Environmental Protection
Environmental Quality Board
(25 Pa. Code, Chapters 121, 129 and 145)
(Small Sources of NO_x, Cement Kilns and Large Internal Combustion Engines)

Order

The Environmental Quality Board (Board) by this order amends 25 Pa. Code, Chapters 121, 129 and 145 (relating to general provisions; standards for sources; and interstate pollution transport reduction). The amendments establish ozone season nitrogen oxide (NO_x) emission limits for certain boilers, turbines and stationary internal combustion units that are small sources of NO_x in the Counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia. The amendments also establish ozone season NO_x emission limits for large stationary internal combustion engines and Portland cement kilns across this Commonwealth.

This order was adopted by the Board at its meeting of August 17, 2004.

A. Effective Date

These amendments will go into effect upon publication in the *Pennsylvania Bulletin* as final rulemaking.

B. Contact Persons

For further information contact J. Wick Havens, Chief, Division of Air Resource Management, Bureau of Air Quality, P.O. Box 8468, Rachel Carson State Office Building, Harrisburg, PA 17105-8468, (717) 787-9495; or Kristen M. Campfield, Assistant Counsel, Bureau of Regulatory Counsel, P.O. Box 8464, Rachel Carson State Office Building, Harrisburg, PA 17105-8464, (717) 787-7060. Persons with a disability may use the AT&T Relay Service by calling 1-800-654-5984 (TDD users) or 1-800-654-5988 (voice users). This final-form rulemaking is available electronically through the DEP Web site (http://www.dep.state.pa.us).

C. Statutory Authority

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

D. Background of the Amendments

When ground-level ozone is present in concentrations in excess of the Federal health-based standards, public health is adversely affected. The Environmental Protection Agency (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 is necessary to protect the public health.

The purpose of this final rulemaking is to reduce emissions of NO_x, so as 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 (VOC), in the presence of light and heat. The reduction of NO_x will also help protect the public health from high levels of fine particulates, of which NO_x is a precursor component. Fine particulates, as well as ozone, are health hazards. The reduction of NO_x also reduces visibility impairment and acid deposition. This final rulemaking is part of the Commonwealth's specific action plan and is part of a regional effort among the states in the Ozone Transport Region (OTR) to reduce transported ozone. The final-form regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005.

The amendments to Chapters 121 and 129 establish ozone season (May 1 through September 30) emission limits for NO_x from certain existing and new boilers, turbines and stationary internal combustion engines located at industrial, utility and commercial sites in the Counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia. These counties are in a severe nonattainment area for ozone. The amendments require the emission limits to be implemented by May 1, 2005. The amendments to Chapters 121 and 129 do not affect large sources that are regulated under Chapter 145. The final-form regulation is based on model rules developed by the Ozone Transport Commission (OTC), which was created to address ozone problems in the OTR. The Commonwealth is a member of the OTC. The final rulemaking is also consistent with the recommendations of the Southeast Pennsylvania Ozone Stakeholders Working Group.

In 1998, the EPA published its requirement that 22 eastern states and the District of Columbia submit revised State Implementation Plans (SIP) (NO_x SIP Call) prohibiting those amounts of NO_x emissions that significantly contribute to ozone attainment problems in downwind states. In 2000, the Commonwealth promulgated Chapter 145, Subchapter A (relating to NO_x budget trading program), which contains the NOx cap and

trade program for fossil fuel-fired combustion units and electric generating units, to satisfy the first phase of the NO_x SIP Call. Subchapter A was published and adopted at 30 Pa.B. 4899 (September 30, 2000) and was approved by the EPA as a SIP revision on August 21, 2001 (66 FR 43795). In this final rulemaking, Chapter 145, Subchapters B and C (relating to emission of NO_x from stationary internal combustion engines; and emissions of NO_x from cement manufacturing) are needed to satisfy the Commonwealth's remaining obligation under the NO_x SIP Call.

Subchapters B and C in the final-form regulation establish ozone season emission requirements for NO_x from large stationary internal combustion engines that emitted or emit more than 153 tons of NO_x per ozone season in 1995 or any ozone season thereafter, and from Portland cement kilns. Revisions pertaining to large stationary internal combustion engines and cement kilns were originally part of the 2000 proposal, but final action was deferred on them. The final-form regulation reflects further revisions made in response to comments received on the previous proposal and the current final rulemaking, and is based on EPA emission limits and control technologies published April 21, 2004 (69 FR 21604), and October 21, 1998 (63 FR 56394) (proposed).

Subchapter B will impact owners and operators of an estimated 14 large stationary internal combustion engines owned by four companies and institutions. Subchapter C will impact the owners and operators of cement kilns. There are presently 21 kilns in operation across the Commonwealth.

This final rulemaking also represents the Commonwealth's continuing commitment to do its fair share in reducing ozone transport both within this Commonwealth and throughout the northeast.

The Department worked with the Air Quality Technical Advisory Committee (AQTAC) in the development of this final rulemaking. The Department presented drafts of the final-form regulation to AQTAC on July 24, 2003, September 25, 2003, November 20, 2003, and February 27, 2004. The Department made numerous amendments to the final-form regulation in response to comments from AQTAC. At its April 27, 2004 meeting, AQTAC members expressed concern about the compliance deadline in the final-form regulation. The committee recommended that the Department present the final-form regulation to the Environmental Quality Board for adoption.

E. Summary of Regulatory Requirements and Major Changes to the Proposed Rulemaking

The final-form regulation adds definitions of "MWH," "ppmvd," "stationary internal combustion engine," "tradable renewable certificate" and "tradable renewable certificate issuing body" to section 121.1 (relating to definitions).

The final amendments to Chapter 129 apply during the ozone season (May 1 to September 30) to existing and new small sources of NO_x located in Bucks, Chester, Delaware, Montgomery, or Philadelphia County (the five-county Philadelphia area).

The final amendments establish methods for determining NO_x "allowable emissions" for certain boilers, stationary combustion turbines and stationary internal combustion engines located at industrial, utility and commercial sites in sections 129.201--129.203 (relating to boilers; stationary combustion turbines; and stationary internal combustion engines). The owner or operator of a unit covered by these sections must calculate the difference between NO_x allowable emissions and NO_x actual emissions under in Section 129.204 (relating to emission accountability). Some boilers and turbines may demonstrate compliance through the opt-in provisions of sections 145.80—145.88 (relating to opt-in process).

Section 129.204 establishes methods for calculating NO_x "actual emissions" for the units covered by sections 129.201--129.203. Excess allowable emissions at a facility may be used to offset actual emissions at the owner or operator's other subject facilities in the five-county Philadelphia area. Section 129.204 requires surrender of NO_x allowances for actual emissions that exceed allowable emissions. Section 129.204 establishes a three-to-one NO_x allowance surrender requirement for failure to surrender NO_x allowances in accordance with this section.

Section 129.205 (relating to zero emission renewable energy production credit) authorizes NO_x credit in exchange for zero emission renewable energy production. Among other requirements, the zero emission renewable energy production must be certified in a tradable renewable certificate and generated in the five-county Philadelphia area.

Amended section 145.42 (relating to NO_x allowance allocations) provides that for each ton of NO_x deducted under section 129.205, the Department will retire one NO_x allowance from the new source set-aside governed by section 145.42(d).

New Subchapter B of Chapter 145 establishes allowable emissions for three categories of large existing and new stationary internal combustion engines listed in section 145.111 (relating to applicability). Section 145.112 (relating to definitions) defines terms that are used in Subchapter B: "CEMS—Continuous Emission Monitoring System," "diesel stationary internal combustion engine," "dual-fuel stationary internal combustion engine," "engine rating," "lean-burn stationary internal combustion engine," "rich-burn stationary internal combustion engine," "stationary internal combustion engine," "stoichiometric air/fuel ration" and "unit." Section 145.113 (relating to standard requirements) establishes methods for calculating NO_x allowable and actual emissions. Section 145.113 requires surrender of NO_x allowances for actual emissions that exceed allowable emissions. Excess allowable emissions at a facility may be used to offset actual emissions at the owner or operator's other subject facilities in Pennsylvania. Section 145.113 establishes a three-to-one NO_x allowance surrender requirement for failure to surrender NO_x allowances in accordance with this section.

New Subchapter C of Chapter 145 applies to existing and new Portland cement kilns. See section 145.141 (relating to applicability). Section 145.142 (relating to

definitions) defines the following terms for the purposes of this subchapter: "CEMS—Continuous Emission Monitoring System," "clinker," "Portland cement" and "Portland cement kiln." Section 145.143 (relating to standard requirements) establishes methods for calculating allowable and actual emissions. It requires surrender of NO_x allowances for actual emissions that exceed allowable emissions. Excess allowable emissions at a facility may be used to offset actual emissions at the owner or operator's other subject facilities in Pennsylvania. Section 145.143 establishes a three-to-one NO_x allowance surrender requirement for failure to surrender NO_x allowances in accordance with this section.

The major changes that were made to the proposed rulemaking include the following: the proposed definitions of "emergency stationary internal combustion engine" and "fire-fighting stationary internal combustion engine" in section 121.1 are not included in the final-form regulation; the emission limits have been standardized in sections 129.201 – 129.203, 145.113 and 145.143; the allowable emission rate of 1.5 grams per brake horsepower-hour in section 129.203 was changed to 3.0 grams to align it with the allowable rate for the same class of engines affected by the final-form regulation under section 145.113; the need to submit written requests for averaging has been eliminated from sections 129.201 – 129.203 and 145.114; sections 129.201--129.203 do not apply to Naval marine combustion units operated by the United States Navy for the purpose of testing and operational training; section 129.201 clarifies that it does not apply to units that combust municipal waste at a facility that is permitted as a resource recovery facility under Article VIII (relating to municipal waste) of the Department's regulations; NO_x emissions from stationary internal combustion engines that are or were replaced by an electric motor may be counted as allowable emissions under sections 129.203 and 129.204; section 129.204 has been added; sections 129.204, 145.113 and 145.143 authorize compliance with NO_x emission limits in the final-form regulation through emission averaging or NO_x allowance surrender; emissions from fire-fighting turbines, fire-fighting stationary internal combustion engines, emergency gas turbines and emergency stationary internal combustion engines are not exempt from calculation of actual emissions under section 129.204; NO_x emission monitoring options are included in section 129.204; a zero emission renewable energy production credit provision has been added in section 129.205 and a corresponding reduction of NO_x allowances from the new source set-aside is included in amended section 145.42; section 145.113 allows for maintenance of records offsite and requires the owner or operator of a facility to provide records to the Department upon request; proposed sections 145.114 (relating to compliance determination) and 145.115 (relating to reporting, monitoring and recordkeeping) have been deleted; additional NOx emission monitoring options have been added to section 145.113; the proposed definitions of "low NO_x burner" and "mid-kiln firing" in section 145.142 have been deleted; the proposed control technologies in section 145.143 have been deleted; and proposed section 145.144 (relating to reporting, monitoring and recordkeeping) has been deleted.

The final regulation will be submitted to the EPA as an amendment to the State Implementation Plan (SIP).

F. Summary of Comments and Responses on the Proposed Rulemaking and Draft Final Regulation.

The Board held three public hearings in Harrisburg, Pittsburgh and Conshohocken on November 18, 20 and 25, 2002, respectively during the 69-day comment period on the proposed rulemaking. (32 Pa.B. 5178) Comments were received from 31 commentators. As a result of those comments and input from AQTAC, the Department published an advance notice of final rulemaking (ANFR) in the *Pennsylvania Bulletin* for additional comment. (33 Pa.B. 6226). The Department had a 30-day public comment period on that draft final regulation which closed on January 19, 2004. Comments were received from 24 commentators.

Summary of Public Comments on the Proposed Rulemaking

Program Design - Averaging and Allowance Trading

Two commentators opposed allowing the use of both allowance trading and averaging to meet the emission limitations because of their concern that local adverse health effects may result. The Department disagrees that averaging and allowance trading will result in localized adverse health impacts because most of the averaging from multiple units is expected to occur at individual facilities. The expanded averaging program will achieve acceptable levels of emission reductions while minimizing compliance costs. The final-form regulation allows the use of allowances to demonstrate compliance and allows averaging within a facility and across facilities under common control.

One commentator opposed allowing source operators to achieve compliance through the use of allowances. The commentator was concerned that the surrender of allowances as a compliance option could allow emission increases to occur in the nonattainment area and said they should not be an option. The Department does not believe that the use of allowances will result in increased emissions in the area. Although owners or operators of some facilities may use allowances to avoid the installation of controls or implementation of other emission reduction measures, the Department anticipates that the program will result in the level of emission reductions necessary to satisfy Pennsylvania's obligations. These obligations are to achieve the emission reductions and budgets established by the NO_x SIP call that are also integral to maintaining EPA's approval of the one-hour ozone attainment demonstration contained in the Philadelphia SIP. The final-form regulation allows the use of allowances to demonstrate compliance and allows averaging across facilities under common control.

One commentator strongly supported the opportunity for the use of averaging as a compliance option. The commentator suggested that the provisions should specify that averaging can extend over the entire ozone season, across facilities within the five-county Southeast Pennsylvania ozone nonattainment area, and at most be limited to a 30-day rolling average. The final-form regulation provides for the use of averaging throughout

the ozone season and across facilities under common control. The final-form regulation does not contain provisions limiting averaging to a 30-day rolling average.

One commentator suggested that the regulation should allow averaging between all classes of small affected sources – boilers, turbines, and engines in the nonattainment area. The final-form regulation does allow averaging between all classes of affected sources and among facilities under common control.

One commentator suggested that, inasmuch as decisions regarding what constitutes an acceptable averaging proposal affect industry and competitiveness, definitive standards need to be established in the regulation. The commentator asked about the averaging time period, calculation methodologies, types of sources that may average together, ownership of sources allowed to average, and the geographical extent of the averaging area. The commentator stated that the proposed regulation concerning averaging lacked clarity and could have been applied inconsistently. In this regard, the commentator stated that the regulation should specify the particular conditions and calculations for averaging emissions from multiple sources, define the review process, including appeal provisions and the opportunity for the applicant to make changes, and include timeframes and deadlines related to Department determinations on averaging plans.

The final-form regulation addresses the commentator's issues regarding averaging. The requirement for source owners or operators to submit an averaging plan for approval prior to averaging has been deleted. The final-form regulation includes requirements related to the conditions and calculations required to demonstrate compliance based on an emissions average. Sections 129.201(b), 129.202(b), 129.203(b) and 145.143(d) of the final-form regulation specify the averaging period. Section 129.204(d) allows owners or operators of units subject to Sections 129.201-129.203 to average among the units at a facility throughout the ozone season and to average with other facilities subject to these provisions under their common ownership or operation within the five-county Southeast Pennsylvania ozone nonattainment area. Sections 145.113 (e) and 145.143(e) contain similar provisions for large internal combustion engines and cement kilns, respectively, with a statewide geographic area. Ownership and the disposition of averaging credit is determined by the legal agreements and decisions made between owners. A similar type of issue has been successfully resolved by owners of units subject to acid rain requirements, and the same principles apply here. As long as the credit is not double–counted, the owners or operators may distribute and utilize it as provided for in the final-form regulation. Since the requirement for an owner or operator to submit an averaging plan has been deleted from the final-form regulation, there is no need to define time frames for action and appeal procedures.

The same commentator questioned why the Board did not include an option for sources to comply by purchasing allowances. The final-form regulation contains this option.

One commentator stated that averaging and trading provide more flexibility and thereby enhance economic development without harming air quality. The commentator stated that they should be extended to Chapter 145 sources as well. The Chapter 145 provisions

in the final-form regulation allow the use of averaging and the use of allowances to achieve compliance.

One commentator stated that the averaging provisions in Sections 129.201 to 129.203 imply that the Department will approve all proposals. The commentator suggested that if discretion is intended, the language should be changed to clarify that that is the case. The Department has deleted from the final-form regulation the provisions that require prior approval of averaging plans.

One commentator supported the provisions that allow a source owner or operator to use averaging to achieve compliance. The commentator said that the provisions allowing averaging should be retained and the Department should provide specific averaging guidance and acceptable means of demonstrating compliance. The Department responds that the final-form regulation specifies that a source owner or operator is to aggregate of all the allowable and all of the actual emissions from the affected units. The owner or operator then determines whether there are greater actual or allowable emissions. If the calculated allowable emissions exceed the actual emissions, the source is in compliance. If the actual emissions exceed the allowable emissions by greater than 0.50 tons, the owner or operator must obtain and surrender to the Department allowances equal to the excess actual emissions.

Two commentators suggested that all "alternative procedures" should be approved by the Department in writing and be transparent to the public. The commentators said that all records must be accessible and NO_x reductions claimed must be measurable, verifiable, permanent and enforceable. The Department deleted the "alternative procedures" provisions from the final-form regulation. Affected unit owners and operators, the Department, and the public can easily and readily determine compliance.

One commentator supported the Board's flexible "cap and trade" approach to achieving NO_x reductions in the Philadelphia area. The commentator said that it would provide effective, targeted reductions at the least possible cost. The requirements in the final-form regulation provides flexibility for owners and operators of affected sources by allowing limited averaging and the simultaneous use of allowances to demonstrate compliance. The final-form regulation is not a "cap and trade" regulation.

Program Design - Cost and Form of Emission Limits

One commentator stated that the Board should provide a detailed compliance cost analysis for each class of unit the rule affects and justify why control of these sources is the most cost effective alternative to achieve the National Ambient Air Quality Standards (NAAQS). The Department responds that the regulatory analysis form provides the Board's cost-benefit analysis and identifies the source of the cost data. Both EPA and the Southeast Pennsylvania Ozone Stakeholder Working Group estimates were used. The Southeast Pennsylvania Ozone Stakeholder Working Group recommended these classes of sources for consideration for additional emission reductions. The classes of units covered by this regulation are those which have high potential emission rates and which

are generally controllable in a cost effective manner. Because the final-form regulation offers flexibility for sources to demonstrate compliance through the surrender of allowances and averaging and because of the diversity of sources covered by the regulation, precise estimation of the compliance costs is difficult. The flexibility for demonstrating compliance allows source owners and operators to implement the most cost effective compliance program for their operations.

One commentator stated that, historically, sources have frequently overstated the costs and technical difficulty of implementing new requirements. The commentator felt that, upon implementation, it is often found that more easily applied and less expensive solutions are identified. In the final-form regulation, the Department has included the compliance options of emissions averaging and allowance purchase to assure that the compliance costs and technical difficulty are minimized. These options allow owners and operators to implement cost-effective compliance programs.

Two commentators stated that the alternative compliance option that allows percentage reductions from 1990 levels creates the possibility that the rule will not achieve the target level of reductions. They suggested that this would occur as a result of age related deterioration bringing unit emission rates significantly higher than they were in 1990. In addition, they suggested that the measurement techniques used in 1990 were not necessarily very accurate. The commentators felt that well-controlled units would essentially be penalized by this option since they would have to make more reductions than dirtier units. For these reasons, the commentators said that more recent data should be used as the basis for making the reductions. The Department has removed this option from the final-form regulation.

One commentator said that the 1990 base year emission rate for determining the alternative reduction should also include the 1995 base year used to establish the NO_x Budget Program since 1990 may not be representative of normal operations and controlling to these levels will be more costly. The Department responds that the final-form regulation specifies straightforward emission limits for affected classes of sources. Requirements related to specification of base year emission are not necessary.

One commentator stated that given that large sources control on an ozone season basis, it is appropriate that small sources have the flexibility to do so as well. The commentator stated that this would still provide ozone season improvements. The Department agrees. The final-form regulation requires that sources affected by these regulations demonstrate compliance on an ozone season basis.

The same commentator stated that the rule as proposed will impose a relatively larger compliance cost on smaller NO_x sources than larger ones. The commentator stated that small sources cannot affordably "opt-in" to the NO_x Budget Program and that, therefore, the Department should allow them to purchase allowances from sources located in the nonattainment area as a compliance alternative. The final-form regulation authorizes the purchase of allowances as a compliance alternative.

Program Design - Area of Applicability

One commentator suggested that different control requirements are appropriate in attainment and nonattainment areas. The commentator stated that stricter controls are needed to attain the ozone standards in nonattainment areas but that the stricter standards would be an unnecessary burden if imposed in the attainment areas. The final-form regulation applies only to sources in the five-county Philadelphia ozone nonattainment area for small sources of NO_x.

Two commentators stated that the Chapter 129 requirements for the five-county Philadelphia area are reasonable and should apply statewide. They said that statewide application recognizes that NO_x transports over hundreds of miles. They said that the requirements should apply over the entire Ozone Transport Region. These commentators also pointed out that NO_x contributes year round to other air pollution problems in addition to ozone, including fine particulate, acid deposition, and visibility impairment. They suggested that the requirements should be enacted for no other reason than that the benefits outweigh the costs. The Department responds that the Chapter 129 provisions of the final-form regulation apply only to the five-county Southeast Pennsylvania ozone nonattainment area. The Department recognizes the adverse impacts of NO_x. In addition to being an ozone precursor, NO_x contributes to fine particulate, acid deposition and visibility impairment. However, the focus of the Chapter 129 portion of this rulemaking is to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and to establish emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005.

Additional NO_x reductions may be necessary as part of the Commonwealth's initiatives to address the eight-hour ozone and PM 2.5 standards. This final-form regulation is based on an Ozone Transport Commission (OTC) model rule that serves as the basis for NO_x reductions, as needed, throughout the Ozone Transport Region (OTR).

One commentator asked how application of these standards statewide and for the entire year would bring the Commonwealth into compliance for the ozone months. The Department responds that the final-form Chapter 129 regulation is limited to the five-county Philadelphia nonattainment area. The Chapter 145 final-form regulation is required statewide to complete the Department's obligations under the NO_x SIP Call and to maintain EPA's approval of the one-hour ozone attainment demonstration contained in the Philadelphia SIP. Both chapters address ozone season emissions.

One commentator stated that the Chapter 129 rules are necessary to target local ozone attainment issues. The commentator said that statewide, sizable reductions have been achieved: larger sources have existing controls under Chapter 145, and smaller sources are controlled under RACT. The Department responds that the Chapter 129 final-form regulation is designed to achieve NO_x emission reductions to address ozone nonattainment in the five-county Southeast Pennsylvania ozone nonattainment area. The

Chapter 145 final-form regulation is required to complete the Department's obligations under the NO_x SIP Call and to maintain EPA's approval of the one-hour ozone attainment demonstration contained in the Philadelphia SIP.

Two commentators thought that extending the Chapter 129 requirements statewide would exceed the Department's authority under the Air Pollution Control Act (APCA) because the reductions would not be useful toward attainment of the ozone air quality standard. The commentators said that the Department studied only the effects of reductions in the five-county Southeast Pennsylvania ozone nonattainment area in formulating this regulatory initiative. The commentators added that the small amount of reductions that this would achieve would not be beneficial. The final-form Chapter 129 regulation applies only to the five-county Southeast Pennsylvania ozone nonattainment area.

One commentator suggested that the SIP Call or Chapter 145 requirements should not be promulgated until upwind states impose similar regulations; otherwise, new sources will locate upwind and adversely impact Southwest Pennsylvania's air quality and economy. The Department responds that upwind states are also under the legal obligation to implement the NO_x SIP Call. The final-form regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005.

Program Design - Seasonal vs. Year-Round Limits

Several commentators suggested that year-round controls would not be necessary to achieve the stated purpose of the regulations. Two commentators thought that year-round control would violate the APCA and would not provide ozone season benefits. Another commentator suggested that expanding this rulemaking to apply for the entire year is outside the stated purpose for this rulemaking. Another commentator thought that the regulation should apply only during the ozone season because sources upwind of the five-county Southeast Pennsylvania ozone nonattainment area may impact the area and the additional emissions restrictions may represent a competitive disadvantage. Another commentator thought that annual requirements should not apply until it is shown that this is required to meet the eight-hour ozone standard. The final-form regulation addresses ozone season emissions.

Program Design - Timing and General Issues

One commentator said that three years are needed to plan and implement control strategies and suggested that the compliance date should be extended to provide this amount of time to comply with the control requirements. The final-form regulation provides a number of compliance options in addition to the option of implementing control programs. Because owners and operators of affected sources have the flexibility to average and use NO_x allowances, there is no need to extend the compliance deadline.

One commentator asked the Board to explain why the May 1, 2005 deadline is reasonable, feasible and necessary. The deadline is necessary to assure that the reductions occur to help ensure that the five-county Southeast Pennsylvania ozone nonattainment area achieves and maintains the one-hour ozone standard by November 15, 2005, the attainment deadline in the Clean Air Act. The final-form regulation includes provisions that allow the use of averaging and allowances to demonstrate compliance. Implementation of these alternatives does not require long lead-time.

One commentator stated that the proposed NO_x reductions are vital remaining strategies for ozone attainment and public health. The Department agrees. The final-form regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005.

One commentator stated that emission reductions from MWCs are not needed for attainment since these reductions were not included in implementation plans. The final-form regulation clarifies that it does not apply to municipal waste combustors.

One commentator stated that the Board should consider either using a separate proposed rulemaking or publishing an Advance Notice of Final Rulemaking if it added any language to the final-form regulation in response to any comments. The Department published an Advance Notice of Final Rulemaking in the Pennsylvania Bulletin on December 20, 2003.

The same commentator noted that many commentators stated that controls have already been installed under other requirements or that the units typically operate only a few hours. These commentators argued that further requirements would yield minimal additional reductions. The final-form regulation requires units to be accountable for actual emissions and does not require control installation, ensuring that owners and operators have a cost effective compliance option under any operating scenario.

Two commentators suggested that the regulation be amended to allow participation in the NO_x Budget Program on an individual basis in lieu of complying with the proposed rules. One commentator questioned, "Why didn't the Board include amendments in this rulemaking that would allow these other sources to 'opt-in'?" The Department responds that the NO_x Budget Program is specifically designed to support an emission control program for large boilers. Considerable technical and administrative issues would need to be resolved in order to support other types of units in the budget program that are beyond the scope of this rulemaking.

Boilers

One commentator said that the definition of boiler, which references the existing Section 145.2 provision, should be amended to ensure it does not include process heaters. The interpretation of this definition generally follows the federal applicability that does not include direct-fired process heaters.

Several commentators provided a technology and cost assessment, as requested by the Board. The commentators concluded that the rule should not require lower emission limits for Municipal Waste Combustors (MWCs) because Selective Catalytic Reduction (SCR) technology is not reliable enough or is too expensive. In addition, the commentators indicated that EPA has set the limits for MACT higher, and SNCR, the only generally feasible MWC control technology, is not able to meet the 0.17 pound per million Btu limit in the proposed regulation. The final-form regulation clarifies that it does not apply to municipal waste combustors.

Another commentator asked the Board to explain why MWCs were chosen for further reductions and what equipment would work at MWCs to achieve compliance. The commentator asked the Board to provide the associated costs of installation and operation of the equipment and to demonstrate that technically feasible solutions are not cost prohibitive. The commentator made reference to some commentators' claims that the Board's requirements for MWCs are not technologically feasible and that EPA has indicated that it does not intend to regulate MWCs further. The commentator said that some commentators argue that MWCs should be exempt from the requirements of this rulemaking for reasons including: the difficulty of predicting emissions due to the variability of fuel; the facilities have already implemented MACT; the limits set by this regulation may not be achievable; and these facilities provide other environmental benefits. The final-form regulation clarifies that it does not apply to municipal waste combustors.

One commentator stated that neither the Department nor the OTC included MWCs in its cost or technical analyses, and that promulgating a rule in this instance is not legal. The final-form regulation clarifies that it does not apply to municipal waste combustors.

The Naval Surface Warfare Center Ship Systems Engineering Station located in Philadelphia recommended that naval units that are used to simulate shipboard conditions be exempted. This request was based on several rationales, including technical infeasibility and low utilization rates. Extensive technical data and analysis were provided. The final-form regulation does not apply to these units.

One commentator said that auxiliary boilers that serve larger electric generating units emit very little over the course of the year. The commentator stated that controls to meet the proposed regulatory limits would not achieve substantive reductions. The commentator recommended a cost effectiveness threshold of $3,000 per ton reduced. The Department responds that the final-form regulation allows source operators to use

averaging and NO_x allowances to demonstrate compliance with the emission limits. Therefore, establishment of a cost-effectiveness level in the regulation is not necessary.

One commentator suggested that boilers greater than 250 MMBTU/hr should be afforded the 60 percent reduction option. The final-form regulation specifies straightforward emission limits for affected classes of sources. Requirements related to specification of base year emission are not necessary.

Combustion Turbines

One commentator stated that the control requirements of this rule for combustion turbines would not be cost-effective due to permit caps at five percent of annual capacity, high operating expenses and resultant low utilization rates of 1-2.5 percent. The commentator said that averaging would be useful for some of these units. The commentator stated that the combustion turbine portion of the rule would achieve about a 55 percent reduction, and that based on historical data, 25 to 45 tons would have been reduced in 2000 and 2002, respectively, from the 23 units the company operates. The commentator recommended that the following options be considered: ***de minimis*** or cost-effectiveness exemptions, or NO_x allowance surrender—which the commentator said should be an option in any event. The commentator felt that limiting allowances to the area of allocation does not make sense if this option is provided. The Department responds that the final-form regulation includes NO_x allowance surrender and averaging as compliance options. The inclusion in the final-form regulation of ***de minimis*** and cost-effectiveness exemptions is not necessary.

The same commentator stated that the rule, as it pertains to combustion turbines, should apply statewide for competitive and environmental reasons. The commentator said that if the rule does not apply statewide, peaking units located outside the five-county Southeast Pennsylvania ozone nonattainment area will be cheaper to run and will pick up the load from the units affected by this rule, the emissions will just occur in upwind areas and the benefits of the rule will be defeated. The Department does not expect the rule to result in load shifting because the control costs for existing combustion turbines are small in relation to operating expenses.

The Naval Surface Warfare Center Ship Systems Engineering Station located in Philadelphia recommended that naval units that are used to simulate shipboard conditions be exempted. This request was based on several rationales, including technical infeasibility and low utilization rates. Extensive technical data and analysis were provided. The final-form regulation does not apply to these units.

Internal Combustion (IC) Engines

The Naval Surface Warfare Center Ship Systems Engineering Station located in Philadelphia recommended that naval units that are used to simulate shipboard conditions be exempted. This request was based on several rationales, including technical

infeasibility and low utilization rates. Extensive technical data and analysis were provided. The final-form regulation does not apply to these units.

One commentator stated that the regulation should focus on sources where emission reductions can be achieved instead of infrequently used sources, where the cost of control of NO_x reduced can be very high -- in one instance, $40,000 - $400,000 per ton. The commentator stated that this is not a cost-effective way for the Commonwealth to achieve required emission reductions. The Department responds that the chapter 145 provisions in the final-form regulation allow the use of averaging and allowances to achieve compliance. These provisions allow a source owner or operator to implement the most cost-effective strategy for the affected activities.

One commentator said that both the Chapter 129 and Chapter 145, Subchapter B provisions should include an exemption for emergency gas turbines and firefighting turbines, wet weather storm pumps, and any engine that is used infrequently or for emergencies. The final-form regulation exempts facilities that emit less than 0.50 tons of NO_x during the ozone season. In addition, the final-form regulation includes provisions that allow the use of averaging and allowances to demonstrate compliance. Exemptions for these specific classes of sources are not included in the final-form regulation.

One commentator supported exemptions for emergency equipment. The commentator said that the proposed Chapter 145 threshold of one ton per day effectively exempts emergency or back-up units that would have much lower control cost-effectiveness. In chapter 145 of the final-form regulation, the one-ton per day threshold was not intended to exempt emergency or back up units. The threshold stems from EPA's NO_x SIP Call, which used this cutoff as a way to identify and control sources with enough emissions to reduce the interstate transport of ozone.

One commentator recommended that the Chapter 121 definition of "emergency stationary internal combustion engine" be amended to allow emergency equipment to run up to 100 hours for routine testing and maintenance. The Department responds that the final-form Chapter 129 regulation exempts facilities that emit less than 0.50 tons of NO_x during the ozone season. In addition, the final-form regulation includes provisions that allow the use of averaging and allowances to demonstrate compliance. Exemptions for specific classes of sources are not included in the final-form regulation.

One commentator recommended that the definition of "emergency stationary internal combustion engine" include specific language, as follows: "(ii) A stationary internal combustion engine located at a nuclear power plant that operates pursuant to Nuclear Regulatory Commission (NRC) requirements." The commentator said that these back-up IC engines are generally only operated for testing required by NRC, or during real emergencies. In the 2000 ozone season, NRC-required periodic testing resulted in a total of 9.5 tons of NO_x emissions. The commentator stated that an exemption was warranted because the nuclear generators typically produce thousands of megawatts of emission free electricity. The Department responds that the final-form regulation does not contain a definition of "emergency stationary internal combustion engine." Back-up IC engines,

such as those at the commentator's nuclear facility, are not exempted in the final-form rulemaking. If the ozone season actual emissions from the units exceed the allowable emission requirements in the final-form regulation, the owner or operator will be required either to average emissions from other of the owner or operator's affected sources or to obtain allowances to demonstrate compliance. Exemption from the requirements in the final-form regulation for these types of sources is not warranted.

One commentator stated that subset engines should be exempted from the Chapter 129 emission limits because they could not afford to run. The commentator claimed that the Department's analysis fails to account for all of the benefits and factors bearing on the permitting and operation of these units, including emission displacement to higher emitting units, and adverse electric market impacts. The Department responds that the final-form Chapter 129 regulation exempts facilities that emit less than 0.50 tons of NO_x during the ozone season. In addition, the final-form regulation includes provisions that allow the use of averaging and allowances to demonstrate compliance. Exemptions for specific classes of sources are not included in the final-form regulation.

Two commentators said that general permits should not be issued for internal combustion engines. The commentators said that permits should contain requirements that are specific to the source to ensure compliance. The commentators explained that it is possible, for instance, that a source could be installed claiming to be for emergency use only, but then be used for non-emergencies. The final-form regulation does not exempt emergency use engines.

The same commentators said that the distinction between mobile and stationary can be false. The commentators said that mobile units can fulfill the functions of stationary units and should be covered by these regulations. The final-form regulation defines stationary internal combustion engines in a way that ensures that only those engine emissions that occur during operations as mobile air contamination sources are not covered.

One commentator suggested that the proposed IC engine definition should be amended from including engines remaining on one location for 30 days or more to only those engines that remain in one location for 12 months or more. The commentator said that states are precluded by Clean Air Act section 209 from regulating engines that remain in one location for less than 12 months. The commentator suggested that amending the definition of nonroad engine to conform to 40 C.F.R. §90 would remedy this problem. The Department responds that the final-form regulation specifies "in-use" measures, which are not preempted by the Clean Air Act. Additionally, the final-form regulation defines stationary internal combustion engines in a manner that ensures that those engine emissions that occur during operations as mobile air contamination sources, as defined under 25 Pa. Code §121.1, are not covered.

One commentator asked why the Board used 30 days in the stationary internal combustion engine definition. The intent in the proposed regulation was to mirror the

OTC model rule. The rationale for eliminating the 30-day criterion in the final-form regulation is discussed in the preceding paragraph.

One commentator said that the Chapter 145 IC engine threshold, based on 1995 emissions or those occurring in the future, leaves operators uncertain about control obligations and should be changed to provide certainty. The commentator asked what the deadlines for newly affected engines would be. The final-form regulation clarifies that engines that become subject to Chapter 145, Subchapter B, in any year after 2004 must comply with Subchapter B by May 1 of the following calendar year.

Two commentators stated that the applicability criterion of section 145.111 (one-ton per day threshold) poses an unwarranted exemption from the control requirements. The commentators said that a lower threshold is warranted considering the contribution of these sources and the magnitude of the problems we are facing. The final-form regulation implements the Federal NO_x SIP Call, which uses the one-ton per day threshold to determine the largest contributors to NO_x transport.

One commentator stated that the emission limits for large IC engines may not be feasible for every engine, and that the Department may want to review them in light of recent EPA re-examination of the issue. The commentator suggested that the allowance option would possibly resolve the issue. The Department responds that the final-form regulation contains the same level of reductions EPA determined to be technically feasible, cost-effective, and achievable for lean burn engines and that were used to establish the Phase II NO_x SIP call emission budgets. The final-form regulation also includes provisions that allow the use of averaging and allowances to demonstrate compliance.

One commentator suggested that the structure of the IC engine provisions in Chapters 129 and 145 should be amended to remove overlapping and conflicting requirements in a manner that achieves reductions where they are most needed. Specifically, the commentator suggested that the final-form regulation retain the 1000-2400 hp requirements in the nonattainment areas as proposed in Chapter 129 and contain separate standards for units above 2400 hp. In addition, the commentator suggested that the regulation establish less stringent standards for those 2400 hp and above units located in attainment areas. The Department responds that the rules for attainment areas in the final-form regulation follow the NO_x SIP Call requirements. The rules do not overlap or conflict. The Chapter 129 provisions in the final-form regulation state that sources falling under the applicability thresholds of Chapter 129 but that are already subject to Chapter 145 are not covered by Chapter 129 requirements.

The same commentator supported the proposed Chapter 129 standards for IC engines, saying they are achievable with after-treatment technologies. The commentator said that for some older higher emitting engines, however, depending on the costs of local power, the economics may be unfavorable. The commentator said that maximum flexibility should be provided in meeting these limits because of this. The final-form regulation authorizes a range of compliance techniques that enables the owner or operator to choose the most cost effective option.

The same commentator said that the Chapter 145 emission limit requiring a 90 percent reduction from 1990 levels does not give credit for previous control efforts. The commentator said that catalysts, for instance, could have been installed, or rich burn engines replaced, with lower emitting lean burn engines. The commentator believed it may be technologically or economically infeasible to make further reductions, and suggested that specific emission limits would avoid this problem. The commentator said that available technologies can achieve the following: 1.5 g/bhp-hr for rich burn spark ignited engines; 0.9 gm/bhp-hr for lean burn spark ignited engines; and 2.3 gm/bhp-hr for compression ignition engines. The commentator suggested that engines located in attainment areas should have higher limits: 1.5 gm for lean burn and 4.8 for compression ignited (prevailing non-road engine standard). The Department responds that the final-form regulation is structured to provide credit for previous control efforts. The emission limits for each class of engine are based on control levels that have been determined to be achievable by the majority of the units in that class.

One commentator recommended that the Chapter 129 and Chapter 145 IC engine controls allow flexible compliance options in order to enable the maximum amount of reductions to be achieved and with more cost-effectiveness. The commentator suggested that more control technology vendors would be able to respond, which would also enhance the cost effectiveness. The final-form regulation authorizes a range of compliance techniques that enables the owner or operator to choose the most cost effective option.

Three commentators believed that the emission limitations are more stringent than Federal standards and therefore not permissible under the Air Pollution Control Act. The limits in the final-form regulation are permissible. The final-form regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005.

One commentator stated that the section 129.203 limit could not be met on most lean-burn engines (1.5 gm/brake hp-hr) whereas a higher limit (3.0 gm/brake hp-hr) could be met. The final-form regulation contains the same level of reductions EPA determined to be technically feasible, cost-effective, and achievable for lean burn engines and that were used to establish the Phase II NO_x SIP call emission budgets.

The same commentator stated that it would be difficult to comply with the May 1, 2005 compliance deadline because planning and installation of controls and monitors take from one and a half to three years. The commentator stated that pipeline operators request a 2009 deadline because of permitting issues, and retrofit downtime prohibitions of FERC and PUC. The final-form regulation retains the May 1, 2005 compliance deadline. The emission reductions and budgets established by the NO_x SIP call are also integral to maintaining EPA's approval of the one-hour ozone attainment demonstration contained in the Philadelphia SIP. Full implementation of the NO_x SIP call reductions is required

by May 1, 2005. The final-form regulation includes provisions that allow the use of averaging and allowances to demonstrate compliance. Implementation of these alternatives does not require long lead-time, and most of the controls needed to comply with this regulation were already installed in response to the 1995 RACT regulation requirements.

One commentator said that the Board should explain how the lower chapter 129.203 limit on lean-burn engines (1.5 gm/brake hp-hr) could be met. The final-form regulation contains the same level of reductions EPA determined to be technically feasible, cost-effective, and achievable for lean burn engines and that were used to establish the Phase II NO_x SIP call emission budgets.

The same commentator noted that section 145.115 specifies that records must be maintained at the facility. The commentator asked the Board to explain the need for onsite recordkeeping requirements as opposed to allowing a source to keep records at a centralized location. The Department responds that the requirements for maintenance of records on-site have been deleted from the final-form regulation. The final-form regulation allows an owner or operator who is not required to use CEMS to use an alternative monitoring and recordkeeping procedure if the Department approves it in writing in advance. Depending on the proposal, on-site recordkeeping will not necessarily be required but the facility will be required to provide the records to the Department upon request.

One commentator noted that the federal guidance on IC engine control has not been finalized and therefore EPA does not know what level of control is required under the NO_x SIP Call. The commentator felt that the regulations should be delayed for this reason. The commentator said that EPA is preparing to issue a "Phase II" NO_x SIP Call rule that will likely require the current installed level of control. The commentator thought that the regulation violates the statutory regulatory policy by exceeding federal requirements. The commentator said that federal guidelines also allow the limits to be met on an average basis or with allowances rather than individual units as proposed in the regulation. The commentator suggested that, because the limits are based on average engine population, and because engines respond differently to control equipment, this flexibility option would allow operators to meet the limits. The commentator said that it is a key feature of the OTC model rule that makes it feasible and cost-effective. The commentator felt that averaging was not a useful option. The Department responds that the final-form regulation is consistent with EPA's guidance on recommended achievable emission levels for large IC engines. The final-form regulation incorporates averaging and allowance surrender as compliance options.

The same commentator said that for lean burn IC engines under the Chapter 145 proposed rules, an 82 percent reduction is achievable, and has been implemented. The commentator said that the EPA docket supports this finding. The commentator noted that the Department was requiring a 91 percent reduction in the proposed regulation and said the justification for doing so relies on old EPA guidance as opposed to more recent findings. The commentator said that EPA believes that SCR is not justified. The

commentator said that other states have proposed less restrictive rules and as a result the delivery of gas to Pennsylvania may be hampered. The final-form regulation contains the same level of reductions EPA determined to be technically feasible, cost-effective, and achievable for lean burn engines and that were used to establish the Phase II NO_x SIP call emission budgets.

The same commentator said that the regulation is unnecessary because the pipeline industry has achieved the reductions called for under the Chapter 129 IC engine regulations, and no further emission reduction will be achieved by the regulation. The commentator said that increased NO_x control requirements for these engines would result in increased VOC emissions, something the commentator thought the Department had not considered. The Department responds that the level of additional control that might be needed to comply with the limits contained in the final-form regulation should not result in additional VOC emissions.

The same commentator requested an exemption from NSR for the pipeline industry per EPA's recent pollution control project rules. The types of possible control project modifications needed to meet the revised emission limits in the final-form regulation should not result in emission increases above the NSR applicability thresholds.

One commentator said that CEMS should not be required for smaller sources. The commentator said the Department should allow simplified procedures, including those using either the averaging or allowance purchase compliance options. The Department agrees and has incorporated various monitoring options that allow the owner or operator to choose the most efficient monitoring method.

Two commentators said that the CEMS requirement for large IC engines subject to Chapter 145, in conjunction with the control requirements, could render some installations cost-ineffective. The commentators suggested that parametric monitoring should be a specifically authorized alternative in the regulation, rather than requiring an approval process for alternative systems. The commentators felt that this alternative would be readily available and cost-effective. The final-form regulation allows alternative monitoring techniques.

One commentator asked whether the Board had considered further exemptions for units that are not run for many hours in the ozone season, such as electric generation peaking units, emergency back up generators and power generation sources used for research, development and testing purposes. The commentator asked how many tons of reductions these sources represented and what the cost per ton was for them to comply. The commentator said the Board should explain the need to regulate these sources and why this is cost effective. The Department responds that the final-form regulation does not exempt these units. The affected engines and turbines emit NO_x at rates from approximately 0.05 ton to over 1 ton per day. The emissions can quickly become highly significant. It is estimated that these units can emit from 60 to 100 tons per day during high electric demand days, which coincides with and contributes to ozone episodes. There are approximately 120 engines covered by the Chapter 129 regulation, which at the

lowest emission rate, 0.05 tons per day, would emit well in excess of 3 tons of NO_x if operated for a day. This is equal to the entire amount of reductions this final-form regulation needs to achieve. These units, if left uncontrolled, will negate the emission reductions achieved by the other affected sources. Therefore, it is not overall cost effective to exempt these units when they can contribute significant amounts of emissions. The applicability threshold of 0.5 tons for the ozone season ensures that only those operations with significant actual emissions during the ozone season are subject to emission limits. The final-form regulation will result in reduction of these emissions by an average of 80 percent or an equivalent surrender of NO_x allowances.

Cement Kilns

One commentator noted that some commentators indicate that low NO_x burners are infeasible and cost ineffective. The commentator said that the Board needs to demonstrate that compliance is possible and what equipment will be needed to comply. The commentator said that the Board also needs to demonstrate that technically feasible solutions are not cost prohibitive. The Department responds that controls, including selective non-catalytic reduction (SNCR), low NO_x burners, mid-kiln firing, and process controls are installed and operating on Pennsylvania kilns to meet various requirements. While cost effective controls are available for every type of unit evaluated, some units may be inherently uneconomic even without controls. Some of these older kilns are being phased out of operation or the owners have plans for modification of the units. Adding controls may not be a good investment under such circumstances. In such cases, the allowance compliance option allows operation of such units without the need for controls.

Two commentators suggested that the Department should require the most effective control to be used instead of allowing cement kiln operators to choose from among alternative control technologies. The final-form regulation allows the owner or operator to choose the most cost effective control option.

Several commentators would like reinstatement of a single kiln-based emission limit expressed in pounds of NO_x per ton of clinker produced that the Department had proposed earlier as included in the FIP proposals. Some commentators also asked that this option also allow that it be achieved on an average basis across the facility as well as from uncontrolled 1990 levels rather than actual levels. The final-form regulation incorporates an emission limit and compliance options that provide the requested options.

One commentator stated that their kiln has not installed controls to comply with the 1996 RACT regulations, as presumed in the preamble. The commentator stated that the facility utilizes toxic wastes for some of its fuel and must retain high combustion temperatures to handle these wastes. The commentator said the proposed regulation would require substantial modification of the kiln. The final-form regulation does not require a source to be modified.

The same commentator stated that short wet kilns cost more per ton to control and, as a result, were not controlled by the proposed FIP. The commentator stated that this represents a cost inequity for short kilns and that because the Federal rules did not require this type of unit to be controlled it should be exempted. The Department responds that EPA included all kilns in its cost analysis for the proposed FIP for Pennsylvania and included all of the kilns in the NO_x SIP Call budget. The emission limit in the final-form regulation is designed to protect the budget, as required by the NO_x SIP Call. The final-form regulation provides for averaging and trading to ensure that costs do not exceed a reasonable threshold. With cost effective compliance mechanisms available to all sources, exemptions would be unnecessary and would create an inequity among competitors.

One commentator asked the Department to change the definition of "Low NO_x Burner" to, "A type of kiln burner (a device that functions as an injector of fuel and combustion air into the kiln to produce a flame that burns as close as possible to the center line of the kiln) that has a series of channels or orifices that (1) allow for the adjustment of the volume, velocity, pressure, and direction of the air carrying the fuel (known as primary air) and the combustion air (secondary air) into the kiln, and (2) impart high momentum and turbulence to the fuel stream to facilitate mixing of the fuel and secondary air." The "Low NO_x Burner" definition is not needed in the final-form regulation and was eliminated.

The same commentator suggested that the regulation should include definitions for malfunction, shutdown, and startup, as provided. The commentator also asked that the final-form regulation exempt emissions occurring during these periods. The Department disagrees that these emissions should be exempted. The final-form regulation requires the owner or operator to include all actual emissions from the unit(s) in the compliance calculations.

The same commentator asked that the regulation provide exemptions based on case-by-case cost analysis using the EPA ACT document or for those undergoing NSR. The Depai tment responds that the emission limits in the final-form regulation would readily be met by a source that applied the recommended controls in the ACT document, or underwent NSR, and was re-built to modern standards. The source owner or operator can choose alternative compliance mechanisms available to avoid installing controls if controls are deemed impractical or too expensive.

Two commentators stated that Continuous Emission Monitoring Systems (CEMS) are not necessary to demonstrate compliance with the regulation. The commentators said that monitors are too expensive, and monitors are not required by other states or by the FIP. The commentators said that alternatives to monitoring are allowed in other regulations for compliance demonstrations. The Department responds that the majority of Pennsylvania kilns have CEMS. Monitoring data from cement kilns with CEMS show that emission variability is large and unpredictable over both short and long time scales. It is also not possible to offer flexible compliance alternatives based on averaging or allowance trading without accurate monitoring.

One commentator asked why the Board foreclosed cement kilns from complying by using alternatives to Continuous Emission Monitoring Systems (CEMS). The Department responds that there are no sufficiently accurate alternatives for monitoring NO_x emissions from cement kilns. Monitoring data from cement kilns with CEMS show that emission variability is large and unpredictable over both short and long time scales. It is also not possible to offer flexible compliance alternatives based on averaging or allowance trading without accurate monitoring.

The same commentator asked why the Board used the actual 1990 emissions as the basis for calculation of emission reductions in the alternative control option of section 145.143(3). The commentator noted that some commentators believe the regulation should allow an uncontrolled 1990 baseline. The final-form regulation does not include the alternative control option.

Summary of Public Comments on ANFR

Compliance Mechanism/Effectiveness of the Regulation to Reduce Emissions

Several commentators stated that the regulations provide adequate compliance and monitoring options to enable operators to comply cost effectively. The Department agrees.

One commentator stated that the regulations should not combine the emission requirements for all sources at a facility, and several commentators stated that the regulations should not absolutely require that allowances be surrendered when the overall facility emissions exceed the allowable rates. The commentators suggested that enforcement and a monetary penalty are appropriate for non-compliance. The Department responds that the final-form regulation requires combining of facility emissions to provide for a simple, standard, and accurate basis for averaging. The owner or operator of affected sources can avoid the need to obtain allowances by maintaining overall emissions below the specified limits, by controlling unit emissions, or by averaging with lower emitting units under the owner or operator's control in the five-county Southeast Pennsylvania ozone nonattainment area.

One commentators stated that sources should not be allowed to average as permitted in section 129.204(d) because it will make it more difficult to meet the ozone standards. The Department responds that averaging under section 129.204 is not expected to make meeting the ozone standards more difficult because averaging is only allowed among facilities within five-county Southeast Pennsylvania ozone nonattainment area.

Two commentators stated that the requirement to surrender allowances will create an undue demand for allowances causing allowance price increases that will harm both source operators and sources subject to the NO_x budget requirements. The Department responds that the NO_x budget contains more than 500,000 allowances per ozone season. The amount of emission reductions required by the final-form regulation is insignificant

in comparison. Most of the NO_x SIP Call and Chapter 129 controls are already, or will be, in place by May 2005. The allowance demand will be very small in relation to the budget. The maximum number of allowances that would be used to comply with the final-form regulation is estimated to be fewer than several hundred allowances per ozone season. The Department does not anticipate that the increased level of demand for allowances that may result from the final-form regulation will negatively impact cost and availability of allowances.

Two commentators stated that cement kilns and other sources covered by these regulations are not allowed to participate in the NO_x Budget trading program and may be subject to high allowance prices. The Department responds that the final-form regulation provides options in addition to the use of allowances to demonstrate compliance. The final-form regulation does not require source owners or operators to use the allowance compliance option. An owner or operator may use averaging, install controls, or implement other programs to reduce emissions.

One commentators stated that the efforts made to develop a rule that achieves the level of control required by the NO_x SIP Call, while providing flexibility to the cement industry, is appreciated. The commentator supports the basic structure and concept of the rule. The Department concurs.

One commentator expressed support for the Department's efforts to reduce air pollution in the five-county Southeast Pennsylvania ozone nonattainment area from the sources subject to this proposed rule. The Department concurs.

Several commentators stated that the 3:1 compliance penalty for violations should be removed. They stated that it is highly punitive, could drain the market and increase compliance costs for everyone. The Department responds that this type and level of penalty are consistent with existing regulations that provide for compliance with emission limits through allowance surrender. The penalty has to be sufficient that a source owner or operator does not gain advantage by failing to comply. The 3:1 ratio is sufficient. The level of potential non-compliance and relatively small amount of emissions involved, along with the size of the allowance market, ensures the market will not see any discernible impact. Most of the NO_x SIP Call and Chapter 129 controls are already in place. The allowance demand will be very small in relation to the NO_x budget.

Two commentators stated that if the Department wants to regulate units not currently covered under the Chapter 145 budget program, then a market based regulation with its own budget, monitoring and reporting, and penalties should be developed for those units. The Department responds that a separate trading system for the smaller and more numerous sources covered by the final-form regulation is not feasible or cost-effective. The final-form regulation takes into account the fact that the population of Chapter 145 NO_x budget units has an enormous reserve capacity of available and low-cost allowances. Regulations such as this can draw from that capacity to everyone's benefit. This will provide additional incentive for NO_x budget sources, which can profit from their ability to control more cheaply and sell allowances. Owners and operators of sources affected

by the final-form regulation can benefit by having a less expensive compliance option, if control costs are high or if averaging is not an option. Consumers will see lower prices as a result of the overall efficiency savings to the economy.

Two commentators stated that the 3:1 compliance penalty should be retained, as it is necessary to ensure compliance under a trading program. The Department agrees.

One commentator commended the Department for considering excess emissions as a separate violation for each day of the 153-day ozone season. The Department agrees this is a necessary component of a rule that allows allowances to be used for compliance. This provision is consistent with existing regulations.

Three commentators opposed the separate day of violation provision as unnecessarily punitive. The Department responds that the number of days may be reduced to the actual number of days during which the actual excess emissions occurred, upon satisfactory demonstration to the Department.

One commentator stated that the requirement to surrender only current and future year allowances is needed to ensure the best level of compliance. The Department agrees. The requirement for the surrender of only current and future year allowances is retained in the final-form regulation.

One commentator stated that emission limits are not very aggressive; however, given that old and new units must comply, the averages will still deliver significant improvements over the status quo. The Department agrees.

The State of New Jersey believes that the regulation is not as strict as the Ozone Transport Commission (OTC) model rule and with rules that New Jersey plans to promulgate. New Jersey requests that the stringency and applicability of the regulation be increased to the levels contained in the OTC model rule. The Department responds that the OTC model rule was intended to provide states with a common basis to regulate source emissions to assist owners, operators and states by having consistent requirements. The Department has followed the model rule sufficiently to accomplish this goal and to achieve the necessary level of reductions.

One commentator stated that this regulatory action is necessary to achieve and maintain the one-hour ozone standard by May 15, 2005. The commentator stated that emission averaging, or other compliance method, endangers our ability to achieve the needed controls on time. The final- form regulation establishes emission reductions that are integral to maintaining EPA's approval of the one-hour ozone attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005. The ability to use allowances or averaging to demonstrate compliance assures that owners and operators that otherwise might need to install control equipment to meet the limits have additional compliance options.

Two commentators suggested that the Chapter 129 regulation should be year round and statewide. The Department responds that the final-form regulation is needed to establish emission reductions that are integral to maintaining EPA's approval of the one-hour ozone attainment demonstration contained in the Philadelphia SIP. The attainment demonstration requires emission control from May 1 through September 30. Year round NO_x reductions would not assist in satisfying the attainment demonstration requirements. Additional NO_x reductions may be necessary as part of the Commonwealth's initiatives to address the eight-hour ozone and PM 2.5 standards.

One commentator suggested that output based emission limits should be used instead of heat input to encourage energy efficiency and pollution reductions. The Department responds that establishment of output-based limits is outside the scope of this rulemaking. Assessment of the cost impacts of an output-based approach requires data that is not readily available to the Department at this time.

Two commentators expressed support for the Chapter 129 regulations as necessary to the one-hour ozone standards. The commentators said that the affected sources have long escaped control and should do their share. The commentators stated that the regulations afford adequate flexibility to achieve the emission reduction goals without undue economic hardship. The Department agrees.

One commentator stated that the effective date of the regulation does not provide enough time for implementation of compliance strategies. The commentator said that more time should be provided for operators to achieve compliance. The Department responds that the final-form regulation provides for a variety of compliance options, including averaging and use of allowances. If there is insufficient time to implement a control strategy, the source owner or operator may use allowances or averaging as an interim compliance measure.

One commentator stated that the definition of "stationary internal combustion engine" should be moved to one location with the other definitions. The definition is contained in section 121.1 of the final-form regulation.

Boilers

One commentator stated that some boilers cannot operate at their design capacity and that the Department should allow derating to avoid applicability of the regulation. The Department responds that the precise rate of boiler firing is not crucial to achieving the needed emission reductions, whereas the boiler rating is used to identify those units that have significant potential emissions. Allowing owners or operators to derate units to avoid regulation would defeat the emission reduction goals of the final-form regulation.

The same commentator stated that there should be emission limits for dual fuel use since the emission rates guaranteed by the vendor for the units are usually only at the higher rates. The Department responds that here is no need for dual-fuel limits since the allowable emissions are calculated in terms of the amount of BTU's combusted for each

type of fuel. Although the fuels are burned together, the allowable emissions can be calculated separately.

Several commentators stated that the Department has indicated that the regulations do not include municipal waste combustors. The commentators stated, however, that the regulations are not clear on this point. The commentators recommend specific language. The final-form regulation clarifies that it does not apply to municipal waste combustors.

Combustion Turbines

Three commentators stated that an exemption for units that take a five percent capacity factor permit should be provided. They stated that in the past, these units have emitted three tons or less each during the ozone season. The Department responds that, because these units frequently operate during high ozone days and have high tons-per-day emission rates, they contribute to the ozone problem. Many of the units affected by the final-form regulation only emit a small fraction of a ton per day, but collectively their emissions are significant.

One commentator stated that units that take a five percent capacity limit should be exempted because the limit would ensure the emissions from these units would be adequately controlled. The Department responds that the suggestion would result in no emission reductions from these units.

Two commentators stated that the applicability rating for turbines in section 129.202 should be changed from 250 million BTU/Hr to 25 MW to be consistent with Chapter 145 applicability. The Department responds that the applicability cutoffs need to be retained because the emission limits were established as achievable for units with the specified heat input ratings.

Internal Combustion (IC) Engines

One commentator stated that the definition of stationary internal combustion engine in section 129.204 may include engines exempt from state regulation under the Clean Air Act. The Department responds that the final-form regulation specifies "in-use" measures that are not preempted. Additionally, the final-form regulation defines internal combustion stationary engines in a manner that ensures that those engine emissions that occur during operations as mobile air contamination sources as defined under 25 Pa. Code §121.1 are not covered.

One commentator stated that the Chapter 145 requirement for monthly testing of large IC engines was too costly and unwarranted given the data showing that emissions do not vary significantly. Engines that operate less than 500 hours should be exempt from testing. The Department responds that in order to allow averaging, the emission data must be representative of actual emissions. Data submitted to the Department shows that large emission rate variability still occurs with some engines. Some engines already have established data adequate to reduce the testing frequency. Because the amount of

operating time is the critical factor in accurately determining the emissions and not simply the passage of time, the final-form regulation is amended to specify testing not less frequently than every 735 hours of operation instead of monthly. This frequency can also be reduced to one test per season with a demonstration of sufficiently consistent data. This can be accomplished before the final-form regulation becomes effective.

One commentator stated that monthly testing for large IC engines should be retained. The Department amended the final-form regulation to reduce the testing burden, as specified in the preceding paragraph, while assuring that the monitoring data adequately reflect actual emissions.

Several commentators stated that emergency and other infrequently used engines should be exempt because their emissions are insignificant and, in terms of technical and cost feasibility, the recordkeeping is an additional burden. The Department responds that stand-alone units with low emission rates will be excluded under the 0.5-ton per ozone season threshold allowed by the final-form rule. The engines that are affected by the final-form regulation have high emission rates. The actual emissions in terms of tons per day place them among the very largest sources that are potential contributors to ozone. With the averaging, the 0.5-ton facility waiver, and the allowance compliance mechanism, there is insufficient rationale to exclude these units. The final-form regulation adds a minor addition to the existing recordkeeping and emission reporting requirements.

One commentator stated that it is a mistake to allow "peaking" units that operate during high electricity demand periods in the summer to rely on seasonal averaging to determine compliance. The commentator explained that this allows diesel units to run at capacity, emitting extremely high levels of NO_x and exacerbating unhealthy air on high electricity demand days that often coincide with high ozone days. The commentator urged an averaging scheme that encourages either control or a transition to less polluting peaking generation. The Department responds that in order to generate credit for averaging, units at a facility must run at reduced emission rates. Increased operation is more likely to occur during times of high energy demand for both the controlled and uncontrolled units. The overall effect of averaging, when measured across the entire population of affected sources, should provide sufficient overlap in control to provide a relatively continuous level of reductions. In addition, seasonal averaging is part of the rationale for eliminating "emergency" exemptions that could be used to avoid applicability to diesel peaking units. Averaging is preferable because the high dollar-per-ton costs make it difficult to justify outright control requirements on these units. By allowing averaging and including these units, the economics of being accountable for all emissions from them may provide an incentive to use of existing cleaner generation first and an eventual transition to lower emitting technologies.

Two commentators suggested that if the emergency exemption is not reinstated, one should be provided for those units that are integral to nuclear power plants. The commentators stated the impact of those units on air quality is negligible, their emissions cannot be controlled, their emissions were 9.5 tons during the 2000 ozone season, and the

recordkeeping would be burdensome. The commentators added that given the large amount of emission free generation provided to the area, this is not a desirable public policy. The final-form regulation does not contain a definition of "emergency stationary internal combustion engine." Back-up IC engines, such as those at the commentator's nuclear facility, are not exempted in the final-form rulemaking. If the ozone season actual emissions from the units exceed the allowable emission requirements in the final-form regulation, the operator will be required either to average emissions from other of the owner or operator's affected sources or to obtain allowances to demonstrate compliance. Exemption from the requirements in the final-form regulation for these types of sources is not warranted.

One commentator stated that retaining the 1.5 grams per brake horsepower-hour emission limit would not be more stringent than the Clean Air Act. The commentator stated that the 1.5 grams per brake horsepower-hour limit should be retained in order to ensure attainment of the ozone standard. The Department responds that the overall level of control provided by the final-form regulation will provide a similar level of reductions as the proposed regulations.

One commentator stated that the change to three grams per brake horsepower for spark ignited engines is supported, and recommended that compression ignited engines be permitted the same rate. The Department responds that the limit for emissions from spark-ignited engines was changed to correspond with the limit selected for the same class of large IC engines. That limit was technically justified as more appropriate and achievable. The compression ignited engine limit is technically justified and was not changed.

The same commentator stated that the three grams per brake horsepower limit amendments in Chapters 129 and 145 are achievable, consistent with the anticipated federal rules and supported. The Department agrees.

The same commentator stated that the additional monitoring options will allow the gas industry to use methods more appropriate to the gas transmission facilities. The Department agrees.

One commentator stated that the applicability requirements for IC engines under Chapter 145 are based on 1995 emissions or any year thereafter. The commentator stated that only units that operated in 1995 should be included because using later years is more stringent than the federal requirements. The Department responds that this requirement is not more stringent than the federal requirements. The federal requirements are to achieve the emission budgets contained in the NO_x SIP Call. The budgets were established using 1995 as the base year; however, applying the rule only to units that operated in 1995 does not ensure the budget will be achieved in any year except 1995. The Federal Implementation Plan (FIP) is only a "stopgap" proposed regulation that may not achieve the budgets if ever implemented. States that invoke the FIP remain obligated to adopt state rules that will achieve the SIP Call budgets.

Three commentators suggested that engines that are replaced with electrically powered equipment should be allowed to include these engines in their compliance determination. The Department agrees. The final-form regulation authorizes credit for such a replacement, based upon the difference between the actual emissions that would have resulted from the utilization of the replaced engine and the emissions resulting from the generation of the electricity to power the motor. The electricity generation will be assumed at the nominal rate under the NO_x budget program of 1.5 lbs/MWH.

One commentator stated that engines subject to Chapter 145 that did not emit over 153 tons after 1995 could be subject to monitoring requirements, whereas the rule intends only to require monitoring for those that did. The commentator requests that the regulation specifically state this. The final-form regulation specifies that a unit that emitted 153 tons or more in any ozone season from 1995 through 2004 must comply with Subchapter B of Chapter 145, including the monitoring requirements, by May 1, 2005. Any unit that did not emit 153 tons or more in any ozone season since 1995, but does so after 2004, is not subject to Subchapter B until the following calendar year.

Emission Accountability

One commentator stated that section 129.204(b)(2)(ii) should include consideration for sources without final permits that are operating under plan approval and which may not have a short term limit (hourly) limit in the permit. The final-form regulation provides for sources operating under plan approval and those without express hourly emission limits.

One commentator stated that the emission monitoring methodology should be the most protective of public health. The commentator suggested that the rule specify that the most recent permit limits or best available control technology (BACT) or best available technology (BAT) limits be used. The Department responds that those lower limits continue to apply to the extent that there are units with permit limits lower than those in this final-form regulation. The imposition of BACT or BAT requirements on sources other than those already subject to the BACT or BAT requirements would not be cost-effective.

Several commentators suggested that the requirement in section 145.143(h) to notify the Department prior to May 1 each year if allowances will be used that season should be eliminated since it is difficult to predict if this will be the case. The provision has been deleted from the final-form regulation.

Two commentators stated that, based on experience with other facilities, one year is insufficient to install and certify a monitor. The commentators suggested that a more realistic date or schedule should be included in the regulations. The Department responds that most facilities are able to install and certify CEMS within one year. The regulated source owners and operators have been aware of the pending CEMS requirement since prior to October 2002.

One commentator stated that the CEMS requirements are more stringent than the federal requirements and that stack tests would suffice. The Department responds that the CEMS requirements are necessary and permissible. There are no sufficiently accurate alternatives for monitoring NO_x emissions from cement kilns. The majority of Pennsylvania kilns have CEMS. Monitoring data from cement kilns with CEMS show that emission variability is large and unpredictable over both short and long time scales. It is also not possible to offer flexible compliance alternatives based on averaging or allowance trading without accurate monitoring.

The same commentator asked whether the data availability requirements in section 139.101(12) apply. All Chapter 139 requirements are applicable if the owner or operator elects to use a Chapter 139 monitor. If a Part 75 monitor is selected, the requirements of Part 75 apply.

Two commentators requested a clarification or more specific guidance in the regulations or CEMS manual regarding how to substitute missing data from CEMS to comply with these regulations. The commentators suggested using previous 24-hour data or ozone season averages. The final-form regulation specifies that invalidated (or missing) data must be substituted with data calculated using the unit's potential emissions. The owner or operator may request, in writing, to use any alternative that adequately reflects the actual emissions.

One commentator suggested that the rule specify that the CEMS requirement applies only during the ozone season. The only time period for which the final-form regulation requires NO_x emissions monitoring is the time period of May 1 through September 30 each year.

The same commentator asked whether the CEMS reports should be submitted on a calendar quarter basis and whether emission in lbs/hr should be reported? The final-form regulation specifies that CEMS reports must be submitted as required under 25 Pa. Code Chapter 139 or 40 C.F.R. Part 75, as applicable. Both require the submission of quarterly reports of emission rates in terms of the applicable standards.

Three commentators stated that emergency combustion turbines and engine units with five percent capacity factor limits should be exempt because they would be forced to run to do emission testing to comply. The commentators stated that these units do not have emission limits in their permits and the emissions are calculated using AP-42 emission factors. The final-form regulation allows the use of the permit limit in lieu of testing to calculate actual emissions. The final-form regulation specifically provides for the use of emission factors from AP-42 or EPA's "Factor Information Retrieval (Fire)" Data System to determine emissions without the need for additional testing.

Renewable Energy

One commentator supported the ability to create credit from renewable power and suggested that it be expanded to the entire state, as is done in other states. The

Department responds that the allowance provisions in the final-form regulation are different from the programs in other states. The reason the provisions do not provide for statewide credit is to spur renewable generation within the five-county Southeast Pennsylvania ozone nonattainment area.

One commentator expressed strong support for the Zero Emission Reduction Credit provision. The commentator stated that the provision will have only a very small impact on other industries buying and selling NO_x allowances, but will have a positive impact on the ability of persons or companies to build renewable energy generation. The commentator stated that the credit is not a subsidy but a recognition of the improved air quality that the avoided NO_x represents to society. The Department agrees.

Two commentators stated that the definition of Tradable Renewable Credit (TRC) should clearly prohibit biomass, incineration, and hydro as renewable resources, and that the zero emission character should be retained. The Department responds that the qualifying renewable power is limited to zero emission generation and excludes hydropower from dams.

One commentator stated that the credit, if retained, should also be given for power generated by a dam since it has zero emissions. The commentator suggested that this should be the sole determinant. The Department responds that the goal of the final-form regulation is to reduce ozone. The zero emission credit provisions will reduce ozone by encouraging the installation of new zero emission renewable energy generation resources. Dams are not known to emit significant levels of NO_x, but can emit varying levels of other pollutants, including volatile organic compounds that contribute to ozone production. Non-zero emission renewable energy sources are not included because quantification of the overall air quality benefits must be done on an individual basis, entails a degree of uncertainty, and imposes costs and administrative requirements that are beyond the scope of this initiative.

One commentator stated that mobile sources should not be allowed to generate credits under these rules. The Department disagrees. In the event new zero emission mobile activities are developed to replace existing activities and the emission reduction benefits can be quantified, the opportunity for credit generation should be available. The mobile emission reductions would only be creditable if they were surplus, permanent, quantifiable, and federally enforceable emission reductions.

Two commentators stated that the demand for allowances from the set-aside should be modest because the potential for wind is small in the five-county Southeast Pennsylvania ozone nonattainment area and the cost of the most likely source, photo-voltaics, is relatively high. The commentators stated that this pilot program is low risk and a worthwhile opportunity to explore market-driven renewable programs and should be retained. The Department agrees.

One commentator suggested that allowances should be deducted from the new source set-aside to create the credits for renewable energy. The commentator suggested that a 15

percent allocation to renewable energy generation is possible using the five percent set-aside and should be made available for this purpose. The Department disagrees. The final-form regulation authorizes deducting allowances from the set-aside only when a unit affected by an emissions limit in sections 129.201- 129.301 uses a renewable energy credit against its actual emissions that are in excess of those limits. The purpose is to provide a positive incentive to the owners and operators of these units to turn to renewable energy as an alternative to increasing output from NO_x emitting units.

One commentator expressed support for the zero emission renewable credit provisions. The commentator stated that fine particulate, ozone and NO_x will be reduced to the benefit of public health. The commentator stated that these pollutants result in increased health care costs, lost workdays, and cardiopulmonary effects that may result in hospitalization or even death. The Department agrees.

The same commentator stated that the zero emission renewable credit provisions are a welcome and appropriate catalyst for the renewable energy industry in Pennsylvania, and pose no undue hardship on other industries. The commentator stated that DEP is acting responsibly by including this encouragement to the development of pollution-reducing energy generation technology and is supported because of the benefits to public health now and in the future. The Department agrees.

Three commentators stated that the 1.5 pound per MWH set-aside retirement has the potential to significantly reduce the amount of allowances available for new service units. The commentators stated that the amount of credit is ten times higher than that for new generation resources. One of the commentators suggested that if the provision is retained, 0.2 lbs/MWH is more appropriate. The commentators stated that renewable energy generation threatens the economic viability of critical standby generation and that there are better ways for the state to promote renewables such as purchasing more of it. The commentators asked that the provision be eliminated. The Department disagrees. This provision will not materially impact the new source set-aside. This provision is only one part of a broader Pennsylvania initiative to encourage more environmentally friendly power sources.

One commentator stated that they commended DEP on the renewable energy portion of this rule. The commentator stated that Pennsylvania must reduce the air pollution impact of its energy production, and increasing the production of renewable energy is one of the most effective means to this end. The Department agrees.

Cement Kilns

Two commentators stated that the proposed FIP should be the basis for the emission limits. The emission limit contained in the final-form regulation is based upon the least stringent FIP limit.

Three commentators requested inter-company trading or participation in the allowance program, since this would encourage additional reductions in the cement industry. The

commentators suggested that the enforceability issue could be rectified with a requirement for agreements between companies. The Department responds that the ability to trade allowances between companies requires emission limits to be established for each facility, and the limits to be protective of the overall SIP Call budget for the state. A minority of the industry indicates support for the "opt-in" approach, and given the competitive nature of the cement industry, a consensus on these limits would be difficult to establish and would require a lengthy process. A lengthy negotiation was conducted previously with regard to including the units in the NO_x budget program. This negotiation led to no agreement among source operators.

One commentator suggested that the cement kiln emission limit should be lower than 6 pounds of NO_x per ton of clinker to better protect human health. The commentator stated that best available control technology (BACT) and best available technology (BAT) levels of two to three pounds are achievable for pre-calciner kilns. The Department responds that the kilns that are achieving these low emission rates are required to continue to meet their permit limits that require these rates. The six-pound per ton of clinker limit will require units that have not recently undergone BACT or BAT analysis to maintain their emissions at or below six pounds of NO_x per ton of clinker.

One commentator stated that white cement kilns have different heat input and operating requirements than comparable kilns and should be given additional consideration regarding the emission limit in the rule. The commentator stated that the limit is inconsistent with the NO_x SIP Call and represents a competitive disadvantage. The commentator stated that control technology is the preferred option to an emission-based limit. The Department responds that the budget for the NO_x SIP Call includes controls for all kilns. The emission limit requires less control for the white cement kiln than that established in the budget. However, in conjunction with changes that have occurred at other facilities since the budget was established, the limit is adequate to meet the budget. Emission test data for the only white cement kiln in Pennsylvania indicate that the operators of the kiln have a demonstrated ability to meet the 6 pounds of NO_x per ton of clinker limit.

One commentator stated that the limit of six pounds of NO_x per ton of clinker emission is in accordance with the FIP and is reasonable for wet process kilns. The Department agrees.

The same commentators stated that the rules should contain provisions that will streamline the RACT and emission limits in these regulations. The Department responds that the RACT emission limits are rate-based limits that are based on previously required controls and/or operating practices. The final-form regulation does not authorize the removal of previously established requirements.

G. Benefits, Costs and Compliance

Executive Order 1996-1 requires a cost/benefit analysis of the final regulation.

Benefits

Overall, the citizens of this Commonwealth will benefit from this final rulemaking because the changes will result in improved air quality by reducing ozone and fine particulate precursor emissions and encourage new technologies and practices, which will reduce emissions. The final rulemaking will also reduce visibility impairment and acid deposition. Financial savings resulting from the final rulemaking in terms of effects on mortality, hospital admissions, acute bronchitis, acute respiratory systems, worker productivity, crops and forests could exceed $16 million per year, based on EPA estimates.

Compliance Costs

The boilers, turbines, and stationary internal combustion engines subject to the final-form Chapter 129 amendments are expected to reduce NO_x emissions by approximately three tons per day in the Southeast Pennsylvania ozone nonattainment area. Emission reductions can be achieved through installation of control equipment, combustion unit modification or fuel switching. Cost to reduce emissions for these sources has been estimated to be $1,500 to $3,500 per ton of NO_x for boilers; $3,000 per ton of NO_x for turbines; and $1,700 to $4,400 per ton of NO_x for stationary internal combustion engines. Cost estimates for the boilers, turbines, and stationary internal combustion engines in the Southeast Pennsylvania ozone nonattainment area are within the recommended control cost range suggested by the Southeast Pennsylvania Ozone Stakeholder Working Group. The enhanced and simplified averaging and allowance compliance mechanisms will reduce average costs well below these estimates for operators of multiple units. A single unit without averaging opportunities that relies on allowances would also likely encounter costs well below the maximum estimates by obtaining allowances at the 2005 projected allowance cost of $2,000 per ton.

Large stationary internal combustion engines regulated by final-form Chapter 145 regulation may install control equipment to meet the emission reduction requirements. Controls are estimated to cost $1,500 to $2,000 per ton of NO_x reduced. Cement kilns may achieve emission reductions through improved fuel efficiency, resulting in a potential cost savings. The operators of three kilns will need to install continuous emission monitors at a cost of approximately $60,000 to $100,000 each.

Compliance Assistance Plan

The Department plans to educate and assist the regulated community and the public with understanding these new regulatory requirements through various means, including field inspector contacts, mailings, and the Small Business Compliance Assistance program.

Paperwork Requirements

Aside from electronic CEMS reports that will be required of the cement kiln owners or operators, the regulatory revisions will require a small amount of recordkeeping that is in addition to existing emission monitoring and reporting requirements, which includes the annual compliance calculations, test data generated (if any), and allowance transactions (if any).

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. DEP 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, or 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 regulation has incorporated the following pollution prevention provisions and incentives:

Section 129.205 provides for zero emission renewable energy production credit. This provision is intended to encourage the installation and production of new renewable generation. Production of energy from the renewable energy types authorized in this provision creates dramatically lower multi-media impacts than traditional energy production.

The overall structure of the emission requirements and compliance mechanism provides an incentive for greater production from cleaner units and encourages innovative ways to minimize emissions. Operators are given credit for implementing emission reduction measures that go beyond the minimum requirements. The emission requirements and compliance mechanism in these regulations provide a simple and flexible averaging mechanism to give a strong incentive for greater production from cleaner units and at the same time, a guaranteed reward for superior emissions control efforts.

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

October 8, 2002, the Department submitted a copy of the notice of proposed rulemaking, published at 32 Pa.B. 5178, to the Independent Regulatory Review Commission (IRRC) and 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 these 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 ___(blank)___, 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 (blank)___ 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) A 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 32 *Pennsylvania Bulletin* 5278 (October 19, 2002).

(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 necessary for the Commonwealth to achieve and maintain ambient air quality standards and to satisfy related Federal Clean Air Act requirements.

(6) These regulations are necessary for the Commonwealth to avoid sanctions under the Federal Clean Air Act.

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,* Chapters 121, 129 and 145, are amended by amending sections 121.1 and 145.42 and adding sections 129.201 – 129.205, 145.111 – 145.113 and 145.141 – 145.144 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) This order shall take effect immediately upon publication in the *Pennsylvania Bulletin.*

BY:

KATHLEEN A. MCGINTY
Chairperson
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:

* * * * *

~~[*Emergency stationary internal combustion engine—*~~

~~(i) A stationary internal combustion engine that operates as a mechanical or electrical power source only when the primary power source for a facility has been rendered inoperable by events beyond the control of the owner or operator.~~

~~(ii) A stationary reciprocating engine that provides power during instances of voltage reduction or curtailment from the electrical grid is not an emergency stationary internal combustion engine.]~~

* * * * *

~~[*Fire-fighting stationary internal combustion engine—*~~

~~A stationary internal combustion engine that is used solely to pump water for extinguishing fires.~~]

* * * * *

MWH—MEGAWATT HOUR

* * * * *

ppmvd—Parts per million dry volume.

* * * * *

Stationary internal combustion engine—FOR PURPOSES OF SECTION 129.203, [~~(i)A~~]An internal combustion engine of the reciprocating type that is either attached to a foundation at a facility or is designed to be capable of being carried or moved from one location to another [~~and remains at a single site at a building, structure, facility, or installation for more than 30 days.~~

~~(ii) An engine that replaces an engine at a site that is intended to perform the same or similar function as the engine replaced is included in calculating the consecutive time period.~~] AND IS NOT A MOBILE AIR CONTAMINATION SOURCE.

* * * * *

TRADABLE RENEWABLE CERTIFICATE—A CERTIFICATE ISSUED BY A TRADABLE RENEWABLE CERTIFICATE ISSUING BODY IN RECOGNITION OF RENEWABLE ENERGY GENERATION. A CERTIFICATE REPRESENTS A SPECIFIC AMOUNT OF ELECTRICITY OR THERMAL POWER EQUIVALENT THAT WAS GENERATED.

TRADABLE RENEWABLE CERTIFICATE ISSUING BODY—AN ENTITY APPROVED BY THE DEPARTMENT TO ISSUE AND ACCOUNT FOR TRADABLE RENEWABLE CERTIFICATES IN ACCORDANCE WITH A PROTOCOL CONSISTENT WITH THE LAWS AND RENEWABLE ENERGY PROGRAMS OF THIS COMMONWEALTH.

* * * * *

(*Editor's Note*: The following Chapter 129 sections are new and are printed in regular type for ease of reading.)

CHAPTER 129. STANDARDS FOR SOURCES

ADDITIONAL NOx REQUIREMENTS

§ 129.201. [~~Standards for b~~]Boilers.

(a) By May 1, 2005, AND EACH YEAR THEREAFTER, the owner or operator of a boiler that meets the definition of a boiler in § 145.2 (relating to definitions) located in Bucks, Chester, Delaware, Montgomery or Philadelphia County shall [~~ensure that the boiler meets the lower of any NOx emission limitation established in a permit issued under Chapter 127 (relating to permits) or the following NOx emission limits:~~] COMPLY WITH THIS SECTION AND SECTION 129.204 (RELATING TO EMISSION ACCOUNTABILITY). THIS SECTION DOES NOT APPLY TO NAVAL MARINE COMBUSTION UNITS OPERATED BY THE UNITED STATES NAVY FOR THE PURPOSES OF TESTING AND OPERATIONAL TRAINING OR TO UNITS THAT COMBUST MUNICIPAL WASTE AT A FACILITY THAT IS PERMITTED AS A RESOURCE RECOVERY FACILITY UNDER ARTICLE VIII (RELATING TO MUNICIPAL WASTE).

(b) BY OCTOBER 31, 2005 AND EACH YEAR THEREAFTER, THE OWNER OR OPERATOR OF THE BOILER SHALL CALCULATE THE DIFFERENCE BETWEEN THE ACTUAL EMISSIONS FROM THE UNIT FOR THE PERIOD FROM MAY 1 THROUGH SEPTEMBER 30 AND THE ALLOWABLE EMISSIONS FOR THAT PERIOD.

(c) THE OWNER OR OPERATOR SHALL CALCULATE ALLOWABLE EMISSIONS BY MULTIPLYING THE UNIT'S CUMULATIVE HEAT INPUT FOR THE PERIOD BY THE APPLICABLE EMISSION RATE SET FORTH IN PARAGRAPH (1) OR (2).

(1) **THE EMISSION RATE FOR A [~~B~~] ~~b~~**oiler**[~~s~~]** with a nameplate rated capacity of greater than 100 million Btu/hour but less than or equal to 250 million Btu/hour shall **[~~meet the following NOx emission standards from May 1 through September 30 of each year~~]** **BE AS FOLLOWS**:

(i) **FOR A BOILER FIRING [~~N~~]** Natural gas**-~~fired boilers~~** or **A** boiler**[s]** firing a noncommercial gaseous fuel, **[~~may not emit NOx in excess of~~]** 0.10 pounds NOx per million Btu **HEAT INPUT[~~or an alternate emission rate approved by the Department that achieves a NOx emission reduction of 60% from the actual 1990 NOx emission rate as determined in § 129.91(b) (relating to control of major sources of NOx and VOCs). The NOx emissions from the boiler after implementation of the~~**

~~alternate standard may not exceed any NOx emission limit contained in a permit issued under Chapter 127~~].

(ii) FOR A [B]Boiler~~[s]~~ firing solid or liquid fuel, [~~may not emit NOx in excess of~~] 0.20 pounds of NOx per million Btu HEAT INPUT [~~or an alternate emission rate approved by the Department that achieves a NOx emission reduction of 60% from the actual 1990 NOx emission rate as determined in § 129.91(b). The NOx emissions from the boiler after implementation of the alternate standard may not exceed any NOx emission limit contained in a permit issued under Chapter 127~~].

(2) THE EMISSION RATE FOR A [B]Boiler[s] with a nameplate rated capacity of greater than 250 million Btu/hour that ~~[are]~~ IS not subject to §§ 145.1—145.7, 145.10—145.14, 145.30, 145.31, 145.40—145.43, 145.50—145.57, 145.60—145.62 and 145.70—145.76 shall [~~meet the lower of any NOx emission limitation established in a permit issued under Chapter 127 or~~] BE 0.17 pounds NOx per million Btu heat input [~~from May 1 through September 30 of each year~~]. THE OWNER OR OPERATOR OF [a] A boiler may demonstrate compliance with this paragraph through the provisions of §§ 145.80—145.88 (relating to opt-in process).

[~~(b) The owner or operator of two or more boilers identified in subsection (a) may propose in writing to the Department to demonstrate compliance with this section by averaging emissions from the affected sources. Averaging may not eliminate or modify an otherwise applicable regulatory or permit-based emission limitation. The owner or operator shall propose monitoring and averaging provisions sufficient to~~

~~demonstrate compliance on a daily basis. The Department will approve the averaging proposal in writing.~~]

§ 129.202. [~~Standards for s~~]Stationary combustion turbines.

(a) By May 1, 2005, **AND EACH YEAR THEREAFTER,** the owner or operator of a stationary combustion turbine **WITH A NAMEPLATE RATED CAPACITY OF GREATER THAN 100 MILLION BTU/HOUR** located in Bucks, Chester, Delaware, Montgomery or Philadelphia County shall [~~ensure that the stationary combustion turbine meets the lower of any NOx emission limitation established in a permit issued under Chapter 127 (relating to permits) or the following NOx emission limits:~~] **COMPLY WITH THIS SECTION AND SECTION 129.204 (RELATING TO EMISSION ACCOUNTABILITY). THIS SECTION DOES NOT APPLY TO NAVAL MARINE STATIONARY COMBUSTION TURBINES OPERATED BY THE UNITED STATES NAVY FOR THE PURPOSES OF TESTING AND OPERATIONAL TRAINING.**

(b) BY OCTOBER 31, 2005 AND EACH YEAR THEREAFTER, THE OWNER OR OPERATOR OF THE STATIONARY COMBUSTION TURBINE SHALL CALCULATE THE DIFFERENCE BETWEEN THE UNIT'S ACTUAL EMISSIONS FROM THE UNIT FOR THE PERIOD FROM MAY 1 THROUGH SEPTEMBER 30 AND THE ALLOWABLE EMISSIONS FOR THAT PERIOD.

(c) THE OWNER OR OPERATOR SHALL CALCULATE ALLOWABLE EMISSIONS BY MULTIPLYING THE UNIT'S CUMULATIVE HEAT INPUT FOR THE PERIOD BY THE APPLICABLE EMISSION RATE SET FORTH IN PARAGRAPH (1) OR (2).

(1) **THE EMISSION RATE FOR A [S]S**tationary combustion turbine**[s]** with a nameplate rated capacity of greater than 100 million Btu/hour but less than or equal to 250 million Btu/hour **HEAT INPUT** shall **BE AS FOLLOWS:[~~meet the following NOx emission standards from May 1 through September 30 of each year~~]**:

(i) **A [~~C~~]C**ombined cycle or regenerative cycle stationary combustion turbine**:[~~shall emit no more than~~]**:

(A) **[~~42 ppmvd of NOx, corrected to 15% O2,w~~]When firing natural gas or a noncommercial gaseous fuel, [~~or an alternate emission rate approved by the Department that achieves a NOx emission reduction of 60% from the actual 1990 NOx emission rate as determined in § 129.91(b) (relating to control of major sources of NOx and VOCs). The NOx emissions from the turbine after implementation of the alternate standard may not exceed any NOx emission limit contained in a permit issued under Chapter 127.~~] 0.17LBS NOX /MMBTU OR 1.3 LBS NOX/MWH.**

(B) [~~65 ppmvd of NOx, corrected to 15% O2, w~~]When firing oil, [~~or an alternate emission rate approved by the Department that achieves a NOx emission reduction of 60% from the actual 1990 NOx emission rate as determined in § 129.91(b). The NOx emissions from the turbine after implementation of the alternate standard may not exceed any NOx emission limit contained in a permit issued under Chapter 127.~~] 0.26 LBS NOX/MMBTU OR 2 LBS NOX/MWH.

(ii) A [~~S~~]Simple cycle stationary combustion turbine[~~shall emit no more than~~]:

(A) [~~55 ppmvd of NOx, corrected to 15% O2, w~~]When firing natural gas or a noncommercial gaseous fuel,[~~or an alternate emission rate approved by the Department that achieves a NOx emission reduction of 60% from the actual 1990 NOx emission rate as determined in § 129.91(b). The NOx emissions from the turbine after implementation of the alternate standard may not exceed any NOx emission limit contained in a permit issued under Chapter 127.~~] 0.2 LB NOX/MMBTU OR 2.2 LBS NOX/MWH.

(B) [~~75 ppmvd of NOx, corrected to 15% O2, w~~]When firing oil,[~~or an alternate emission rate approved by the Department that achieves a NOx emission reduction of 60% from the actual 1990 NOx emission rate as determined in § 129.91(b). The NOx emissions from the turbine after implementation of the~~

~~alternate standard may not exceed any NOx emission limit contained in a permit issued under Chapter 127.~~]**0.3 LB NOX/MMBTU OR 3 LB NOX/MWH.**

(2) **THE EMISSION RATE FOR A** ~~[S]~~Stationary combustion turbine~~[s]~~ with a nameplate rated capacity of greater than 250 million Btu/hour **HEAT INPUT** that ~~[are]~~ **IS** not subject to §§ 145.1—145.7, 145.10—145.14, 145.30, 145.31, 145.40—145.43, 145.50—145.57, 145.60—145.62 and 145.70—145.76 [~~shall meet the lower of any NOx emission limit established in a permit issued under Chapter 127 or~~] **IS** 0.17 lb NOx per million Btu heat input[~~from May 1 through September 30 of each year~~]. **THE OWNER OR OPERATOR OF** ~~[A]~~A stationary combustion turbine may demonstrate compliance with this paragraph through the provisions of §§ 145.80—145.88 (relating to opt-in process).

~~[(b) Emergency gas turbines and fire-fighting turbines, as those terms are defined in 40 CFR 60.331 (relating to definitions), are exempt from this section.~~

~~(c) The owner or operator of two or more stationary combustion turbines identified in subsection (a) may propose in writing to the Department to demonstrate compliance with this section by averaging emissions from the affected sources. Averaging may not eliminate or modify an otherwise applicable regulatory or permitbased emission limitation. The owner or operator shall propose monitoring and averaging provisions sufficient to demonstrate compliance on a daily basis. The Department will approve the averaging proposal in writing.~~]

§ 129.203. [~~Standards for s~~]Stationary internal combustion engines.

(a) [~~This section applies to~~] **BY MAY 1, 2005, THE OWNER OR OPERATOR OF A** stationary internal combustion engine[s] rated at greater than 1,000 horsepower and located in Bucks, Chester, Delaware, Montgomery or Philadelphia County **SHALL COMPLY WITH THIS SECTION AND SECTION 129.204 (RELATING TO EMISSION ACCOUNTABILITY). THIS SECTION DOES NOT APPLY TO NAVAL MARINE COMBUSTION UNITS OPERATED BY THE UNITED STATES NAVY FOR THE PURPOSES OF TESTING AND OPERATIONAL TRAINING OR TO** [~~, except for the following:~~

~~(1) Fire-fighting stationary internal combustion engines and emergency stationary internal combustion engines.~~

~~(2)~~ [~~S~~]Stationary internal combustion engines regulated under Chapter 145, Subchapter B (relating to emissions of NOx from stationary internal combustion engines).

~~[(b) By May 1, 2005, the owner or operator shall ensure that, during the period May 1 through September 30 of each year, the affected stationary internal combustion engines identified in subsection (a) meet the lower of any NOx emission limitation established in a permit issued under Chapter 127 (relating to permits) or the following NOx emission limits:]~~

(b) BY OCTOBER 31, 2005 AND EACH YEAR THEREAFTER, THE OWNER OR OPERATOR OF THE STATIONARY INTERNAL COMBUSTION ENGINE 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.

(c) THE OWNER OR OPERATOR SHALL CALCULATE ALLOWABLE EMISSIONS BY MULTIPLYING THE CUMULATIVE HOURS OF OPERATIONS FOR THE UNIT FOR THE PERIOD BY THE HORSEPOWER RATING OF THE UNIT AND BY THE APPLICABLE EMISSION RATE SET FORTH IN PARAGRAPH (1) OR (2).

(1) For a spark-ignited engine, 3.0 grams of NOx per brake horsepower-hour. **[~~or an alternate emission rate approved by the Department that achieves a NOx emission reduction of 80% from the actual 1990 NOx emission rate as determine in § 129.91(b) (relating to control of major sources of NOx and VOCs). The NOx emissions from the stationary internal combustion engine after implementation of the alternate standard may not exceed any NOx emission limit contained in a permit issued under Chapter 127.~~]**

(2) For a compression ignition stationary internal combustion engine firing diesel fuel or a combination of diesel fuel and natural gas, 2.3 grams of NOx per brake

horsepower-hour. [~~or an alternate emission rate approved by the Department that achieves a NOx emission reduction of 80% from the actual 1990 NOx emission rate as determined in § 129.91(b). The NOx emissions from the stationary internal combustion engine after implementation of the alternate standard may not exceed any NOx emission limit contained in a permit issued under Chapter 127.~~]

(d) EMISSIONS FROM A STATIONARY INTERNAL COMBUSTION ENGINE THAT HAS BEEN OR IS REPLACED BY AN ELECTRIC MOTOR MAY BE COUNTED AS ALLOWABLE EMISSIONS FOR PURPOSES OF THIS SECTION AND SECTION 129.204, AS FOLLOWS:

(1) FOR A REPLACED SPARK-IGNITED ENGINE, 3.0 GRAMS OF NOX PER BRAKE HORSEPOWER-HOUR OF THE REPLACEMENT MOTOR, LESS 1.5 POUNDS OF NOX PER MWH OF ELECTRICITY CONSUMED BY THE REPLACEMENT MOTOR.

(2) FOR A REPLACED COMPRESSION IGNITION STATIONARY INTERNAL COMBUSTION ENGINE THAT FIRED DIESEL FUEL OR A COMBINATION OF DIESEL FUEL AND NATURAL GAS, 2.3 GRAMS OF NOX PER BRAKE HORSEPOWER-HOUR, LESS 1.5 POUNDS OF NOX PER MWH OF ELECTRICITY CONSUMED BY THE REPLACEMENT MOTOR.

[~~(c) The owner or operator of two or more stationary internal combustion engines identified in subsection (a) may propose in writing to the Department to~~

~~demonstrate compliance with this section by averaging emissions from the affected sources. Averaging may not eliminate or modify any otherwise applicable regulatory or permit based emission limitation. The owner or operator shall propose monitoring and averaging provisions sufficient to demonstrate compliance on a daily basis. The Department will approve the averaging proposal in writing~~].

SECTION 129.204. EMISSION ACCOUNTABILITY.

(a) THIS SECTION APPLIES TO UNITS DESCRIBED IN SECTIONS 129.201-129.203 (RELATING TO BOILERS; STATIONARY COMBUSTION TURBINES; AND STATIONARY INTERNAL COMBUSTION ENGINES).

(b) THE OWNER OR OPERATOR SHALL DETERMINE ACTUAL EMISSIONS IN ACCORDANCE WITH ONE OF THE FOLLOWING:

(1) IF THE OWNER OR OPERATOR OF THE UNIT IS REQUIRED TO MONITOR NOX EMISSIONS WITH A CEMS OPERATED AND MAINTAINED IN ACCORDANCE WITH A PERMIT OR STATE OR FEDERAL REGULATION, THE CEMS DATA REPORTED TO THE DEPARTMENT TO COMPLY WITH THE MONITORING AND REPORTING REQUIREMENTS OF THIS ARTICLE SHALL BE USED. ANY DATA INVALIDATED UNDER CHAPTER 139 (RELATING TO SAMPLING AND TESTING) DATA 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.

(2) IF THE OWNER OR OPERATOR OF THE UNIT IS NOT REQUIRED TO MONITOR NOX EMISSIONS WITH A CEMS, ONE OF THE FOLLOWING SHALL BE USED TO DETERMINE ACTUAL EMISSIONS OF NOX:

(i) THE 1-YEAR AVERAGE EMISSION RATE CALCULATED FROM THE MOST RECENT PERMIT EMISSION LIMIT COMPLIANCE DEMONSTRATION TEST DATA FOR NOX.

(ii) THE MAXIMUM HOURLY ALLOWABLE NOX EMISSION RATE CONTAINED IN THE PERMIT OR THE HIGHER OF THE FOLLOWING:

(A) THE HIGHEST RATE DETERMINED BY USE OF THE EMISSION FACTOR FOR THE UNIT CLASS CONTAINED IN THE MOST UP-TO DATE VERSION OF THE EPA PUBLICATION, *"AP-42 COMPILATION OF AIR POLLUTION EMISSION FACTORS."*

(B) THE HIGHEST RATE DETERMINED BY USE OF THE EMISSION FACTOR FOR THE UNIT CLASS CONTAINED IN THE MOST UP-

TO DATE VERSION OF EPA'S "FACTOR INFORMATION RETRIEVAL (FIRE)" DATA SYSTEM.

(iii) CEMS DATA, IF THE OWNER OR OPERATOR ELECTS TO MONITOR NOX EMISSIONS WITH A CEMS. THE OWNER OR OPERATOR SHALL MONITOR EMISSIONS AND REPORT THE DATA FROM THE CEMS IN ACCORDANCE WITH CHAPTER 139 OR CHAPTER 145 (RELATING TO INTERSTATE POLLUTION TRANSPORT REDUCTION). ANY DATA INVALIDATED UNDER CHAPTER 139 DATA 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.

(iv) AN ALTERNATE CALCULATION AND RECORDKEEPING PROCEDURE BASED UPON EMISSIONS TESTING AND CORRELATIONS WITH OPERATING PARAMETERS. THE OPERATOR OF THE UNIT MUST DEMONSTRATE THAT THE ALTERNATE PROCEDURE DOES NOT UNDERESTIMATE ACTUAL EMISSIONS THROUGHOUT THE ALLOWABLE RANGE OF OPERATING CONDITIONS. THE ALTERNATE CALCULATION

AND RECORDKEEPING PROCEDURES MUST BE APPROVED BY THE DEPARTMENT, IN WRITING, PRIOR TO IMPLEMENTATION.

(c) THE OWNER OR OPERATOR OF A UNIT SUBJECT TO THIS SECTION SHALL SURRENDER TO THE DEPARTMENT ONE NOX ALLOWANCE, AS DEFINED IN SECTION 145.2 (RELATING TO DEFINITIONS), FOR EACH TON OF NOX BY WHICH THE COMBINED ACTUAL EMISSIONS EXCEED THE ALLOWABLE EMISSIONS OF THE UNITS SUBJECT TO THIS SECTION AT A FACILITY FROM MAY 1 THROUGH SEPTEMBER 30. THE SURRENDERED NOX 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 ONE 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 UNITS SUBJECT TO THIS SECTION AT A FACILITY FROM MAY 1 THROUGH SEPTEMBER 30 EXCEED THE COMBINED ACTUAL EMISSIONS FROM UNITS 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 UNITS SUBJECT TO THIS SECTION AT THE OWNER OR OPERATOR'S OTHER FACILITIES.

(e) BY NOVEMBER 1, 2005 AND BY NOVEMBER 1 OF EACH YEAR THEREAFTER, AN OWNER OR OPERATOR OF A UNIT SUBJECT TO THIS SECTION SHALL SURRENDER THE REQUIRED NOX ALLOWANCES TO THE DEPARTMENT'S DESIGNATED NOX ALLOWANCE TRACKING SYSTEM ACCOUNT AND PROVIDE TO THE DEPARTMENT, IN WRITING, 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.

(f) IF AN OWNER OR OPERATOR FAILS TO COMPLY WITH SUBSECTION (e), 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 OF THAT YEAR.

(g) THE SURRENDER OF NOX ALLOWANCES UNDER SUBSECTION (f) DOES NOT AFFECT THE LIABILITY OF THE OWNER OR OPERATOR OF THE UNIT 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 UNIT DEMONSTRATES THAT A LESSER NUMBER OF DAYS SHOULD BE CONSIDERED.

(2) EACH TON OF EXCESS EMISSIONS IS A SEPARATE VIOLATION.

§129.205. ZERO EMISSION RENEWABLE ENERGY PRODUCTION CREDIT.

IN CALCULATING ACTUAL EMISSIONS FROM A FACILITY UNDER SECTION 129.204 (RELATING TO EMISSION ACCOUNTABILITY), THE OWNER OR OPERATOR MAY DEDUCT 1.5 POUNDS OF NOX PER MWH OF ELECTRICITY OR THERMAL POWER EQUIVALENT FOR EACH MWH OF

ZERO EMISSION RENEWABLE ENERGY PRODUCED, IF THE FOLLOWING CONDITIONS ARE MET:

(1) THE ZERO EMISSION RENEWABLE ENERGY PRODUCTION IS CERTIFIED IN A TRADABLE RENEWABLE CERTIFICATE.

(2) THE ZERO EMISSION RENEWABLE ENERGY WAS GENERATED BY A POWER SOURCE THAT PRODUCED ZERO EMISSIONS AND USED 100% RENEWABLE ENERGY, SUCH AS SOLAR OR WIND POWER, IN PRODUCING THE RENEWABLE ENERGY. FOR HYDROPOWER, THE POWER MUST BE GENERATED WITHOUT THE USE OF A DAM.

(3) THE ZERO EMISSION RENEWABLE ENERGY POWER SOURCE WAS ORIGINALLY BROUGHT INTO PRODUCTION ON OR AFTER_____. (*EDITORS NOTE*: THE BLANK REFERS TO THE DATE OF ADOPTION OF THIS PROPOSAL.)

(4) THE ZERO EMISSION RENEWABLE ENERGY POWER SOURCE IS LOCATED IN BUCKS, CHESTER, DELAWARE, MONTGOMERY OR PHILADELPHIA COUNTY.

(5) THE OWNER OR OPERATOR SURRENDERS THE RENEWABLE TRADABLE CERTIFICATE TO THE DEPARTMENT.

(6) THE OWNER OR OPERATOR CERTIFIES THAT THE CONDITIONS OF THIS SECTION HAVE BEEN SATISFIED.

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CHAPTER 145. INTERSTATE POLLUTION

TRANSPORT REDUCTION

Subchapter A. NOx BUDGET TRADING PROGRAM

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NOx ALLOWANCE ALLOCATIONS

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145.42. NOx allowance allocations.

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(d) For each control period specified in § 145.41(d), the Department will allocate NOx allowances to NOx budget units in a given State under § 145.4(a) (except for units exempt under § 145.4(b)) that commence operation, or are projected to commence operation, on or after May 1, 1997 (for control periods under § 145.41(a)); May 1, 2003, (for control periods under § 145.41(b)); and May 1 of the year 5 years before the beginning of the group of 5 years that includes the control period (for control periods under § 145.41(c)). The Department may also use this set-aside to address allocation revisions to units under subsections (a) – (c). **FOR EACH TON OF NOX DEDUCTED UNDER §129.205 (ZERO EMISSION RENEWABLE ENERGY PRODUCTION CREDIT), THE DEPARTMENT WILL RETIRE ONE NOX ALLOWANCE FROM THE ALLOWANCES IN THE SET-ASIDE FOR THE SUBSEQUENT CONTROL PERIOD.** The Department will make the allocations under this subsection in accordance with the following procedures:

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(*Editor's Note*: The following Chapter 145 sections are new and are printed in regular type for ease of reading.)

Subchapter B. EMISSIONS OF NOx FROM

STATIONARY INTERNAL COMBUSTION ENGINES

145.111. Applicability.

145.112. Definitions.

145.113. Standard requirements.

[~~145.114. Compliance determination.~~

~~145.115. Reporting, monitoring and recordkeeping~~.]

§ 145.111. Applicability.

(a) An owner or operator of a**N** [rich-burn,] **ENGINE DESCRIBED IN SUBSECTION (c) THAT EMITTED 153 TONS OR MORE OF NOX FROM MAY 1 THROUGH SEPTEMBER 30 IN ANY YEAR FROM 1995 THROUGH 2004 SHALL COMPLY WITH THIS SUBCHAPTER BY MAY 1, 2005 AND EACH YEAR THEREAFTER.**

(b) AN OWNER OR OPERATOR OF AN ENGINE DESCRIBED IN SUBSECTION (c) THAT EMITS 153 TONS OR MORE OF NOX FROM MAY 1 THROUGH SEPTEMBER 30 IN ANY YEAR AFTER 2004 SHALL COMPLY WITH THIS SUBCHAPTER BY MAY 1 OF THE FOLLOWING CALENDAR YEAR AND EACH YEAR THEREAFTER.

(c) SUBSECTIONS (a) AND (b) APPLY TO THE FOLLOWING ENGINES:

(1) A RICH BURN OR LEAN BURN stationary internal combustion engine with an engine rating equal to or greater than 2,400 brake horsepower**[**~~;~~**]**.

(2) A DIESEL STATIONARY INTERNAL COMBUSTION ENGINE WITH AN ENGINE RATING EQUAL TO OR GREATER THAN 3,000 BRAKE HORSEPOWER.

(3) A DUAL-FUEL STATIONARY INTERNAL COMBUSTION ENGINE WITH AN ENGINE RATING EQUAL TO OR GREATER THAN 4,400 BRAKE HORSEPOWER. [~~that emitted greater than or equal to 153 tons of NOx from May 1 through September 30 in 1995 or from May 1 through September 30 of any year thereafter shall comply with the applicable requirements of this subchapter.~~

~~(b) An owner or operator of a lean-burn stationary internal combustion engine with an engine rating equal to or greater than 2,400 brake horsepower that emitted greater than or equal to 153 tons of NOx from May 1 through September 30 in 1995 or from May 1 through September 30 of any year thereafter shall comply with the applicable requirements of this subchapter.~~

~~(c) An owner or operator of a diesel stationary internal combustion engine with an engine rating equal to or greater than 3,000 brake horsepower that emitted greater~~

~~than or equal to 153 tons of NOx from May 1 through September 30 in 1995 or from May 1 through September 30 of any year thereafter shall comply with the applicable requirements of this subchapter.~~

~~(d) An owner or operator of a dual-fuel stationary internal combustion engine with an engine rating equal to or greater than 4,400 brake horsepower that emitted greater than or equal to 153 tons of NOx from May 1 through September 30 in 1995 or from May 1 through September 30 of any year thereafter shall comply with the applicable requirements of this subchapter.~~]

§ 145.112. Definitions.

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

CEMS—Continuous Emission Monitoring System—The equipment required under this subchapter ~~[and]~~ **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.

Diesel stationary internal combustion engine—A compression-ignited two- or four-stroke engine in which liquid fuel injected into the combustion chamber ignites when the air charge has been compressed to a temperature sufficiently high for auto-ignition.

Dual-fuel stationary internal combustion engine—A compression-ignited stationary internal combustion engine that is burning liquid fuel and gaseous fuel simultaneously.

Engine rating—The output of an engine as determined by the engine manufacturer and listed on the nameplate of the unit, regardless of any derating.

Lean-burn stationary internal combustion engine—Any two- or four-stroke spark-ignited engine that is not a rich-burn stationary internal combustion engine.

Rich-burn stationary internal combustion engine—A two- or four-stroke spark-ignited engine where the manufacturer's original recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio is less than or equal to 1.1.

***STATIONARY INTERNAL COMBUSTION ENGINE*—FOR THE PURPOSES OF THIS SUBCHAPTER, AN INTERNAL COMBUSTION ENGINE OF THE RECIPROCATING TYPE THAT IS EITHER ATTACHED TO A FOUNDATION AT A FACILITY OR IS DESIGNED TO BE CAPABLE OF BEING CARRIED OR MOVED FROM ONE LOCATION TO ANOTHER AND IS NOT A MOBILE AIR CONTAMINATION SOURCE.**

Stoichiometric air/fuel ratio—The air/fuel ratio where all fuel and all oxygen in the air/fuel mixture will be consumed.

Unit—An engine subject to this subchapter.

§ 145.113. Standard requirements.

(a) ~~[Beginning May 1, 2005, an owner or operator of a unit described in § 145.111 (relating to applicability) may not operate the unit from May 1 through September 30 of any year unless the owner or operator complies with the following requirements:~~

~~(1) An owner or operator of a unit identified in § 145.111(a), (c) or (d) shall demonstrate that emissions from the unit have been reduced by 90% from the 1990 emission rate as determined in § 129.91(b) (relating to control of major sources of NOX and VOCs).]~~

~~(2) An owner or operator of a unit identified in § 145.111(b) shall demonstrate that emissions from the unit have been reduced by 91% from the 1990 emission rate as determined in § 129.91(b).]~~

THE OWNER OR OPERATOR OF A UNIT SUBJECT TO THIS SUBCHAPTER SHALL CALCULATE THE DIFFERENCE BETWEEN THE UNIT'S ACTUAL EMISSIONS FROM MAY 1 THROUGH SEPTEMBER 30 AND THE ALLOWABLE EMISSIONS FOR THAT PERIOD BY THE FOLLOWING DATES:

(1) FOR A UNIT DESCRIBED IN §145.111(a), BY OCTOBER 31, 2005 AND EACH YEAR THEREAFTER.

(2) FOR A UNIT DESCRIBED IN §145.111(b), BY OCTOBER 31 OF THE CALENDAR YEAR FOLLOWING THE YEAR THAT THIS SUBCHAPTER BECOMES APPLICABLE TO THE UNIT AND EACH YEAR THEREAFTER.

(b) THE OWNER OR OPERATOR SHALL CALCULATE ALLOWABLE EMISSIONS BY MULTIPLYING THE UNIT'S CUMULATIVE HOURS OF OPERATION FOR THE PERIOD BY THE UNIT'S HORSEPOWER RATING

AND THE UNIT'S APPLICABLE EMISSION RATE SET FORTH IN PARAGRAPH (1), (2) OR (3).

(1) THE EMISSION RATE FOR A RICH BURN STATIONARY INTERNAL COMBUSTION ENGINE WITH AN ENGINE RATING EQUAL TO OR GREATER THAN 2,400 BRAKE HORSEPOWER SHALL BE 1.5 GRAMS PER BRAKE HORSEPOWER-HOUR.

(2) THE EMISSION RATE FOR A LEAN BURN STATIONARY INTERNAL COMBUSTION ENGINE WITH AN ENGINE RATING EQUAL TO OR GREATER THAN 2,400 BRAKE HORSEPOWER SHALL BE 3.0 GRAMS PER BRAKE HORSEPOWER-HOUR.

(3) THE EMISSION RATE FOR A DIESEL STATIONARY INTERNAL COMBUSTION ENGINE WITH AN ENGINE RATING EQUAL TO OR GREATER THAN 3,000 BRAKE HORSEPOWER, OR A DUAL-FUEL STATIONARY INTERNAL COMBUSTION ENGINE WITH AN ENGINE RATING EQUAL TO OR GREATER THAN 4,400 BRAKE HORSEPOWER SHALL BE 2.3 GRAMS PER BRAKE HORSEPOWER-HOUR.

(c) THE OWNER OR OPERATOR SHALL DETERMINE ACTUAL EMISSIONS BY USING ONE OF THE FOLLOWING:

(1) IF THE OWNER OR OPERATOR OF THE UNIT IS REQUIRED TO MONITOR NOX EMISSIONS WITH A CEMS OPERATED AND MAINTAINED IN ACCORDANCE WITH A PERMIT OR STATE OR FEDERAL REGULATION, DATA REPORTED TO THE DEPARTMENT TO COMPLY WITH THE MONITORING AND REPORTING REQUIREMENTS OF THIS ARTICLE. ANY DATA INVALIDATED UNDER CHAPTER 139 (RELATING TO SAMPLING AND TESTING) DATA 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.

(2) IF THE OWNER OR OPERATOR OF THE UNIT IS NOT REQUIRED TO MONITOR NOX EMISSIONS WITH A CEMS, ONE OF THE FOLLOWING SHALL BE USED TO DETERMINE ACTUAL EMISSIONS OF NOX:

(i) CEMS DATA, IF THE OWNER OR OPERATOR ELECTS TO MONITOR NOX EMISSIONS WITH A CEMS. THE OWNER OR OPERATOR SHALL MONITOR EMISSIONS AND REPORT THE DATA FROM THE CEMS IN ACCORDANCE WITH CHAPTER 139 OR CHAPTER 145 (RELATING TO INTERSTATE POLLUTION TRANSPORT REDUCTION). 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.

(ii) AN ALTERNATE CALCULATION AND RECORDKEEPING PROCEDURE BASED UPON EMISSIONS TESTING AND CORRELATIONS WITH OPERATING PARAMETERS. THE OPERATOR OF THE UNIT MUST DEMONSTRATE THAT THE ALTERNATE PROCEDURE DOES NOT UNDERESTIMATE ACTUAL EMISSIONS THROUGHOUT THE ALLOWABLE RANGE OF OPERATING CONDITIONS. THE ALTERNATE CALCULATION AND RECORDKEEPING PROCEDURES MUSTBE APPROVED BY THE DEPARTMENT, IN WRITING, PRIOR TO IMPLEMENTATION.

(iii) THE AVERAGE EMISSION RATE CALCULATED FROM TEST DATA FROM NOX EMISSION TESTS CONDUCTED FROM MAY 1 THROUGH SEPTEMBER 30 OF THAT YEAR. THE EMISSIONS TESTS MUST BE CONDUCTED IN ACCORDANCE WITH THE PERMIT EMISSION LIMIT COMPLIANCE MONITORING PROCEDURES. TESTS SHALL BE CONDUCTED AT LEAST ONCE EVERY 735 HOURS OF OPERATION. THE DEPARTMENT MAY REDUCE THE FREQUENCY OF THE EMISSION TESTING FOR A UNIT BASED ON THE CONSISTENCY OF THE DATA

GATHERED FROM THE TESTING. AT LEAST ONE TEST IS REQUIRED DURING THE PERIOD OF MAY 1 THROUGH SEPTEMBER 30.

(d) THE OWNER OR OPERATOR OF A UNIT SUBJECT TO THIS SECTION SHALL SURRENDER TO THE DEPARTMENT ONE NOX ALLOWANCE, AS DEFINED IN SECTION 145.2 (RELATING TO DEFINITIONS), FOR EACH TON OF NOX BY WHICH THE COMBINED ACTUAL EMISSIONS EXCEED THE ALLOWABLE EMISSIONS OF THE UNITS SUBJECT TO THIS SECTION AT A FACILITY FROM MAY 1 THROUGH SEPTEMBER 30. THE SURRENDERED NOX 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 ONE 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 UNITS SUBJECT TO THIS SUBCHAPTER AT A FACILITY FROM MAY 1 THROUGH SEPTEMBER 30 EXCEED THE COMBINED ACTUAL EMISSIONS FROM UNITS SUBJECT TO THIS SUBCHAPTER AT THE FACILITY DURING THE SAME PERIOD, THE OWNER OR OPERATOR MAY DEDUCT THE DIFFERENCE OR ANY PORTION OF IT FROM THE AMOUNT OF ACTUAL EMISSIONS FROM UNITS SUBJECT TO THIS SUBCHAPTER AT THE

OWNER OR OPERATOR'S OTHER FACILITIES LOCATED IN THE COMMONWEALTH FOR THAT SAME PERIOD.

(f) BY NOVEMBER 1 OF EACH YEAR, AN OWNER OR OPERATOR OF A UNIT SUBJECT TO THIS SUBCHAPTER SHALL SURRENDER THE REQUIRED NOX ALLOWANCES TO THE DEPARTMENT'S DESIGNATED NOX ALLOWANCE TRACKING SYSTEM ACCOUNT, AS DEFINED IN SECTION 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 3 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 SECTION (g) DOES NOT AFFECT THE LIABILITY OF THE OWNER OR OPERATOR OF UNITS FOR ANY FINE, PENALTY OR ASSESSMENT, OR OTHER 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 UNIT DEMONSTRATES THAT A LESSER NUMBER OF DAYS SHOULD BE CONSIDERED.

(2) EACH TON OF EXCESS EMISSIONS IS A SEPARATE VIOLATION.

~~[§ 145.114. Compliance determination.~~

~~(a) An owner or operator of a unit subject to this subchapter shall determine compliance using a CEMS that meets the applicable requirements of Chapter 139(relating to sampling and testing) unless an alternate monitoring technique is approved by the Department under § 145.115(b)(1)(ii) (relating to reporting, monitoring and recordkeeping).~~

~~(b) An owner or operator of two or more units subject to this subchapter may demonstrate compliance with this subchapter through an averaging demonstration~~

~~approved in writing by the Department. Averaging may not eliminate or modify an otherwise applicable regulatory or permit-based emission limitation. The units demonstrating compliance through an averaging provision shall be monitored using a CEMS.~~

~~§ 145.115. Reporting, monitoring and recordkeeping.~~

~~(a) *Reporting requirements.* An owner or operator of a unit subject to this subchapter shall:~~

~~(1) By May 1, 2004, submit to the Department the identification number and type of each unit, the name and address of the plant where the unit is located, and the name and telephone number of the person responsible for demonstrating compliance.~~

~~(2) Submit a report documenting for that unit the total NOx emissions from May 1 through September 30 of each year to the Department by October 31 of each year, beginning in 2005.~~

~~(b) *Monitoring requirements.*~~

~~(1) An owner or operator of a unit subject to this subchapter may not operate the unit unless it is equipped with one of the following:~~

~~(i) A CEMS that meets the applicable requirements of Chapter 139 (relating to sampling and testing).~~

~~(ii) An alternate calculation and recordkeeping procedure based upon actual annual emissions testing and correlations with operating parameters. The installation, implementation and use of the alternate calculation and recordkeeping procedure shall be approved by the Department in writing prior to implementation.~~

~~(2) The CEMS or approved alternate calculation and recordkeeping procedure shall be operated and maintained in accordance with an onsite CEMS operating plan approved by the Department.~~

~~(c) *Recordkeeping requirements.* An owner or operator of a unit subject to this subchapter shall maintain records necessary to demonstrate compliance for 5 consecutive calendar years at the facility at which the unit is located. The records shall be made available to the Department upon request.~~]

Subchapter C. EMISSIONS OF NOx FROM CEMENT MANUFACTURING

§ 145.141. Applicability.

[~~This subchapter applies to~~]**BEGINNING MAY 1, 2005,** an owner or operator of a Portland cement kiln[s] [~~located in this Commonwealth~~] **SHALL COMPLY WITH THIS SUBCHAPTER**.

§ 145.142. Definitions.

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

CEMS—Continuous Emission Monitoring System—The equipment required under this subchapter [~~and~~] **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.

~~[*Low NOx burner*—Combustion equipment designed to reduce flame turbulence, delay fuel/air mixing and establish fuel-rich zones for initial combustion.~~

~~*Mid-kiln firing*—The secondary firing in kilns by injecting solid fuel at an intermediate point in the kiln using a specially designed feed injection mechanism for the purpose of decreasing NOx emissions through burning part of the fuel at a lower temperature and creating reducing conditions at the solid waste injection point that may destroy some of the NOx formed upstream in the kiln burning zone.]~~

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.

§ 145.143. Standard requirements.

~~[Beginning May 1, 2005, an owner or operator of a Portland cement kiln subject to this subchapter may not operate the kiln during May 1 through September 30 unless one of the following has been installed and operates during May 1 to September 30:~~

~~(1) Low NOx burner.~~

~~(2) Mid-kiln firing.~~

~~(3) An alternative control approved in writing by the Department that achieves at least a 30% reduction of NOx from the actual 1990 emission rate as determined in § 129.91(b) (relating to control of major sources of NOx and VOCs). The NOx emissions from the Portland cement kiln after installation and operation of the alternate control may not exceed any NOx emission limit contained in a permit issued under Chapter 127 (relating to construction, modification, reactivation and operation of sources).]~~

(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 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.

(c) THE OWNER OR OPERATOR SHALL INSTALL AND OPERATE A CEMS, AND SHALL REPORT CEMS EMISSIONS DATA, IN ACCORDANCE WITH THE CEMS REQUIREMENTS OF EITHER CHAPTER 139 (RELATING TO

SAMPLING AND TESTING) OR CHAPTER 145 (RELATING TO INTERSTATE OZONE TRANSPORT) AND CALCULATE ACTUAL EMISSIONS USING THE CEMS DATA REPORTED TO THE DEPARTMENT. ANY DATA INVALIDATED UNDER CHAPTER 139 DATA 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 NOX ALLOWANCE, AS DEFINED IN SECTION 145.2 (RELATING TO DEFINITIONS), FOR EACH TON OF NOX 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 NOX 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 ONE 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 THE 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 SECTION 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. Reporting, monitoring and recordkeeping.~~

~~(a) *Reporting requirements.* An owner or operator subject to § 145.143 (relating to standard requirements) shall:~~

~~(1) By May 1, 2005, submit to the Department the identification number and type of each unit subject to this section, the name and address of the plant where the unit is located and the name and telephone number of the person responsible for demonstrating compliance with this subchapter.~~

~~(2) Submit a report documenting for that unit the total NOx emissions from May 1 through September 30 of each year to the Department by October 31 of each year, beginning in 2005.~~

~~(3) Submit a report, by May 1, 2005, documenting the control equipment or NOx reduction technique installed to demonstrate compliance with § 145.143.~~

~~(b) *Monitoring requirements.* A Portland cement kiln subject to this section shall install and operate a CEMS to demonstrate the continual effectiveness of the compliance option selected under § 145.143. The CEMS shall be installed, operated and certified in accordance with Chapter 139 (relating to sampling and testing) by May 1, 2005.~~

~~(c) *Recordkeeping requirements.* The owner or operator of the Portland cement kiln shall maintain the records and reports required by this subchapter for a minimum of 5 years. The records and reports shall be made available to the Department upon request.]~~

Advance Notice of Final Rulemaking
Small Sources of NOx, Cement Kilns and Large Internal Combustion Engines
Comment and Response Document

April 30, 2004

Bureau of Air Quality
Department of Environmental Protection

The Department of Environmental Protection (Department) published an Advance Notice of Final Rulemaking (ANFR) for the Small Sources of NOx rulemaking in the *Pennsylvania Bulletin* on December 20, 2003 (33 Pa.B. 6226). The public comment period closed on January 19, 2004. Comments received during the public comment period are summarized in this comment and response document. The identity of each commentator is indicated by the assigned number(s) in parentheses after each comment.

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Compliance Mechanism/Effectiveness of the Regulation to Reduce Emissions

1. Comment: The regulations provide adequate compliance and monitoring options to enable operators to comply cost effectively. (1, 3, 4, 6, 9)

Response: The Department agrees.

2. Comment: The regulations should not combine the emission requirements for all sources at a facility (commentator 2 only), and should not absolutely require that allowances be surrendered when the overall facility emissions exceed the allowable rates. Enforcement and a monetary penalty are appropriate for non-compliance. (2, 13, 14, 16)

Response: The final-form regulation requires combining of facility emissions to provide for a simple, standard, and accurate basis for averaging. The owner or operator of affected sources can avoid the need to obtain allowances by maintaining overall emissions below the specified limits, by controlling unit emissions, or by averaging with lower emitting units under the owner or operator's control in the five-county Southeast Pennsylvania ozone nonattainment area.

3. Comment: Sources should not be allowed to average as permitted in section 129.204(d) because it will make it more difficult to meet the ozone standards. (5)

Response: Averaging under section 129.204 is not expected to make meeting the ozone standards more difficult because averaging is only allowed among facilities within the five-county Southeast Pennsylvania ozone nonattainment area.

4. Comment: The requirement to surrender allowances will create an undue demand for allowances causing allowance price increases that will harm both source operators and sources subject to the NOx budget requirements. (13, 16)

Response: The NOx budget contains more than 500,000 allowances per ozone season. The amount of emission reductions required by the final-form regulation is insignificant in comparison. Most of the NOx SIP Call and Chapter 129 controls are already, or will be, in place by May 2005. The allowance demand will be very small in relation to the budget. The maximum number of allowances that would be used to comply with the final-form regulation is estimated to be fewer than several hundred allowances per ozone season. The Department does not anticipate that the increased level of demand for allowances that may result from the final-form regulation will negatively impact cost and availability of allowances.

5. Comment: Cement kilns, and other sources covered by these regulations are not allowed to participate in the NOx Budget trading program and may be subject to high allowance prices. (10, 11)

Response: The final-form regulation provides options in addition to the use of allowances to demonstrate compliance. The final-form regulation does not require source owners or operators to use the allowance compliance option. An owner or operator may use averaging, install controls, or implement other programs to reduce emissions.

6. Comment: The efforts made to develop a rule that achieves the level of control required by the NOx SIP Call, while providing flexibility to the cement industry, is appreciated. The commentator supports the basic structure and concept of the rule. (9)

Response: The Department concurs.

7. Comment: We support the Department's efforts to reduce air pollution in the five-county Southeast Pennsylvania ozone nonattainment area from the sources subject to this proposed rule. (24)

Response: The Department concurs.

8. Comment: The 3:1 compliance penalty for violations should be removed. It is highly punitive, could drain the market and increase compliance costs for everyone. (4, 12, 13, 14, 15, 16)

Response: This type and level of penalty are consistent with existing regulations that provide for compliance with emission limits through allowance surrender. The penalty has to be sufficient that a source owner or operator does not gain advantage by failing to comply. The 3:1 ratio is sufficient. The level of potential non-compliance and relatively small amount of emissions involved, along with the size of the allowance market, ensures the market will not see any discernible impact. Most of the NOx SIP Call and Chapter 129 controls are already in place. The allowance demand will be very small in relation to the NOx budget.

9. Comment: If the Department wants to regulate units not currently covered under the Chapter 145 budget program, then a market based regulation with its own budget, monitoring and reporting, and penalties should be developed for those units. (13, 16)

Response: A separate trading system for the smaller and more numerous sources covered by the final-form regulation would not be feasible or cost-effective. The final-form regulation takes into account the fact that the population of Chapter 145 NOx budget units has an enormous reserve capacity of available and low-cost allowances.

Regulations such as this can draw from that capacity to everyone's benefit. This will provide additional incentive for NOx budget sources, which can profit from their ability to control more cheaply and sell allowances. Owners and operators of sources affected by the final-form regulation can benefit by having a less expensive compliance option, if control costs are high or if averaging is not an option. Consumers will see lower prices as a result of the overall efficiency savings to the economy.

10. Comment: The 3:1 compliance penalty should be retained, as it is necessary to ensure compliance under a trading program. (5, 6)

Response: The Department agrees.

11. Comment: The Department is commended for considering excess emissions as a separate violation for each day of the 153-day ozone season. (6)

Response: The Department agrees that this approach is a necessary component of a rule that allows allowances to be used for compliance. This provision is consistent with existing regulations.

12. Comment: The separate day of violation provision is opposed as unnecessarily punitive. (10, 11, 12)

Response: The number of days may be reduced to the actual number of days during which the actual excess emissions occurred, upon satisfactory demonstration to the Department.

13. Comment: The requirement to surrender only current and future year allowances is needed to ensure the best level of compliance. (5)

Response: The Department agrees. The requirement for the surrender of only current and future year allowances is retained in the final-form regulation.

14. Comment: The emission limits are not very aggressive; however, given that old and new units must comply, the averages will still deliver significant improvements over the status quo. (6)

Response: The Department agrees.

15. Comment: The State of New Jersey believes that the regulation is not as strict as the OTC model rule and with rules that New Jersey plans to promulgate. New Jersey

requests that the stringency and applicability of the regulation be increased to the levels contained in the OTC model rule. (8)

Response: The OTC model rule was intended to provide states with a common basis to regulate source emissions to assist owners, operators and states by having consistent requirements. The Department has followed the OTC model rule sufficiently to accomplish this goal and to achieve the necessary level of reductions.

16. Comment: This regulatory action is necessary to achieve and maintain the one-hour ozone standard by May 15, 2005. Emission averaging, or other compliance method, endangers our ability to achieve the needed controls on time. (5)

Response: The final-form regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005. The ability to use allowances or averaging to demonstrate compliance assures that owners and operators that otherwise might need to install control equipment to meet the limits have additional compliance options.

17. Comment: The Chapter 129 regulation should be year round and statewide. (5, 6)

Response: The final-form regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005. The attainment demonstration requires emission control from May 1 through September 30. Year-round NOx reductions would not assist in satisfying the attainment demonstration requirements. Additional NOx reductions may be necessary as part of the Commonwealth's initiatives to achieve and maintain the eight-hour ozone and PM 2.5 standards.

18. Comment: Output based emission limits should be used instead of heat input to encourage energy efficiency and pollution reductions. (5)

Response: Establishment of output-based limits is outside the scope of this rulemaking. Assessment of the cost impacts of an output-based approach requires data that is not readily available to the Department at this time.

19. Comment: The Chapter 129 regulations are supported as necessary to achieve the one-hour ozone standard; the affected sources have long escaped control, and should do their share. The regulations afford adequate flexibility to achieve the emission reduction goals without undue economic hardship. (6, 7)

Response: The Department agrees. The final-form regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005.

20. Comment: The effective date of the regulation does not provide enough time for implementation of compliance strategies. More time should be provided for operators to achieve compliance. (2)

Response: The final-form regulation provides for a variety of compliance options, including averaging and use of allowances. If there is insufficient time to implement a control strategy, the source owner or operator may use allowances or averaging as an interim compliance measure.

21. Comment: The definition of stationary internal combustion engine should be moved to one location with the other definitions. (5)

Response: The "stationary internal combustion engine" definition is contained in Section 121.1 of the final-form regulation.

Boilers

22. Comment: Some boilers cannot operate at their design capacity. The Department should allow derating to avoid applicability of the regulation. (2)

Response: The precise rate of boiler firing is not crucial to achieving the needed emission reductions, whereas the boiler rating is used to identify those units that have significant potential emissions. Allowing owners or operators to derate units to avoid regulation would defeat the emission reduction goals of the final-form regulation.

23. Comment: There should be emission limits for dual fuel use since the emission rates guaranteed by the vendor for the units are usually only at the higher rates. (2)

Response:–There is no need for dual-fuel limits since the allowable emissions are calculated in terms of the amount of BTU's combusted for each type of fuel. Although the fuels are burned together, the allowable emissions can be calculated separately.

24. Comment: The Department has indicated that the regulations do not include municipal waste combustors; however, the regulations are not clear on this point. Specific language is recommended. (17, 18, 19, 20, 21, 22, 23)

Response: The final-form regulation clarifies that it does not apply to municipal waste combustors.

Combustion Turbines

25. Comment: An exemption for units that take a five percent capacity factor permit should be provided. In the past these units have emitted three tons or less each during the ozone season. (13, 15, 16)

Response: Because these units frequently operate during high ozone days and have high tons-per-day emission rates, they contribute to the ozone problem. Many of the units affected by the final-form regulation only emit a small fraction of a ton per day, but collectively their emissions are significant.

26. Comment: Units that take a five percent capacity limit should be exempted because the limit would ensure the emissions from these units would be adequately controlled. (16)

Response: The suggestion would result in no emission reductions from these units.

27. Comment: The applicability rating for turbines in section 129.202 should be changed from 250 million BTU/Hr to 25 MW to be consistent with Chapter 145 applicability. (13, 16)

Response: The applicability cutoffs need to be retained because the emission limits were established as achievable for units with the specified heat input ratings.

Internal Combustion (IC) Engines

28. Comment: The definition of stationary internal combustion engine in section 129.204 may include engines exempt from state regulation under the Clean Air Act. (3)

Response: The final-form regulation specifies "in-use" measures that are not preempted. Additionally, the final-form regulation defines internal combustion stationary engines in a manner that ensures that those engine emissions that occur during operations as mobile air contamination sources as defined under 25 Pa. Code § 121.1 are not covered.

29. Comment: The Chapter 145 requirement for monthly testing of large IC engines is too costly and unwarranted given the data showing emissions do not vary significantly. Engines that operate less than 500 hours should be exempt from testing. (4)

Response: In order to allow averaging, the emission data must be representative of actual emissions. Data submitted to the Department shows that large emission rate variability still occurs with some engines. Some engines already have established data adequate to reduce the testing frequency. Because the amount of operating time is the critical factor in accurately determining the emissions and not simply the passage of time, the final-form regulation is amended to specify testing not less frequently than every 735 hours of operation instead of monthly. This frequency can also be reduced to one test per season with a demonstration of sufficiently consistent data. This can be accomplished before the final-form regulation becomes effective.

30. Comment: Monthly testing for large IC engines should be retained. (6)

Response: The Department has amended the final-form regulation to reduce the testing burden as specified in response to Comment No. 29, while assuring that the monitoring data adequately reflect actual emissions.

31. Comment: Emergency and other infrequently used engines should be exempt because their emissions are insignificant and, in terms of technical and cost feasibility, the recordkeeping is an additional burden. They should not be subject to this regulation. (2, 3, 13, 16)

Response: Stand-alone units with low emission rates will be excluded under the 0.5-ton per ozone season threshold allowed by the final-form rule. The engines that are affected by the final-form regulation have high emission rates. The actual emissions in terms of tons per day place them among the very largest sources that are potential contributors to ozone. With the averaging, the 0.5-ton facility waiver, and the allowance compliance mechanism, there is insufficient rationale to exclude these units. The final-form regulation includes a minor addition to the existing recordkeeping and emission reporting requirements.

32. Comment: It is a mistake to allow "peaking" units that operate during high electricity demand periods in the summer to rely on seasonal averaging to determine compliance. This allows diesel units to run at capacity, emitting extremely high levels of

NOx and exacerbating unhealthy air on high electricity demand days that often coincide with high ozone days. An averaging scheme that encourages either control or a transition to less polluting peaking generation is urged. (6)

Response: In order to generate credit for averaging, units at a facility must run at reduced emission rates. Increased operation is more likely to occur during times of high-energy demand for both the controlled and uncontrolled units. The overall effect of averaging, when measured across the entire population of affected sources, should provide sufficient overlap in control to provide a relatively continuous level of reductions. In addition, seasonal averaging is part of the rationale for eliminating "emergency" exemptions that could be used to avoid applicability to diesel peaking units. Averaging is preferable because the high dollar-per-ton costs make it difficult to justify outright control requirements on these units. By allowing averaging and including these units, the economics of being accountable for all emissions from them may provide an incentive to use of existing cleaner generation first and an eventual transition to lower emitting technologies.

33. Comment: If the emergency exemption is not reinstated, one should be provided for those units which are integral to nuclear power plants. Their impact on air quality is negligible, their emissions cannot be controlled, their emissions were 9.5 tons during the 2000 ozone season, and the recordkeeping would be burdensome. Given the large amount of emission free generation provided to the area, this is not a desirable public policy. (13, 15)

Response: The final-form regulation does not contain a definition of "emergency stationary internal combustion engine." Back-up IC engines, such as those at the commentator's nuclear facility, are not exempted in the final-form rulemaking. If the ozone season actual emissions from the units exceed the allowable emission requirements in the final-form regulation, the owner or operator will be required either to average emissions from other of the operator's affected sources or to obtain allowances to demonstrate compliance. Exemption from the requirements in the final-form regulation for these types of sources is not warranted.

34. Comment: Retaining the 1.5 grams per brake horsepower-hour emission limit would not be more stringent than the Clean Air Act. The 1.5 grams per brake horsepower-hour limit should be retained in order to ensure attainment of the ozone standard. (5)

Response: The overall level of control provided by the final-form regulation will provide a similar level of reductions as the proposed regulations.

35. Comment: The change to three grams per brake horsepower for spark ignited engines is supported, and it is recommended that compression ignited engines be permitted the same rate. (4)

Response: The limit for emissions from spark-ignited engines was changed to correspond with the limit selected for the same class of large IC engines. That limit was technically justified as more appropriate and achievable. The compression ignited engine limit is technically justified and was not changed.

36. Comment: The three grams per brake horsepower limit amendments in Chapters 129 and 145 are achievable, consistent with the anticipated federal rules and supported. (4)

Response: The Department agrees.

37. Comment: The additional monitoring options will allow the gas industry to use methods more appropriate to the gas transmission facilities. (4)

Response: The Department agrees.

38. Comment: The applicability requirements for IC engines under Chapter 145 are based on 1995 emissions or any year thereafter. Only units that operated in 1995 should be included because using later years is more stringent than the federal requirements. (4)

Response: This requirement is not more stringent than the federal requirements. The federal requirements are to achieve the emission budgets contained in the NOx SIP Call. The budgets were established using 1995 as the base year; however, applying the rule only to units that operated in 1995 does not ensure the budget will be achieved in any year except 1995. The Federal Implementation Plan (FIP) is only a stopgap proposed regulation that may not achieve the budgets if ever implemented. States that invoke the FIP remain obligated to adopt state rules that will achieve the SIP Call budgets.

39. Comment: Owners and operators of engines that are replaced with electrically powered equipment should be allowed to include these engines in their compliance determination. (4, 13, 16)

Response: The Department agrees. The final-form regulation authorizes credit for such a replacement, based upon the difference between the actual emissions that would have resulted from the utilization of the replaced engine and the emissions resulting from the generation of the electricity to power the motor. The electricity generation will be assumed at the nominal rate under the NOx budget program of 1.5 lbs/MWH.

40. Comment: Engines subject to Chapter 145 that did not emit over 153 tons after 1995 could be subject to monitoring requirements, whereas the rule intends only to require monitoring for those that did. The regulation should specifically state this. (4)

Response: The final-form regulation specifies that a unit that emitted 153 tons or more in any ozone season from 1995 through 2004 must comply with Subchapter B of Chapter 145, including the monitoring requirements, by May 1, 2005. Any unit that did not emit 153 tons or more in any ozone season since 1995, but does so after 2004, is not subject to Subchapter B until the following calendar year.

Emission Accountability

41. Comment: Section 129.204(b)(2)(ii) should include consideration for sources without final permits that are operating under plan approval and which may not have a short term limit (hourly) limit in the permit. (1)

Response: The final-form regulation provides for the use of AP-42 or FIRE factor default emission rates for sources operating under plan approval and those without express hourly emission limits.

42. Comment: The emission monitoring methodology should be the most protective of public health. The rule should specify that the most recent permit limits or best available control technology (BACT) or best available technology (BAT) limits be used. (5)

Response: To the extent that there are units with permit limits lower than those in this final-form regulation, those lower limits continue to apply. The imposition of BACT or BAT requirements on sources other than those already subject to the BACT or BAT requirements would not be cost-effective.

43. Comment: The requirement in 145.143(h) to notify the Department prior to May 1 each year if allowances will be used that season should be eliminated since it is difficult to predict if this will be the case. (9, 10, 11, 12)

Response: The provision has been deleted from the final-form regulation.

44. Comment: Based on experience with other facilities, one year is insufficient to install and certify a monitor. A more realistic date or schedule should be included in the regulations. (10, 12)

Response: Most facilities are able to install and certify CEMS within one year. The regulated source owner and operators have been aware of the pending CEMS requirement since prior to October 2002.

45. Comment: The requirement for owners and operators to use CEMS is more stringent than the federal requirements. Stack tests would suffice. (12)

Response: The CEMS requirements are necessary and permissible. There are no sufficiently accurate alternatives for monitoring NOx emissions from cement kilns. The majority of Pennsylvania kilns have CEMS. Monitoring data from cement kilns with CEMS show that emission variability is large and unpredictable over both short and long time scales. It is also not possible to offer flexible compliance alternatives based on averaging or allowance trading without accurate monitoring.

46. Comment: Do the data availability requirements in 139.101(12) apply? (12)

Response: All Chapter 139 requirements are applicable if the owner or operator elects to use a Chapter 139 monitor. If a Part 75 monitor is selected, the requirements of Part 75 apply.

47. Comment: A clarification or more specific guidance in the regulations or CEMS manual regarding how to substitute missing data from CEMS to comply with these regulations is requested. The ability to substitute data from the previous 24-hour period or to use or ozone season average emission data suggested. (10, 12)

Response: The final-form regulation specifies that invalidated (or missing) data must be substituted with data calculated using the unit's potential emissions. The owner or operator may request, in writing, to use any alternative that adequately reflects the actual emissions.

48. Comment: The rule should specify that the CEMS requirement applies only during the ozone season. (12)

Response: The only time period for which the final-form regulation requires NOx emissions monitoring is the time period of May 1 through September 30 each year.

49. Comment: Should the CEMS reports be submitted on a calendar quarter basis and should emission in lbs/hr be reported? (12)

Response: The regulation specifies that CEMS reports must be submitted as required under 25 Pa. Code Chapter 139 or 40 C.F.R. Part 75, as applicable. Both require the submission of quarterly reports of emission rates in terms of the applicable standards.

50. Comment: Emergency combustion turbines and engine units with five percent capacity factor limits should be exempt because they would be forced to run to do emission testing to comply. These units do not have emission limits in their permits and the emissions are calculated using AP-42 emission factors. (13, 15, 16)

Response: The final-form regulation allows the use of the permit limit in lieu of testing to calculate actual emissions. In addition, the final-form regulation specifically provides for the use of emission factors from AP-42 or EPA's "Factor Information Retrieval (Fire)" Data System to determine emissions without the need for additional testing.

Renewable Energy

51. Comment: The ability to create credit from renewable power is supported and should be expanded to the entire state, as is done in other states. (5)

Response: The allowance provisions in the final-form regulation are different from the programs in other states. The reason the provisions do not provide for statewide credit is to spur renewable generation within the five-county Southeast Pennsylvania ozone nonattainment area.

52. Comment: The Zero Emission Reduction Credit provision is strongly supported. It will have only a very small impact on other industries buying and selling NOx allowances, but will have a positive impact on the ability of persons or companies to build renewable energy generation. The credit is not a subsidy but recognition of the improved air quality that the avoided NOx represents to society. (6)

Response: The Department agrees.

53. Comment: The definition of Tradable Renewable Credit (TRC) should clearly prohibit biomass, incineration, and hydro as renewable resources. The zero emission character should be retained. (5, 6)

Response: The qualifying renewable power is limited to zero emission generation and excludes hydropower from dams

54. Comment: If retained, the credit should also be given for power generated by a dam since it has zero emissions. This should be the sole determinant. (14)

Response: The goal of the final-form regulation is to reduce ozone. The zero emission credit provisions will reduce ozone by encouraging the installation of new zero emission renewable energy generation resources. Dams are not known to emit significant levels of NOx, but can emit varying levels of other pollutants including volatile organic

compounds that contribute to ozone production. Non-zero emission renewable energy sources are not included because quantification of the overall air quality benefits must be done on an individual basis, entails a degree of uncertainty, and imposes costs and administrative requirements that are beyond the scope of this initiative.

55. Comment: Mobile sources should not be allowed to generate credits under these rules. (5)

Response: The Department disagrees. In the event new zero emission mobile activities are developed to replace existing activities and the emission reduction benefits can be quantified, the opportunity for credit generation should be available.

56. Comment: Because the potential for wind is small in the five-county Southeast Pennsylvania ozone nonattainment area and the cost of the most likely source, photo-voltaics, is relatively high the demand for allowances from the set-aside should be modest. This pilot program is low-risk and a worthwhile opportunity to explore market-driven renewable programs and should be retained. (6, 7)

Response: The Department agrees.

57. Comment: Allowances should be deducted from the new source set-aside to create the credits for renewable energy. A 15 percent allocation to renewable energy generation is possible using the five percent set-aside and should be made available for this purpose. (5)

Response: The Department disagrees. The final-form regulation authorizes deducting allowances from the set-aside only when a unit affected by an emissions limit in Sections 129.201- 129.301 uses a renewable energy credit against its actual emissions that are in excess of those limits. The purpose is to provide a positive incentive to the owners and operators of these units to turn to renewable energy as an alternative to increasing output from NOx emitting units.

58. Comment: The zero emission renewable credit provisions are supported. Fine particulate, ozone and NOx will be reduced to the benefit of public health. These pollutants result in increased health care costs, lost workdays, and cardiopulmonary effects that may result in hospitalization or even death. (7)

Response: The Department agrees.

59. Comment: The zero emission renewable credit provisions are a welcome and appropriate catalyst for the renewable energy industry in Pennsylvania, and pose no

undue hardship on other industries. DEP is acting responsibly by including this encouragement to the development of pollution-reducing energy generation technology and is supported because of the benefits to public health now and in the future. (7)

Response: The Department agrees.

60. Comment: The 1.5 pounds per MWH set-aside retirement has the potential to significantly reduce the amount of allowances available for new service units. The amount of credit is 10 times higher than that for new generation resources. Commentator 14 suggests if the provision is retained, 0.2 lbs/MWH is more appropriate. Renewable energy generation threatens the economic viability of critical standby generation. There are better ways for the state to promote renewable energy such as purchasing more of it. The provision should be eliminated. (13, 14, 16)

Response: The Department disagrees. This provision will not materially impact the new source set-aside. This provision is only one part of a broader Pennsylvania initiative to encourage more environmentally friendly power sources.

61. Comment: In particular, we commend DEP on the renewable energy portion of this rule. Pennsylvania must reduce the air pollution impact of its energy production, and increasing the production of renewable energy is one of the most effective means to this end. (24)

Response: The Department agrees.

Cement Kilns

62. Comment: The FIP should be the basis for the emission limits. (10, 12)

Response: The emission limit contained in the final-form regulation is based upon the least stringent FIP limit.

63. Comment: Inter-company trading or participation in the allowance program is requested since this will encourage additional reductions in the cement industry. The enforceability issue could be rectified with a requirement for agreements between companies. (10, 11, 12)

Response: The ability to trade allowances between companies requires emission limits to be established for each facility, and the limits to be protective of the overall SIP Call budget for the state. A minority of the industry indicates support for the "opt-in" approach, and given the competitive nature of the cement industry, a consensus on these limits would be difficult to establish and would require a lengthy process. A lengthy

negotiation was conducted previously with regard to including the units in the NOx budget program. This negotiation led to no agreement among source operators.

64. Comment: The cement kiln emission limit should be lower than 6 pounds per ton to better protect human health. Best available control technology (BACT) and best available technology (BAT) levels of two to three pounds are achievable for pre-calciner kilns. (5)

Response: The kilns that are achieving these low emission rates are required to continue to meet their permit limits that require these rates. The six-pound per ton limit will require units that have not recently undergone BACT or BAT analysis to maintain their emissions at or below six pounds of NOx per ton of clinker.

65. Comment: White cement kilns have different heat input and operating requirements than comparable kilns and should be given additional consideration regarding the emission limit in the rule. The limit is inconsistent with the NOx SIP Call and represents a competitive disadvantage. Control technology is the preferred option to an emission-based limit. (10)

Response: The budget for the NOx SIP Call includes controls for all kilns. The emission limit requires less control for the white cement kiln than that established in the budget. However, in conjunction with changes that have occurred at other facilities since the budget was established, the limit is adequate to meet the budget. Emission test data for the only white cement kiln in Pennsylvania indicate that the operators of the kiln have a demonstrated ability to meet the 6 pounds of NOx per ton of clinker limit.

66. Comment: The limit of six pounds of NOx per ton of clinker emission is in accordance with the FIP and is reasonable for wet process kilns. (12)

Response: The Department agrees.

67. Comment: The rules should contain provisions that will streamline the RACT and emission limits in these regulations. (12)

Response: The RACT emission limits are rate-based limits that are based on previously required controls and/or operating practices. The final-form regulation does not authorize the removal of previously established requirements.

Small Sources of NO_x, Cement Kilns and Large Internal Combustion Engines
Comment and Response Document

April 30, 2004

Bureau of Air Quality
Department of Environmental Protection

The Environmental Quality Board (Board) published notice of the public comment period and public hearings for the Small Sources of NO_x proposed rulemaking in the *Pennsylvania Bulletin* on October 18, 2002 (32 Pa.B. 5178). The Board held three public hearings on the proposal at the following Regional Offices of the Department of Environmental Protection:

November 18, 2002

DEP Southcentral Regional Office
Susquehanna River Conference Room
909 Elmerton Ave.
Harrisburg, PA

November 20, 2002

DEP Southwest Regional Office
400 Waterfront Drive
Pittsburgh, PA

November 25, 2002

DEP Southeast Regional Office
Suite 601 Lee Park
555 North Lane
Conshohocken, PA

The public comment period for the Small Sources of NO_x proposed rulemaking closed on December 26, 2002. Testimony received during the public hearings and written comments received during the public comment period are summarized in this comment and response document. The identity of each commentator is indicated by the assigned number(s) in parentheses after each comment.

ID	Name/Address	Postal Code	Submitted 1 pg Summary	Provided Testimony
1	Steve Burkett Dominion Transmission 445 West Main Street Clarksburg, WV	26301		T

ID	Name/Address	Postal Code	Submitted 1 pg Summary	Provided Testimony
2	Colin Toole Duke Energy Gas Transmission 2601 Market Place Street, Suite 400 Harrisburg, PA	17110		T
3	Mike Hoffman NiSource P.O. Box 1273 Charleston, WV	25325		T
4	Tim Hartman Waste System Authority of Eastern Montgomery County 151 West Marshall Street Bldg #3, Suite 100 Norristown, PA	19401		T
5*	Derek Grasso American Ref-Fuel 132 Route 12 Preston, KT	06365	X	T
6	Derek Grasso Integrated Waste Services Association 132 Route 12 Preston, KT	06365		T
7	Nancy F. Parks, Chair Clean Air Committee Pennsylvania Chapter, Sierra Club P.O. Box 663 Harrisburg, PA	17108	X	
8	Thomas A. Sylvester Senior Engineer Exelon Generation 200 Exelon Way Suite 140 Kennett Square, PA	19348		
9	Joe Suchecki Director, Public Affairs Engine Manufacturers Association Two North LaSalle Street, Suite 2200 Chicago, IL	60602		
10	Kevin M. Stewart Director of Environmental Health American Lung Association of PA 630 Janet Avenue Lancaster, PA	17601		

ID	Name/Address	Postal Code	Submitted 1 pg Summary	Provided Testimony
11	Lane H. Smith Manager, Environmental Projects Keystone Cement Company 320-D Midland Parkway Summerville, SC	29485	X	
12	Brian Bahor, QEP Vice President Environmental Permitting Covanta Energy Group 40 Lane Road Fairfield, NJ	07004		
13	Richard Smith Vice President of Operations Armstrong Cement & Supply Corp. 100 Clearfield Road Cabot, PA	16023-4471		
14	Daniel B. Nugent Director, Environmental Affairs Hercules Cement Company 100 Brodhead Road Suite 230 Bethlehem, PA	18017-8989		
15	Harold D. Miller Director Southwestern Pennsylvania Growth Alliance Suite 1000 425 Sixth Avenue Pittsburgh, PA	15219		
16	S. L. Joseph Captain, U.S. Navy Commanding Officer Department of Navy Naval Surface Warfare Center Engineering Station 5001 S. Broad Street Philadelphia, PA	19112-1403	X	
17	Thomas G. Keller Senior Environmental Engineer PPL Corporation Two North Ninth Street Allentown, PA	18101-1179		

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* This commentator provided testimony and written comments.

Program Design

Averaging and Allowance Trading

1. Comment: The commentators oppose allowing the use of both allowance trading and averaging to meet the emission limitations because of their concern that local adverse health effects may result. (7, 10)

Response: The final-form regulation allows the use of allowances to demonstrate compliance and allows averaging within a facility and across facilities under common control. The Department disagrees that averaging and allowance trading will result in localized adverse health impacts because most of the averaging from multiple units is expected to occur at individual facilities. The expanded averaging program will achieve acceptable levels of emission reductions while minimizing compliance costs.

2. Comment: The commentator opposes allowing source operators to achieve compliance through the use of allowances. The surrender of allowances as a compliance option could allow emission increases to occur in the nonattainment area and should not be an option. (17)

Response: The Department does not believe that the use of allowances will result in increased emissions in the area. Although owners or operators of some facilities may use allowances to avoid the installation of controls or implementation of other emission reduction measures, the Department anticipates that the program will result in the level of emission reductions necessary to satisfy Pennsylvania's obligations. The final-form regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005 in order to satisfy SIP obligations for the one-hour ozone attainment demonstration. Failure to implement the requirements by May 1, 2005, subjects the Commonwealth to sanctions under Section 179 of the Clean Air Act. These sanctions include loss of federal highway funds and 2 to 1 emission offsets for new or modified major stationary sources.

The final-form regulation allows the use of allowances to demonstrate compliance and allows averaging across facilities under common control.

3. Comment: The commentator strongly supports the opportunity for the use of averaging as a compliance option. The commentator suggests that the provisions should specify that averaging can extend over the entire ozone season, across facilities within the five-county Southeast Pennsylvania ozone nonattainment area, and at most be limited to a 30-day rolling average. (24)

Response: The final-form regulation provides for the use of averaging throughout the ozone season and across facilities under common control. The final-form regulation does not contain provisions limiting averaging to a 30-day rolling average.

4. Comment: The commentator suggests that the regulation should allow averaging between all classes of small affected sources – boilers, turbines, and engines in the nonattainment area. (17)

Response: The final-form regulation allows averaging between all classes of affected sources and among facilities under common control.

5. Comment: The commentator suggests that, inasmuch as decisions regarding what constitutes an acceptable averaging proposal affect industry and competitiveness, definitive standards need to be established in the regulation. The commentator asks about the averaging time period, calculation methodologies, types of sources that may average together, ownership of sources allowed to average, and the geographical extent of the averaging area. The commentator states that the proposed regulation concerning averaging lacks clarity and could be applied inconsistently. In this regard, the commentator states that the regulation should specify the particular conditions and calculations for averaging emissions from multiple sources, define the review process, including appeal provisions and the opportunity for the applicant to make changes, and include timeframes and deadlines related to Department determinations on averaging plans. (29)

Response: The requirement for source owners or operators to submit an averaging plan for approval prior to averaging has been deleted from the final-form regulation. The final-form regulation includes requirements related to the conditions and calculations required to demonstrate compliance based on an emissions average. The final-form regulation addresses the commentator's issues regarding averaging.

Sections 129.201(b), 129.202(b), 129.203(b) and 145.143(d) of the final-form regulation specify the averaging period. Section 129.204(d) allows owners or operators of units subject to Sections 129.201-129.203 to average among the units at a facility throughout the ozone season and to average with other facilities subject to these provisions under their common ownership or operation within the five-county Southeast Pennsylvania ozone nonattainment area. Sections 145.113(e) and 145.143(e) contain similar provisions for large internal combustion engines and cement kilns, respectively, with a statewide geographic area.

Ownership and the disposition of averaging credit is determined by the legal agreements and decisions made between owners. A similar type of issue has been successfully resolved by owners of units subject to acid rain requirements, and the same principles apply here. As long as the credit is not double–counted, the owners or operators may distribute and utilize it as provided for in the final-form regulation.

Since the requirement for an owner or operator to submit an averaging plan has been deleted from the final-form regulation, there is no need to define time frames for action and appeal procedures.

6. Comment: The commentator questions why the EQB did not include an option for sources to comply by purchasing allowances. (29)

Response: The final-form regulation contains an allowance purchasing option.

7. Comment: Averaging and trading provide more flexibility and thereby enhance economic development without harming air quality. They should be extended to Chapter 145 sources as well. (15)

Response: Provisions to allow the use of averaging and the use of allowances to achieve compliance are included in the Chapter 145 final-form regulation.

8. Comment: The averaging provisions in Sections 129.201 to 129.203 imply that the Department will approve all proposals. If discretion is intended, the language should be changed to clarify that that is the case. (29)

Response: The Department has deleted from the final-form regulation the provisions that require prior approval of averaging plans.

9. Comment: The commentator supports the provisions that allow a source owner/operator to use averaging to achieve compliance. These provisions allowing averaging should be retained and the Department should provide specific averaging guidance and acceptable means of demonstrating compliance. (21)

Response: The final-form regulation specifies that a source owner or operator is to aggregate of all the allowable and all of the actual emissions from the affected units. The owner or operator then determines whether there are greater actual or allowable emissions. If the calculated allowable emissions exceed the actual emissions, the source is in compliance. If the actual emissions exceed the allowable emissions by greater than 0.5 tons, the owner or operator must obtain and surrender to the Department allowances equal to the excess actual emissions.

10. Comment: The commentators suggested that all "alternative procedures" should be approved by the Department in writing and be transparent to the public. All records must be accessible and NO_x reductions claimed must be measurable, verifiable, permanent and enforceable. (7, 10)

Response: The Department has deleted the "alternative procedures" provisions from the final-form regulation. Affected unit owners and operators, the Department, and the public can easily and readily determine compliance.

11. Comment: The commentator supports the Board's flexible "cap and trade" approach to achieving NO_x reductions in the Philadelphia area. It will provide effective, targeted reductions at the least possible cost. (28)

Response: The final-form regulation is not a "cap and trade" regulation. However, the requirements in the final-form regulation provide flexibility for owners and operators of

affected sources by allowing limited averaging and the simultaneous use of allowances to demonstrate compliance.

Cost and Form of Emission Limits

12. Comment: The EQB should provide a detailed compliance cost analysis for each class of unit the rule affects and justify why control of these sources is the most cost effective alternative to achieve the National Ambient Air Quality Standards (NAAQS). (29)

Response: The Regulatory Analysis Form provides the EQB's cost-benefit analysis and identifies the source of the cost data. Both EPA and the Southeast Pennsylvania Ozone Stakeholder Working Group estimates were used. The Southeast Pennsylvania Ozone Stakeholder Working Group recommended these classes of sources for consideration for additional emission reductions. The classes of units covered by this regulation are those which have high potential emission rates and which are generally controllable in a cost effective manner. Because the final-form regulation offers flexibility for sources to demonstrate compliance through the surrender of allowances and averaging and because of the diversity of sources covered by the regulation, precise estimation of the compliance costs is difficult. The flexibility for demonstrating compliance allows source owners and operators to implement the most cost effective compliance program for their operations.

13. Comment: Historically, sources have frequently overstated the costs and technical difficulty of implementing new requirements. Upon implementation it is often found that more easily applied and less expensive solutions are identified. (10)

Response: In order to assure that the compliance costs and technical difficulty are minimized, the Department has included the compliance options of emissions averaging and allowance purchase. These options allow owners and operators to implement cost-effective compliance programs.

14. Comment: The alternative compliance option that allows percentage reductions from 1990 levels creates the possibility that the rule will not achieve the target level of reductions. This will occur as a result of age related deterioration bringing unit emission rates significantly higher than they were in 1990. In addition, the measurement techniques used in 1990 were not necessarily very accurate. Well-controlled units would essentially be penalized by this option since they would have to make more reductions than dirtier units. For these reasons, more recent data should be used as the basis for making the reductions. (7, 10)

Response: The Department has removed this option from the final-form regulation.

15. Comment: The 1990 base year emission rate for determining the alternative reduction should also include the 1995 base year used to establish the NO_x Budget Program since 1990 may not be representative of normal operations and controlling to these levels will be more costly. (24)

Response: The final-form regulation specifies straightforward emission limits for affected classes of sources. Requirements related to specification of base year emission are not necessary.

16. Comment: Given that large sources control on an ozone season basis, it is appropriate that small sources have the flexibility to do so as well. This will still provide ozone season improvements. (28)

Response: The Department agrees. The final-form regulation requires that sources affected by these regulations demonstrate compliance on an ozone season basis.

17. Comment: The rule as proposed will impose a relatively larger compliance cost on smaller NO_x sources than larger ones. Small sources cannot affordably "opt-in" to the NO_x Budget Program; therefore, the Department should allow them to purchase allowances from sources located in the nonattainment area as a compliance alternative. (28)

Response: The final-form regulation authorizes the purchase of allowances as a compliance alternative.

Area of Applicability

18. Comment: Different control requirements are appropriate in attainment and nonattainment areas. Stricter controls are needed to attain the ozone standards in nonattainment areas; however, these stricter standards would be an unnecessary burden if imposed in the attainment areas. (9)

Response: For small sources of NO_x, the final-form regulation applies only to sources in the 5-county Philadelphia ozone nonattainment area.

19. Comment: The Chapter 129 requirements for the 5-county Philadelphia area are reasonable and should apply statewide. Statewide application recognizes that NO_x transports over hundreds of miles. Indeed, the requirements should apply over the entire Ozone Transport Region. In addition to ozone, NO_x contributes year round to other air pollution problems, including fine particulate, acid deposition, and visibility impairment. The requirements should be enacted for no other reason than that the benefits outweigh the costs. (7,10)

Response: The adverse impacts of NO_x are recognized. In addition to being an ozone precursor, NO_x contributes to fine particulate, acid deposition and visibility impairment. However, the focus of the Chapter 129 portion of this rulemaking is to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Statewide NO_x reductions are not necessary in this regard. Additional NO_x reductions may be necessary as part of the Commonwealth's initiatives to attain the eight-hour ozone and PM 2.5 standards. This final-form regulation is based on an Ozone Transport Commission (OTC) model rule that

serves as the basis for NO_x reductions, as needed, throughout the Ozone Transport Region (OTR).

20. Comment: How would application of these standards statewide and for the entire year bring the Commonwealth into compliance for the ozone months? (29)

Response: The final-form Chapter 129 regulation is limited to the five-county Philadelphia nonattainment area. The Chapter 145 final-form regulation is required statewide to complete the Department's obligations under the NO_x SIP Call and to maintain EPA's approval of the one-hour ozone attainment demonstration contained in the Philadelphia SIP. Both chapters address ozone season emissions.

21. Comment: The Chapter 129 rules are necessary to target local ozone attainment issues. Statewide, sizable reductions have been achieved: larger sources have existing controls under Chapter 145, and smaller sources are controlled under RACT. (28)

Response: The Chapter 129 final-form regulation is designed to achieve NO_x emission reductions to address ozone nonattainment in the five-county Southeast Pennsylvania ozone nonattainment area. The Chapter 145 final-form regulation is required to complete the Department's obligations under the NO_x SIP Call and is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP.

22. Comment: Extending the Chapter 129 requirements statewide would exceed the Department's authority under the Air Pollution Control Act (APCA) because the reductions would not be useful toward attainment of the ozone air quality standard. In formulating this regulatory initiative, the Department studied only the effects of reductions in the five-county Southeast Pennsylvania ozone nonattainment area. Additionally, the small amount of reductions that this would achieve would not be beneficial. (15, 17)

Response: The final-form Chapter 129 regulation applies only to the five-county Southeast Pennsylvania ozone nonattainment area.

23. Comment: The SIP Call or Chapter 145 requirements should not be promulgated until upwind states impose similar regulations. Otherwise, new sources will locate upwind and adversely impact Southwest Pennsylvania's air quality and economy. (15)

Response: Upwind states are also under the legal obligation to implement the NO_x SIP Call. This regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005.

Seasonal vs. Year Round Limits

24. Comment: Year-round controls would not be necessary to achieve the stated purpose of the regulations. (9, 11, 13, 14, 15, 18)

Response: The final-form regulation addresses ozone season emissions.

25. Comment: To expand this rulemaking to apply for the entire year is outside the stated purpose for this rulemaking. (29)

Response: The final-form regulation addresses ozone season emissions.

26. Comment: Year round control violates the APCA and would not provide ozone season benefits. (15, 17)

Response: The final-form regulation addresses ozone season emissions.

27. Comment: The regulation should apply only during the ozone season. Sources upwind of the five-county Southeast Pennsylvania ozone nonattainment area may impact the area and the additional emissions restrictions may represent a competitive disadvantage. (24)

Response: The final-form regulation addresses ozone season emissions.

28. Comment: Annual requirements should not apply until it is shown that this is required to meet the 8-hour ozone standard. (8)

Response: The final-form Chapter 129 regulation addresses ozone season emissions.

29. Comment: The Chapter 129 requirements for the five-county Philadelphia area are reasonable and should apply year-round, not just during the ozone season. Statewide application recognizes that NO_x transports over hundreds of miles. Indeed the requirements should apply over the entire Ozone Transport Region. In addition to ozone, NC_x contributes year round to other air pollution problems, including fine particulate, acid deposition, and visibility impairment. The requirements should be enacted for no other reason than that the benefits outweigh the costs. (7,10)

Response: The adverse impacts of NO_x are recognized. In addition to being an ozone precursor, NO_x contributes to fine particulate, acid deposition and visibility impairment. However, the focus of the Chapter 129 portion of this rulemaking is to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Year round NO_x reductions are not necessary in this regard. Additional NO_x reductions may be necessary as part of the Commonwealth's initiatives to attain the eight-hour ozone and PM 2.5 standards. This final-form regulation is based on an Ozone Transport Commission (OTC) model rule that serves as the basis for NO_x reductions, as needed, throughout the Ozone Transport Region (OTR).

Timing and General Issues

30. Comment: Three years are needed to plan and implement control strategies. The compliance date should be extended to provide this amount of time to comply with the control requirements. (24)

Response: The final-form regulation provides a number of compliance options in addition to the option of implementing control programs. Because owners and operators of affected sources have the flexibility to average and use NO_x allowances, there is no need to extend the compliance deadline.

31. Comment: The EQB should explain why the May 1, 2005 deadline is reasonable, feasible and necessary. (29)

Response: The final-form regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005. The final-form regulation includes provisions that allow the use of averaging and allowances to demonstrate compliance. Implementation of these alternatives does not require long lead-time.

32. Comment: The proposed NO_x reductions are vital remaining strategies for ozone attainment and public health. (7)

Response: The Department agrees. The emission reductions and budgets established by the final-form regulation are integral to maintaining EPA's approval of the one-hour ozone attainment demonstration contained in the Philadelphia SIP.

33. Comment: Emission reductions from MWC's are not needed for attainment since these reductions were not included in implementation plans. (27)

Response: The final-form regulation clarifies that it does not apply to municipal waste combustors.

34. Comment: The EQB should consider either using a separate proposed rulemaking or publishing an Advance Notice of Final Rulemaking if it adds any language to the final-form regulation in response to any comments. (29)

Response: The Department published an Advance Notice of Final Rulemaking in the *Pennsylvania Bulletin* on December 20, 2003 at 33 Pa. B. 6226.

35. Comment: Many commentators stated that controls have already been installed under other requirements or the units typically operate only a few hours. They argue that further requirements would yield minimal additional reductions. (29)

Response: The final-form regulation requires units to be accountable for actual emissions and does not require control installation, ensuring that owners and operators have a cost effective compliance option under any operating scenario.

36. Comment: The regulation should be amended to allow participation in the NO_x Budget Program on an individual basis in lieu of complying with the proposed rules. One commentator questioned, "Why didn't the EQB include amendments in this rulemaking that would allow these other sources to "opt-in"."(11, 29)

Response: The NO_x Budget Program is specifically designed to support an emission control program for large boilers. Considerable technical and administrative issues would need to be resolved in order to support other types of units in the budget program that are beyond the scope of this rulemaking.

Boilers

37. Comment: The definition of boiler, which references the existing Section 145.2 provision, should be amended to ensure it does not include process heaters. (24)

Response: The interpretation of this definition generally follows the federal applicability that does not include direct-fired process heaters.

38. Comment: The commentators provide a technology and cost assessment as requested by the EQB. The commentators conclude that the rule should not require lower emission limits for Municipal Waste Combustors (MWC's) because Selective Catalytic Reduction (SCR) technology is not reliable enough or is too expensive. In addition, the commentators indicate that EPA has set the limits for MACT higher, and SNCR, the only generally feasible MWC control technology, is not able to meet the 0.17 pound per million Btu limit in the rule. (5, 12, 19, 25, 26, 27, 30, 31)

Response: The final-form regulation clarifies that it does not apply to municipal waste combustors.

39. Comment: The EQB should explain why MWCs were chosen for further reductions and what equipment will work at MWCs to achieve compliance. The EQB should provide the associated costs of installation and operation of the equipment and demonstrate that technically feasible solutions are not cost prohibitive. Some commentators claim that the EQB's requirements for MWCs are not technologically feasible and that EPA has indicated that it does not intend to further regulate MWCs. Some commentators argue that MWCs should be exempt from the requirements of this rulemaking for reasons including: the difficulty of predicting emissions due to the variability of fuel; the facilities have already implemented MACT; the limits set by this regulation may not be achievable; and these facilities provide other environmental benefits. (29)

Response: The final-form regulation clarifies that it does not apply to municipal waste combustors.

40. Comment: Neither the Department nor the OTC included Municipal Waste Combustors (MWCs) in its cost or technical analyses. Promulgating a rule in this instance is not legal. (27)

Response: The final-form regulation clarifies that it does not apply to municipal waste combustors.

45. Comment: The Naval Surface Warfare Center Ship Systems Engineering Station located in Philadelphia recommends that their units that are used to simulate shipboard conditions be exempted. This request is based on several rationales, including technical infeasibility and low utilization rates. Extensive technical data and analysis are also provided. (16)

Response: The final-form regulation does not apply to these units.

41. Comment: Auxiliary boilers that serve larger electric generating units emit very little over the course of the year. Controls to meet the proposed regulatory limits would not achieve substantive reductions. A cost effectiveness threshold of $3000 per ton reduced is recommended. (8)

Response: The final-form regulation allows source owners and operators to use averaging and NO_x allowances to demonstrate compliance with the emission limits. Therefore, establishment of a cost-effectiveness level in the regulation is not necessary.

42. Comment: Boilers greater than 250 MMBTU/Hr should be afforded the 60 percent reduction option. (24)

Response: The final-form regulation specifies straightforward emission limits for affected classes of sources. Requirements related to specification of base year emission are not necessary.

Combustion Turbines

43. Comment: Due to permit caps at five percent of annual capacity, high operating expenses and resultant low utilization rates of 1-2.5 percent, the control requirements of this rule would not be cost-effective. Averaging would be useful for some of these units. The combustion turbine portion of the rule would achieve about a 55 percent reduction, and based on historical data, 25 to 45 tons would have been reduced in 2000 and 2002 respectively from the 23 units the company operates. It is recommended that the following options be considered: ***de minimis*** or cost-effectiveness exemptions, or NO_x allowance surrender—which should be an option in any event. Limiting allowances to the area of allocation does not make sense if this option is provided. (8)

Response: The final-form regulation includes NO_x allowance surrender and averaging as compliance options. The inclusion in the final-form regulation of ***de minimis*** and cost-effectiveness exemptions is not necessary.

44. Comment: For competitive and environmental reasons, the rule should apply statewide. Peaking units located outside the five-county Southeast Pennsylvania ozone nonattainment area will be cheaper to run and will pick up the load from the units affected by this rule, the emissions will just occur in upwind areas and the benefits of the rule will be defeated. (8)

Response: The Department does not expect the rule to result in load shifting because the control costs for existing turbines are small in relation to operating expenses.

45. Comment: The Naval Surface Warfare Center Ship Systems Engineering Station located in Philadelphia recommends that their units that are used to simulate shipboard conditions be exempted. This request is based on several rationales, including technical infeasibility and low utilization rates. Extensive technical data and analysis are also provided. (16)

Response: The final-form regulation does not apply to these units.

Internal Combustion (IC) Engines

45. Comment: The Naval Surface Warfare Center Ship Systems Engineering Station located in Philadelphia recommends that their units that are used to simulate shipboard conditions be exempted. This request is based on several rationales, including technical infeasibility and low utilization rates. Extensive technical data and analysis are also provided. (16)

Response: The final-form regulation does not apply to these units.

46. Comment: The regulation should focus on sources where emission reductions can be achieved instead of infrequently used sources, where the cost of control of NO_x reduced can be very high -- in one instance, $40,000 - $400,000 per ton. This is not a cost-effective way for the Commonwealth to achieve required emission reductions. (21)

Response: Provisions to allow the use of averaging and the use of allowances to achieve compliance are included in the Chapter 145 final-form regulation. These provisions allow a source owner or operator to implement the most cost effective strategy for the affected activities.

47. Comment: Both the Chapter 129 and Chapter 145, Subchapter B provisions should include an exemption for emergency gas turbines and firefighting turbines, wet weather storm pumps, and any engine that is used infrequently or for emergencies. (24)

Response: The final-form regulation exempts facilities that emit less than 0.50 tons of NO_x during the ozone season. In addition, the final-form regulation includes provisions that allow the use of averaging and allowances to demonstrate compliance. Exemptions for these specific classes of sources are not included in the final-form regulation.

48. Comment: Exemptions for emergency equipment are supported. The proposed Chapter 145 threshold of one ton per day effectively exempts emergency or back-up units that would have much lower control cost-effectiveness. (28)

Response: The one-ton per day threshold in Chapter 145 was not intended to exempt emergency or back up units. The threshold stems from EPA's NO_x SIP Call, which used this cutoff as a way to identify and control sources with enough emissions to reduce the interstate transport of ozone.

49. Comment: It is recommended that the Chapter 121 definition of Emergency Stationary Internal Combustion Engine be amended to allow emergency equipment to run up to 100 hours for routine testing and maintenance. (9)

Response: The final-form Chapter 129 regulation exempts facilities that emit less than 0.50 tons of NO_x during the ozone season. In addition, the final-form regulation includes provisions that allow the use of averaging and allowances to demonstrate compliance. Exemptions for specific classes of sources are not included in the final-form regulation.

50. Comment: It is recommended that the definition of emergency stationary internal combustion engine include specific language, as follows: "(ii) A stationary internal combustion engine located at a nuclear power plant that operates pursuant to Nuclear Regulatory Commission (NRC) requirements." These back-up IC engines are generally only operated for testing required by NRC, or during real emergencies. In the 2000 ozone season, NRC-required periodic testing resulted in a total of 9.5 tons of NO_x emissions. Given that the nuclear generators typically produce thousands of megawatts of emission free electricity, an exemption is warranted. (8)

Response: The final-form regulation does not contain a definition of "emergency stationary internal combustion engine." Back-up IC engines, such as those at the commentator's nuclear facility, are not exempted in the final-form rulemaking. If the ozone season actual emissions from the units exceed the allowable requirements in the final-form regulation, the owner or operator will be required either to average emissions from other of the owner or operator's affected sources or to obtain allowances to demonstrate compliance. Exemption from the requirements in the final-form regulation for these types of sources is not warranted.

51. Comment: Subset engines should be exempted from the Chapter 129 emission limits because they could not afford to run. The DEP's analysis fails to account for all of the benefits and factors bearing on the permitting and operation of these units, including emission displacement to higher emitting units, and adverse electric market impacts. (23)

Response: The final-form Chapter 129 regulation exempts facilities that emit less than 0.50 tons of NO_x during the ozone season. In addition, the final-form regulation includes provisions that allow the use of averaging and allowances to demonstrate compliance. Exemptions for specific classes of sources are not included in the final-form regulation.

52. Comment: General permits should not be issued for internal combustion engines. Permits should contain requirements that are specific to the source to ensure compliance.

It is possible, for instance, that a source could be installed claiming to be for emergency use only, but then be used for non-emergencies. (7, 10)

Response: The final-form regulation does not exempt emergency use engines.

53. Comment: The distinction between mobile and stationary can be false. Mobile units can fulfill the functions of stationary units and should be covered by these regulations. (7, 10)

Response: The final-form regulation defines stationary internal combustion engines in a way that ensures that only those engine emissions that occur during operations as mobile air contamination sources are not covered.

54. Comment: The proposed IC engine definition should be amended from including engines remaining on one location for 30 days or more to only those engines that remain in one location for 12 months or more. States are precluded by CAA section 209 from regulating engines that remain in one location for less than 12 months. Amending the definition of nonroad engine to conform to 40 CFR 90 would remedy this problem. (9)

Response: The final-form regulation specifies "in-use" measures, which are not preempted by the Clean Air Act. Additionally, the final-form regulation defines stationary internal combustion engines in a manner that ensures that those engine emissions that occur during operations as mobile air contamination sources, as defined under Section 121.1, are not covered.

55. Comment: Why did the EQB use 30 days in the stationary internal combustion engine definition? (29)

Response: The intent was to mirror the OTC model rule. The rationale for eliminating the 30-day criterion is discussed in response to Comment 54.

56. Comment: The Chapter 145 IC engine threshold, based on 1995 emissions or those occurring in the future, leaves operators uncertain about control obligations and should be changed to provide certainty. What would be the deadlines for newly affected engines? (20)

Response: The final-form regulation clarifies that engines that become subject to Chapter 145, Subchapter B, in any year after 2004 must comply with Subchapter B by May 1 of the following calendar year.

57. Comment: The applicability criterion of section 145.111 (one-ton per day threshold) poses an unwarranted exemption from the control requirements. A lower threshold is warranted considering the contribution of these sources and the magnitude of the problems we are facing. (7, 10)

Response: The final-form regulation implements the Federal NO_x SIP Call, which uses the one-ton per day threshold to determine the largest contributors to NO_x transport.

58. Comment: The emission limits for large IC engines may not be feasible for every engine, and the Department may want to review them in light of recent EPA re-examination of the issue. The allowance option would possibly resolve the issue. (28)

Response: The limits in the final-form regulation reflect EPA's recently adopted limits for IC engines. The final-form regulation also includes provisions that allow the use of averaging and allowances to demonstrate compliance.

59. Comment: The structure of the IC engine provisions in Chapters 129 and 145 should be amended to remove overlapping and conflicting requirements in a manner that achieves reductions where they are most needed. Specifically, the final-form regulation should retain the 1000-2400 hp requirements in the nonattainment areas as proposed in Chapter 129 and separate standards for units above 2400 hp. In addition, the regulation should establish less stringent standards for those 2400 hp and above units located in attainment areas. (9)

Response: The rules in attainment areas follow the NO_x SIP Call requirements. The rules do not overlap or conflict. The Chapter 129 provisions state that sources falling under the applicability thresholds of Chapter 129 but that are already subject to Chapter 145 are not covered by Chapter 129 requirements.

60. Comment: The proposed Chapter 129 standards for IC engines are achievable with after-treatment technologies and are supported. For some older higher emitting engines however, depending on the costs of local power, the economics may be unfavorable. Because of this, maximum flexibility should be provided in meeting these limits. (9)

Response: The final-form regulation authorizes a range of compliance techniques that enables the owner or operator to choose the most cost effective option.

61. Comment: The Chapter 145 emission limit requiring a 90 percent reduction from 1990 levels does not give credit for previous control efforts. For instance, catalysts could have been installed or rich burn engines replaced with lower emitting lean burn engines. It may be technologically or economically infeasible to make further reductions. Specific emission limits would avoid this problem. Available technologies can achieve the following: 1.5 g/bhp-hr for rich burn spark ignited engines; 0.9 gm/bhp-hr for lean burn spark ignited engines; and 2.3 gm/bhp-hr for compression ignition engines. Engines located in attainment areas should have higher limits: 1.5 gm for lean burn and 4.8 for compression ignited (prevailing non-road engine standard). (9)

Response: The final-form regulation is structured to provide credit for previous control efforts. The emission limits for each class of engine are based on control levels that have been determined to be achievable by the majority of the units in that class.

62. Comment: It is recommended that the Chapter 129 and Chapter 145 IC engine controls allow flexible compliance options in order to enable the maximum amount of reductions to be achieved and with more cost-effectiveness. More control technology vendors will be able to respond, which will also enhance the cost effectiveness. (22)

Response: The final-form regulation authorizes a range of compliance techniques that enables the owner or operator to choose the most cost effective option.

63. Comment: The commentators believe that the emission limitations are more stringent than Federal standards and are therefore not permissible under the Air Pollution Control Act. (13, 15, 27)

Response: The limits are permissible. The final-form regulation is necessary to satisfy the Commonwealth's commitments under the EPA-approved state implementation plan for the 5-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the 1-hour ozone attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005. They are part of a regional effort among states in the OTR to reduce transported ozone as required by the NO_x SIP Call.

64. Comment: The Chapter 129.203 limit cannot be met on most lean-burn engines (1.5 gm/brake hp-hr) whereas a higher limit (3.0 gm/brake hp-hr) can be met. (20)

Response: The final-form regulation contains the same level of reductions EPA determined to be technically feasible, cost-effective, and achievable for lean burn engines and which were used to establish the Phase II NO_x SIP call emission budgets.

65. Comment: The EQB should explain how the lower Chapter 129.203 limit on lean-burn engines (1.5 gm/brake hp-hr) can be met. (29)

Response: The final-form regulation contains the higher limit (3.0 gm/brake hp-hr) recently adopted by EPA as being technically feasible, cost-effective, and achievable for lean burn engines.

66. Comment: It will be difficult to comply with the May 1, 2005 compliance deadline. Planning and installation of controls and monitors take from 1 and a half to three years. Pipeline operators request a 2009 deadline because of permitting issues, and retrofit downtime prohibitions of FERC and PUC. (20)

Response: The emission reductions and budgets established by the NO_x SIP call are also integral to maintaining EPA's approval of the one-hour ozone attainment demonstration contained in the Philadelphia SIP. Full implementation of the NO_x SIP call reductions is required by May 1, 2005. The final-form regulation includes provisions that allow the use of averaging and allowances to demonstrate compliance. Implementation of these alternatives does not require long lead-time, and most of the controls needed to comply with this regulation were already installed in response to the 1995 RACT regulation requirements.

67. Comment: Chapter 145.115 specifies that records must be maintained at the facility. Explain the need for onsite recordkeeping requirements as opposed to allowing a source to keep records at a centralized location. (29)

Response: The requirements for maintenance of records on-site have been deleted from the final-form regulation. The final-form regulation allows an owner or operator who is not required to use CEMS to use an alternative monitoring and recordkeeping procedure if the Department approves it in writing in advance. Depending on the proposal, on-site recordkeeping will not necessarily be required but the facility will be required to provide the records to the Department upon request.

68. Comment: The federal guidance on IC engine control has not been finalized and therefore EPA does not know what level of control is required under the SIP Call. For this reason, the regulations should be delayed. EPA is preparing to issue a "Phase II" NO_x SIP Call rule that will likely require the current installed level of control. The regulation violates the statutory regulatory policy by exceeding federal requirements. Federal guidelines also allow the limits to be met on an average basis or with allowances rather than individual units as proposed in the regulations. Since the limits are based on average engine population, and because engines respond differently to control equipment, this flexibility option would allow operators to meet the limits. It is a key feature of the OTC model rule that makes it feasible and cost-effective. Averaging is not a useful option. (20)

Response: The final-form regulation is consistent with EPA's Phase II NO_x SIP Call rulemaking signed by the EPA Administrator on April 1, 2004, to establish achievable emission levels for large IC engines. The final-form regulation incorporates averaging and allowance surrender as compliance options. The May 1, 2005 compliance date must be retained in the final form regulation to satisfy existing SIP obligations for the one-hour ozone attainment demonstration.

69. Comment: For lean burn IC engines under the Chapter 145 proposed rules, an 82 percent reduction is achievable, and has been implemented. The EPA docket supports this finding. The Department is requiring a 91 percent reduction. The justification for doing so relies on old EPA guidance as opposed to more recent findings. EPA believes that SCR is not justified. Other states have proposed less restrictive rules and as a result the delivery of gas to Pennsylvania may be hampered. (20)

Response: The emission limits for lean burn IC engines in the final-form regulation are consistent with EPA's recently signed Phase II NO_x SIP Call rules.

70. Comment: The pipeline industry has achieved the reductions called for under the Chapter 129 IC engine regulations, and no further emission reduction will be achieved by the regulation. Therefore, it is unnecessary. Increased NO_x control requirements for these engines will result in increased VOC emissions, something the Department has not considered. (20)

Response: The level of additional control that might be needed to comply with the limits contained in the final-form regulation should not result in additional VOC emissions.

71. Comment: An exemption from NSR is requested for the pipeline industry per EPA's recent pollution control project rules. (20)

Response: The types of possible control project modifications needed to meet the revised emission limits in the final-form regulation should not result in emission increases above the NSR applicability thresholds.

72. Comment: CEMS should not be required for smaller sources. The Department should allow simplified procedures, including those using either the averaging or allowance purchase compliance options. (28)

Response: The Department agrees and has incorporated various monitoring options that allow the owner or operator to choose the most efficient monitoring method.

73. Comment: The CEMs requirement for large IC engines subject to Chapter 145, in conjunction with the control requirements, may render some installations cost-ineffective. Rather than require an approval process for alternative systems, parametric monitoring should be a specifically authorized alternative in the regulation. This alternative would be readily available and cost-effective. (9, 20)

Response: The final-form regulation allows alternative monitoring techniques.

74. Comment: Has the EQB considered further exemptions for units that are not run for many hours in the ozone season, such as electric generation peaking units, emergency back up generators and power generation sources used for research, development and testing purposes? How many tons of reductions do these sources represent and what is the cost per ton for them to comply? The EQB should explain the need to regulate these sources and why this is cost effective. (29)

Response: The affected engines and turbines emit NO_x at rates from approximately 0.05 ton to over one ton per day. The emissions can quickly become highly significant. It is estimated that these units can emit from 60 to 100 tons per day during high electric demand days, which coincide with and contribute to ozone episodes. There are approximately 120 engines covered by the Chapter 129 regulation, which at the lowest emission rate, 0.05 tons per day, would emit well in excess of three tons of NO_x if operated for a day. This is equal to the entire amount of reductions this final-form regulation needs to achieve. These units, if left uncontrolled, will negate the emission reductions achieved by the other affected sources. Therefore, it is not overall cost effective to exempt these units when they can contribute significant amounts of emissions. The applicability threshold of 0.5 tons for the ozone season ensures that only those operations with significant actual emissions during the ozone season are subject to emission limits.

Cement Kilns

75. Comment: Some commentators indicate that low NO_x burners are infeasible and cost ineffective. The EQB needs to demonstrate that compliance is possible and what equipment will be needed to comply. The EQB also needs to demonstrate that technically feasible solutions are not cost prohibitive. (29)

Response: Controls, including selective non-catalytic reduction (SNCR), low NO_x burners, mid-kiln firing, and process controls are installed and operating on Pennsylvania kilns to meet various requirements. While cost effective controls are available for every type of unit evaluated, some units may be inherently uneconomic even without controls. Some of these older kilns are being phased out of operation or the owners have plans for modification of the units. Adding controls may not be a good investment under such circumstances. In such cases, the allowance compliance option allows operation of such units without the need for controls.

76. Comment: Instead of allowing cement kiln operators to choose from among alternative control technologies, the Department should require the most effective control to be used. (7, 10)

Response: The final-form regulation allows the owner or operator to choose the most cost effective control option.

77. Comment: The commentators would like reinstatement of a single kiln-based emission limit expressed in pounds of NO_x per ton of clinker produced that the Department had proposed earlier as included in the FIP proposals. Some commentators also asked that this option also allow that it be achieved on an average basis across the facility as well as from uncontrolled 1990 levels rather than actual levels. (11, 18, 13, 14)

Response: The final-form regulation incorporates an emission limit and compliance options that provide the requested options.

78. Comment: Our kiln has not installed controls to comply with the 1996 RACT regulations, as presumed in the preamble. The facility utilizes toxic wastes for some of its fuel and must retain high combustion temperatures to handle these wastes. The proposed regulation would require substantial modification of the kiln. (11)

Response: The final-form regulation does not require a source to be modified.

79. Comment: Short wet kilns cost more per ton to control and, as a result, were not controlled by the FIP. This represents a cost inequity for short kilns. And because the Federal rules did not require this type of unit to be controlled they should be exempted. (11)

Response: EPA included all kilns in its cost analysis for the proposed FIP for Pennsylvania and included all of the kilns in the NO_x SIP Call budget. The emission limit in the final-form regulation is designed to protect the budget, as required by the NO_x SIP Call. The final-form regulation provides for averaging and trading to ensure that costs do not exceed a reasonable threshold. With cost effective compliance mechanisms available to all sources, exemptions would be unnecessary and would create an inequity among competitors.

80. Comment: Change the definition of "Low NO_x Burner" to, "A type of kiln burner (a device that functions as an injector of fuel and combustion air into the kiln to produce a flame that burns as close as possible to the center line of the kiln) that has a series of channels or orifices that (1) allow for the adjustment of the volume, velocity, pressure, and direction of the air carrying the fuel (known as primary air) and the combustion air (secondary air) into the kiln, and (2) impart high momentum and turbulence to the fuel stream to facilitate mixing of the fuel and secondary air." (18)

Response: The "Low NO_x Burner" definition is not needed in the final-form regulation and was eliminated.

81. Comment: Include definitions for malfunction, shutdown, and startup, as provided. In addition, exempt emissions occurring during these periods. (18)

Response: The Department disagrees that these emissions should be exempted. The final-form regulation requires the owner or operator to include all actual emissions from the unit(s) in the compliance calculations.

82. Comment: Provide exemptions based on case-by-case cost analysis using the EPA Alternative Control Technology document or for those undergoing NSR. (18)

Response: The emission limits in the final-form regulation would readily be met by a source that applied the recommended controls in the ACT document, or underwent NSR, and was re-built to modern standards. The source owner or operator can choose alternative compliance mechanisms available to avoid installing controls if controls are deemed impractical or too expensive.

83. Comment: Continuous Emission Monitoring Systems (CEMS) are not necessary to demonstrate compliance with the regulation. The monitors are too expensive, and monitors are not required by other states or by the FIP. Alternatives to monitoring are allowed in other regulations for compliance demonstrations. (13,18)

Response: The majority of Pennsylvania kilns have CEMS. Monitoring data from cement kilns with CEMS show that emission variability is large and unpredictable over both short and long time scales. It is also not possible to offer flexible compliance alternatives based on averaging or allowance trading without accurate monitoring.

84. Comment: Why did EQB foreclose cement kilns from complying by using alternatives to Continuous Emission Monitoring Systems (CEMS)? (29)

Response: There are no sufficiently accurate alternatives for monitoring NO_x emissions from cement kilns. Monitoring data from cement kilns with CEMS show that emission variability is large and unpredictable over both short and long time scales. It is also not possible to offer flexible compliance alternatives based on averaging or allowance trading without accurate monitoring.

85. Comment: Why did the EQB use the actual 1990 emissions as the basis for calculation of emission reductions in the alternative control option of section 145.143(3)?

Some commentators believe the regulation should allow an uncontrolled 1990 baseline. (29)

Response: The alternative control option is not included in the final-form regulation.

Pennsylvania Department of Environmental Protection

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September 29, 2004

Policy Office 717-783-8727

Robert E. Nyce, Executive Director
Independent Regulatory Review Commission
14th Floor, Harristown #2
333 Market Street
Harrisburg, PA 17120

RE: Final Rulemaking - Small Sources of NO_x, Large Stationary Internal Combustion Engines and Cement Kilns (#7-378)

Dear Mr. Nyce:

Pursuant to Section 5.1(a) of the Regulatory Review Act, enclosed is a copy of a final-form regulation for review by the Commission. The Environmental Quality Board (EQB) approved this final-form rulemaking on June 15, 2004.

This final-form regulation is necessary to satisfy the Commonwealth's obligations under the United States Environmental Protection Agency (EPA)-approved state implementation plan for the five-county Southeast Pennsylvania area (Philadelphia SIP) and establishes emission reductions that are integral to maintaining EPA's approval of the one-hour ozone attainment demonstration contained in the Philadelphia SIP. Full implementation of the reductions is required by May 1, 2005.

It establishes, in Chapter 129, ozone season nitrogen oxide (NO_x) requirements for certain boilers, turbines and stationary internal combustion units that are small sources of NO_x in the counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia. These requirements will result in an estimated three-ton per day NO_x emission reduction that the EPA determined is necessary to support the ozone attainment demonstration for the Southeast Pennsylvania one-hour ozone nonattainment area. Further, in Chapter 145, ozone season NO_x emission limits for large stationary internal combustion engines and Portland cement kilns across the Commonwealth, in order to satisfy the federal NO_x state implementation plan (SIP) call.

The proposed regulation was adopted by the EQB on September 17, 2002, and published in the *Pennsylvania Bulletin* at 32 *Pa.B.* 5178 on October 19, 2002. Three public hearings were held during a 69-day public comment period. In addition, an advance notice of final rulemaking (ANFR) was published in the *Pennsylvania Bulletin* at 33 *Pa.B.* 6226 on December 20, 2003, with a 30-day comment period.

Eighty-five comments were received from 31 commentators during the public comment period on the proposed rulemaking. Owners and operators questioned the emission requirements specified in Chapter 145 for certain types of sources, referencing various EPA rules and recommendations. The final-form regulation contains emission requirements that are consistent with EPA's suggestions and NO_x SIP Call requirements. Some source owners and operators indicated that the time provided from promulgation of the final rulemaking to the compliance date (May 1, 2005) was inadequate to allow for full compliance. However, the final-form regulation includes averaging and allowance surrender as alternatives to control requirements, which should alleviate any compliance timing issues.

Applicability to certain source categories was questioned. Based on these concerns, Naval Marine units are exempted from the requirements in the final-form regulation. The final-form regulation also clarifies that the final rulemaking does not apply to municipal waste combustors. The exemption for emergency units was eliminated from the final-form regulation because the alternative compliance mechanisms in the final-form regulation provide cost-effective compliance options. In addition, the final-form regulation exempts facilities that emit less than 0.50 tons of NO_x during an ozone season. This serves to shift requirements away from facilities with infrequently utilized units to larger facilities with greater emissions and frequently used sources that have greater averaging and cost-effective control options than smaller emitting facilities.

Twenty-four commentators offered 67 comments on the ANFR. The ANFR included provisions to allow operators of sources affected by the Chapter 129 regulations to include NO_x credit from renewable power in their compliance calculations. In order to allow this approach, allowances must be retired from the set-aside in Chapter 145, Subchapter A. Some operators of Subchapter A affected sources expressed concern that the set-aside may be depleted. The Department's analysis indicates the potential impacts are minimal.

On April 27, 2004, the Air Quality Technical Advisory Committee was provided with the public comments on the proposed rule-making and the ANFR and the Department's responses and discussed the final-form regulation. Based on its review and discussion of the final-form regulation, the Committee recommends that the Environmental Quality Board approve the amendments as final rulemaking. Committee members, however, expressed concern about the May 1, 2005, compliance deadline in the final-form regulation, but the Committee also recognizes the need for the Commonwealth to implement the requirements in the final-form regulation not later than May 1, 2005, in order to maintain EPA's approval of the one-hour ozone attainment demonstration contained in the Philadelphia state implementation plan.

The Department will provide assistance as necessary to facilitate the Commission's review of this final-form regulation under Section 5.1(e) of the Regulatory Review Act. This review is tentatively scheduled for November 4, 2004. Please contact me if you would like additional information.

Sincerely,

Marjorie L. Hughes
Regulatory Coordinator

Enclosure

TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE REGULATORY REVIEW ACT

I.D. NUMBER:	7-378
SUBJECT:	Small Sources of NOx, Cement Kilns, Large IC Engines
AGENCY:	DEPARTMENT OF ENVIRONMENTAL PROTECTION #2302

TYPE OF REGULATION

Proposed Regulation

X 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

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
29 Sep 04		HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
	Richard Fox	Vicki Hoffman 9-29-04
9-29-04		SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
	Robert A Casella 9-29-04	
9/29/04	Stephen J. Hoffman	INDEPENDENT REGULATORY REVIEW COMMISSION
		ATTORNEY GENERAL (for Final Omitted only)
9/29/04		LEGISLATIVE REFERENCE BUREAU (for Proposed only)

September 28, 2004