

Regulatory Analysis Form

(Completed by Promulgating Agency)



IRRC

Independent Regulatory Review Commission

SECTION I: PROFILE

RECEIVED

APR 12 2010

INDEPENDENT REGULATORY
REVIEW COMMISSION

3:08 p.m

(1) Agency:

Environmental Protection

(2) Agency Number:

Identification Number: 7-420

IRRC Number: 2683

(3) Short Title:

Control of NOx Emissions from Glass Melting Furnaces

(4) Pa. Code Cite:

25 Pa. Code Chapters 121 and 129

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

Primary Contact: Michele Tate, 783-8727

Secondary Contact: Kelly J. Heffner, 783-8727

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

Environmental Quality Board
PO Box 8477
Harrisburg, PA 17105-8477
Phone: 717.787.4526

(All Comments will appear on the IRRC'S website)

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

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

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

The final-form rulemaking establishes nitrogen oxides (NOx) emission control requirements, emission standards, emission limitations and related administrative requirements for the owners and operators of glass melting furnaces, beginning January 1, 2012. The final-form rulemaking: includes definitions of terms and an exemption from the NOx emission limits for a glass melting furnace during idling; provides several compliance options, including demonstrating compliance with the allowable NOx emission limits on a furnace-by-furnace basis, a facility-wide basis and a system-wide basis; adds a NOx emission limit applicable to the owner or operator of a glass melting furnace that produces a glass product that is other than flat, container, fiberglass, or pressed or blown; provides a petition process for an alternative emission limitation to the owners or operators of glass melting furnaces that produce a glass product other than flat, container, fiberglass, or pressed or blown glass; and also provides a petition process for an alternative compliance schedule to all glass melting furnace owners and operators if they are unable to meet the emission limits by January 1, 2012.

This rulemaking is reasonably necessary to attain and maintain the health- and welfare-based 8-hour ozone and fine particulate matter (PM2.5) National Ambient Air Quality Standards (NAAQS) in this Commonwealth, and if adopted as final, will be submitted to the U.S. Environmental Protection Agency (EPA) as a revision to the State Implementation Plan (SIP).

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

- | | |
|---|-----------------------------|
| A. The date by which the agency received public comments: | <u>June 23, 2008</u> |
| B. The date or dates on which public meetings or hearings were held: | <u>May 19, 21, 23, 2008</u> |
| C. The expected date of promulgation of the proposed regulation as a final-form regulation: | <u>3rd Quarter 2010</u> |
| D. The expected effective date of the final-form regulation: | <u>3rd Quarter 2010</u> |
| E. The date by which compliance with the final-form regulation will be required: | <u>January 1, 2012</u> |
| F. The date by which required permits, licenses or other approvals must be obtained: | <u>Not applicable</u> |

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

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

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SECTION II: STATEMENT OF NEED

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

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

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

No.

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

NOx emissions are a precursor to ozone and PM2.5 pollution and to the formation of regional haze. The approximately 12 million residents and diverse animal and plant populations of this Commonwealth will benefit from improved air quality through reduced concentrations of ground-level ozone and PM2.5, and reduced formation of regional haze. This final-form rulemaking will reduce NOx emissions from glass melting furnaces by approximately 2500 tons or 25% from 2005 levels. Installation and operation of add-on controls would create jobs in addition to reducing air contaminants that have adverse environmental and health impacts.

Ozone exposure is harmful to people, including children and the elderly, with asthma or other respiratory diseases. Ozone exposure can aggravate asthma, resulting in increased medication use and emergency room visits, especially for minorities, and it can increase susceptibility to respiratory infections. Certain areas of this Commonwealth continue to exceed the health-based 1997 8-hour NAAQS for ozone. The final-form regulation will result in additional NOx emission reductions that are necessary to support attaining and maintaining the health-based 1997 8-hour ozone NAAQS of 80 parts per billion (ppb) in this Commonwealth and downwind areas. Additionally, on March 12, 2008, the EPA issued a more protective 8-hour ozone standard of 75 ppb that would require additional reductions of ozone precursor emissions in this Commonwealth. See 73 FR 16436 (March 27, 2008). As required by the Federal Clean Air Act (CAA), the Commonwealth submitted recommendations to the EPA in 2009 to designate 29 counties as nonattainment for the 2008 8-hour ozone NAAQS. The EPA was expected to take final action on the designation recommendations by March 2010. However, the EPA has reconsidered the 2008 ozone NAAQS and on January 19, 2010, published a proposed rulemaking to set a more protective 8-hour primary standard at a lower level within the range of 0.060-0.070 ppm; the final revised ozone standard is expected in August 2010. See 75 FR 2938. If, as is widely expected, the EPA tightens the ozone standard, the additional NOx emissions from the final-form rulemaking for glass melting furnaces will be even more important than if the current 2008 ozone standard remains in place.

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The final-form rulemaking will also reduce concentrations of PM_{2.5} and the formation of regional haze. Elevated levels of PM_{2.5} have been linked to premature mortality and other important health effects, while both PM_{2.5} and regional haze have major environmental impacts such as visibility impairment, soiling, and materials damage. The EPA, in its "Clean Air Fine Particle Implementation Rule," determined that NO_x emissions are also precursors to the formation of PM_{2.5}. See 72 FR 20586 (April 25, 2007). In November 2009, the EPA designated six areas (all or part of 22 counties) in this Commonwealth as not attaining the 2006 24-hour PM_{2.5} NAAQS. See 74 FR 58688 (November 13, 2009). The EPA is also evaluating the adequacy of the 2006 PM_{2.5} NAAQS as part of its periodic review required under Section 109(d)(1) of the CAA. 42 U.S.C.A. § 7409(d)(1). Further, when initially adopting the visibility protection provisions of the 1977 Clean Air Act Amendments, Congress specifically recognized that the "visibility problem is caused primarily by emission into the atmosphere of SO₂, oxides of nitrogen, and particulate matter, especially fine particulate matter, from inadequate[ly] controlled sources." See 64 FR 35713 at p.35715 (July 1, 1999). Section 169A(a)(1) of the CAA sets forth a National goal for visibility which is the "prevention of any future, and the remedying of any existing, impairment of visibility in Class I areas which impairment results from manmade air pollution." 42 U.S.C.A. § 7491(a)(1). This regulation is reasonably necessary to attain and maintain the ozone standards in this Commonwealth and to make progress in attaining and maintaining the PM_{2.5} NAAQS and reducing the formation of regional haze.

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

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

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

There are currently 16 glass melting facilities with 26 glass melting furnaces in the Commonwealth. The owners and operators of these facilities will be directly affected by the final-form rulemaking requirements. In 2005, these furnaces were one of the largest industrial NO_x emission source categories and accounted for approximately 21% of the more than 45,000 tons per year of NO_x emitted into the air from all sources other than electric generating units (EGUs) in the Commonwealth. The owners and operators of the facilities will be required to meet NO_x emission limitations and emission standards and to comply with administrative requirements, including emissions monitoring and reporting.

SECTION III: COST AND IMPACT ANALYSIS

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

The final-form rulemaking will affect the owners and operators of the 16 glass melting facilities with 26 glass melting furnaces located in this Commonwealth, with approximately 5,600 employees in total. All of the facilities are major sources, with owners or operators that are familiar with the Department's regulatory and permitting requirements. All of the owners or operators have a high level of technical capacity for implementing the program.

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

The owners and operators of glass melting furnaces located in this Commonwealth will be required to install and operate an emissions monitoring system or equipment necessary for an emissions monitoring method in order to comply with the final-form rulemaking. If an owner or operator elects to install and operate a continuous emissions monitoring system (CEMS), the cost could be as high as \$300,000. However, the final-form rulemaking provides for the installation and operation of an alternate emissions monitoring system or method approved by the Department, in writing, which could significantly reduce the monitoring costs. The estimated cost of the alternate emissions monitoring system or method, if elected by an owner or operator of a glass furnace, would cost approximately \$100,000, and would include any one of a number of alternatives including computer modeling or a predictive emissions monitoring system.

The final-form rulemaking will impact approximately the owners or operators of 16 glass melting facilities located in this Commonwealth. There will be compliance costs in fiscal year 2010/2011 related to the installation and operation of NOx emissions monitoring equipment. The Department assumed 16 affected glass facilities * \$100,000 each for emissions monitoring system or method = \$1,600,000. The costs for the emissions monitoring equipment system or method could increase if an owner or operator elects to install and operate a CEMS at an approximate cost of \$300,000 each. The NOx emissions control costs estimates found in the OTC report *Identification and Evaluation of Candidate Control Measures, Final Technical Support Document*, prepared by MACTEC Federal Programs, Inc., Herndon, VA, February 28, 2007, range from \$924 per ton of NOx removed, to \$2,232 per ton of NOx removed, dependent on the size of the furnace and the efficiency of the emissions control system.

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

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

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

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

Nominal costs will be experienced by the Commonwealth to assist in providing training, outreach and assistance to the regulated community. No new staff resources will be necessary to implement the final-form regulation.

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

	Current FY Year (09/10)	FY +1 Year (10/11)	FY +2 Year (11/12)	FY +3 Year (12/13)	FY +4 Year (13/14)	FY +5 Year (14/15)
SAVINGS:	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Regulated Community	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Local Government	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
State Government	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Savings	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
COSTS:						
Regulated Community	\$0.00	\$1.6M	\$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 Costs	\$0.00	\$1.6M	\$0.00	\$0.00	\$0.00	\$0.00
REVENUE LOSSES:						
Regulated Community	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Local Government	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
State Government	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Revenue Losses	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

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

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

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

NO_x is a precursor for the formation of ground-level ozone, PM_{2.5} and regional haze. Implementation of this NO_x emissions control measure is necessary so that the citizens and environment of this Commonwealth continue to experience the reduced ozone air pollution benefits of lower NO_x emissions. Improved ozone air quality results in reduced health costs and environmental damages. The final-form regulation will also reduce levels of PM_{2.5} and the formation of regional haze. Reduced levels of PM_{2.5} and regional haze provide important health benefits, as well as reduced visibility impairment, soiling and materials damage, and acid deposition.

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

The OTC members (12 states and the District of Columbia) formed a workgroup to discuss control measures for glass melting furnaces during a series of conference calls and workshops held from the spring of 2004 through the autumn of 2006. The OTC workgroup collected and evaluated information regarding emission benefits, cost-effectiveness and implementation issues. Based on the analysis by the workgroup, the OTC Commissioners at the OTC Commissioners' meetings of June and November 2006, made recommendations to the OTC Member Jurisdictions to consider emission reductions from glass melting furnaces.

Further, section 7.4 of the APCA (35 P.S. § 4007.4) requires the Commonwealth, through its representatives on an interstate transport commission formed under the Clean Air Act (CAA), to provide public review of recommendations for additional control measures prior to final commission action consistent with the commission's public review requirements under Section 184(c)(1) of the CAA. 42 U.S.C.A. § 7511c(c)(1). The Department held three public meetings on May 22, 23 and 25, 2006, regarding control measures under consideration for adoption by the OTC. The control measures reviewed at these meetings included the OTC glass melting furnaces model rule. Notice of these meetings was published in the *Pennsylvania Bulletin* on April 29, 2006 (36 Pa.B. 2071).

The Department consulted with the Air Quality Technical Advisory Committee (AQTAC) on the proposed rulemaking on May 17 and July 26, 2007. On July 26, 2007, the AQTAC concurred, through a unanimous vote, with the Department's recommendation to present the rulemaking to the Board for consideration as a proposed rulemaking for publication and comment. The AQTAC again voted unanimously to move the proposed rulemaking forward to the Board for consideration at its February 19, 2008, meeting. The Department also consulted with the Citizens Advisory Council (CAC) Air Committee on July 17, 2007.

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

- Independent Regulatory Review Commission.
- Senate Environmental Resources and Energy Committee.
- House Environmental Resources and Energy Committee.
- PPG Industries, Inc.

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- Pittsburgh Corning Corporation.
- Saint-Gobain Containers.
- World Kitchen.
- Schott North America, Inc.
- North American Insulation Manufacturers Association.

In response to comments received during the official public comment period on the proposed rulemaking for glass melting furnaces, and following the Department's review of other related information, the Department prepared a draft final-form rulemaking for public comment. The draft final-form rulemaking contained significant changes in several areas, and the Department believed further discussion and an additional comment period would serve the public interest. An Advance Notice of Final Rulemaking (ANFR) was published in the *Pennsylvania Bulletin* on September 12, 2009 (39 Pa.B. 5318). The most significant change made to the draft final-form rulemaking concerned the NO_x surrender compliance option which allowed for the purchase of Clean Air Interstate Rule (CAIR) NO_x allowances. The EPA held discussions with the Department subsequent to the closing of the public comment period on June 23, 2008, regarding the proposed rulemaking's option to demonstrate compliance with the emission limits through the purchase of CAIR NO_x allowances under the EPA's CAIR regulation. During these discussions, the EPA indicated to the Department that providing a compliance option to purchase CAIR NO_x allowances in the final-form rulemaking would be problematic for approvability by the EPA for the Commonwealth's State Implementation Plan, because glass melting furnaces are not specifically included in the EPA CAIR program as a source category. The EPA did not intend CAIR to comprise the entire solution to control NO_x emissions from all types of sources, but only to address interstate transport of ozone and PM_{2.5} precursors from the EGU sector. Therefore, the Department removed the compliance option to purchase CAIR NO_x allowances from the final-form rulemaking.

Three additional significant changes were made to the draft final-form rulemaking: 1) The Department revised the final-form rulemaking to require compliance with the NO_x emission limits year-round because NO_x is not only a precursor to ozone formation, but is also a precursor to the formation of PM_{2.5}, which is monitored year-round. In addition, the proposed rulemaking addressed control of NO_x emissions from glass melting furnaces only during the period of May 1 to September 30 of each year, and it is anticipated that the EPA will extend the ozone monitoring season in this Commonwealth to go from March 1 to October 31, each year, requiring monitoring for the 8-hour ozone NAAQS for a longer period each year. See 74 FR 34525 at p. 34538 (July 16, 2009). 2) The draft final-form rulemaking adds a NO_x emission limit applicable to a glass melting furnace that produces a glass product that is other than flat, container, fiberglass, or pressed or blown. 3) The draft final-form rulemaking provides a petition process for an alternative compliance deadline to the owner or operator of a glass melting furnace that demonstrates it is economically or technologically infeasible to meet the January 1, 2012, compliance deadline, and a petition process for an alternative emission limitation to the owner or operator of a glass melting furnace that produces a glass product that is other than flat, container, fiberglass, or pressed or blown.

Seventeen commentators submitted comments on the ANFR. The Senate and House Environmental Resources and Energy Committees submitted comments, in addition to the following organizations, legislators, and glass companies:

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- Allegheny County Health Department.
- Greater Pittsburgh Chamber of Commerce.
- PQ Corporation.
- Guardian Industries Corporation.
- Senator Jane Clare Orié.
- Senator Robert Robbins.
- Representative Scott Perry.
- PPG Industries, Inc.
- Pittsburgh Corning Corporation.
- Saint-Gobain Containers.
- Osram Sylvania.
- Pittsburgh Glass Works.
- Schott North America, Inc.
- North American Insulation Manufacturers Association.

The final-form rulemaking was discussed with the AQTAC on November 18, 2009, and with the CAC Air Committee on December 16, 2009. The AQTAC concurred with the Department's recommendation to move the final-form rulemaking forward to the Board for consideration as a final-form rulemaking.

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

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

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

This final-form regulation is more stringent than Federal law because companion Federal regulations do not exist for glass melting furnaces. NO_x emissions are a precursor to the formation of ozone, PM_{2.5} and regional haze. The glass melting furnaces in this Commonwealth emitted into the atmosphere 9,814 tons of NO_x in 2005. This final-form regulation to reduce NO_x emissions from glass melting furnaces will support attaining and maintaining the health-based 8-hour ozone NAAQS in this Commonwealth and downwind areas, as is required by Federal law. Implementation of the NO_x control measures in this final-form rulemaking will also contribute to reduced formation of PM_{2.5} and regional haze. The EPA, in its "Clean Air Fine Particle Implementation Rule," determined that NO_x emissions are also precursors to the formation of PM_{2.5}. See 72 FR 20586 (April 25, 2007). In November 2009, the EPA designated

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six areas (all or part of 22 counties) in this Commonwealth as not attaining the 2006 24-hour PM_{2.5} NAAQS. See 74 FR 58688 (November 13, 2009). Regional haze is visibility impairment that is produced by a multitude of sources and activities which emit fine particles and their precursors, including NO_x, and which are located across a broad geographic area. See 64 FR 35713 at p.35715 (July 1, 1999). Therefore, implementation of this NO_x control measure is necessary so that the citizens and environment of this Commonwealth continue to experience the improved ozone, PM_{2.5} and regional haze air pollution reduction benefits of lower NO_x emissions. Improved ozone, PM_{2.5} and regional haze air quality results in reduced health costs and environmental damages.

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

The Commonwealth participated in a multi-state collaboration through the OTC to identify cost-effective control measures for mobile, stationary and area sources to be considered by states in the OTR in the development of plans to address 8-hour ozone NAAQS nonattainment. The measures recommended by the OTC are reasonably necessary to attain and maintain the 8-hour ozone NAAQS in the OTR. The measures recommended by the OTC include reducing NO_x emissions from glass melting furnaces located in the OTR. The NO_x emission limits for glass melting furnaces in the final-form rulemaking are those recommended by the OTC. The Department reviewed and analyzed the OTC's control measures found in the OTC report *Identification and Evaluation of Candidate Control Measures, Final Technical Support Document*, prepared by MACTEC Federal Programs, Inc., Herndon, VA, February 28, 2007, for glass melting furnaces with respect to the individual glass melting furnaces located in this Commonwealth. The Department determined that proposing a glass melting furnaces regulation based on the San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4354 (relating to glass melting furnaces) and recommended by the OTC was the appropriate implementation strategy to control NO_x emissions from glass melting furnaces located in this Commonwealth.

New Jersey adopted a rule on March 20, 2009, effective April 20, 2009, to control NO_x emissions from glass melting furnaces located in New Jersey. This rule is also based on the SJVAPCD Rule 4354. The final-form New Jersey rule requires compliance with their rule requirements "...on the first date of startup after which rebricking of the furnace is completed." See NJAC 7:27-19.10(d) (relating to glass manufacturing furnaces). However, on September 1, 2000, the EPA issued a limited disapproval of a similar requirement contained in the version of the SJVAPCD Rule 4354 addressing NO_x emissions from glass melting furnaces that was submitted to the EPA by California on September 29, 1998, as a revision to the California SIP. See 65 FR 53181 (September 1, 2000). The EPA stated that a limited disapproval was issued because certain rule provisions, including the lack of final compliance dates, conflicted with section 110 and Part D of the CAA. The EPA recommended that for purposes of complying with the enforceability requirements of CAA section 110(a)(2)(A), that San Joaquin Valley address the rule deficiency by providing a final compliance date by which the rule will enforceably require all furnaces to be rebuilt. See 65 FR 53181 at p. 51583. San Joaquin Valley subsequently addressed the EPA's concerns and included a final compliance date that was not based on furnace rebricking. See 67 FR 20034; and 20078 (April 24, 2002). Section 110(a)(2)(A) of the CAA specifically requires that any emissions limitations approved into the SIP be enforceable. 42 U.S.C.A. § 7410(a)(2)(A). In addition, 40 CFR 51, appendix V, requires any rules approved into a SIP to contain "Compliance/enforcement strategies, including how compliance will be determined in practice." As a result, the Department believes that a final compliance date specified in the regulation is necessary to receive SIP approval from the EPA and to ensure that the anticipated NO_x reductions will be creditable

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for SIP planning purposes. While owners and operators of certain affected glass melting furnaces operating in this Commonwealth will assert that this final-form rulemaking will place their sources at a competitive disadvantage, the final-form rulemaking includes a petition process for enforceable alternative compliance deadlines and emission limitations.

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

No.

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

Emissions monitoring, recordkeeping and reporting requirements are contained in the final-form rulemaking. Calculations and data used to show compliance with the allowable NO_x emission limits will also be required to be reported. These requirements are similar to those already in place for other air contaminant emissions from the affected facilities.

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

The final-form rulemaking provides owners or operators of glass melting furnaces with several compliance alternatives, including emissions averaging on a furnace-by-furnace, facility-wide or system-wide basis. The final-form rulemaking provides a petition process for an alternative emission limitation to the owners or operators of glass melting furnaces that produce a glass product other than flat, container, fiberglass, or pressed or blown glass. The final-form rulemaking also provides a petition process for an alternative compliance schedule to all glass melting furnace owners and operators if they are unable to meet the emission limits by January 1, 2012. These alternatives would allow operators to select the least-cost compliance option. The final-form rulemaking will not affect any other groups directly.



**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. 7-420

DATE OF ADOPTION MARCH 16, 2010

BY John Hanger

TITLE JOHN HANGER
CHAIRMAN

EXECUTIVE OFFICER CHAIRMAN OR SECRETARY

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

BY Andrew C. Clark

DATE OF APPROVAL MAR 29 2010

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

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

NOTICE OF FINAL RULEMAKING

**DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD**

CONTROL OF NO_x EMISSIONS FROM GLASS MELTING FURNACES

25 Pa. Code, Chapters 121 and 129

Order
Department of Environmental Protection
Environmental Quality Board
25 Pa. Code Chapters 121 and 129

The Environmental Quality Board (Board) amends Chapters 121 and 129 (relating to general; and standards for sources) to read as set forth in Annex A. This final-form rulemaking will control nitrogen oxide (NOx) emissions from glass melting furnaces.

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

A. Effective Date

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

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

B. Contact Persons

For further information, contact Jane Mahinske, Air Quality Program Specialist, Division of Air Resource Management, Bureau of Air Quality, 12th Floor, Rachel Carson State Office Building, P.O. Box 8468, Harrisburg, PA 17105-8468, (717) 783-8949; or Robert "Bo" Reiley, Assistant Counsel, Bureau of Regulatory Counsel, 9th floor, Rachel Carson State Office Building, P.O. Box 8464, Harrisburg, PA 17105-8464, (717) 787-7060. Persons with a disability may use the Pennsylvania AT&T Relay Service by calling (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This proposal is available electronically through the Department of Environmental Protection's (Department) Web site at www.depweb.state.pa.us.

C. Statutory Authority

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

D. Background and Summary

When ground-level ozone is present in concentrations in excess of the Federal health-based standards, public health is adversely affected. The EPA has concluded that there is an association between ambient ozone concentrations and increased hospital admissions for respiratory ailments, such as asthma. Further, although children, the elderly and those with respiratory problems are most at risk, even healthy individuals may experience increased respiratory ailments and other symptoms when they are exposed to ambient ozone while engaged in activity that involves physical exertion. Though these symptoms are often temporary,

repeated exposure could result in permanent lung damage. The implementation of additional measures to reduce exposure to elevated ozone concentrations in this Commonwealth is necessary to protect the public health and the environment. The EPA established the 8-hour ozone National Ambient Air Quality Standard (NAAQS) at 0.08 parts per million (ppm) on July 18, 1997. See 62 FR 38856. On March 12, 2008, the EPA issued a more protective 8-hour ozone standard of 0.075 ppm that would require additional reductions of ozone precursor emissions in this Commonwealth. See 73 FR 16436 (March 27, 2008). However, the EPA has reconsidered the 2008 ozone NAAQS and on January 19, 2010, published a proposed rulemaking to set a more protective 8-hour primary standard at a lower level within the range of 0.060-0.070 ppm. See 75 FR 2938. The final revised ozone NAAQS is expected in August 2010.

In addition, the adoption and implementation of this final rulemaking will also allow the Commonwealth to make progress in attaining and maintaining the fine particulate matter (PM_{2.5}) NAAQS, since NO_x is a PM_{2.5} precursor. See 73 FR 28321 at p. 28325 (May 16, 2008). The health effects associated with exposure to PM_{2.5} are significant. Epidemiological studies have shown a significant correlation between elevated PM_{2.5} levels and premature mortality. Other important effects associated with PM_{2.5} exposure include aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days), lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems. Individuals particularly sensitive to PM_{2.5} exposure include older adults, people with heart and lung disease, and children. On November 13, 2009, the EPA designated six areas including all or portions of 22 counties in this Commonwealth as nonattainment areas for the 2006 24-hour PM_{2.5} NAAQS. See 74 FR 58688 at p. 58758 (November 13, 2009).

The purpose of this final rulemaking is to reduce emissions of NO_x from glass melting furnaces in order to reduce levels of ground-level ozone and fine particulate. 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 emissions will also help protect the public health and environment from high levels of PM_{2.5}, of which NO_x is a precursor component. The reduction of NO_x emissions also reduces visibility impairment and acid deposition. As a result, to the extent that it is more stringent than any corresponding federal requirement, this regulation is reasonably necessary to achieve or maintain the NAAQS for both ozone and PM_{2.5}.

The glass industry in this Commonwealth produces a variety of products, including flat glass, container glass, fiberglass and pressed and blown glass. In 2002, flat glass production accounted for approximately 7,450 tons of NO_x emissions; container glass production accounted for approximately 1,800 tons of NO_x emissions; fiberglass production accounted for approximately 150 tons of NO_x emissions; and pressed and blown glass, including picture tube glass, accounted for approximately 2,500 tons of NO_x emissions. Total glass melting furnace NO_x emissions in 2002 were approximately 11,900 tons. Since 2002 a number of furnaces or facilities, or both, have discontinued operation or made process changes and total NO_x emissions during 2005 were approximately 9,814 tons. As a result, the glass industry in Pennsylvania remains one of the largest sources of NO_x emissions in this Commonwealth.

This Commonwealth, along with the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont and Virginia, and the District of Columbia, are members of the Ozone Transport Commission (OTC), which was created under section 184 of the Federal Clean Air Act (CAA), 42 U.S.C.A. § 7511c, to develop and implement regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic regions. To date, States from the OTC, including this Commonwealth, have established a number of regulatory programs to reduce ozone precursor emissions, including programs related to portable fuel containers, architectural and industrial maintenance coatings and consumer products. Consistent with its strategy to achieve equitable ozone precursor emission reductions from all industrial sectors, this Commonwealth, along with other OTC States, has met with representatives of the glass industry to discuss reductions of NO_x emissions from glass melting furnaces. There is general agreement that the NO_x emission regulatory limits for the glass industry developed by the San Joaquin Valley Air Pollution Control District (SJVAPCD) in California are appropriate NO_x emission limits for glass melting operations located in this Commonwealth and the other OTC States. The San Joaquin Valley regulation was first adopted in 1994 and subsequently amended in 1998, 2002 and 2006; this amended regulation was used to develop the Commonwealth's regulation, which serves as the OTC model rule for glass melting furnaces. The Department reviewed, analyzed and concurred with the OTC's control measures summary document for glass melting furnaces with respect to the individual glass melting furnaces located in this Commonwealth, and determined that proposing a glass melting furnaces regulation based on the SJVAPCD Rule's mix of control options to meet specified emission limits was the appropriate implementation strategy for a rulemaking to control NO_x emissions from this Commonwealth's glass melting furnaces.

As part of the proposed rulemaking, the Board under § 129.309 (relating to compliance demonstration) proposed that the owner or operator of a glass melting furnace may demonstrate compliance with the requirements of § 129.304 (relating to emission requirements) by surrendering Clean Air Interstate Rule (CAIR) NO_x Ozone Season allowances for each ton of NO_x emissions that exceeds the allowable emissions of the applicable glass melting furnaces. In response to comments received during the official public comment period on the proposed rulemaking for glass melting furnaces, and following the Department's review of other related information, the Department prepared a draft final-form rulemaking for public comment. The draft final-form rulemaking contained significant changes in several areas, and the Department believed that, while not legally required, further discussion and an additional comment period would serve the public interest. An Advance Notice of Final Rulemaking (ANFR) was published in the *Pennsylvania Bulletin* on September 12, 2009 (39 Pa.B. 5318). The most significant change made in the draft final-form rulemaking concerned deletion of the NO_x surrender compliance option which allowed for the purchase of CAIR NO_x allowances. The EPA held discussions with the Department subsequent to the closing of the public comment period on June 23, 2008, regarding the proposed rulemaking's option to demonstrate compliance with the emission limits through the purchase of CAIR NO_x allowances under the EPA's CAIR regulation. During these discussions, the EPA indicated to the Department that providing a compliance option to purchase CAIR NO_x allowances in the final-form rulemaking would jeopardize the approval of the Commonwealth's CAIR SIP revision, because glass melting furnaces are not specifically included in the EPA CAIR program as a source category. Therefore, the compliance option to purchase CAIR NO_x allowances was deleted from the final-form rulemaking.

There are three additional significant changes to the final-form rulemaking:

(1) The provision requiring compliance with the emission limits during the ozone season from May-September has been deleted. The Department further revised the final-form rulemaking to require compliance with the NOx emission limits year-round because NOx is a precursor to the formation of PM2.5, which is monitored year-round. In addition, NOx is also a precursor to the formation of ozone, and it is anticipated that the EPA will extend the ozone monitoring season in this Commonwealth to go from March 1 to October 31, each year, requiring monitoring for the 8-hour ozone NAAQS for a longer period each year. See 74 FR 34525 at p. 34538 (July 16, 2009).

(2) The final-form rulemaking adds a NOx emission limit applicable to a glass melting furnace that produces a glass product that is other than flat, container, fiberglass, or pressed or blown.

(3) The final-form rulemaking provides a petition process for an alternative emission limitation to the owner or operator of any glass melting furnace that demonstrates it is economically or technologically infeasible to meet the NOx emission limitations specified in Section 129.304(a). An alternative emission limitation approved by the Department must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. Moreover, the petition process in the final-form rulemaking also allows an owner or operator to submit a petition for an alternative compliance schedule if compliance with the NOx emission limitations is not achieved by the January 1, 2012 compliance deadline specified in Section 129,304(b).

The Department worked with the Air Quality Technical Advisory Committee (AQTAC) in the development of these final-form regulations. At its November 18, 2009, meeting, the AQTAC recommended revisions to the final-form regulation and concurred with the Department's recommendation to advance the regulation to the Board for consideration as a final-form rulemaking. The AQTAC recommended that the Department to evaluate the requirements for exemptions in Section 129.303 (relating to exemptions), specify the role of local air pollution control agencies, and to re-evaluate the invalidated data substitution method. These revisions were considered and incorporated into the final-form rulemaking.

The Department also conferred with the Citizens Advisory Council (CAC) concerning the final-form rulemaking on December 15, 2009. The CAC concurred with the Department's recommendation to advance the regulation to the Board for consideration as a final-form rulemaking.

E. Summary of Final-form Regulation and Changes from Proposed to Final-form Rulemaking

Summary of Final-form Regulation

The final-form amendments add the following new definitions and terms to § 121.1 (relating to definitions) used in the substantive provisions under §§ 129.301 – 129.310 (relating to control of NOx emissions from glass melting furnaces): “blown glass,” “cold shutdown,” “container glass,” “fiberglass,” “flat glass,” “glass melting furnace,” “idling,” “permitted

production capacity,” “pressed glass,” “primary furnace combustion system,” “pull rate,” “shutdown” and “start-up.”

The following definitions and terms were deleted between proposed and final-form rulemaking: “100% air-fuel fired,” “air-fuel firing,” “complete reconstruction,” “furnace battery,” “furnace rebuild,” “multiple furnaces,” “oxyfuel fired” and “oxygen-assisted combustion.”

Final-form § 129.301 (relating to purpose) annually limits the emissions of NO_x from glass melting furnaces.

Final-form § 129.302 (relating to applicability) specifies that the regulation applies to an owner or operator of a glass melting furnace that emits or has the potential to emit NO_x at a rate greater than 50 tons per year.

Final-form § 129.303 (relating to exemptions) provides, among other things, that the emission requirements in § 129.304 (relating to emission requirements) shall not apply during periods of start-up, shutdown or idling as defined in § 121.1, if the owner or operator complies with the requirements of §§ 129.305, 129.306 and 129.307 (relating to start-up requirements; shutdown requirements; and idling requirements). Owners and operators claiming the exemption must notify the Department or approved local air pollution control agency within 24 hours after initiation of the operation for which the exemption is claimed. Additionally, the owner or operator of a glass melting furnace granted an exemption under § 129.303 shall maintain operating records or documentation, or both, necessary to support the claim for the exemption.

Final-form § 129.304 provides that the owner or operator of a glass melting furnace shall determine allowable NO_x emissions by multiplying the tons of glass pulled by each furnace by: 4.0 pounds of NO_x per ton (lbs NO_x/ton) of glass pulled for container glass furnaces; 7.0 lbs NO_x/ton of glass pulled for pressed or blown glass furnaces; 4.0 lbs NO_x/ton of glass pulled for fiberglass furnaces; 7.0 lbs NO_x/ton of glass pulled for flat glass furnaces; and 6.0 lbs NO_x/ton of glass pulled for all other glass melting furnaces. The owner or operator of a glass melting furnace shall comply with the allowable NO_x emissions by January 1, 2012, unless a petition for an alternative emission limitation or compliance schedule is submitted, in writing, to the Department or approved local air pollution control agency by January 1, 2012, and subsequently approved, in writing, by the Department or approved local air pollution control agency.

The final-form rulemaking provides a petition process for an alternative NO_x emission limitation to the owner or operator of any glass melting furnace that demonstrates to the Department’s satisfaction that it is economically or technologically infeasible to meet the established emission limitations under Section 129.304. An alternative NO_x emission limitation approved by the Department must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. Moreover, this final-form rulemaking also includes a petition process for an alternative compliance schedule if an owner or operator of any glass melting furnace demonstrates that compliance cannot be achieved by the January 1, 2012 compliance date specified in Section 129.304(b).

Final-form § 129.305 requires the owner or operator to submit specific information requested by the Department or approved local air pollution control agency to assure proper operation of the furnace. The owner or operator of a glass melting furnace may submit a request for a start-up exemption in conjunction with the plan approval application, if required. The length of the start-up exemption may not exceed a finite number of days depending on the type of furnace. The Department or approved local air pollution control agency may approve start-up exemptions to the extent that the request identifies, among other things, the control technologies or strategies to be used. Additionally, the owner or operator shall place the emission control system in operation as soon as technologically feasible during start-up to minimize emissions.

Final-form § 129.306 provides, among other things, that the duration of a glass melting furnace shutdown, as measured from the time the furnace operations drop below 25% of the permitted production capacity or fuel use capacity to when all emissions from the furnace cease, shall not exceed 20 days.

Final-form § 129.307 provides, among other things, that the owner or operator of a glass melting furnace shall operate the emission control system whenever technologically feasible during idling to minimize emissions.

Final-form § 129.308 (relating to compliance determination) provides, among other things, that not later than 14 days prior to the applicable date under § 129.304, the owner or operator of a glass melting furnace subject to this section and §§ 129.301-129.307, 129.309 and 129.310 shall install, operate and maintain continuous emissions monitoring systems (CEMS), (as defined in § 121.1) for NO_x and other monitoring systems to convert data to required reporting units in compliance with Chapter 139, Subchapter C (relating to requirements for continuous source monitoring for stationary sources), and calculate actual emissions using the CEMS data reported to the Department or approved local air pollution control agency. However, the owner or operator of a glass melting furnace may elect to install and operate an alternate NO_x emissions monitoring system or method approved, in writing, by the Department or approved local air pollution control agency. Data invalidated under Chapter 139, Subchapter C shall be substituted with other values if approved, in writing, by the Department or approved local air pollution control agency.

Final-form § 129.309 (relating to compliance demonstration) provides that the owner or operator of a glass melting furnace shall calculate and report to the Department or approved local air pollution agency on a quarterly basis no later than 30 days after the end of the quarter the CEMS data and glass production data used to show compliance with the allowable NO_x emission limitations. The glass production data must consist of the quantity of glass in tons pulled per day for each furnace. Compliance can be demonstrated on a furnace-by-furnace basis; facility-wide emissions averaging basis; or a system-wide emissions averaging basis among glass melting furnaces under common control of the same owner or operator in this Commonwealth. The owner or operator for which the Department has granted approval to voluntarily opt into a market-based program may not demonstrate compliance on an emissions averaging basis. Moreover, an emission reduction obtained by emission averaging to demonstrate compliance with the emission requirements will not be considered surplus for emission reduction purposes.

Final-form § 129.310 (relating to recordkeeping) provides that the owner or operator of a glass melting furnace subject to the requirements of this section and §§ 129.301-129.309 shall maintain certain records to demonstrate compliance.

Changes from Proposed to Final-form Rulemaking

In addition to the revisions for definitions previously discussed in this section, changes from the proposed rulemaking to final-form rulemaking are summarized as follows:

In § 129.302, the metric “20 pounds per hour” and the May 1, 2009, applicability date were deleted from the final-form regulation. The phrase “appropriate approved local air pollution control agency” was added to this section.

Changes to § 129.303 from proposed and final rulemakings include, among other things, the deletion of the exemption related to glass melting furnaces heated by an electric current from electrodes submerged in molten glass. The final-form regulation includes a requirement that owners and operators of glass melting furnaces claiming an exemption must notify the Department or appropriate approved local air pollution control agency within 24 hours after the initiation of the operation for which the exemption is claimed. As part of the notification requirements, the owner or operator must identify the emission control system operating during the exemption period. Finally, the phrase “appropriate approved local air pollution control agency” was also added to subsections (b)-(d).

Revisions to § 129.304, among other things, include the requirement that the owner or operator of a glass melting furnace may not operate a glass melting furnace that results in NO_x emissions in excess of the allowable emissions established therein or the NO_x emission limits contained in the plan approval or operating permit, whichever is lower. This section has also been revised to allow the owners and operators of any glass melting furnaces to submit a petition for an alternative emission limitation or compliance schedule, if that owner or operator is unable to meet the allowable NO_x emission limits. In addition, the final-form rulemaking sets forth the information necessary to be included in a petition that will be considered by the Department or appropriate approved local air pollution control agency as it relates to an alternative NO_x emission limitation or compliance schedule. However, the alternative compliance schedule for a cold shutdown which occurs after the effective date of this final-form rulemaking may not be extended beyond 180 days from the start-up of the furnace after the cold shutdown, unless approved, in writing, by the Department. Lastly, an exemption from the NO_x emission limits is provided under certain conditions during routine maintenance of an add-on emission control system, maintenance or repair of certain components of the glass melting furnace.

Final-form changes to § 129.305 include, among other things, start-up exemption periods for all other glass melting furnaces not otherwise covered under the proposed rulemaking. The final-form regulation also includes maximum start-up exemption periods for certain glass melting furnaces that employ NO_x control systems not in common use or not readily available from a commercial supplier. Section 129.305 also includes language that allows, in addition to the Department, an approved local air pollution control agency to be notified and to make certain determinations related to start-up requirements.

Changes to §§ 129.306 and 129.307 authorize an approved local air pollution control agency, in addition to the Department, to determine when the operation of an emission control system is technologically feasible.

In § 129.308, the final-form regulation allows the highest valid 1-hour emission values to be substituted if data is invalidated under Chapter 139, Subchapter C. An approved local air pollution control agency may also make compliance determinations under this section.

Changes to § 129.309 between proposed and final-form rulemaking include the deletion of all language related to the use and surrender of CAIR NO_x ozone season allowances.

In § 129.310, the owner or operator claiming that a glass melting furnace is exempt from the requirements of §§ 129.301 – 129.309 based on the furnace's potential to emit must maintain records that clearly demonstrate to the Department or appropriate approved local air pollution control agency that the furnace is not subject to those regulatory requirements.

F. Summary of Comments and Responses on the Proposed Rulemaking

Comments and Responses on the Proposed Rulemaking

A commentator supports and strongly urges the adoption of the NO_x emission limits for fiberglass plants consistent with the 4.0 lbs NO_x/ton of glass pulled adopted by the OTC. The Board appreciates the commentator's support of the proposed rulemaking for fiberglass plants.

A commentator stated that the emission limit for fiberglass plants in the proposed rule can be achieved by currently available technologies, and the emission limit is a technologically feasible and pragmatic approach requiring implementation of low-NO_x combustion technology. The Board agrees with the commentator that the emission limit for fiberglass furnaces can be achieved with technologies currently available.

The commentator stated that it is an arbitrary and capricious action to base the regulation's proposed NO_x emission limits on a California rule without an explanation as to why they are appropriate to this Commonwealth. The Board disagrees with the commentator. The Board proposed the allowable NO_x emission requirements as a result of the research conducted by and the recommendations of the Northeast OTC. The Northeast OTC is a multi-state organization created under Section 184 of the CAA. 42 U.S.C.A. § 7511c. The OTC is responsible for advising the EPA on ground-level ozone pollution transport issues and for developing and implementing regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic regions. The members of the OTC (this Commonwealth, CT, DE, MA, MD, ME, NH, NJ, NY, RI, VA and VT, and the District of Columbia) are required to demonstrate attainment with the 1997 8-hour ozone standard of 80 ppb. See 62 FR 38855 (July 18, 1997).

Additionally, on March 12, 2008, the EPA issued a more protective 8-hour ozone standard of 75 ppb that would require additional reductions of ozone precursor emissions. See 73 FR 16436 (March 27, 2008). The 2008 revised standard would require additional reductions of emissions of ozone precursors, including NO_x, that impact each member's nonattainment status. As required by the Federal Clean Air Act (CAA), the Commonwealth submitted

recommendations to the EPA in 2009 to designate 29 counties as nonattainment for the 2008 8-hour ozone NAAQS. The EPA was expected to take final action on the designation recommendations by March 2010. However, the EPA has reconsidered the 2008 ozone NAAQS and on January 19, 2010, published a proposed rulemaking to set a more protective 8-hour primary standard at a lower level within the range of 0.060-0.070 ppm; the final revised ozone standard is expected in August 2010. See 75 FR 2938. If, as is widely expected, the EPA tightens the ozone standard, the additional NOx emissions from the final-form rulemaking for glass melting furnaces will be even more important than if the current 2008 ozone standard remains in place. In addition, Northeast states are conducting attainment planning work to support development of PM2.5 and regional haze SIPs to satisfy obligations under the CAA and regulations issued under the CAA. See 74 FR 58688 (November 13, 2009) and 64 FR 35714 (July 1, 1999). NOx emissions are precursors to the development of PM2.5 and regional haze.

The OTC undertook a study to identify a suite of additional control measures that could be used by the members in attaining their goals. Workgroups of staff from within the OTC members were established to evaluate control measures for specific sectors or issues. Department staff actively participated in these workgroups. Based on a review of 1,000 candidate control measures, the workgroups developed a short list of measures to be considered for more detailed analysis. The technical information for this short list of measures is found in the OTC report: *Identification and Evaluation of Candidate Control Measures, Final Technical Support Document*, prepared by MACTEC Federal Programs, Inc., Herndon, VA, February 28, 2007. Control of NOx emissions from glass melting furnaces in the six states within the OTR that have glass melting furnaces (this Commonwealth, MA, MD, NJ, NY and RI) was on the short list as a measure for further analysis by the workgroups. The workgroups reviewed information on current NOx emissions from the furnaces, controls already in place on the furnaces, anticipated additional NOx emissions reductions from the control measures, preliminary cost and cost-effectiveness data, and other implementation issues. The workgroups discussed all the candidate control measures, including controlling NOx emissions from glass melting furnaces, during a series of conference calls and workshops to further refine the emission reduction estimates, the cost data and implementation issues.

The workgroups also discussed comments from stakeholders, including glass melting furnace stakeholders (North American Insulation Manufacturers Association and Glass Association of North America). The OTC Commissioners summarized the glass melting furnace control measures and made a recommendation at the Commissioners' meetings in 2006 that the affected member states consider NOx emission reductions from glass melting furnaces. The glass melting furnace stakeholders were provided multiple opportunities to review and comment on the glass melting furnace control measures summary. Public meetings were held as an opportunity for stakeholders to review and respond to the Commissioners' recommendations, stakeholders provided written comments, and the workgroups conducted conference calls with specific stakeholders to allow the stakeholders to vocalize their concerns directly to state regulatory staff and to discuss the control options. The OTC staff and state workgroups carefully considered the verbal and written comments received during this process.

The OTC's control measures summary recommends that states may allow the owners or operators of glass melting furnaces to propose compliance methods based on California's San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4354 (relating to glass melting furnaces) which allows a "mix of control options to meet specified emission limits." The NOx

emission rates recommended in the OTC control measures summary document are the rates specified in the SJVAPCD Rule 4354. The Department reviewed, analyzed and concurred with the OTC's control measures summary document for glass melting furnaces with respect to the individual glass melting furnaces located in this Commonwealth, and determined that proposing a glass melting furnaces regulation based on the SJVAPCD Rule's 4354 mix of control options to meet specified emission limits was the appropriate implementation strategy for a rulemaking to control NO_x emissions from this Commonwealth's glass melting furnaces.

This Commonwealth, along with the other affected OTC member states, agreed to establish NO_x emission limits and controls for glass melting furnaces that are based on the SJVAPCD Rule 4354 so that there would be a level playing field among the OTC states. The owners and operators of glass melting furnaces in this Commonwealth remain competitive with those states not in the OTC with the option of an alternative compliance schedule contained in the petition process that is provided in subsections 129.304(b) and (c) (relating to emission requirements) of the final-form rulemaking.

The commentator questioned whether imposing the proposed emission requirements in the absence of a Federal deadline will place this Commonwealth's industry at a competitive disadvantage, and suggests the Board should review the situation carefully in conjunction with the OTC to take precautions to insure a level playing field in the industry. The Board proposed the allowable emission requirements as a result of the research conducted by and the recommendations of the OTC. In addition, the Commonwealth also conducted its own independent research and verified the OTC recommendation. Control of NO_x emissions from glass melting furnaces in the six states within the OTR that have glass melting furnaces (this Commonwealth, Maryland, Massachusetts, New Jersey, New York and Rhode Island) was identified by the OTC as a control measure for further analysis. Moreover, the owners and operators of glass melting furnaces in this Commonwealth remain competitive with those states not in the OTC with the option of an alternative compliance schedule contained in the petition process that is provided in subsections 129.304(b) and (c) of the final-form rulemaking.

The commentator stated that the proposed rule does not include emission requirements for specialty glass manufacturing, and therefore the proposed rule does not apply to their glass melting furnace since it does not meet the applicability criteria defined in the proposed rule. The Board recognizes this and as a result, this final-form rulemaking also includes a petition process for an alternative compliance schedule if the owner or operator of a glass melting furnace demonstrates that compliance will not be achieved by the January 1, 2012, compliance date specified in Section 129.304 (b).

The proposed rule's compliance determination section should express NO_x in the same units as in the emission requirements section of the proposed rule (lbs/hr vs. lbs NO_x/ton glass). The Board disagrees with the commentator. The CEMS' equipment is not designed to sample and report a source's process-derived emissions data, for example, tons of glass pulled at a glass melting furnace. The CEMS equipment samples a 'parts per million' emissions concentration, and then automatically calculates a 'pounds per hour' emissions concentration. When the monitoring data is submitted to the Department every quarter, as required under subsection 129.309(a), the submittal shall include the CEMS monitored data in pounds per hour and the glass production data in tons of glass pulled per day for each furnace.

The commentator stated that the emission requirements compliance date of May 1, 2009, is unreasonable because there is less than a year until this deadline and the proposed rule is not yet final and may not be final before the end of 2008. The Board acknowledges that the proposed rulemaking's compliance date of May 1, 2009, is impractical. Therefore, the final-form rulemaking requires compliance with the NOx emission limits by January 1, 2012.

The commentator stated that this regulation will likely require permitting of air pollution control equipment which reasonably cannot occur by May 1, 2009, and suggests that the regulation's compliance deadline become effective upon the next furnace rebuild, but no sooner than May 1, 2012. The Board agrees with the commentator that the proposed rulemaking's compliance date of May 1, 2009, is impractical. The final-form rulemaking requires compliance with the emission limits by January 1, 2012.

The Independent Regulatory Review Commission (IRRC) commented that the Board should review the practicality of the 2009 compliance deadline, given the uncertainty of the future of the EPA's CAIR allowance program, and questions if other compliance options will be available for providing flexibility to the affected industry. The Board agrees with the commentator. Subsequent to the closing of the public comment period on June 23, 2008, the Department held discussions with the EPA regarding the proposed rulemaking's option to demonstrate compliance with the emission limits through the purchase of CAIR NOx allowances under the EPA's CAIR regulation. The EPA indicated to the Department that the glass melting furnace regulation that would provide a compliance option to purchase CAIR NOx allowances would be problematic as far as approvability by the EPA for the Commonwealth's SIP, because glass melting furnaces are not specifically included in the EPA's CAIR program as a source category able to purchase CAIR NOx allowances to achieve compliance. Therefore, the Board removed from the final-form rulemaking the compliance option to purchase CAIR NOx allowances.

The Senate and House Environmental Committees commented, that it may assist the Department as well as the regulated industry to not base the compliance timeframe on a specific date. The Committees commented that glass melting furnaces could potentially be required by the regulation to be replaced or upgraded prior to the end of their normal life expectancy, which would greatly increase the compliance costs of the regulation, if the regulation contains a specific compliance date. The Committees further commented that they understand several other states permit furnaces to be upgraded after their normal and anticipated life expectancy is exhausted. The Board has modified the final-form rulemaking to provide for a petition process to all glass melting furnace owners and operators under subsection 129.304(b) for an alternative compliance schedule, if they will be unable to meet the emission limits beginning January 1, 2012. The Board believes that a final compliance date specified in the regulation is necessary to ensure that the owners and operators of the glass melting furnaces in this Commonwealth limit the NOx emissions from their furnaces by a date certain, either by January 1, 2012, or by the date specified on a case-by-case basis as determined through the petition process for an alternative compliance schedule under subsection 129.304(c). Additionally, the SJVAPCD Rule whose NOx emission limits and compliance methods were recommended by the OTC control measures group, specifies a final compliance date.

A commentator stated that the proposed rule limits the purchase of allowances to CAIR NOx allowances, and should allow for the use of NOx credits previously banked as a result of

prior emission reductions. The Board disagrees with the commentator. The use of NOx credits previously banked due to prior emission reductions is clarified in the Department's NOx Budget Trading Program under subsection 145.90(a) (relating to emission reduction credit provisions): "ERCs may not be used to satisfy NOx allowance requirements." Further, as explained above, the final-form regulation no longer provides the compliance option to purchase CAIR NOx allowances.

A commentator stated that the Board did not adequately address, while drafting and promulgating the proposed regulation and in accordance with Executive Order 1996-1, that when there are existing Federal regulations covering the subject matter as does the EPA's CAIR regulation, that the State's regulations cannot be more stringent than the Federal standards. The commentator stated further that the EPA promulgated CAIR for the control of NOx emissions at the Federal level, and the EPA focused the CAIR regulation on electric generating units (EGUs). Glass melting furnaces are not EGUs, thus under the EPA's CAIR, specific regulation of glass manufacturing is notably absent. The purpose of the Department's rulemaking is to address reductions of NOx from glass melting furnaces, while the EPA's CAIR addresses NOx reductions from EGUs, certain boilers, stationary combustion turbines and stationary internal combustion engines. Therefore, these are two different regulatory strategies with the goal of reducing NOx emissions from various source types within this Commonwealth. The EPA did not intend CAIR to comprise the entire solution to control NOx emissions from all types of sources, but only to address interstate transport of ozone and PM2.5 precursors from the EGU sector. In fact, this Commonwealth and other OTC members have determined that additional NOx reductions may be necessary in some areas, in combination with reduction of interstate transport, to attain and maintain the NAAQS. Executive Order 1996-1 applies to the final-form rulemaking since there is not a companion Federal rule that reduces NOx emissions from glass melting furnaces. However, this final rulemaking is reasonably necessary to attain and maintain the 8-hour ozone and PM2.5 NAAQS. The criteria for adopting state regulations more stringent than Federal regulations (when Federal regulations exist) are in the APCA, Section 4.2 (35 P.S. § 4004.2). Section 4.2 of the APCA authorizes the Board to adopt regulations more stringent than Federal requirements when the control measures are reasonably necessary to attain and maintain the ambient air quality standards.

The Senate Committee commented on the ability of the Board to move forward with the regulation if the D.C. Court vacated the CAIR budget and allowance system for NOx emissions in Pennsylvania and other states. Their concern is that on July 11, 2008, the U.S. Court of Appeals for the District of Columbia overturned CAIR, and specifically that the Court found that the state NOx budgets as determined by the EPA were "arbitrary and capricious." The decision by the D.C. Circuit Court in *North Carolina v. EPA* only addressed CAIR, and did not address NOx emission limits for glass melting furnaces.

The IRRC questioned the Board's statutory authority for the use of CAIR NOx allowances and revised NOx emission limits in the proposed regulation due to the fact that the EPA's CAIR was vacated on July 11, 2008, by the D.C. Circuit Court. The IRRC goes on to say that the Court in its ruling stated that the analysis done by the EPA was "fundamentally flawed" and that the agency (EPA) must start its analysis anew. The Board disagrees with this analysis. The decision by the D.C. Circuit Court in *North Carolina v. EPA* only addressed CAIR, and did not address NOx emission limits for glass melting furnaces. The court decided to remand, not vacate, the EPA's CAIR in December 2008. The final Federal rule, expected in 2011, must be

revised to be consistent with the Court's July 11, 2008, decision in *State of North Carolina v. Environmental Protection Agency*, 531 F.3d 896 (D.C. Cir. 2008). The Board agrees that while the EPA's CAIR remains in place at this time, the EPA will propose and finalize a replacement for CAIR that meets the criteria set forth by the court. In light of the SIP-approvability issues raised by the EPA, the compliance option to purchase and surrender CAIR NOx allowances was deleted from the final-form regulation.

The IRRC stated that the Board should address the concerns raised by the Senate Committee on the CAIR vacatur, and suggested that if the regulation requires substantial changes, to consider submitting an ANFR or publishing the changes as a new proposed regulation in the *Pennsylvania Bulletin*. The Department agrees with the commentator. The provisions of the final-form rulemaking contain significant changes from the provisions of the proposed rulemaking. Most importantly, during discussions with the EPA following the close of the Board's public comment period for the proposed rulemaking, the EPA indicated to the Department that a final glass melting furnace regulation that provides a compliance option to purchase CAIR NOx allowances would be problematic as far as approvability by the EPA for the Commonwealth's SIP, because glass melting furnaces are not specifically included in the EPA's CAIR program as a source category able to purchase allowances to achieve compliance. The EPA did not intend CAIR to comprise the entire solution to control NOx emissions from all types of sources, but only to address interstate transport of ozone and PM2.5 precursors from the EGU sector. Therefore, the Board removed from the final-form rulemaking the compliance option to purchase CAIR NOx allowances. The Board further revised the final-form rulemaking to require compliance with the NOx emission limits year-round because NOx is not only a precursor to ozone formation, but is also a precursor to the formation of PM2.5, which is monitored year-round. In addition, the proposed rulemaking addressed control of NOx emissions from glass melting furnaces only during the period of May 1 to September 30 of each year, and it is anticipated that the EPA will extend the ozone monitoring season in this Commonwealth to go from March 1 to October 31, each year, requiring monitoring for the 8-hour ozone NAAQS for a longer period each year. See 74 FR 34525 at p. 34538 (July 16, 2009). The Board also added a NOx emission limit applicable to a glass melting furnace that produces a glass product that is other than flat, container, fiberglass or pressed and blown. These changes are sufficiently significant that the Board believed further discussion and an additional comment period served the public interest. An ANFR to solicit comments from the public on the draft final-form regulation was published in the *Pennsylvania Bulletin* on September 12, 2009 (39 *Pa.B.* 5318).

The Senate Committee commented that they support the concept of NOx allowance trading, and would favor removing the requirement for being "under common control of the same owner or operator in this Commonwealth" from the system-wide averaging section of the rulemaking, and the IRRC commented that the Board should address this issue. The Board disagrees. Allowing multiple owners and operators of glass melting furnaces in this Commonwealth to average their emissions in concert with each other in order to demonstrate compliance would essentially provide them the larger framework of an emissions trading program, which is beyond the scope of the final-form rulemaking provision to provide them with an emissions averaging option.

One commentator stated that the proposed rule's requirement to install a NOx emissions monitoring system (CEMS or an alternate) does not impose a time requirement upon the

Department for the review and approval of the monitoring system. The Board disagrees with the commentator that the regulation should contain a time requirement. The timeframe to review and approve a monitoring system is coordinated with each individual company during the certification process of the monitoring system, in accordance with the Department's Continuous Source Monitoring Manual (DEP 274-0300-001). These monitoring-specific issues are not part of individual rulemakings.

Some commentators stated that the deadline of May 1, 2009, for the system to be installed and operational is unreasonable as there is less than a year until this deadline, and that it does not provide adequate time allowed for installation and operation of the CEMS. The commentators suggest there should be a longer timeframe for the system to be installed and operational, and suggest that May 1, 2010, should be the earliest implementation date for the CEMS. The Board agrees with the commentators. A CEMS or alternate monitoring system or method to determine compliance with the emission limits specified in subsection 129.304(a) in the final-form rulemaking must be installed, operating and maintained no later than 14 days prior to the applicable date by which a glass melting furnace is required to meet the emission limits specified in subsection 129.304(b) or (c) in the final-form rulemaking.

A commentator stated that "to be consistent with the requirements of the CAIR, CEMS installation should be reserved for furnaces undergoing reconstruction or modification and not simple rebricking." The Board disagrees with the commentator. The EPA's CAIR requirements are not applicable to this rulemaking. In addition, a CEMS or alternate monitoring system or method to determine compliance with the emission limits specified in subsection 129.304(a) in the final-form rulemaking must be installed, operating and maintained no later than 14 days prior to the date by which a glass melting furnace is required to meet the emission limits specified in subsection 129.304(b) or (c) in the final-form rulemaking.

One commentator stated that the 'alternate NO_x emissions monitoring system or method' referenced in the proposed rule should be further clarified to explain what is an allowable alternate system. The Board disagrees with the commentator. An alternate NO_x emissions system or method is not designed to be a prescribed method or system.

A commentator stated that the start-up exemption time of 104 days for a flat glass furnace is too short, and suggests an additional 208 days be allowed for a flat glass furnace that uses a NO_x control not readily available from a commercial supplier, not in common use, or that is innovative. The Board agrees with the commentator with respect to the start-up exemption time of 104 days for a flat glass furnace. To be consistent with the SJVAPCD Rule 4354, on whose NO_x emission limits the OTC based its recommendations to its member states with glass melting furnaces, the final-form rulemaking revised the length of the start-up exemption in subsection 129.305(d) for all types of glass furnaces. For flat glass furnaces, the maximum start-up exemption time is 208 days if the NO_x control system is not in common use or is not readily available from a commercial supplier.

The commentator stated that the 'not to exceed 5% excess oxygen' restriction during a furnace combustion start-up should be eliminated, as it does not appear to have a relationship or a benefit to NO_x emissions. The Board retains in the final-form rulemaking the furnace start-up restriction under subsection 129.305(f) of 'not to exceed 5% excess oxygen,' which is consistent with the furnace start-up requirements in the SJVAPCD Rule 4354.

The Senate and House Environmental Committees commented to the Board on behalf of one commentator that the start-up exemption unnecessarily restricts the exemption to a new furnace or furnace rebuild and does not account for an idled existing furnace, and implies that a plan approval would be required in connection with a furnace start-up, which is not necessarily the case. The Board has revised this section of the final-form rulemaking. Subsection 129.305(b) specifies that a plan approval application for a furnace start-up exemption request shall be submitted 'if required,' in recognition that some furnace start-ups may not require a plan approval.

The NO_x proposal should adopt the 2007 National Emissions Standards for Hazardous Air Pollutants (NESHAP) definition of "glass melting furnace" instead of using the outdated 1980 New Source Performance Standard (NSPS) definition. The NSPS definition includes a list of extraneous non-furnace equipment that goes against the intent of the proposed rule that requires monitoring NO_x emissions from only the furnace. The Board agrees with the commentator. The final-form rulemaking has adopted the 2007 NESHAP definition of the term "glass melting furnace" that was published in the Federal Register on December 26, 2007 (72 FR 73183).

The definition of 'furnace rebuild' is unclear and appears to broaden the scope of repair activities that currently require permitting, and the definition should exclude rebricking activities as defined in 40 CFR Subpart CC and likewise exclude those activities from permitting. The term "complete reconstruction" in the furnace rebuild definition should be stated as "reconstruction." The Board agrees and made the necessary changes.

The Senate and House Committees commented to the Board that the definition of the term "start-up" should be revised to be consistent with the San Joaquin rule to include necessary language on furnace stabilization, that is, the phrase "and systems and instrumentation are brought to stabilization." The Board agrees with the commentator. The definition of the term "start-up" proposed under § 121.1 has been revised.

The proposed regulation should not expand the scope of what currently triggers permitting or plan approvals specified in the *Pennsylvania Code* and existing Federal regulations, and exemptions should be included for furnace rebricking and repairs or replacements that do not constitute a modification. The final-form rulemaking will require compliance with the NO_x emission limits by January 1, 2012. The plan approval issued for the construction of a new glass melting furnace or furnace modification shall include terms and conditions consistent with the requirements of 25 *Pa. Code*, Chapter 127, Subchapter B (relating to plan approval requirements). The Board has added in the final-form rulemaking under § 121.1 a definition for the term "cold shutdown," and the rulemaking includes the term "scheduled" whenever the term "cold shutdown" is used within the final-form rulemaking to distinguish between furnace repair activities and a scheduled "cold shutdown" when the furnace is cold and does not contain molten glass. The Board believes this will alleviate the concerns about routine repairs to a furnace.

The SCR and SNCR add-on control technologies for glass furnaces are not technically feasible control technologies for the intermittent NO_x emissions from nitrate decomposition, and therefore are not feasible add-on controls for this commentator's glass melting furnace facility. This commentator requests the Board to explicitly exclude its facility from the proposed rule.

The Board disagrees with the commentator. The Board recognized that furnaces within this Commonwealth that produce a glass product other than the four types listed in the proposed rulemaking (flat, container, fiberglass and pressed and blown) were not adequately considered in the proposed rulemaking. As a result, the Board added under § 129.304 in the final-form rulemaking an emission limit of 6.0 lbs NO_x/ton of glass pulled for any other glass melting furnace that does not produce flat, container, fiberglass or pressed and blown glass products. The Board, in researching and analyzing these types of furnaces within this Commonwealth, considered the limit of 6.0 lbs NO_x/ton of glass pulled to be a reasonable limit based on the low NO_x burner technology that is available to reduce uncontrolled NO_x emissions by 30-35%.

The proposed rule is directed at combustion sources of NO_x, and the rule's intent is to limit emissions of thermal NO_x. Since 95% of this commentator's NO_x emissions are from decomposition of nitrogen-containing raw materials and not from thermal NO_x combustion processes, the Board should clarify that it is inappropriate to apply the proposed rule to them. The Board disagrees with the commentator. The purpose of the final rulemaking is to control NO_x emissions from glass melting furnaces. Applicability § 129.302 of the final-form rulemaking clearly states that the provisions of the rulemaking apply to an owner or operator of a glass melting furnace that emits or has the potential to emit NO_x at a rate greater than 50 tons per year. If a glass melting furnace in this Commonwealth meets the applicability criteria, the final-form rulemaking provisions would apply.

The Senate and House Environmental Committees and another commentator questioned the legal authority of the Department and the Board to require glass melting facilities to significantly reduce NO_x emissions under the authority of the Pennsylvania APCA, 35 P.S. §§ 4001-4015. The commentators also stated that there is no legal basis to require significant reductions in NO_x emissions when it can be demonstrated that their facility does not contribute to the failure of any nonattainment area to comply with the air quality standards for ozone. The Board disagrees with the commentators. The Board has the legal authority to require the owners and operators of glass melting furnaces to limit their emissions of NO_x. The law in this Commonwealth is well-settled regarding whether a regulation is valid and binding. A court must evaluate if the regulation is (1) within the agency's granted power, (2) issued pursuant to proper procedures and (3) reasonable. See for example, *Rohrbaugh v. PUC*, 556 Pa. 199, 727 A.2d 1080 (1999); and *Housing Authority v. Pa. Civil Service Com'n*, 556 Pa. 621, 730 A.2d 935 (1999). Section 5 of the APCA provides that the Board shall adopt rules and regulations, for the prevention, control, reduction and abatement of air pollution, applicable throughout the Commonwealth. Clearly the intent of this regulation is to reduce air pollution, and so therefore the Board has the requisite legal authority. The Board is proceeding with this rulemaking through the proper rulemaking procedures, as identified under the APCA, the Regulatory Review Act and the Commonwealth Documents Law. An environmental regulation is reasonable if it prevents the possibility of pollution (see *Department of Environmental Resources v. Metzger*, 347 A.2d 743 (Pa. Cmwlth. 1975)), protects the public health and safety (see *Chambers Development Company, Inc. v. Department of Environmental Resources*, 545 A.2d 404 (Pa. Cmwlth. 1988)), or reduces pollution (see *Rochez Bros., Inc. v. Department of Environmental Resources*, 334 A.2d 790 (Pa. Cmwlth. 1975)). Since this rulemaking reduces pollution, it is reasonable.

The Senate and House Environmental Committees and another commentator stated that the proposed rule should provide for a variance if it could be demonstrated that it is economically unreasonable for the glass melting furnace facility to comply with the requirements of the rule, that the public interest is best served by granting the variance, and that the current operations at the glass melting furnace facility have no significant adverse impact on atmospheric NO_x concentrations and do not affect the Commonwealth's 8-hour ozone demonstration. The Board disagrees with the commentator. The Department disagrees with the commentator. A demonstration using air dispersion modeling (point-source or regional scale) to show that a single facility "does not contribute to the failure of any nonattainment area to comply with the air quality standards for ozone" is not the determination of whether a facility is subject to a proposed rulemaking. Moreover, a finding that emission reductions at one source of NO_x does not contribute to the failure of any nonattainment area to comply with the air quality standards for ozone is not surprising. Sensitivity analyses have often shown that the Community Multiscale Air Quality (CMAQ) model used by states for attainment demonstrations is relatively "stiff" considering even large emission changes; that is, the model may not predict large changes in ozone concentrations even when large emission reductions are made. Therefore, a variance relying on modeling would be inappropriate. The Department maintains that an atmospheric dispersion model such as CALPUFF is not appropriate to use to determine an ozone concentration because ozone is formed chemically and not solely by dispersion. Atmospheric chemistry plays a role in ozone formation, and modeling just the NO_x emissions, as is the case with CALPUFF, does not address this atmospheric chemistry. Certain areas of this Commonwealth continue to exceed the health-based 1997 8-hour NAAQS for ozone. See 62 FR 38855 (July 18, 1997). The final-form rulemaking to control NO_x emissions from glass melting furnaces will result in additional NO_x emission reductions that are necessary to support attaining and maintaining the health-based 1997 8-hour ozone NAAQS in this Commonwealth and downwind areas. Furthermore, on March 12, 2008, the EPA issued a more protective 8-hour ozone standard of 75 ppb that would require additional reductions of ozone precursor emissions, including NO_x, that impact ozone attainment in this Commonwealth and throughout the OTR. See 73 FR 16436 (March 27, 2008). However, the EPA has reconsidered the 2008 ozone NAAQS and on January 19, 2010, published a proposed rulemaking to set a more protective 8-hour primary standard at a lower level within the range of 0.060-0.070 ppm; the final revised ozone standard is expected in August 2010. See 75 FR 2938. If, as is widely expected, the EPA tightens the ozone standard, the additional NO_x emissions from the final-form rulemaking for glass melting furnaces will be even more important than if the current ozone standard remains in place.

Nevertheless, the final-form rulemaking provides a petition process, rather than a variance, for an alternative emission limitation compliance deadline to the owner or operator of any glass melting furnace that demonstrates to the Department's satisfaction that it is economically or technologically infeasible to meet the NO_x emission limitations in Section 129.304(a). The alternative emission limitation must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. Moreover, this final-form rulemaking also includes a petition process for an alternative compliance schedule, rather than a variance, if an owner or operator of any glass melting furnace demonstrates that compliance with the NO_x emission limitations will not be achieved by the January 1, 2012, compliance date in Section 129.304(b).

This final-form rulemaking will also contribute to reduced formation of PM_{2.5} and regional haze. The EPA, in its “Clean Air Fine Particle Implementation Rule,” determined that NO_x emissions are also precursors to the formation of PM_{2.5}. See 72 FR 20586 (April 25, 2007). In November 2009, the EPA designated 6 areas (all or part of 22 counties) in this Commonwealth as not attaining the 2006 24-hour PM_{2.5} NAAQS. See 74 FR 58688 (November 13, 2009). Regional haze is visibility impairment that is produced by a multitude of sources and activities which emit fine particles and their precursors, including NO_x, and which are located across a broad geographic area. See 64 FR 35713 at p.35715 (July 1, 1999). Therefore, the adoption of the final-form rulemaking for glass melting furnaces will help to reduce formation of ozone, PM_{2.5} and regional haze in this Commonwealth and downwind. As a result, the regulation is reasonably necessary to attain and maintain the NAAQS for ozone and PM_{2.5}.

A commentator stated that the Board did not adequately address, while drafting and promulgating the proposed regulation and in accordance with Executive Order 1996-1, whether the costs of the regulation exceed its benefits or not, and also that the proposed rulemaking does not support a conclusion that its costs will not exceed the benefits, and therefore the cost/benefit analysis should be more thoroughly addressed. The Board disagrees with the commentator. The Board addressed the benefits and the costs associated with the proposed rulemaking in the preamble to the proposed rulemaking’s public notice published in the *Pennsylvania Bulletin* on April 19, 2008 (38 *Pa.B.* 1831).

The Senate and House Environmental Committees commented to the Board on behalf of PPG Industries during the ANFR comment period that an exemption from the emission limits should be included for glass melting furnaces during “periods of upset or malfunction” that affect an emission control device. The Board believes that an exemption for a furnace malfunction or upset period is not required. The Department does not routinely provide for exemptions from emission limits from a source for periods of upset or malfunction in regulations to control emissions from sources.

The Senate and House Environmental Committees commented to the Board on behalf of PPG Industries during the ANFR comment period that the petition process described in subsections 129.304(b) and (c) of the ANFR final-form rulemaking should specify what factors the Department will consider in order for a glass melting furnace to qualify for an alternative compliance deadline. The Board believes the petition process contained in subsections 129.304(b) and (c) of the final-form rulemaking is comprehensive but not overly prescriptive and includes all the factors suggested by the Committees. In addition, the Board revised this section in the final-form rulemaking to require submittal, and not approval, of a petition request to the Department by January 1, 2012, and not by January 1, 2011.

Comments and Responses on the Advance Notice of Final Rulemaking

As previously noted, an ANFR was published in the *Pennsylvania Bulletin* on September 12, 2009 (39 *Pa.B.* 5318). The comment period closed on October 14, 2009. The draft final-form rulemaking contained significant changes in several areas, and the Department believed that while not legally required, further discussion and an additional comment period would serve the public interest. The most significant change made to the draft final-form rulemaking concerned the NO_x surrender compliance option under subsection 129.309(c) which allowed for the purchase of CAIR NO_x allowances. Three additional significant changes were made to the

draft final-form rulemaking related to: 1) year-round compliance; 2) an additional NO_x emission limit applicable to the owner or operator of a glass melting furnace that produces a glass product that is other than flat, container, fiberglass, or pressed or blown; and 3) The final-form rulemaking provides a petition process for an alternative NO_x emission limitation to the owner or operator of any glass melting furnace that demonstrates it is economically or technologically infeasible to meet the established emission limitations under Section 129.304. The alternative NO_x emission limitation must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. Moreover, this final-form rulemaking also includes a petition process for an alternative compliance schedule to an owner or operator of any glass melting furnace that demonstrates that compliance will not be achieved by the January 1, 2012 compliance date established in Section 129.304(b)

Seventeen commentators submitted comments on the ANFR: the Senate and the House Environmental Resources and Energy Committees (Committees); the Allegheny County Health Department (ACHD); two organizations; three legislators; and eight glass companies.

A commentator supports the adoption of the NO_x emission limits for fiberglass plants consistent with the 4.0 lbs NO_x/ton of glass pulled adopted by the OTC. The Department appreciates the commentator's support of the draft final-rulemaking for fiberglass plants. The Department agrees with the commentator that the OTC-recommended emission limit of 4.0 lb NO_x/ton of glass pulled for fiberglass plants in the final-form rulemaking achieves consistency and uniformity among the 13 members of the OTC, and that the emission limit for fiberglass furnaces can be achieved with technologies currently available.

The commentator stated that it is an arbitrary and capricious action to base the regulation's proposed NO_x emission limits on a California rule without an explanation as to why they are appropriate to the Commonwealth. The Department proposed the allowable NO_x emission requirements as a result of the research conducted by and the recommendations of the Northeast OTC. The Northeast OTC is a multi-state organization created under Section 184 of the CAA. 42 U.S.C.A. § 7511c. The OTC is responsible for advising the EPA on ground-level ozone pollution transport issues and for developing and implementing regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic regions. The members of the OTC (this Commonwealth, CT, DE, MA, MD, ME, NH, NJ, NY, RI, VA and VT, and the District of Columbia) are required to demonstrate attainment with the 1997 8-hour ozone standard of 80 ppb. See 62 FR 38855 (July 18, 1997).

Additionally, on March 12, 2008, the EPA issued a more protective 8-hour ozone standard of 75 ppb that would require additional reductions of ozone precursor emissions. See 73 FR 16436 (March 27, 2008). The 2008 revised standard would require additional reductions of emissions of ozone precursors, including NO_x, that impact each member's nonattainment status. As required by the Federal Clean Air Act (CAA), the Commonwealth submitted recommendations to the EPA in 2009 to designate 29 counties as nonattainment for the 2008 8-hour ozone NAAQS. The EPA was expected to take final action on the designation recommendations by March 2010. However, the EPA has reconsidered the 2008 ozone NAAQS and on January 19, 2010, published a proposed rulemaking to set a more protective 8-hour primary standard at a lower level within the range of 0.060-0.070 ppm; the final revised ozone standard is expected in August 2010. See 75 FR 2938. If, as is widely expected, the EPA

tightens the ozone standard, the additional NO_x emissions from the final-form rulemaking for glass melting furnaces will be even more important than if the current 2008 ozone standard remains in place. In addition, Northeast states are conducting attainment planning work to support development of PM_{2.5} and regional haze SIPs to satisfy obligations under the CAA and regulations issued under the CAA. See 74 FR 58688 (November 13, 2009) and 64 FR 35714 (July 1, 1999). NO_x emissions are precursors to the development of PM_{2.5} and regional haze.

The OTC undertook a study to identify a suite of additional control measures that could be used by the members in attaining their goals. Workgroups of staff from within the OTC members were established to evaluate control measures for specific sectors or issues. Department staff actively participated in these workgroups. Based on a review of 1,000 candidate control measures, the workgroups developed a short list of measures to be considered for more detailed analysis. The technical information for this short list of measures is found in the OTC report: *Identification and Evaluation of Candidate Control Measures, Final Technical Support Document*, prepared by MACTEC Federal Programs, Inc., Herndon, VA, February 28, 2007. Control of NO_x emissions from glass melting furnaces in the six states within the OTR that have glass melting furnaces (this Commonwealth, MA, MD, NJ, NY and RI) was on the short list as a measure for further analysis by the workgroups. The workgroups reviewed information on current NO_x emissions from the furnaces, controls already in place on the furnaces, anticipated additional NO_x emissions reductions from the control measures, preliminary cost and cost-effectiveness data, and other implementation issues. The workgroups discussed all the candidate control measures, including controlling NO_x emissions from glass melting furnaces, during a series of conference calls and workshops to further refine the emission reduction estimates, the cost data and implementation issues.

The workgroups also discussed comments from stakeholders, including glass melting furnace stakeholders (North American Insulation Manufacturers Association and Glass Association of North America). The OTC Commissioners summarized the glass melting furnace control measures and made a recommendation at the Commissioners' meetings in 2006 that the affected member states consider NO_x emission reductions from glass melting furnaces. The glass melting furnace stakeholders were provided multiple opportunities to review and comment on the glass melting furnace control measures summary. Public meetings were held as an opportunity for stakeholders to review and respond to the Commissioners' recommendations, stakeholders provided written comments, and the workgroups conducted conference calls with specific stakeholders to allow the stakeholders to vocalize their concerns directly to state regulatory staff and to discuss the control options. The OTC staff and state workgroups carefully considered the verbal and written comments received during this process.

The OTC's control measures summary recommends that states may allow the owners or operators of glass melting furnaces to propose compliance methods based on California's San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4354 (relating to glass melting furnaces) which allows a "mix of control options to meet specified emission limits." The NO_x emission rates recommended in the OTC control measures summary document are the rates specified in the SJVAPCD Rule 4354. The Department reviewed, analyzed and concurred with the OTC's control measures summary document for glass melting furnaces with respect to the individual glass melting furnaces located in this Commonwealth, and determined that proposing a glass melting furnaces regulation based on the SJVAPCD Rule's 4354 mix of control options

to meet specified emission limits was the appropriate implementation strategy for a rulemaking to control NOx emissions from this Commonwealth's glass melting furnaces.

This Commonwealth, along with the other affected OTC member states, agreed to establish NOx emission limits and controls for glass melting furnaces that are based on the SJVAPCD Rule 4354 so that there would be a level playing field among the OTC states. The owners and operators of glass melting furnaces in this Commonwealth remain competitive with those states not in the OTC with the option of an alternative compliance schedule or alternative emission limitation contained in the petition process that is provided in subsections 129.304(b) and (c) (relating to emission requirements) of the final-form rulemaking.

A commentator requests that the Department add to the final-form rulemaking a definitive and feasible alternate standard or exemption applicable to unique specialty glass operations such as theirs. The final-form rulemaking includes a petition process for an alternative compliance schedule or alternative NOx emission limitation if an owner or operator of any glass melting furnace demonstrates that compliance will not be achieved by the January 1, 2012, compliance date.

Several commentators questioned why the draft final-form regulation only provided an alternative emission limitation petition process in subsection 129.304(c) to the owners and operators of glass melting furnaces that produce an "other" glass product. The final-form rulemaking includes a petition process for an alternative compliance schedule or alternative NOx emission limitation if an owner or operator of any glass melting furnace that demonstrates that compliance will not be achieved by the January 1, 2012, compliance date.

The Senate and House Committees on Environmental Resources and Energy (Committees), several legislators, and other commentators commented that the Department should consider providing a variance procedure or exception from the regulation for a glass melting furnace that definitively demonstrates that its emissions are not materially contributing to the development of ground level ozone. The Department maintains that a demonstration using air dispersion modeling (point-source or regional scale) to show that a single facility "does not contribute to the failure of any nonattainment area to comply with the air quality standards for ozone" is not the determination of whether a facility is subject to a proposed rulemaking. Air dispersion models are not designed to simulate source-specific contributions to ozone nonattainment areas. A finding that emission reductions at one source of NOx does not contribute to the failure of any nonattainment area to comply with the air quality standards for ozone is not surprising. Sensitivity analyses have often shown that the Community Multiscale Air Quality (CMAQ) model used by states for attainment demonstrations is relatively "stiff" considering even large emission changes; that is, the model may not predict large changes in ozone concentrations even when large emission reductions are made. Therefore, a variance relying on modeling would be inappropriate. The Department maintains that an atmospheric dispersion model such as CALPUFF is not appropriate to use to determine an ozone concentration because ozone is formed chemically and not solely by dispersion. Atmospheric chemistry plays a role in ozone formation, and modeling just the NOx emissions, as is the case with CALPUFF, does not address this atmospheric chemistry." Moreover, the OTC undertook a study to identify a suite of control measures that could be used by the members as part of a regional effort to attain and maintain the 1997 NAAQS for ozone. The NOx emissions reductions from glass melting furnaces are a necessary component in this regional strategy.

Certain areas of this Commonwealth continue to exceed the health-based 1997 8-hour NAAQS for ozone. This final-form rulemaking to control NOx emissions from glass melting furnaces will result in additional NOx emission reductions that are necessary to support attaining and maintaining the health-based 1997 8-hour ozone NAAQS of 80 ppb in this Commonwealth and downwind areas. See 62 FR 38855 (July 18, 1997). Furthermore, on March 12, 2008, the EPA issued a more protective 8-hour ozone standard of 75 ppb that would require additional reductions of ozone precursor emissions, including NOx, that impact each OTR member's nonattainment status. See 73 FR 16436 (March 27, 2008). However, the EPA has reconsidered the 2008 ozone NAAQS and on January 19, 2010, published a proposed rulemaking to set a more protective 8-hour primary standard at a lower level within the range of 0.060-0.070 ppm; the final revised ozone standard is expected in August 2010. See 75 FR 2938. If, as is widely expected, the EPA tightens the ozone standard, the additional NOx emissions from the final-form rulemaking for glass melting furnaces will be even more important than if the current 2008 ozone standard remains in place.

Nevertheless the final-form rulemaking provides a petition process, rather than a variance, for an alternative NOx emission limitation or compliance schedule to the owner or operator of any glass melting furnace that demonstrates it is economically or technologically infeasible to meet the NOx emission limitations specified in Section 129.304(a). The alternative NOx emission limitation must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. Moreover, this final-form rulemaking also includes a petition process for an alternative compliance schedule, rather than a variance, to an owner or operator of any glass melting furnace that demonstrates that compliance will not be achieved by the January 1, 2012, compliance date.

This final-form rulemaking will also reduce concentrations of PM2.5 and the formation of regional haze. The EPA, in its "Clean Air Fine Particle Implementation Rule," determined that NOx emissions are also precursors to the formation of PM2.5. See 72 FR 20586 (April 25, 2007). Additionally, in November 2009, the EPA designated six areas (all or part of 22 counties) in this Commonwealth as not attaining the 2006 24-hour PM2.5 NAAQS. See 74 FR 58688 (November 13, 2009). The EPA is also evaluating the adequacy of the 2006 PM2.5 NAAQS as part of its periodic review required under Section 109(d)(1) of the CAA. 42 U.S.C.A. § 7409(d)(1). Furthermore, when initially adopting the visibility protection provisions of the 1977 Clean Air Act Amendments, Congress specifically recognized that the "visibility problem is caused primarily by emission into the atmosphere of SO₂, oxides of nitrogen, and particulate matter, especially fine particulate matter, from inadequate[ly] controlled sources." See 64 FR 35713 at p.35715 (July 1, 1999). Section 169A(a)(1) of the CAA sets forth a National goal for visibility which is the "prevention of any future, and the remedying of any existing, impairment of visibility in Class I areas which impairment results from manmade air pollution." 42 U.S.C.A. § 7491(a)(1). If adopted, the NOx emission reduction provisions of the final-form rulemaking for glass melting furnaces will help to reduce formation of ozone, PM2.5 and regional haze pollution in this Commonwealth and throughout the OTR. As a result, the regulation is reasonably necessary to attain and maintain the NAAQS for ozone and PM2.5

A primary comment made by numerous commentators, including the Committees, is that in order to avoid possible economic disruption to the operations at the affected furnaces, the Department should allow an existing furnace to operate through its full life cycle before requiring it to be replaced or rebuilt with control technology in order to meet the regulation's

NOx emission limits. The commentators suggest that it may assist the Department as well as the regulated industry to not base the compliance timeframe on a specific date. The commentators also state that other states permit furnaces to be upgraded after their normal and anticipated life expectancy has been exhausted. The Department disagrees with the commentators. The Department agrees that it could possibly be infeasible for all affected owners or operators of glass melting furnaces to comply with the allowable emission limits by January 1, 2012. In recognition of this, subsection 129.304(b) in the final-form rulemaking provides a process to all glass melting furnace owners and operators to petition the Department for an alternative compliance schedule if they will be unable to meet the emission limits beginning January 1, 2012. The Department believes that a final compliance date specified in the regulation is necessary to ensure that the owners and operators of the glass melting furnaces in this Commonwealth limit the NOx emissions from their furnaces by a date certain, either by January 1, 2012, or by the date specified on a case-by-case basis as determined through the petition process for an alternative compliance schedule under subsection 129.304(c). Moreover, the EPA would not approve revisions to the California SIP contained in the SJVAPCD rule addressing NOx emissions from glass melting furnaces, because the Compliance Schedule section of the rule did not specify a final date for facilities to achieve full compliance with the emission limits specified in the rule's Requirements section. See 67 FR 20078 (April 24, 2002). As a result, the Department believes that a final compliance date specified in the final-form regulation is necessary to receive SIP approval from the EPA.

Several commentators commented that the petition process described in subsections 129.304(b) and (c) of the draft final rulemaking should specify what factors the Department will consider in order for the owner or operator of a glass melting furnace to qualify for an alternative compliance deadline. The Department believes the petition process contained in subsections 129.304(b) and (c) is comprehensive but not overly prescriptive and includes all the factors suggested by the commentators. In addition, the Department has revised this section in the final-form rulemaking to require submittal of a petition request to, and not approval by, the Department by January 1, 2012, rather than approval by January 1, 2011. The Department maintains that the concerns expressed by the commentators regarding the petition process will be alleviated by the change to the final-form regulation that requires submittal of the petition by January 1, 2012, and does not require approval of the petition by January 1, 2011.

A comment was made requesting that the short-term applicability criteria for a furnace that emits NOx at greater than 20 pounds per hour, but otherwise emits below 50 tons per year of NOx, be deleted from the rulemaking. The Department agrees with the commentator in that applying the regulation to these unique glass melting operations will not result in significant overall emission reductions. Section 129.302 in the final-form rulemaking has been revised to include only owners and operators of furnaces that emit NOx at greater than 50 tons per year as subject to the regulation.

The ACHD commented that the final-form rulemaking should be modified to state that the regulation applies to furnaces in the jurisdiction of a local air pollution control agency, and in order for ACHD to implement the provisions of the regulation, all reports and notifications required under the regulation should be submitted directly to the local agency. The Department agrees with the commentator, and the change has been made.

One commentator stated that the exemptions section should be revised to require that the owner or operator of a glass melting furnace notify the Department within 24 hours after the initiation of an exemption operation, instead of within 24 hours prior to initiating the operation, because there are some instances where an unforeseen problem requires a facility to immediately go into an unanticipated idling position. The Department agrees with the commentator, and that change has been made.

One commentator stated that the timing of any written notification to the Department contained in the exemptions Section 129.303 not be tied to the occurrence of the exemption event itself. The Department disagrees with the commentator. The Department maintains that the requirement in subsection 129.303(b) to notify the Department within 24 hours of initiating the exempt operation, and the requirement in subsection 129.303(d) to notify the Department in writing within 24 hours after completion of the exempt operation, is reasonable and not burdensome to the facility claiming the exemption.

Several commentators commented that an exemption from the emission limits should be included for glass melting furnaces during “periods of upset or malfunction” that affect an emission control device. Comments were also made that the routine maintenance exemption of 144 hours in total for add-on emission controls is not long enough to account for the complexities of the control techniques likely to be employed, and that each major component of the control system be exempted from the emission limits for 144 hours each calendar year for routine maintenance. The Department believes that an exemption for a furnace malfunction or upset period is not required. The Department does not routinely provide for exemptions from emission limits for periods of upset or malfunction in regulations to control emissions from sources.

Several commentators commented that the furnace start-up section should be modified to require a plan approval application for a start-up exemption only ‘if required,’ and not for activities associated with routine repair or maintenance of the furnace. The Department has revised this section of the final-form rulemaking. Subsection 129.305(b) specifies that a plan approval application for a furnace start-up exemption request shall be submitted ‘if required,’ in recognition that some furnace start-ups may not require a plan approval.

Commentators note that the ‘not to exceed 5% excess oxygen’ restriction during a furnace combustion start-up should be eliminated, as it does not appear to have a relationship or a benefit to NOx emissions. The Department retains in the final-form rulemaking the furnace start-up restriction in subsection 129.305(f) of ‘not to exceed 5% excess oxygen,’ which is consistent with the furnace start-up requirements in the SJVAPCD Rule 4354.

Several commentators commented that the definition of the term “start-up” should be revised consistent with the SJVAPCD Rule 4354 to include necessary language on furnace stabilization, that is, the phrase “and systems and instrumentation are brought to stabilization.” The Department agrees with the commentators, and that change was made.

Two commentators commented that the definition of the term “rebricking” and the revised definition of the term “furnace rebuild” in the draft final-form rulemaking are confusing, and further comment that they have concern over whether routine repairs to a furnace would be considered a rebuild or rebrick of the furnace. The Department agrees with the commentators,

and has deleted both definitions in the final-form rulemaking and has added a definition for the term “cold shutdown,” and included the term “scheduled” whenever the term “cold shutdown” is used within the final-form rulemaking to distinguish between furnace repair activities and a scheduled cold shutdown when the furnace is cold and does not contain molten glass.

Several commentators commented that the data substitution method for emissions monitoring in the compliance determination section that requires the highest valid 1-hour emission value during the reporting quarter be substituted for invalidated data is unreasonable and punitive. They comment further that for periods of invalid data, the Department should allow substituting data that is more representative of the actual emissions. The Department agrees with the commentators, and revised the data substitution method in the final-form rulemaking to require the highest valid 1-hour value that occurred under similar source operating conditions during the reporting quarter be substituted for the invalidated data.

Several commentators commented that the requirements in §§ 129.308 and 129.309 to report CEMS data and daily glass production data on a quarterly basis are inconsistent with existing Title V reporting requirements, and create a duplicative and burdensome additional reporting obligation on the regulated community. The Department disagrees with the commentators. The Department does not believe that maintaining records of daily glass production will present a significant inconvenience to any owner or operator. Daily records may be needed to enable the Department to verify the relationship between NO_x emissions recorded by CEMS, and glass produced during the compliance period. Records sufficiently precise to quantify glass produced by each glass melting furnace during a reporting quarter are necessary to enable owners and operators to demonstrate compliance. Continuous emission monitoring is the most precise means of determining emissions over extended time periods.

Several commentators requested the Department work with the regulated industry in a transparent manner so that the true benefits and costs of the regulation will be known. The commentators further state that although the Department asserts several times in the preamble to the proposed NO_x regulation that reducing NO_x emissions will also result in reduced emissions of fine particulate matter, they have not provided the regulated community with data or information that supports this assertion. The Department’s commitment to transparency is supported by its decision to publish an ANFR on the draft final-form regulation. The EPA, in its “Clean Air Fine Particle Implementation Rule,” determined that NO_x emissions are precursors to the formation of PM_{2.5}. See 72 FR 20586 (April 25, 2007). In November 2009, the EPA designated six areas (all or part of 22 counties) as not attaining the 2006 24-hour PM_{2.5} NAAQS. See 74 FR 58688 (November 13, 2009). Therefore, the adoption of the final-form rulemaking for glass melting furnaces will help to reduce formation of PM_{2.5} and is reasonably necessary to attain and maintain the PM_{2.5} NAAQS.

A commentator stated that the Department did not adequately address, while drafting and promulgating the proposed rulemaking and in accordance with Executive Order 1996-1, whether the costs of the regulation exceed its benefits or not, and also that the proposed rulemaking does not support a conclusion that its costs will not exceed the benefits, and therefore the cost/benefit analysis must be provided. The commentator states further that the Board acknowledges in the ANFR *Pennsylvania Bulletin* notice that the EPA advised the Commonwealth that the EPA’s CAIR does not apply to glass melting furnaces, and therefore the draft final-form rulemaking imposes requirements on glass melting furnaces that are more stringent than Federal standards.

The Department disagrees with the commentator. The Department addressed the benefits and the costs associated with the proposed rulemaking in the preamble to the proposed rulemaking's public notice published on April 19, 2008, in the *Pennsylvania Bulletin* (38 Pa. B. 1831). The purpose of this rulemaking is to address reductions of NOx from glass melting furnaces, while the EPA's CAIR addresses NOx reductions from EGUs, certain boilers, stationary combustion turbines and stationary internal combustion engines. Therefore, these are two different regulatory strategies with the goal of reducing NOx emissions from various source types within this Commonwealth. The EPA did not intend CAIR to comprise the entire solution to control NOx emissions from all types of sources, but only to address interstate transport of ozone and PM2.5 precursors. Moreover, this final-form rulemaking is reasonably necessary to attain and maintain the 8-hour ozone NAAQS.

The commentator states that the EQB acknowledges in the ANFR *Pennsylvania Bulletin* notice that the EPA advised Pennsylvania that CAIR does not apply to glass melting furnaces, and therefore the draft final-form rulemaking imposes requirements on glass melting furnaces that are more stringent than Federal standards. The purpose of the rulemaking is to address reductions of NOx from glass melting furnaces, while the EPA's CAIR addresses NOx reductions from electric generating units, certain boilers, stationary combustion turbines and stationary internal combustion engines. Therefore, these are two different regulatory strategies with the goal of reducing NOx emissions from various source types within this Commonwealth. The EPA did not intend CAIR to comprise the entire solution to control NOx emissions from all types of sources, but only to address interstate transport of ozone and PM2.5 precursors from the electric generating unit sector. In fact, this Commonwealth and other OTC members have determined that additional NOx reductions may be necessary in some areas, in combination with reduction of interstate transport, to attain and maintain the NAAQS. In addition to the PM2.5 NAAQS, this final rulemaking is reasonably necessary to attain and maintain the 1997 8-hour ozone NAAQS. The criteria for adopting state regulations more stringent than Federal regulations (when Federal regulations exist) are in the Air Pollution Control Act (APCA), Section 4.2 (35 P.S. § 4004.2). Section 4.2 of the APCA authorizes the Board to adopt regulations more stringent than Federal requirements when the control measures are reasonably necessary to attain and maintain the ambient air quality standards.

A commentator commented that the final-form rulemaking violates Section 4.2 of the Pennsylvania APCA, because Section 4.2 restricts the Board to adopting by regulation: "...only those control measures or other requirements which are reasonably required, in accordance with the Clean Air Act deadlines, to achieve and maintain the ambient air quality standards or to satisfy related Clean Air Act requirements..." They further quote Section 4.2: "Control measures or other requirements adopted under subsection (a) of this section shall be no more stringent than those required by the Clean Air Act unless authorized or required by this Act or specifically required by the Clean Air Act." The commentator maintains that NOx emissions from glass melting furnaces are not currently regulated by the EPA, so therefore this rulemaking is prohibited by Section 4.2 since it is more stringent than required by the Clean Air Act. The Department disagrees with the commentator. The Department has the legal authority to require glass melting furnaces to limit their emissions of NOx. The law in this Commonwealth is well-settled regarding whether a regulation is valid and binding. A court must evaluate if the regulation is: (1) within the agency's granted power; (2) issued pursuant to proper procedures; and (3) reasonable. See for example, *Rohrbaugh v. PUC*, 556 Pa. 199, 727 A.2d 1080 (1999); and *Housing Authority v. Pa. Civil Service Com'n*, 556 Pa. 621, 730 A.2d 935 (1999). Section 5

of the APCA provides that the Board shall adopt rules and regulations, for the prevention, control, reduction and abatement of air pollution, applicable throughout the Commonwealth. Clearly the intent of this regulation is to reduce air pollution, and so therefore the Board has the requisite legal authority. The Board is proceeding with this rulemaking through the proper rulemaking procedures, as identified under the APCA, the Regulatory Review Act and the Commonwealth Documents Law. An environmental regulation is reasonable if it prevents the possibility of pollution (see *Department of Environmental Resources v. Metzger*, 347 A.2d 743 (Pa. Cmwlth. 1975)), protects the public health and safety (see *Chambers Development Company, Inc. v. Department of Environmental Resources*, 545 A.2d 404 (Pa. Cmwlth. 1988)), or reduces pollution (see *Rochez Bros., Inc. v. Department of Environmental Resources*, 334 A.2d 790 (Pa. Cmwlth. 1975)). Since this rulemaking reduces pollution it is reasonable.

The commentator indicated the Department should consider development of a pool of surplus NOx "credits" from glass melting furnaces and allow trading and use of these credits by owners and operators of glass melting furnaces to demonstrate compliance with the regulation, in light of the elimination of using CAIR NOx allowances as a compliance option in the draft final-form rulemaking. The Department disagrees with the commentator. Subsequent to the closing of the public comment period on June 23, 2008, the Department held discussions with the EPA regarding the proposed rulemaking's option to demonstrate compliance with the emission limits through the purchase of CAIR NOx allowances under the EPA's CAIR regulation. During those discussions, the EPA indicated to the Department that a glass melting furnace regulation that would provide a compliance option to purchase CAIR NOx allowances would be problematic as far as approvability by the EPA for the Commonwealth's SIP, because glass melting furnaces are not specifically included in the EPA's CAIR program as a source category able to purchase CAIR NOx allowances to achieve compliance. The Department therefore removed from the draft final-form regulation the compliance option to purchase CAIR NOx allowances.

G. Benefits, Costs and Compliance

Benefits

Overall, the citizens of this Commonwealth will benefit from this final-form rulemaking because these amendments will result in improved air quality by reducing ozone and PM2.5 precursor emissions. The final-form rulemaking will also encourage the development of new technologies and practices, which will reduce emissions of NOx.

Compliance Costs

The owners and operators of glass melting furnaces in this Commonwealth will be required to install and operate an emissions monitoring system or equipment necessary for an emissions monitoring method in order to comply with the final-form rulemaking. If an owner or operator elects to install and operate a CEMS, the cost could be as high as \$300,000. However, the final-form rulemaking provides for the installation and operation of an alternate emissions monitoring system or method approved by the Department, in writing, which could significantly reduce the monitoring costs. The estimated cost of the alternate emissions monitoring system or method, if elected by an owner or operator of a glass melting furnace, would cost approximately \$100,000, and would include any one of a number of alternatives including computer modeling or a predictive emissions monitoring system.

Compliance Assistance Plan

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

Paperwork Requirements

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

H. Pollution Prevention

The Federal Pollution Prevention Act of 1990 established a National policy that promotes pollution prevention as the preferred means for achieving state environmental protection goals. The Department encourages pollution prevention, which is the reduction or elimination of pollution at its source, through the substitution of environmentally friendly materials, more efficient use of raw materials and the incorporation of energy efficiency strategies. Pollution prevention practices can provide greater environmental protection with greater efficiency because they can result in significant cost savings to facilities that permanently achieve or move beyond compliance. This final-form rulemaking will provide the owners and operators of all glass melting furnaces the opportunity to improve the energy efficiency of their operations, which will result in lower NOx emissions.

I. Sunset Review

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

J. Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on April 7, 2008, the Department submitted a copy of the notice of proposed rulemaking, published at 38 *Pa.B.* 1831, and a copy of a Regulatory Analysis Form to the IRRC and to the Chairpersons of the House and Senate Environmental Resources and Energy Committees (Committees) for review and comment.

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

Under section 5.1(j.2) of the Regulatory Review Act, on xxxx, xx, xxxx, this final-form rulemaking was deemed approved by the Committees. Under section 5.1(e) of the Regulatory Review Act, IRRC met on xxxx, xx, xxxx and approved the final-form rulemaking.

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 Pa. Code §§ 7.1 and 7.2.
- (2) At least a 60-day public comment period was provided as required by law, and all comments were considered.
- (3) These regulations do not enlarge the purpose of the proposal published at 38 Pa.B. 1831 (April 19, 2008).
- (4) These regulations are necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this order.
- (5) These regulations are reasonably necessary to achieve and maintain the ozone and PM2.5 NAAQS.

L. Order of the Board

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

- (a) The regulations of the Department of Environmental Protection, 25 Pa. Code Chapters 121 and 129 are amended by amending § 121.1; and by adding §§ 129.301-129.310 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 IRRC and the 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 final-form rulemaking will be submitted to the EPA as an amendment to the Pennsylvania State Implementation Plan.
- (e) This order shall take effect immediately upon publication in the *Pennsylvania Bulletin*.

JOHN HANGER
Chairman



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:

* * * * *

~~[100% Air-fuel fired—Operation of a glass melting furnace where the oxidant is exclusively ambient air.]~~

* * * * *

~~[Air-fuel firing—Operation of a glass melting furnace where greater than 50% of the oxidant for the fuel comes from ambient air.]~~

* * * * *

~~Blown glass—Glassware shaped by blowing air into a molten glass gather.~~

* * * * *

~~[Complete reconstruction—For purposes of §§ 129.301-129.310 (relating to control of NO_x emissions from glass melting furnaces), the replacement of components of an existing glass melting furnace to the extent that the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new glass melting furnace.]~~

* * * * *

~~COLD SHUTDOWN—A COLD REPAIR OR REPLACEMENT OF DAMAGED OR WORN REFRACTORY PARTS OF A GLASS MELTING FURNACE WHILE THE FURNACE DOES NOT CONTAIN MOLTEN GLASS.~~

* * * * *

~~Container glass—Glass manufactured by pressing, blowing in molds, drawing, rolling or casting which is used as a container.~~

* * * * *

~~Fiberglass—[Material] FOR PURPOSES OF §§ 129.301-129.310, MATERIAL consisting of fine filaments of glass that are combined into yarn and woven or spun into fabrics, or that are used as reinforcement in other materials or in masses as thermal or as acoustical insulating products[~~for the construction industry~~].~~
(Editor's note: A definition of this term was published for comment in the *Pennsylvania Bulletin* on April 4, 2009, in a proposed amendment to Chapter 129 (relating to standards for sources) concerning control of emissions from the use or application of adhesives, sealants, primers and solvents and Chapter 130 (relating to standards for products) concerning adhesives, sealants, primers and solvents. The later of these two rulemakings to be published as a final rulemaking will include both definitions.)

* * * * *

~~Flat glass—Glass produced by the float, sheet, rolled or plate glass process which is used in windows, windshields, tabletops or similar products.~~

* * * * *

~~[Furnace battery—Two or more glass melting furnaces at a single facility that exhaust to a common stack.~~

~~Furnace rebuild—A complete reconstruction which is commenced after the end of a furnace campaign period or expected life cycle of a furnace. For the purpose of the compliance deadline in § 129.304 (relating to emission requirements), the effective date of a furnace rebuild is the date of the start of the furnace shutdown.]~~

* * * * *

~~Glass melting furnace —A unit comprising a refractory-LINED vessel in which raw materials are charged[⁵] AND melted at high temperature[⁷ refined and conditioned] to produce molten glass. [The unit includes foundations, superstructure and retaining walls, raw material charger systems, heat exchangers, melter cooling system, exhaust system, refractory brick work, fuel supply and electrical boosting equipment, integral control systems and instrumentation and appendages for conditioning and distributing molten glass to forming apparatuses. As specified in 40 CFR §60.291 (relating to definitions), the forming apparatuses, including the float bath used in flat glass manufacturing and flow channels in wool fiberglass and textile fiberglass manufacturing, are not considered part of the glass melting furnace.]~~

* * * * *

~~Idling—For purposes of §§ 129.301-129.310, the operation of a glass melting furnace at less than 25% of the permitted production capacity or fuel use capacity as stated in the plan approval or operating permit.~~

* * * * *

~~[Multiple furnaces—Two or more glass melting furnaces at a single facility that do not exhaust to a common stack.]~~

* * * * *

[~~Oxyfuel fired~~—Operation of a glass melting furnace where greater than 50% of the oxidant for the fuel is provided from enriched oxygen streams.]

* * * * *

[~~Oxygen-assisted combustion~~—Operation of a glass melting furnace where the oxygen content in the oxidant is greater than the oxygen content in ambient air or greater than 20.9% oxygen.]

* * * * *

Permitted production capacity—The maximum pull rate as stated in the plan approval, operating permit or Title V permit.

* * * * *

Pressed glass—Glassware formed by placing a blob of molten glass in a metal mold, then pressing it with a metal plunger or “follower” to form the inside shape. The resultant piece, termed “mold-pressed,” has an interior form independent of the exterior, in contrast to mold-blown glass, whose interior corresponds to the outer form.

* * * * *

Primary furnace combustion system—The burners in a glass melting furnace that are used during production of glass.

* * * * *

Pull rate—The amount of glass withdrawn from a glass melting furnace, expressed in short tons per day.

* * * * *

Shutdown—For purposes of [~~§ 129.303 (relating to exemptions)~~] §§ 129.301 - 129.310 (RELATING TO CONTROL OF NO_x EMISSIONS FROM GLASS MELTING FURNACES), the period of time during which a glass melting furnace is [~~purposely allowed~~] TAKEN FROM AN OPERATIONAL TO A NON-OPERATIONAL STATUS BY ALLOWING IT to cool DOWN from ITS operating temperature [~~and molten glass is removed from the tank for the purpose of a furnace rebuild~~] TO A COLD OR AMBIENT TEMPERATURE AS THE FUEL SUPPLY IS TURNED OFF.

* * * * *

Start-up—For purposes of [~~§ 129.303~~] §§ 129.301 -129.310, the period of time, after initial construction, SHUTDOWN or [~~a furnace rebuild~~] COLD SHUTDOWN, during which a glass melting furnace is heated to stable operating temperature by the primary furnace combustion system, AND SYSTEMS AND INSTRUMENTATION ARE BROUGHT TO STABILIZATION.

* * * * *

CHAPTER 129. STANDARDS FOR SOURCES

CONTROL OF NO_x EMISSIONS FROM GLASS MELTING FURNACES

§ 129.301. Purpose.

The purpose of this section and §§ 129.302-129.310 is to ANNUALLY limit THE emissions of NO_x from glass melting furnaces.

§ 129.302. Applicability.

This section, § 129.301 (relating to purpose) and §§ 129.303-129.310 apply to an owner or operator of a glass melting furnace IN THIS COMMONWEALTH, INCLUDING THOSE WITHIN THE JURISDICTION OF LOCAL AIR POLLUTION CONTROL AGENCIES IN PHILADELPHIA AND ALLEGHENY COUNTIES APPROVED UNDER SECTION 12 OF THE ACT (35 P.S. § 4012), that emits or has the potential to emit NO_x at a rate greater than 50 tons per year [or 20 pounds per hour. Beginning May 1, 2009, and for each year thereafter, an owner or operator of a glass melting furnace shall comply with this section, §§ 129.301 and 129.303-129.310].

§ 129.303. Exemptions.

(a) [This section, §§ 129.301 and 129.302 (relating to purpose; and applicability) and 129.304-129.310 do not apply to glass melting furnaces where the heat is supplied solely by an electric current from electrodes submerged in the molten glass, except that heat may be supplied by other fuels for start-up when the furnace contains no molten glass.

—(b) The emission requirements in § 129.304 (relating to emission requirements) do not apply during periods of start-up, [or] shutdown, OR IDLING as defined in § 121.1 (relating to definitions), if the owner or operator complies with the requirements of §§ 129.305 [and], 129.306 AND 129.307 (relating to start-up requirements; [and] shutdown requirements; AND IDLING REQUIREMENTS).

—[(e)] (b) The owner or operator of a glass melting furnace claiming an exemption under subsection [(b)] (a) shall notify the Department OR THE APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY in writing [at least] WITHIN 24 hours [prior to initiating shutdown or start-up] AFTER INITIATION OF THE OPERATION FOR WHICH THE EXEMPTION IS CLAIMED. The methods for submitting the written notice may include e-mail, hand or courier delivery, CERTIFIED mail or facsimile transmissions to the appropriate regional office described in § 121.4 (relating to regional organization of the Department) OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY. The notification must include:

(1) The date and time of the start of the exempt operation.

(2) The reason for performing the operation and an estimated completion date.

(3) IDENTIFICATION OF THE EMISSION CONTROL SYSTEM
OPERATING DURING THE EXEMPTION PERIOD.

~~[(d)]~~ (c) The owner or operator of a glass melting furnace granted an exemption under this section shall maintain operating records or documentation, or both, necessary to support the claim for the exemption. The records shall be maintained for 5 years onsite and made available or submitted to the Department OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY, upon request.

~~[(e)]~~ (d) The owner or operator of a glass melting furnace shall notify the Department OR THE APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCIES in writing within 24 hours after completion of the operation for which the exemption is claimed.

§ 129.304. Emission requirements.

(a) ~~[During the interval from May 1 through September 30, 2009, and each year thereafter, except]~~ EXCEPT as specified in §§ 129.303, 129.304(c), 129.305 ~~[and], 129.306 AND 129.307 [(relating to exemptions; start-up requirements; and shutdown requirements)]~~, the owner or operator of a glass melting furnace may not operate the glass melting furnace in a manner that results in NO_x emissions in excess of the FOLLOWING allowable limits ~~[specified in subsection (b)].~~

~~(b) The owner or operator of a glass melting furnace shall determine allowable NO_x emissions during the interval from May 1 through September 30, 2009, and each year thereafter, by multiplying the tons of glass pulled by each furnace by] OR NO_x EMISSION LIMITS CONTAINED IN THE PLAN APPROVAL OR OPERATING PERMIT, WHICHEVER ARE LOWER:~~

(1) 4.0 pounds of NO_x per ton of glass pulled for container glass furnaces.

(2) 7.0 pounds of NO_x per ton of glass pulled for pressed or blown glass furnaces.

(3) 4.0 pounds of NO_x per ton of glass pulled for fiberglass furnaces.

(4) 7.0 pounds of NO_x per ton of glass pulled for flat glass furnaces.

(5) 6.0 POUNDS OF NO_x PER TON OF GLASS PULLED FOR ALL OTHER GLASS MELTING FURNACES.

(b) THE OWNER OR OPERATOR OF A GLASS MELTING FURNACE SHALL COMPLY WITH SUBSECTION (a) BY JANUARY 1, 2012, UNLESS A

PETITION FOR AN ALTERNATIVE EMISSION LIMITATION OR COMPLIANCE SCHEDULE IS SUBMITTED, IN WRITING, TO THE DEPARTMENT AND APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY BY JANUARY 1, 2012, IN ACCORDANCE WITH SUBSECTION (c) AND SUBSEQUENTLY APPROVED, IN WRITING, BY THE DEPARTMENT OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY.

(c) AN OWNER OR OPERATOR OF A GLASS MELTING FURNACE THAT DOES NOT MEET THE NO_x EMISSION LIMITS SPECIFIED UNDER THIS SECTION BY JANUARY 1, 2012, MAY PETITION THE DEPARTMENT AND APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY FOR AN ALTERNATIVE EMISSION LIMITATION OR COMPLIANCE SCHEDULE AS FOLLOWS:

(1) THE OWNER OR OPERATOR OF A GLASS MELTING FURNACE SUBJECT TO THIS SECTION MAY SUBMIT, IN WRITING, A PETITION REQUESTING AN ALTERNATIVE EMISSION LIMITATION. THE PETITION MUST DEMONSTRATE TO THE SATISFACTION OF THE DEPARTMENT AND APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY THAT IT IS ECONOMICALLY OR TECHNOLOGICALLY INFEASIBLE TO MEET THE EMISSION LIMITATION UNDER THIS SECTION. THE ALTERNATIVE EMISSION LIMITATION MUST BE INCLUDED IN EITHER A PLAN APPROVAL OR AN OPERATING PERMIT ISSUED BY THE DEPARTMENT OR A PERMIT ISSUED BY THE APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY.

(2) THE OWNER OR OPERATOR OF A GLASS MELTING FURNACE FOR WHICH THE SCHEDULE FOR COLD SHUTDOWN DOES NOT ALLOW COMPLIANCE BY JANUARY 1, 2012 MAY SUBMIT A PETITION, IN WRITING, REQUESTING AN ALTERNATIVE COMPLIANCE SCHEDULE. THE ALTERNATIVE COMPLIANCE SCHEDULE FOR A COLD SHUTDOWN WHICH OCCURS AFTER THE EFFECTIVE DATE OF THIS REGULATION MAY NOT BE EXTENDED BEYOND 180 DAYS FROM THE START-UP OF THE FURNACE AFTER THE COLD SHUTDOWN, UNLESS APPROVED , IN WRITING, BY THE DEPARTMENT.

(3) A PETITION MUST INCLUDE THE FOLLOWING:

(i) A BRIEF DESCRIPTION, INCLUDING MAKE, MODEL AND LOCATION, OF EACH AFFECTED GLASS MELTING FURNACE.

(ii) A LIST OF ALL AIR POLLUTION CONTROL TECHNOLOGIES AND MEASURES THAT HAVE BEEN INSTALLED ON EACH AFFECTED GLASS

MELTING FURNACE AND ARE OPERATING TO CONTROL EMISSIONS OF NO_x.

(iii) FOR EACH OF THE TECHNOLOGIES AND MEASURES LISTED IN ACCORDANCE WITH SUBPARAGRAPH (ii), THE DATE OF INSTALLATION AND ORIGINAL COMMENCEMENT OF OPERATION.

(iv) FOR EACH OF THE TECHNOLOGIES AND MEASURES LISTED IN ACCORDANCE WITH SUBPARAGRAPH (ii), AN EXPLANATION OF HOW THE NO_x CONTROL TECHNOLOGY OR MEASURE INSTALLED HAS BEEN OPTIMIZED FOR THE MAXIMUM NO_x EMISSION REDUCTION.

(v) THE RESULTS OF EACH STACK TEST AND OTHER EMISSIONS MEASUREMENTS FOR THE AFFECTED GLASS MELTING FURNACE FOLLOWING THE INSTALLATION AND COMMENCEMENT OF OPERATION OF THE AIR POLLUTION CONTROL TECHNOLOGIES AND MEASURES LISTED IN ACCORDANCE WITH SUBPARAGRAPH (ii).

(vi) THE DATE OF LAST SCHEDULED COLD SHUTDOWN FOR EACH AFFECTED FURNACE.

(vii) THE DATE OF NEXT SCHEDULED COLD SHUTDOWN OF EACH AFFECTED FURNACE.

(viii) IF AN ALTERNATIVE COMPLIANCE SCHEDULE IS SOUGHT TO MEET THE REQUIREMENTS OF THIS SECTION, THE OWNER OR OPERATOR SHALL SUBMIT A PROPOSED SCHEDULE CONTAINING PROPOSED INTERIM MILESTONE DATES FOR COMPLETING EACH PHASE OF THE REQUIRED WORK AND A PROPOSED FINAL COMPLIANCE DATE. THE PETITION SHALL ALSO INCLUDE A PROPOSED INTERIM EMISSION LIMITATION UNTIL COMPLIANCE IS ACHIEVED WITH THE REQUIREMENTS SPECIFIED IN THIS SECTION.

(ix) IF AN ALTERNATIVE EMISSION LIMITATION IS SOUGHT TO MEET THE REQUIREMENTS OF THIS SECTION, THE CONDITIONS OR SPECIAL CIRCUMSTANCES WHICH DEMONSTRATE THAT THE APPLICABLE REQUIREMENTS ARE TECHNOLOGICALLY OR ECONOMICALLY INFEASIBLE.

(x) IF AN ALTERNATIVE EMISSION LIMITATION IS SOUGHT TO MEET THE REQUIREMENTS OF THIS SECTION, THE OWNER OR OPERATOR SHALL PROPOSE EMISSION LIMITATIONS IN THE PETITION.

(xi) OTHER RELEVANT INFORMATION REQUESTED, IN WRITING, BY THE DEPARTMENT OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY.

(4) APPROVED INTERIM MILESTONE DATES OR EMISSION LIMITATIONS DETERMINED TO BE NECESSARY FOR EFFECTIVE MONITORING OF PROGRESS TOWARD FULL COMPLIANCE WITH THE REQUIREMENTS OF THIS SECTION AND §§ 129.301-129.303 AND 129.305-129.310 SHALL BE SPECIFIED IN A PLAN APPROVAL OR OPERATING PERMIT ISSUED BY THE DEPARTMENT OR A PERMIT ISSUED BY THE APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY.

(d) DURING ROUTINE MAINTENANCE OF AN ADD-ON EMISSION CONTROL SYSTEM OR SYSTEMS, OR MAINTENANCE OR REPAIR MEASURES ON FURNACE COMPONENTS, THE OWNER OR OPERATOR OF A GLASS MELTING FURNACE SUBJECT TO THE EMISSION LIMITS SPECIFIED UNDER SUBSECTION (a) IS EXEMPT FROM THESE LIMITS IF:

(1) ALL ROUTINE MAINTENANCE OF AN ADD-ON EMISSION CONTROL SYSTEM OR MAINTENANCE OR REPAIR MEASURES ON FURNACE COMPONENTS, OR BOTH, COMBINED, IN EACH CALENDAR YEAR DOES NOT EXCEED 144 HOURS TOTAL.

(2) THE ROUTINE MAINTENANCE OR MAINTENANCE OR REPAIR MEASURE, OR BOTH, IS CONDUCTED IN A MANNER CONSISTENT WITH GOOD AIR POLLUTION CONTROL PRACTICES FOR MINIMIZING EMISSIONS.

§ 129.305. Start-up requirements.

(a) The ~~plan approval issued for the construction of a new glass melting furnace or furnace rebuild must include terms and conditions consistent with the requirements of § 127.12b (relating to plan approval terms and conditions).~~ At least no later than 30 days prior to the anticipated date of start-up, the owner or operator of the glass melting furnace shall submit, in writing, to the Department OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY, NO LATER THAN 30 DAYS PRIOR TO THE ANTICIPATED DATE OF START-UP, information requested by the Department OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY to assure proper operation of the furnace. The information must include the following:

(1) A detailed list of activities to be performed during start-up and an explanation for the length of time needed to complete each activity.

(2) A description of the material process flow rates and system operating parameters and other information that the owner or operator plans to evaluate during the process optimization.

(b) The owner or operator of a glass melting furnace may submit a request for a start-up exemption in conjunction with the plan approval application [for the construction of a new furnace or furnace rebuild] IF REQUIRED. The actual length of the start-up exemption, if any, will be determined by the Department OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY at the time of the issuance of the plan approval [for the furnace rebuild] OR OPERATING PERMIT.

(c) The length of the start-up exemption following activation of the primary furnace combustion system may not exceed:

~~(1) [One hundred and four days for a flat glass furnace.~~

~~(2) Seventy days for a container, pressed or blown glass furnace.~~

~~[(3)] (2) Forty days for a fiberglass furnace.~~

(3) ONE HUNDRED AND FOUR DAYS FOR A FLAT GLASS FURNACE AND FOR ALL OTHER GLASS MELTING FURNACES NOT COVERED UNDER PARAGRAPHS (1) AND (2).

(d) THE REQUIREMENTS OF SUBSECTION (c) NOTWITHSTANDING, IF THE NO_x CONTROL SYSTEM IS NOT IN COMMON USE OR IS NOT READILY AVAILABLE FROM A COMMERCIAL SUPPLIER, THE LENGTH OF THE MAXIMUM START-UP EXEMPTION FOLLOWING ACTIVATION OF THE PRIMARY FURNACE COMBUSTION SYSTEM IS AS FOLLOWS:

(1) ONE HUNDRED DAYS FOR A CONTAINER, PRESSED OR BLOWN GLASS FURNACE.

(2) ONE HUNDRED AND FIVE DAYS FOR A FIBERGLASS FURNACE.

(3) TWO HUNDRED AND EIGHT DAYS FOR A FLAT GLASS FURNACE AND FOR ALL OTHER GLASS MELTING FURNACES NOT COVERED UNDER PARAGRAPHS (1) AND (2).

(e) The Department OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY may approve start-up exemptions, AS APPROPRIATE, to the extent that the submittal clearly:

(1) Identifies the control technologies or strategies to be used.

(2) Describes the physical conditions that prevail during start-up periods that prevent the controls from being effective.

(3) Provides a reasonably precise estimate as to when physical conditions will have reached a state that allows for the effective control of emissions.

[(e)] (f) During the start-up period, the owner or operator of a glass melting furnace shall maintain the stoichiometric ratio of the primary furnace combustion system so as not to exceed 5% excess oxygen, as calculated from the actual fuel and oxidant flow measurements for combustion in the glass melting furnace.

[(f)] (g) The owner or operator shall place the emission control system in operation as soon as technologically feasible during start-up to minimize emissions.

§ 129.306. Shutdown requirements.

(a) The duration of a glass melting furnace shutdown, as measured from the time the furnace operations drop below 25% of the permitted production capacity or fuel use capacity to when all emissions from the furnace cease, may not exceed 20 days.

(b) The owner or operator of a glass melting furnace shall operate the emission control system whenever technologically feasible, AS APPROVED BY THE DEPARTMENT OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY, during shutdown to minimize emissions.

§ 129.307. Idling requirements.

(a) The owner or operator of a glass melting furnace shall operate the emission control system whenever technologically feasible, AS APPROVED BY THE DEPARTMENT OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY, during idling to minimize emissions.

(b) The NO_x emissions during idling may not exceed the amount calculated using the following equation:

Pounds per day emission limit of NO_x = (Applicable NO_x emission limit specified in § 129.304(a) (relating to emission requirements) expressed in pounds per ton of glass produced) x (Furnace permitted production capacity in tons of glass produced per day)

§ 129.308. Compliance determination.

(a) [By May 1, 2009] NOT LATER THAN 14 DAYS PRIOR TO THE APPLICABLE COMPLIANCE DATE UNDER SUBSECTIONS 129.304(b) OR (c), the owner or operator of a glass melting furnace subject to this section, §§ 129.301-129.307, 129.309 and 129.310 shall install, operate and maintain continuous emissions monitoring systems (CEMS, as defined in § 121.1 (relating to

definitions)) for NOx and other monitoring systems to convert data to required reporting units in compliance with Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources) and calculate actual emissions using the CEMS data reported to the Department. The owner or operator of a glass melting furnace may install ~~[and]~~ OR operate, OR BOTH, an alternate NOx emissions monitoring system or method, approved in writing^[3] by the Department OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY.

(b) Data invalidated under Chapter 139, Subchapter C, shall be substituted with ~~[data calculated using the potential emission rate for the furnace, or]~~ THE FOLLOWING if approved^[3] in writing^[3] by the Department ~~[as follows]~~ OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY:

(1) The highest valid 1-hour emission value that occurred UNDER SIMILAR SOURCE OPERATING CONDITIONS during the reporting quarter.

(2) If no valid data were collected during the reporting quarter, ~~[the most recent quarter for which valid data were collected]~~ ONE OF THE FOLLOWING shall be reported to the Department ~~[unless an alternative reporting period is approved in writing by the Department.]~~ OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY:

(i) THE HIGHEST VALID 1-HOUR EMISSION VALUE THAT OCCURRED UNDER SIMILAR SOURCE OPERATING CONDITIONS DURING THE MOST RECENT QUARTER FOR WHICH VALID DATA WERE COLLECTED.

(ii) THE HIGHEST VALID 1-HOUR EMISSION VALUE THAT OCCURRED UNDER SIMILAR SOURCE OPERATING CONDITIONS DURING AN ALTERNATIVE REPORTING PERIOD.

(3) AN ALTERNATIVE METHOD OF DATA SUBSTITUTION.

(c) INSTEAD OF DATA SUBSTITUTION, THE DEPARTMENT OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY MAY APPROVE AN ALTERNATIVE PROCEDURE TO QUANTIFY NOx EMISSIONS AND GLASS PRODUCTION.

(d) The owner or operator of a glass furnace subject to this section shall submit to the Department OR THE APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCIES quarterly reports of CEMS monitoring DATA in pounds of NOx emitted per hour, in a format approved by the Department and in compliance with Chapter 139,

Subchapter C, OR A FORMAT APPROVED BY THE APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCIES.

[(d)] (e) The CEMS or approved monitoring system or method for NOx installed under this section must meet the minimum data availability requirements in Chapter 139, Subchapter C.

[(e) The owner or operator of a furnace battery may use a single CEMS to determine the total NOx emissions from all the furnaces if the emission measurements are made at the common stack.]

§ 129.309. Compliance demonstration.

(a) [By October 31, 2009, and each year thereafter, the owner or operator of a glass melting furnace shall calculate and report to the Department the difference between the actual NOx emissions from the glass melting furnace during the interval from May 1 through September 30 and the allowable NOx emissions for that period. The calculations used to determine the difference in NOx emissions, including the CEMS data and glass production data used to show compliance with the allowable NOx emission limits specified in § 129.304 (relating to emission requirements), shall be included in the report submitted to the Department. The glass production data must consist of the quantity of glass, in tons, pulled per day for each furnace. Compliance with § 129.304 shall be demonstrated by averaging the NOx emissions during the interval from May 1 through September 30.] THE OWNER OR OPERATOR OF A GLASS MELTING FURNACE SHALL CALCULATE AND REPORT TO THE DEPARTMENT OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY ON A QUARTERLY BASIS, NO LATER THAN 30 DAYS AFTER THE END OF THE QUARTER, THE CEMS DATA AND GLASS PRODUCTION DATA USED TO SHOW COMPLIANCE WITH THE ALLOWABLE NOx EMISSION LIMITATION SPECIFIED IN § 129.304 (RELATING TO EMISSION REQUIREMENTS). THE GLASS PRODUCTION DATA MUST CONSIST OF THE QUANTITY OF GLASS, IN TONS, PULLED PER DAY FOR EACH FURNACE.

(b) The owner or operator of a glass melting furnace[, multiple glass melting furnaces or furnace battery] shall demonstrate compliance with the EMISSION requirements of {§ 129.304} SUBSECTION 129.304(a) using one of the following methods:

(1) On a furnace-by-furnace basis.

(2) Facility-wide emissions averaging.

(3) System-wide emissions averaging among glass melting furnaces under common control of the same owner or operator in this Commonwealth.

(c) The owner or operator of a glass melting furnace[, multiple glass melting furnaces or furnace battery may] FOR WHICH THE DEPARTMENT OR THE APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY HAS GRANTED APPROVAL TO VOLUNTARILY OPT INTO A MARKET-BASED PROGRAM MAY NOT DEMONSTRATE COMPLIANCE ON AN EMISSIONS AVERAGING BASIS UNDER SUBSECTION (b). AN EMISSION REDUCTION OBTAINED BY EMISSIONS AVERAGING TO DEMONSTRATE COMPLIANCE WITH THE EMISSION REQUIREMENTS OF SUBSECTION 129.304(a) WILL NOT BE CONSIDERED SURPLUS FOR EMISSION REDUCTION CREDIT PURPOSES. THE OWNER OR OPERATOR OF A GLASS MELTING FURNACE SHALL demonstrate compliance with the EMISSION requirements of [~~§ 129.304~~] SUBSECTION 129.304(a) in accordance with [the following:

(1) For the period from May 1 through September 30, 2009, the owner or operator of a glass melting furnace, multiple glass melting furnaces or furnace battery shall surrender to the Department 0.25 CAIR NO_x Ozone Season allowance, as defined in § 145.202 (relating to definitions), for each ton of NO_x by which the combined actual emissions exceed the allowable emissions of the glass melting furnaces subject to this section.

(2) For the period from May 1 through September 30, 2010, the owner or operator of a glass melting furnace, multiple glass melting furnaces or furnace battery shall surrender to the Department 0.50 CAIR NO_x Ozone Season allowance for each ton of NO_x by which the combined actual emissions exceed the allowable emissions of the glass melting furnaces subject to this section.

(3) For the period from May 1 through September 30, 2011, the owner or operator of a glass melting furnace, multiple glass melting furnaces or furnace battery shall surrender to the Department 0.75 CAIR NO_x Ozone Season allowance for each ton of NO_x by which the combined actual emissions exceed the allowable emissions of the glass melting furnaces subject to this section.

(4) For the period from May 1 through September 30, 2012, and each ozone season thereafter, the owner or operator of a glass melting furnace, multiple glass melting furnaces or furnace battery shall surrender to the Department one CAIR NO_x Ozone Season allowance for each ton of NO_x by which the combined actual emissions exceed the allowable emissions of the glass melting furnaces subject to this section.

(5) The surrendered CAIR NO_x Ozone Season allowances shall be of current year vintage. For the purpose of determining the amount of allowances to be surrendered, a remaining fraction of a ton equal to or greater than 0.50 ton is deemed to equal 1 ton and a fraction of a ton less than 0.50 ton is deemed to equal zero tons.

~~—(6) By November 1, 2009, and by November 1 of each year thereafter, an owner or operator of a glass melting furnace, multiple glass melting furnaces or furnaces battery subject to this section shall surrender the required CAIR NO_x Ozone Season allowances to the Department's designated NATS NO_x allowance tracking system account as defined in § 121.1 (relating to definitions) and shall provide to the Department, in writing, the following:~~

~~—(i) The serial number of each NO_x allowance surrendered.~~

~~—(ii) The calculations used to determine the quantity of NO_x allowances required to be surrendered.~~

~~—(7) If an owner or operator fails to comply with paragraph (6), the owner or operator shall by December 31 surrender three CAIR NO_x Ozone Season allowances of the current or later year vintage for each NO_x allowance that was required to be surrendered by November 1 of that year.] SUBSECTION (d).~~

~~(d) [The surrender of CAIR NO_x Ozone Season allowances under subsection (c)(7) does not affect the liability of the owner or operator of the unit for a fine, penalty or assessment, or an obligation to comply with another remedy for the same violation, under the Clean Air Act 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 which have not been reconciled with CAIR NO_x Ozone Season allowances, 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.~~

~~—(e) If the combined allowable emissions from glass melting furnaces at a facility from May 1 through September 30 exceed the combined actual emissions from glass melting furnaces at the facility subject to this section during the same period, the owner or operator may deduct the difference or a portion of the difference from the amount of actual emissions from glass melting furnaces at the owner or operator's other facilities located in this Commonwealth for that period]~~
COMPLIANCE WITH THE EMISSION REQUIREMENTS OF SUBSECTION 129.304(a) SHALL BE DETERMINED ON A 30-DAY ROLLING AVERAGE BASIS.

§ 129.310. Recordkeeping.

(a) The owner or operator of a glass melting furnace subject to this section and §§ 129.301-129.309 shall maintain records to demonstrate compliance. The records must include an operating log maintained for each glass melting furnace that includes, on a [monthly] DAILY basis:

(1) The total hours of operation.

(2) The type and quantity of fuel used.

(3) The quantity of glass pulled.

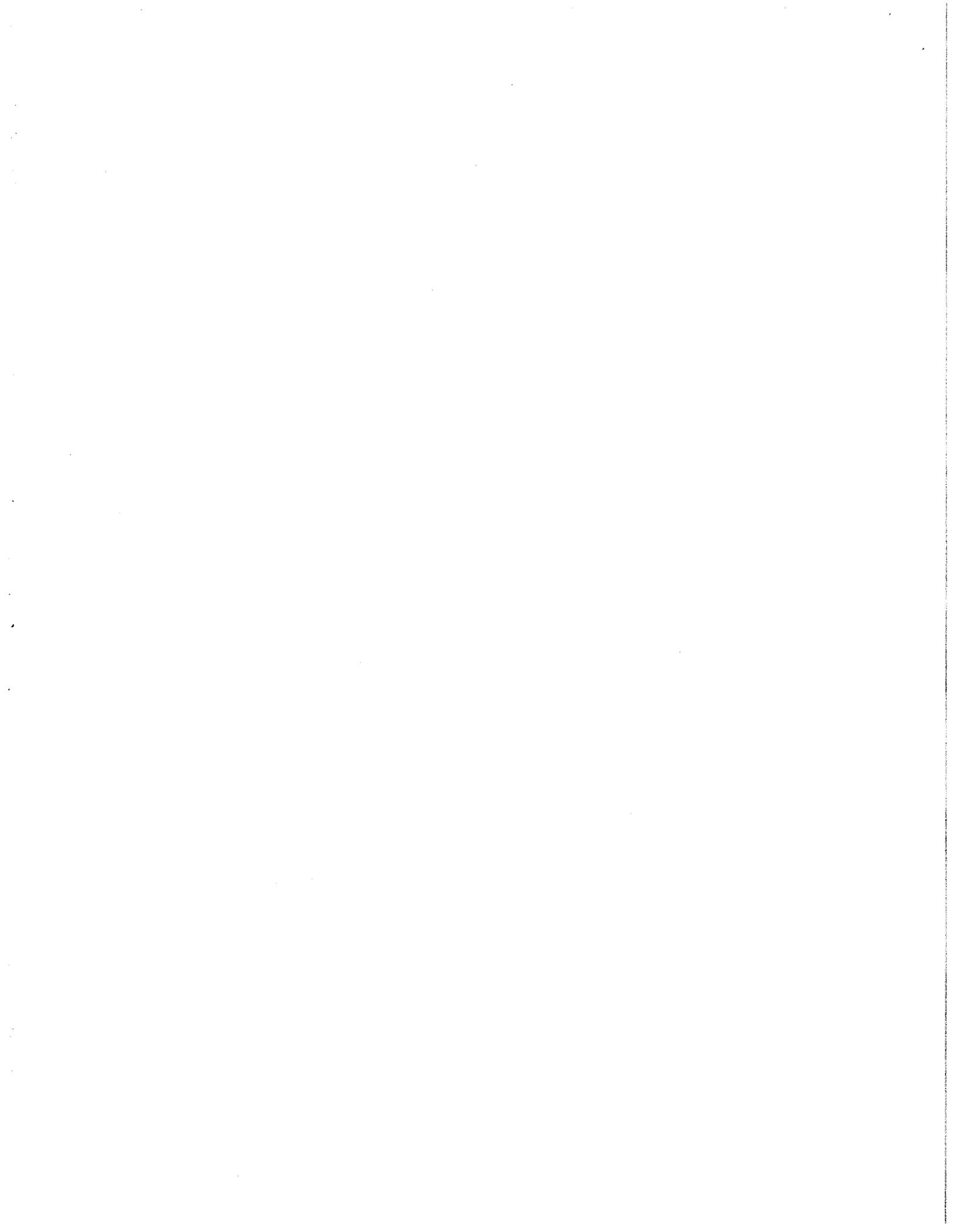
(b) The owner or operator of a glass melting furnace shall maintain records of:

(1) Source tests and operating parameters established during the initial source test.

(2) Maintenance, repairs, malfunctions, idling, start-up and shutdown.

(c) THE OWNER OR OPERATOR CLAIMING THAT A GLASS MELTING FURNACE IS EXEMPT FROM THE REQUIREMENTS OF §§ 129.301-129.309 BASED ON THE FURNACE'S POTENTIAL TO EMIT SHALL MAINTAIN RECORDS THAT CLEARLY DEMONSTRATE TO THE DEPARTMENT OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY THAT THE FURNACE IS NOT SUBJECT TO §§ 129.301-129.309.

(d) The records required under this section shall be maintained onsite for 5 years. The records shall be made available or submitted to the Department OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY upon request.



CONTROL OF NO_x EMISSIONS FROM
GLASS MELTING FURNACES

25 Pa. Code Chapters 121 and 129

Advance Notice of Final Rulemaking

39 Pa. B. 5318 (September 12, 2009)

Environmental Quality Board Regulation #7-420
(Independent Regulatory Review Commission #2683)

Comment/Response Document

Control of NO_x Emissions from Glass Melting Furnaces

In response to comments received during the official public comment period on the proposed rulemaking for glass melting furnaces (38 *Pa. B.* 1831, April 19, 2008), and following the Department's review of other related information, the Department prepared a draft final-form rulemaking for public comment. The draft final-form rulemaking contained significant changes from proposed in several areas, and the Department believed further discussion and an additional comment period would serve the public interest. An Advance Notice of Final Rulemaking (ANFR) was published in the *Pennsylvania Bulletin* on September 12, 2009 (39 *Pa.B.* 5318). The comment period opened on September 12 and closed on October 14, 2009.

The official public comment period held by the Environmental Quality Board (Board) on the proposed rulemaking closed on June 23, 2008. Three public hearings were held by the Board on the proposed rulemaking as follows:

May 19, 2008
2:00 p.m. Department of Environmental Protection
Rachel Carson State Office Building
Room 105
400 Market Street
Harrisburg, PA 17105

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

May 23, 2008
2:00 p.m. Department of Environmental Protection
Southwest Regional Office
Waterfront A & B Conference Room
400 Waterfront Drive
Pittsburgh, PA 15222

This document summarizes the written comments received from the public during the ANFR public comment period held by the Department that followed the Board's official public comment period. Each comment is listed with an identifying number for each commentator that made the comment. A list of the commentators, including name, affiliation (if any), and location, can be found at the beginning of this document. If adopted by the Board, the final-form regulation will be submitted to the U.S. Environmental Protection Agency (EPA) as a revision to the State Implementation Plan (SIP).

Table of Commentators to the Environmental Quality Board
Control of NO_x Emissions from Glass Melting Furnaces
Rulemaking # 7-420
(IRRC # 2683)

ID	Name/Address	One-Page Summary Submitted for Distribution to EQB	Provided Testimony	Requested Copy of Final Rulemaking after EQB Action
1.	James M. Rowlett, CSP Manager, Environmental, Safety, and Health World Kitchen, LLC Charleroi, PA		√	
2.	John W. Carroll Harrisburg, PA <<representing Saint-Gobain Containers>> Muncie, IN		√	
3.	Steven F. Faeth Senior Counsel EHS PPG Industries, Inc. Pittsburgh, PA	√		
4.	Andrew L. Harris, P.E. Corporate Environmental Manager Pittsburgh Corning Corporation Port Allegheny, PA			√
5.	Thomas J. McDonald Manager, Environmental, Health and Safety SCHOTT North America, Inc. Duryea, PA			
6.	Angus E. Crane Vice President, General Counsel NAIMA (North American Insulation Manufacturers Association) Alexandria, VA			
7.	Senator Mary Jo White Chairperson Senate Environmental Resources and Energy Committee Harrisburg, PA			

8.	Senator Raphael J. Musto Democratic Chairman Senate Environmental Resources and Energy Committee Harrisburg, PA			
9.	Independent Regulatory Review Commission Harrisburg, PA			
10.	Representative Scott E. Hutchinson Republican Chairman House Environmental Resources and Energy Committee Harrisburg, PA			

General Support

1. **Comment:** The commentator supports and strongly urges the adoption of the NO_x emission limits for fiberglass plants consistent with the 4.0 pounds of NO_x per ton of glass pulled (lbs NO_x/ton glass pulled) adopted by the Ozone Transport Commission (OTC). (6)

Response: The Department of Environmental Protection (Department) appreciates the commentator's support of the proposed rulemaking for fiberglass plants.

2. **Comment:** The commentator stated that the emission limit for fiberglass plants in the proposed rule can be achieved by currently available technologies, and the emission limit is a technologically feasible and pragmatic approach requiring implementation of low-NO_x combustion technology. (6)

Response: The Department agrees with the commentator that the emission limit for fiberglass furnaces can be achieved with technologies currently available.

3. **Comment:** The commentator stated that the OTC-recommended emission limit of 4.0 lbs NO_x/ton glass pulled for fiberglass plants achieves consistency and uniformity with the standard that the 13 members of the OTC effectively adopted in November 2006, and urges Pennsylvania to recognize the prudence and wisdom of a uniform standard throughout the various states because this provides the fiberglass industry with a predictable and manageable regulatory scheme. (6)

Response: The Department agrees with the commentator that proposing the OTC-recommended emission limit of 4.0 lbs NO_x/ton glass for fiberglass plants achieves consistency and uniformity among the 13 members (12 states and the District of Columbia) of the OTC.

Proposed NO_x Emission Limits

4. **Comment:** The commentator stated that it is arbitrary to base the proposed rule's allowable emission requirements on a California rule without an explanation as to why they are suitable to Pennsylvania. (4)

Response: The Department disagrees with the commentator that the rule's allowable NO_x emission limit requirements are arbitrary. The Department proposed the allowable NO_x emission requirements as a result of the research conducted by, and the recommendations of, the Northeast OTC. The Northeast OTC is a multi-state organization created under Section 184 of the Federal CAA. 42 U.S.C.A. § 7511c. The OTC is responsible for advising the EPA on ground-level ozone pollution transport issues and for developing and implementing regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic regions. The members of the OTC (this Commonwealth, CT, DE, MA, MD, ME, NH, NJ, NY, RI, VA and VT, and the District of Columbia) are required to demonstrate attainment with the 1997 8-hour ozone standard of 80 ppb throughout the OTR. See 62 FR 38855 (July 18, 1997). Furthermore, on March 12, 2008, the EPA issued a more protective 8-hour ozone standard of 75 ppb that

would require additional reductions of ozone precursor emissions, including NO_x, that impact each OTR member's nonattainment status. See 73 FR 16436 (March 27, 2008). However, the EPA has reconsidered the 2008 ozone NAAQS and on January 19, 2010, published a proposed rulemaking to set a more protective 8-hour primary standard at a lower level within the range of 0.060-0.070 ppm; the final revised ozone standard is expected in August 2010. See 75 FR 2938. If, as is widely expected, the EPA tightens the ozone standard, the additional NO_x emissions from the final-form rulemaking for glass melting furnaces will be even more important than if the current 2008 ozone standard remains in place. In addition, the Northeast states are conducting attainment planning work to support development of PM_{2.5} and regional haze SIPs to satisfy obligations under the CAA and regulations issued under the CAA. See 74 FR 58688 (November 13, 2009) and 64 FR 35714 (July 1, 1999).

The OTC undertook a study to identify a suite of additional control measures that could be used by the members in attaining their goals. Workgroups of staff from within the OTC members were established to evaluate control measures for specific sectors or issues. Department staff actively participated in these workgroups. Based on a review of 1,000 candidate control measures, the workgroups developed a short list of measures to be considered for more detailed analysis. The technical information for this short list of measures is found in the OTC report: *Identification and Evaluation of Candidate Control Measures, Final Technical Support Document*, prepared by MACTEC Federal Programs, Inc., Herndon, VA, February 28, 2007. Control of NO_x emissions from glass melting furnaces in the six states within the OTR that have glass melting furnaces (this Commonwealth, MA, MD, NJ, NY and RI) was on the short list as a measure for further analysis by the workgroups. The workgroups reviewed information on current NO_x emissions from the furnaces, controls already in place on the furnaces, anticipated additional NO_x emission reductions from the control measures, preliminary cost and cost-effectiveness data, and other implementation issues. The workgroups discussed all the candidate control measures, including controlling NO_x emissions from glass melting furnaces, during a series of conference calls and workshops to further refine the emission reduction estimates, the cost data and implementation issues.

The workgroups also discussed comments from stakeholders, including glass melting furnace stakeholders (North American Insulation Manufacturers Association and Glass Association of North America). The OTC Commissioners summarized the glass melting furnace control measures and made a recommendation at the Commissioners' meetings in 2006 that the affected member states consider NO_x emission reductions from glass melting furnaces. The glass melting furnace stakeholders were provided multiple opportunities to review and comment on the glass melting furnace control measures summary. Public meetings were held as an opportunity for stakeholders to review and respond to the Commissioners' recommendations, stakeholders provided written comments, and the workgroups conducted conference calls with specific stakeholders to allow the stakeholders to vocalize their concerns directly to state regulatory staff and to discuss the control options. The OTC staff and state workgroups carefully considered the verbal and written comments received during this process.

The OTC's control measures summary document for the glass melting furnaces located in this Commonwealth, MA, MD, NJ, NY and RI recommends the states "develop control strategies that recommend 'oxyfiring' for each furnace at the next furnace rebuild." Alternatively, states

may allow manufacturers to propose compliance methods based on California's San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4354 (relating to glass melting furnaces) which allows a "mix of control options to meet specified emission limits." The NOx emission rates recommended in the OTC control measures summary document are the rates specified in the SJVAPCD Rule 4354. The Department reviewed, analyzed and concurred with the OTC's control measures summary document for glass melting furnaces with respect to the individual glass melting furnaces located in this Commonwealth. Further, the Department determined that proposing a glass melting furnaces regulation based on the SJVAPCD Rule 4354 that incorporates a mix of control options to meet specified emission limits was the appropriate implementation strategy for a rulemaking to control NOx emissions from this Commonwealth's glass melting furnaces.

5. **Comment:** The Independent Regulatory Review Commission (IRRC) requests that the Board provide a detailed explanation on the basis for the emission limits in the emission requirements section. (9)

Response: Please see the response to comment number 4.

6. **Comment:** The IRRC questioned whether imposing the proposed emission requirements in the absence of a Federal deadline will place this Commonwealth's industry at a competitive disadvantage, and suggests the Board should review the situation carefully in conjunction with the OTC to take precautions to insure a level playing field in the industry. (9)

Response: The Department proposed the allowable emission requirements as a result of the research conducted by and the recommendations of the OTC. The OTC is a multi-state organization created under Section 184 of the Federal CAA. 42 U.S.C.A. § 7511c. The OTC is responsible for advising the EPA on ground-level ozone transport issues and for developing and implementing regional solutions to the ground-level ozone transport problem in the Northeast and Mid-Atlantic regions. The members of the OTC (this Commonwealth, CT, DE, MA, MD, ME, NH, NJ, NY, RI, VA and VT, and the District of Columbia) are required to demonstrate attainment with the 1997 8-hour ozone NAAQS. See 62 FR 38855 (July 18, 1997).

Furthermore, on March 12, 2008, the EPA issued a more protective 8-hour ozone standard of 75 ppb that would require additional reductions of ozone precursor emissions, including NOx, that impact each OTR member's nonattainment status. See 73 FR 16436 (March 27, 2008). However, the EPA has reconsidered the 2008 ozone NAAQS and on January 19, 2010, published a proposed rulemaking to set a more protective 8-hour primary standard at a lower level within the range of 0.060-0.070 ppm; the final revised ozone standard is expected in August 2010. See 75 FR 2938. If, as is widely expected, the EPA tightens the ozone standard, the additional NOx emissions from the final-form rulemaking for glass melting furnaces will be even more important than if the current 2008 ozone standard remains in place.

Control of NOx emissions from glass melting furnaces in the six states within the OTR that have glass melting furnaces (this Commonwealth, MA, MD, NJ, NY and RI) was on the short list as a

control measure for further analysis by the OTC.¹ The OTC Commissioners summarized the glass melting furnaces control measures and made a recommendation at the Commissioners' meetings in 2006 that the members consider NOx emission reductions from glass melting furnaces. This Commonwealth, along with the other affected OTC member states, agreed to establish NOx emission limits and controls for glass melting furnaces that are based on the SJVAPCD Rule 4354 so that there would be a level playing field among the surrounding OTC states. The owners and operators of glass melting furnaces in this Commonwealth remain competitive with those states not in the OTC with the option of an alternative compliance schedule contained in the petition process that is provided in subsections 129.304(b) and (c) (relating to emission requirements) of the final-form rulemaking.

7. Comment: The commentator stated that the proposed rule does not include emission requirements for specialty glass manufacturing, and therefore the proposed rule does not apply to their glass melting furnace since it does not meet the applicability criteria defined in the proposed rule. (5)

Response: The Department recognized that furnaces within this Commonwealth that produce a glass product other than the four types listed in the proposed rulemaking (flat, container, fiberglass or pressed and blown) were not adequately considered in the proposed rulemaking. As a result, the Department has added to § 129.304 in the final-form rulemaking an emission limit of 6.0 lbs NOx/ton glass pulled for any other glass melting furnace that does not produce flat, container, fiberglass or pressed or blown glass products. The Department, in researching and analyzing these types of furnaces in this Commonwealth, considered the limit of 6.0 lbs NOx/ton glass pulled to be a reasonable limit based on the low NOx burner technology that is available to reduce uncontrolled NOx emissions by 30-35%.

8. Comment: The proposed rule's compliance determination section should express NOx in the same units as in the emission requirements section of the proposed rule (lbs/hr vs. lb NOx/ton glass). (3)

Response: The Department disagrees with the commentator. The continuous emissions monitoring system (CEMS) equipment is not designed to sample and report a source's process-derived emissions data, for example, tons of glass pulled at a glass melting furnace. The CEMS equipment samples on the basis of a 'parts per million' emissions concentration, and then automatically calculates a 'pounds per hour' emissions concentration. When the monitoring data is submitted to the Department every quarter, as required under subsection 129.309(a) (relating to compliance demonstration), the submittal shall include the CEMS monitoring data in pounds per hour and the glass production data in tons of glass pulled per day for each furnace.

¹ *Identification and Evaluation of Candidate Control Measures, Final Technical Support Document.* Prepared for the Ozone Transport Commission, Washington DC, by MACTEC Federal Programs, Inc., Herndon, VA, February 28, 2007.

2009 Compliance Date

9. **Comment:** The commentator stated that the emission requirements compliance date of May 1, 2009, is unreasonable because there is less than a year until this deadline and the proposed rule is not yet final and may not be final before the end of 2008. (3)

Response: The Department acknowledges that the proposed rulemaking's compliance date of May 1, 2009, is no longer possible. The Department revised the final-form rulemaking to require compliance with the emission limits by January 1, 2012. The final-form rulemaking also provides a petition process to all glass melting furnace owners and operators under subsection 129.304(b) for an alternative compliance schedule, if they will be unable to meet the NOx emission limits beginning January 1, 2012.

10. **Comment:** The commentator stated that this regulation will likely require permitting of air pollution control equipment which reasonably cannot occur by May 1, 2009, and suggests that the regulation's compliance deadline become effective upon the next furnace rebuild but no sooner than May 1, 2012. (3)

Response: The Department revised the final-form rulemaking to require compliance with the emission limits by January 1, 2012. The final-form rulemaking provides a petition process for an alternative NOx emission limitation or compliance schedule to the owner or operator of any glass melting furnace that demonstrates it is economically or technologically infeasible to meet the NOx emission limitations specified in Section 129.304(a). The alternative NOx emission limitation must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. Moreover, this final-form rulemaking also includes a petition process for an alternative compliance schedule, rather than a variance, to an owner or operator of any glass melting furnace that demonstrates that compliance will not be achieved by the January 1, 2012, compliance date.

11. **Comment:** The commentator stated that the NOx proposed rule creates an unreasonable timetable for compliance, and recommends postponing the compliance date until at least the 2010 ozone season. (2)

Response: Please see the response to comment number 10.

12. **Comment:** The IRRC commented that the Board should review the practicality of the 2009 compliance deadline, given the uncertainty of the future of the EPA Clean Air Interstate Rule (CAIR) allowance program, and questions if other compliance options will be available for providing flexibility to the affected industry. (9)

Response: The Department agrees with the commentator. Subsequent to the closing of the public comment period on June 23, 2008, for the proposed rulemaking (38 Pa.B. 1831, April 19, 2008), but prior to the vacatur of the EPA's CAIR, the Department held discussions with the EPA regarding the proposed rulemaking's option to demonstrate compliance with the emission limits through the purchase of CAIR NOx allowances under the EPA's CAIR regulation. During those discussions, the EPA indicated to the Department that a glass melting furnace regulation

that would provide a compliance option to purchase CAIR NO_x allowances would be problematic as far as approvability by the EPA for the Commonwealth's SIP, because glass melting furnaces are not specifically included in the EPA's CAIR program as a source category able to purchase CAIR NO_x allowances to achieve compliance. The EPA did not intend CAIR to comprise the entire solution to control NO_x emissions from all types of sources, but only to address interstate transport of ozone and PM_{2.5} precursors from the electric generating unit (EGU) sector. Therefore, the Department deleted from the final-form regulation the compliance option to purchase CAIR NO_x allowances. Because of this change, the Department has revised the final-form rulemaking to require compliance with the emission limits by January 1, 2012.

13. **Comment:** The Senate and House Environmental Committees commented, during the Advance Notice of Final Rulemaking (ANFR) comment period (39 *Pa.B.* 5318, September 12, 2009), that it may assist the Department as well as the regulated industry to not base the compliance timeframe on a specific date. The Committees commented that glass melting furnaces could potentially be required by the regulation to be replaced or upgraded prior to the end of their normal life expectancy, which would greatly increase the compliance costs of the regulation, if the regulation contains a specific compliance date. The Committees further commented that they understand several other states permit furnaces to be upgraded after their normal and anticipated life expectancy is exhausted. (7,8,10)

Response: The final-form rulemaking provides a petition process for an alternative NO_x emission limitation or compliance schedule to the owner or operator of any glass melting furnace that demonstrates it is economically or technologically infeasible to meet the NO_x emission limitations specified in Section 129.304(a). The alternative NO_x emission limitation must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. The Department believes that a final compliance date specified in the regulation is necessary to ensure that the owners and operators of the glass melting furnaces in this Commonwealth limit the NO_x emissions from their furnaces by a date certain, either by January 1, 2012, or by the date specified on a case-by-case basis as determined through the petition process for an alternative compliance schedule under subsection 129.304(c). Additionally, the SJVAPCD Rule 4354, whose NO_x emission limits and compliance methods were recommended by the OTC control measures group, specifies a final compliance date.

CAIR

14. **Comment:** A commentator stated that the proposed rule limits the purchase of allowances to CAIR NO_x allowances, and should allow for the use of NO_x credits previously banked as a result of prior emission reductions. (3)

Response: The Department disagrees with the commentator. The use of NO_x credits previously banked due to prior emission reductions is clarified by the Department's NO_x Budget Trading Program under subsection 145.90(a) (relating to emission reduction credit provisions): "ERCs may not be used to satisfy NO_x allowance requirements." Additionally, as explained in the

response to comment number 12, the Department removed from the final-form rulemaking the compliance option to purchase CAIR NO_x allowances.

15. Comment: A commentator stated that the Department did not adequately address, while drafting and promulgating the proposed regulation and in accordance with Commonwealth Executive Order 1996-1, that when there are existing Federal regulations covering the subject matter as does the EPA's CAIR regulation, that the State's regulations cannot be more stringent than the Federal standards. The commentator stated further that the EPA promulgated CAIR for the control of NO_x emissions at the Federal level, and the EPA focused the CAIR regulation on EGUs. Glass melting furnaces are not EGUs, thus under the EPA's CAIR, specific regulation of glass manufacturing is notably absent. (4)

Response: The purpose of the Department's proposed glass melting furnaces rulemaking is to address reductions of NO_x from glass melting furnaces, while the EPA's CAIR addresses NO_x reductions from EGUs, certain boilers, stationary combustion turbines and stationary internal combustion engines. Therefore, these are two different regulatory strategies with the goal of reducing NO_x emissions from various source types within this Commonwealth. The EPA did not intend CAIR to comprise the entire solution to control NO_x emissions from all types of sources, but only to address interstate transport of ozone and PM_{2.5} precursors. In fact, the EPA explicitly recognized that additional state regulation may be necessary in some areas, in combination with reduction of interstate transport, to attain and maintain the ozone and PM_{2.5} NAAQS.

Commonwealth Executive Order 1996-1 applies to the final-form rulemaking since there is not a companion Federal rule that reduces NO_x emissions from glass melting furnaces. However, this proposed rulemaking is reasonably necessary to attain and maintain the 1997 8-hour ozone NAAQS. The criteria for adopting state regulations more stringent than Federal regulations (when Federal regulations exist) are in the Air Pollution Control Act (APCA), Section 4.2 (35 P.S. § 4004.2). Section 4.2 of the APCA authorizes the Board to adopt regulations more stringent than Federal requirements when the control measures are reasonably necessary to attain and maintain the ambient air quality standards.

Vacatur of the EPA's CAIR

16. Comment: The IRRC questioned the Board's statutory authority for the use of CAIR NO_x allowances and revised NO_x emission limits in the proposed regulation due to the fact that the EPA's CAIR was vacated on July 11, 2008, by the D.C. Circuit Court. The IRRC goes on to say that the Court in its ruling stated that the analysis done by the EPA was "fundamentally flawed" and that the agency (EPA) must start its analysis anew. (9)

Response: The decision by the D.C. Circuit Court in *North Carolina v. EPA* only addressed CAIR, and did not address NO_x emission limits for glass melting furnaces. Subsequent to the closing of the public comment period on June 23, 2008 for the proposed rulemaking (38 Pa.B. 1831, April 19, 2008), but prior to the vacatur of the EPA's CAIR, the Department held discussions with the EPA regarding the proposed rulemaking's option to demonstrate

compliance with the emission limits through the purchase of CAIR NO_x allowances under the EPA's CAIR regulation. During those discussions, the EPA indicated to the Department that a final glass melting furnace regulation that would provide a compliance option to purchase CAIR NO_x allowances would be problematic as far as approvability by the EPA for the Commonwealth's SIP, because glass melting furnaces are not specifically included in the EPA's CAIR program as a source category able to purchase CAIR NO_x allowances to achieve compliance. The EPA did not intend CAIR to comprise the entire solution to control NO_x emissions from all types of sources, but only to address interstate transport of ozone and PM_{2.5} precursors from the EGU sector. The Court decided to remand, and not vacate, the EPA's CAIR in December 2008. The final Federal rule, expected in 2011, must be revised to be consistent with the Court's July 11, 2008, decision in *State of North Carolina v. Environmental Protection Agency*, 531 F.3d 896 (D.C. Cir. 2008). The Department agrees that while the EPA's CAIR remains in place at this time, the EPA will propose and finalize in the next two years a replacement for CAIR that meets the criteria set forth by the Court. In light of the pre-vacatur discussions with the EPA and the uncertainty about what a CAIR replacement will include, the Department removed from the final-form glass melting furnaces rulemaking the compliance option to purchase CAIR NO_x allowances. Therefore, the provisions of the final-form rulemaking contain significant changes from the provisions of the proposed rulemaking.

Additionally, a replacement for the EPA's CAIR program could possibly include interstate trading. Because participating in both a trading program and the emissions averaging compliance option provided in the proposed rulemaking could potentially provide a loophole to the affected furnaces to avoid emissions reductions, glass melting furnaces for which the Department has granted approval to voluntarily participate in an interstate trading program will not be eligible for the emissions averaging option in the compliance demonstration under subsection 129.309(b) of the final-form rulemaking.

17. Comment: The Senate Committee commented on the ability of the Board to move forward with the regulation if the D.C. Court vacated the CAIR budget and allowance system for NO_x emissions in Pennsylvania and other states. Their concern is that on July 11, 2008, the U.S. Court of Appeals for the District of Columbia overturned CAIR, and specifically that the Court found that the state NO_x budgets as determined by the EPA were "arbitrary and capricious." (7,8)

Response: The decision by the D.C. Circuit Court in *North Carolina v. EPA* only addressed CAIR, and did not address NO_x emission limits for glass melting furnaces. Please see the response to comment # 16.

18. Comment: The IRRC stated that the Department should address the concerns raised by the Senate Committee on the CAIR vacatur, and suggested that if the regulation requires substantial changes, to consider submitting an Advance Notice of Final Rulemaking (ANFR) or publishing the changes as a new proposed regulation in the *Pennsylvania Bulletin*. (9)

Response: The Department agrees with the commentator. The provisions of the final-form rulemaking contain significant changes from the provisions of the proposed rulemaking. Most importantly, during discussions with the EPA following the close of the Board's public

comment period for the proposed rulemaking, the EPA indicated to the Department that a final glass melting furnace regulation that provides a compliance option to purchase CAIR NOx allowances would be problematic as far as approvability by the EPA for the Commonwealth's SIP, because glass melting furnaces are not specifically included in the EPA's CAIR program as a source category able to purchase allowances to achieve compliance. The EPA did not intend CAIR to comprise the entire solution to control NOx emissions from all types of sources, but only to address interstate transport of ozone and PM2.5 precursors from the EGU sector. Therefore, the Department removed from the final-form rulemaking the compliance option to purchase CAIR NOx allowances.

The Department further revised the final-form rulemaking to require compliance with the NOx emission limits year-round because NOx is not only a precursor to ozone formation, but is also a precursor to the formation of PM2.5, which is monitored year-round. In addition, the proposed rulemaking addressed control of NOx emissions from glass melting furnaces only during the period of May 1 to September 30 of each year, and it is anticipated that the EPA will extend the ozone monitoring season in this Commonwealth to go from March 1 to October 31, each year, requiring monitoring for the 8-hour ozone NAAQS for a longer period each year. See 74 FR 34525 at p. 34538 (July 16, 2009). The Department also added a NOx emission limit applicable to a glass melting furnace that produces a glass product that is other than flat, container, fiberglass or pressed and blown. These changes are sufficiently significant that the Department believed further discussion and an additional comment period served the public interest. An Advance Notice of Final Rulemaking (ANFR) to solicit comments from the public on the draft final-form regulation was published in the *Pennsylvania Bulletin* on September 12, 2009 (39 Pa.B. 5318).

System-Wide Averaging of NOx Emissions

19. Comment: The Senate Committee and the IRRC commented on the proposed provision to allow facilities under common ownership to trade NOx allowances for system-wide averaging of NOx emissions, while prohibiting the trading of NOx allowances to average NOx emissions between facilities not under common corporate ownership. The Senate Committee commented that they support the concept of NOx allowance trading, and would favor removing the requirement for being "under common control of the same owner or operator in this Commonwealth" from the system-wide averaging section of the rulemaking, and the IRRC commented that the Board should address this issue. (7,8,9)

Response: The Department disagrees with the Senate Committee's suggestion to remove the requirement for being "under common control of the same owner or operator in this Commonwealth" from the system-wide averaging option under the compliance demonstration section of the rulemaking. The option to demonstrate compliance with the emission limits by averaging the NOx emissions of several glass melting furnaces under the common control of the same owner or operator in this Commonwealth provides added flexibility to the glass companies in this Commonwealth with more than one facility. Allowing multiple owners and operators of glass melting furnaces in this Commonwealth to average their emissions in concert with each other in order to demonstrate compliance would essentially provide them the larger framework

of an emissions trading program, which is beyond the scope of the final-form rulemaking provision to provide them with an emissions averaging option.

Continuous Emissions Monitoring System (CEMS)

20. **Comment:** One commentator stated that the proposed rule's requirement to install a NOx emissions monitoring system (CEMS or an alternate) does not impose a time requirement upon the Department for the review and approval of the monitoring system. (3)

Response: The Department disagrees with the commentator that the regulation should contain a time requirement. The owners or operators of glass melting furnaces who are planning to install, operate and maintain a CEMS or alternate monitoring system or method have been advised to contact their Department regional and central office contacts for specific information and guidance regarding the installation, review and approval requirements for any and all monitoring equipment. The timeframe to review and approve a monitoring system is coordinated with each individual company during the certification process of the monitoring system, in accordance with the Department's Continuous Source Monitoring Manual (DEP 274-0300-001; 25 Pa. Code Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources)). These monitoring-specific issues are not part of individual rulemakings.

21. **Comment:** Some commentators stated that the deadline of May 1, 2009, for the system to be installed and operational is unreasonable as there is less than a year until this deadline, and that it does not provide adequate time allowed for installation and operation of the CEMS. The commentators suggest that there should be a longer timeframe for the system to be installed and operational, and suggest that May 1, 2010, should be the earliest implementation date for the CEMS. (3,4)

Response: The Department agrees with the commentators. The deadline of May 1, 2009, to install, operate and maintain a CEMS or alternate monitoring system or method has been removed from the final-form rulemaking. A CEMS or alternate monitoring system or method to determine compliance with the emission limits specified in subsection 129.304(a) in the final-form rulemaking must be installed, operating and maintained no later than 14 days prior to the applicable date by which a glass melting furnace is required to meet the emission limits specified in subsection 129.304(b) or (c) in the final-form rulemaking.

22. **Comment:** A commentator stated that "to be consistent with the requirements of the CAIR, CEMS installation should be reserved for furnaces undergoing reconstruction or modification and not simple rebricking." (4)

Response: The Department disagrees with the commentator. The EPA's CAIR requirements are not applicable to this rulemaking. In addition, a CEMS or alternate monitoring system or method to determine compliance with the emission limits specified in subsection 129.304(a) in the final-form rulemaking must be installed, operating and maintained no later than 14 days prior to the date by which a glass melting furnace is required to meet the emission limits specified in subsection 129.304(b) or (c) in the final-form rulemaking.

23. **Comment:** One commentator stated that the ‘alternate NOx emissions monitoring system or method’ referenced in the proposed rule should be further clarified to explain what is an allowable alternate system. (1)

Response: The Department disagrees with the commentator. An alternate NOx emissions system or method is not designed to be a prescribed method or system. The owners or operators of glass melting furnaces who are planning to install, operate and maintain an alternate monitoring system or method are advised to contact their Department regional and central office contacts for specific information and guidance regarding the installation, review and approval requirements for any and all monitoring equipment. The timeframe to review and approve an alternate monitoring system or method is coordinated with each individual company during the certification process of the monitoring system.

24. **Comment:** The IRRC questioned the lack of criteria, process and timetable the Department will use to decide on an approvable ‘alternate NOx emissions monitoring system or method’ in the compliance determination section. (9)

Response: Please see the response to comment number 23.

Start-Up Exemption

25. **Comment:** The commentator states that the start-up exemption time of 104 days for a flat glass furnace is too short, and suggests that 208 days be allowed for a flat glass furnace that uses a NOx control not readily available from a commercial supplier, not in common use, or that is innovative. (3)

Response: The Department agrees with the commentator with respect to the start-up exemption time of 104 days for a flat glass furnace. To be consistent with the SJVAPCD Rule 4354, on whose NOx emission limits the OTC based its recommendations to its member states with glass melting furnaces, the final-form rulemaking revised the length of the start-up exemption in subsection 129.305(d) (relating to start-up requirements) for all types of glass furnaces. For flat glass furnaces, the maximum start-up exemption time is 208 days if the NOx control system is not in common use or is not readily available from a commercial supplier.

26. **Comment:** The ‘not to exceed 5% excess oxygen’ restriction during a furnace combustion start-up should be eliminated, as it does not appear to have a relationship or a benefit to NOx emissions. (3)

Response: The Department retains in the final-form rulemaking the furnace start-up restriction in subsection 129.305(f) of ‘not to exceed 5% excess oxygen,’ which is consistent with the furnace start-up requirements in the SJVAPCD Rule 4354.

27. **Comment:** IRRC questioned the clarity of the start-up exemption procedure section. (9)

Response: The Department believes that the start-up requirements found under § 129.305 of the final-form rulemaking are clear and precise.

28. **Comment:** The Senate and House Environmental Committees commented to the Board on behalf of PPG Industries during the ANFR comment period that the start-up exemption unnecessarily restricts the exemption to a new furnace or furnace rebuild and does not account for an idled existing furnace, and implies that a plan approval would be required in connection with a furnace start-up, which is not necessarily the case. (7,8,10)

Response: The Department has revised this section of the final-form rulemaking. Subsection 129.305(b) specifies that a plan approval application for a furnace start-up exemption request shall be submitted 'if required,' in recognition that some furnace start-ups may not require a plan approval.

Definitions

29. **Comment:** The NOx proposal should adopt the 2007 National Emissions Standards for Hazardous Air Pollutants (NESHAP) definition of "glass melting furnace" instead of using the outdated 1980 New Source Performance Standards (NSPS) definition. The NSPS definition includes a list of extraneous non-furnace equipment that goes against the intent of the proposed rule that requires monitoring NOx emissions from only the furnace. (2)

Response: The Department agrees with the commentator. Section 121.1 (relating to definitions) has been revised in the final-form rulemaking to include the 2007 NESHAP definition of the term 'glass melting furnace' that was published in the *Federal Register* on December 26, 2007 (72 FR 73183).

30. **Comment:** A commentator stated that the definition of 'furnace rebuild' is unclear and appears to broaden the scope of repair activities that currently require permitting, and that the definition should exclude rebricking activities as defined in 40 CFR Subpart CC and likewise exclude those activities from permitting. The term "complete reconstruction" in the furnace rebuild definition should be stated as "reconstruction" and have the same meaning as the Federal definition of "reconstruction" provided in 40 CFR Part 60.15. (3)

Response: The Department agrees with the commentator. The definition of the term "complete reconstruction" proposed under § 121.1 in the proposed rulemaking has been deleted in the final-form rulemaking and a definition for "cold shutdown" added. The final-form rulemaking includes the term "scheduled" whenever the term "cold shutdown" is used within the final-form rulemaking to distinguish between furnace repair activities and a scheduled "cold shutdown" when the furnace is cold and does not contain molten glass.

31. **Comment:** The Senate and House Committees commented to the Board on behalf of PPG Industries during the ANFR comment period that the definition of the term "start-up" should be revised to be consistent with the San Joaquin rule to include necessary language on furnace

stabilization, that is, the phrase “and systems and instrumentation are brought to stabilization.” (7,8,10)

Response: The Department agrees with the commentator. The definition of the term “start-up” proposed under § 121.1 has been revised in the final-form rulemaking to include the furnace stabilization phrase suggested by the commentator, and to be consistent with the SJVAPCD Rule 4354.

Miscellaneous

32. **Comment:** The IRRC commented on the phrase ‘in this Commonwealth’ in the compliance demonstration section, and questions if it means an owner or operator must be located in this Commonwealth, and what about when facilities are located in Pennsylvania but the owner is not. (9)

Response: The phrase “in this Commonwealth” in paragraph 129.309(b)(3) means that NOx emissions from glass melting furnaces operating at more than one location within this Commonwealth, and under the same ownership or operator, may be averaged. The owner or operator does not have to be located in this Commonwealth.

33. **Comment:** The proposed regulation should not expand the scope of what currently triggers permitting or plan approvals specified in the *Pennsylvania Code* and existing Federal regulations, and exemptions should be included for furnace rebricking and repairs or replacements that do not constitute a modification. (3)

Response: The final-form rulemaking will require compliance with the NOx emission limits by January 1, 2012. The plan approval issued for the construction of a new glass melting furnace or furnace modification shall include terms and conditions consistent with the requirements of 25 *Pa. Code*, Chapter 127, Subchapter B (relating to plan approval requirements). The Department has added in the final-form rulemaking under § 121.1 a definition for the term “cold shutdown,” and the rulemaking includes the term “scheduled” whenever the term “cold shutdown” is used within the final-form rulemaking to distinguish between furnace repair activities and a scheduled “cold shutdown” when the furnace is cold and does not contain molten glass. The Department believes this will alleviate the concerns about routine repairs to a furnace.

34. **Comment:** The selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR) add-on control technologies for glass furnaces are not technically feasible control technologies for the intermittent NOx emissions from nitrate decomposition, and therefore are not feasible add-on controls for this commentator’s glass melting furnace facility. This commentator requests the EQB to explicitly exclude its facility from the proposed rule. (5)

Response: The Department disagrees with the commentator. The Department recognized that furnaces within this Commonwealth that produce a glass product other than the four types listed in the proposed rulemaking (flat, container, fiberglass or pressed and blown) were not adequately

considered in the proposed rulemaking. As a result, the Department has added under § 129.304 in the final-form rulemaking an emission limit of 6.0 lbs NO_x/ton of glass pulled for any other glass melting furnace that does not produce flat, container, fiberglass or pressed and blown glass products. The Department, in researching and analyzing these types of furnaces within this Commonwealth, considered the limit of 6.0 lbs NO_x/ton of glass pulled to be a reasonable limit based on the low NO_x burner technology that is available to reduce uncontrolled NO_x emissions by 30-35%.

35. Comment: The proposed rule is directed at combustion sources of NO_x, and the rule's intent is to limit emissions of thermal NO_x. Since 95% of this commentator's NO_x emissions are from decomposition of nitrogen-containing raw materials and not from thermal NO_x combustion processes, the EQB should clarify that it is inappropriate to apply the proposed rule to them. (5)

Response: The Department disagrees with the commentator. The purpose of the proposed rulemaking is to control NO_x emissions from glass melting furnaces. Section 129.302 (relating to applicability) of the final-form rulemaking clearly states that the provisions of the rulemaking apply to an owner or operator of a glass melting furnace that emits or has the potential to emit NO_x at a rate greater than 50 tons per year. If a glass melting furnace in this Commonwealth meets the applicability criteria, the final-form rulemaking provisions apply.

36. Comment: The Senate and House Environmental Committees and another commentator questioned the legal authority of the Department and the EQB to require glass melting facilities to significantly reduce NO_x emissions under the authority of the Pennsylvania Air Pollution Control Act, 35 P.S. §§ 4001-4015. The commentators also stated that there is no legal basis to require significant reductions in NO_x emissions when it can be demonstrated that their facility does not contribute to the failure of any nonattainment area to comply with the air quality standards for ozone. (3,7,8,10)

Response: The Department disagrees with the commentators. The Department has the legal authority to require the owners and operators of glass melting furnaces to limit their emissions of NO_x. The law in this Commonwealth is well-settled regarding whether a regulation is valid and binding. A court must evaluate if the regulation is 1) within the agency's granted power, 2) issued pursuant to proper procedures and 3) reasonable. See for example, *Rohrbaugh v. PUC*, 556 Pa. 199, 727 A.2d 1080 (1999); and *Housing Authority v. Pa. Civil Service Com'n*, 556 Pa. 621, 730 A.2d 935 (1999). Section 5 of the APCA provides that the Board shall adopt rules and regulations for the prevention, control, reduction and abatement of air pollution, applicable throughout the Commonwealth. Clearly the intent of the glass melting furnaces regulation is to reduce air pollution, and so therefore the Board has the requisite legal authority. The Board is proceeding with this rulemaking through the proper rulemaking procedures, as identified under the APCA, the Regulatory Review Act and the Commonwealth Documents Law. An environmental regulation is reasonable if it prevents the possibility of pollution (see *Department of Environmental Resources v. Metzger*, 347 A.2d 743 (Pa. Cmwlth. 1975)), protects the public health and safety (see *Chambers Development Company, Inc. v. Department of Environmental Resources*, 545 A.2d 404 (Pa. Cmwlth. 1988)), or reduces pollution (see *Rochez Bros., Inc. v.*

Department of Environmental Resources, 334 A.2d 790 (Pa. Cmwlth. 1975)). Since this rulemaking reduces pollution it is reasonable.

A demonstration using air dispersion modeling (point-source or regional scale) to show that a single facility “does not contribute to the failure of any nonattainment area to comply with the air quality standards for ozone” is not the determination of whether a facility is subject to a proposed rulemaking. Air dispersion models are not designed to simulate source-specific contributions to ozone nonattainment areas. A finding that emission reductions at one source of NO_x does not contribute to the failure of any nonattainment area to comply with the air quality standards for ozone is not surprising. Sensitivity analyses have often shown that the Community Multiscale Air Quality (CMAQ) model used by states for attainment demonstrations is relatively “stiff” considering even large emission changes; that is, the model may not predict large changes in ozone concentrations even when large emission reductions are made. Therefore, a variance relying on modeling would be inappropriate. Nevertheless, the final-form rulemaking provides a petition process, rather than a variance, for an alternative NO_x emission limitation or compliance schedule to the owner or operator of any glass melting furnace that demonstrates it is economically or technologically infeasible to meet the NO_x emission limitations specified in Section 129.304(a). The alternative NO_x emission limitation must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. Moreover, this final-form rulemaking also includes a petition process for an alternative compliance schedule, rather than a variance, to an owner or operator of any glass melting furnace that demonstrates that compliance will not be achieved by the January 1, 2012, compliance date.

The OTC undertook a study to identify a suite of control measures that could be used by the members as part of a regional effort to attain and maintain the 1997 NAAQS for ozone.² The additional NO_x emission reductions from glass melting furnaces are a necessary component in this regional strategy.

37. Comment: The Senate and House Environmental Committees and another commentator stated that the proposed rule should provide for a variance if it could be demonstrated that it is economically unreasonable for the glass melting furnace facility to comply with the requirements of the rule, that the public interest is best served by granting the variance, and that the current operations at the glass melting furnace facility have no significant adverse impact on atmospheric NO_x concentrations and do not affect the Commonwealth’s 8-hour ozone demonstration. (3,7,8,10)

Response: The Department disagrees with the commentator. A demonstration using air dispersion (point-source or regional scale) to show that a single facility “does not contribute to the failure of any nonattainment area to comply with the air quality standards for ozone” is not the determination of whether a facility is subject to a proposed rulemaking. A finding that emission reductions at one source of NO_x does not contribute to the failure of any nonattainment

² *Identification and Evaluation of Candidate Control Measures, Final Technical Support Document.* Prepared for the Ozone Transport Commission, Washington DC, by MACTEC Federal Programs, Inc., Herndon, VA, February 28, 2007.

area to comply with the air quality standards for ozone is not surprising. Sensitivity analyses have often shown that the Community Multiscale Air Quality (CMAQ) model used by states for attainment demonstrations is relatively "stiff" considering even large emission changes; that is, the model may not predict large changes in ozone concentrations even when large emission reductions are made. Therefore, a variance relying on modeling would be inappropriate. Nevertheless, the final-form rulemaking provides a petition process, rather than a variance, for an alternative NO_x emission limitation or compliance schedule to the owner or operator of any glass melting furnace that demonstrates it is economically or technologically infeasible to meet the NO_x emission limitations specified in Section 129.304(a). The alternative NO_x emission limitation must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. Moreover, this final-form rulemaking also includes a petition process for an alternative compliance schedule, rather than a variance, to an owner or operator of any glass melting furnace that demonstrates that compliance will not be achieved by the January 1, 2012, compliance date. Certain areas of this Commonwealth continue to exceed the health-based 1997 8-hour NAAQS for ozone. See 62 FR 38855 (July 18, 1997). The final-form rulemaking to control NO_x emissions from glass melting furnaces will result in additional NO_x emission reductions that are necessary to support attaining and maintaining the health-based 1997 8-hour ozone NAAQS in this Commonwealth and downwind areas. Furthermore, on March 12, 2008, the EPA issued a more protective 8-hour ozone standard of 75 ppb that would require additional reductions of ozone precursor emissions, including NO_x, that impact ozone attainment in this Commonwealth and throughout the OTR. See 73 FR 16436 (March 27, 2008). However, the EPA has reconsidered the 2008 ozone NAAQS and on January 19, 2010, published a proposed rulemaking to set a more protective 8-hour primary standard at a lower level within the range of 0.060-0.070 ppm; the final revised ozone standard is expected in August 2010. See 75 FR 2938. If, as is widely expected, the EPA tightens the ozone standard, the additional NO_x emissions from the final-form rulemaking for glass melting furnaces will be even more important than if the current ozone standard remains in place.

This final-form rulemaking will also contribute to reduced formation of PM_{2.5} and regional haze. The EPA, in its "Clean Air Fine Particle Implementation Rule," determined that NO_x emissions are also precursors to the formation of PM_{2.5}. See 72 FR 20586 (April 25, 2007). In November 2009, the EPA designated 6 areas (all or part of 22 counties) in this Commonwealth as not attaining the 2006 24-hour PM_{2.5} NAAQS. See 74 FR 58688 (November 13, 2009). Regional haze is visibility impairment that is produced by a multitude of sources and activities which emit fine particles and their precursors, including NO_x, and which are located across a broad geographic area. See 64 FR 35713 at p.35715 (July 1, 1999). Therefore, the adoption of the final-form rulemaking for glass melting furnaces will help to reduce formation of ozone, PM_{2.5} and regional haze in this Commonwealth and downwind. As a result, this rulemaking is reasonably necessary to achieve and maintain the ozone and PM_{2.5} NAAQS.

38. Comment: A commentator stated that the Department did not adequately address, while drafting and promulgating the proposed regulation and in accordance with Executive Order 1996-1, whether the costs of the regulation exceed its benefits or not, and also stated that the proposed rulemaking does not support a conclusion that its costs will not exceed the benefits, and therefore the cost/benefit analysis should be more thoroughly addressed. (4)

Response: The Department disagrees with the commentator. The Department addressed the benefits and the costs associated with the proposed rulemaking in the preamble to the proposed rulemaking's public notice published in the *Pennsylvania Bulletin* on April 19, 2008 (38 Pa.B. 1831). Additionally, as part of the Commonwealth's comprehensive rulemaking process, the Department is required to evaluate all costs associated with the rulemaking on the affected industry as part of a detailed regulatory analysis form. This form is required to be submitted for review to the Governor's Office of General Counsel, the Senate and House Environmental Committees and the Attorney General as part of the rulemaking package.

39. **Comment:** The Senate and House Environmental Committees commented to the Board on behalf of PPG Industries during the ANFR comment period that an exemption from the emission limits should be included for glass melting furnaces during "periods of upset or malfunction" that affect an emission control device. The Senate and House Committees also commented that the routine maintenance exemption of 144 hours in total for add-on emission controls is not long enough to account for the complexities of the control techniques likely to be employed, and that each major component of the control system be exempted from the emission limits for 144 hours each calendar year for routine maintenance. (7,8,10)

Response: The Department believes that an exemption for a furnace malfunction or upset period is not required. The Department does not routinely provide exemptions from emission limits for periods of upset or malfunction in regulations to control emissions from sources. The Department believes that the SJVAPCD Rule 4354 addresses the issue of exemption from emission limits during maintenance appropriately, by allowing a total of 144 hours each calendar year for routine maintenance on all add-on controls. The SJVAPCD Rule 4354 does not provide an exemption from the emission limits for periods of upset or malfunction. The Department considered that the furnace itself should be included within the framework of routine maintenance, and has added subsection 129.304(d) to the final-form rulemaking to address exemptions from emission limits for maintenance or repair measures on the furnace components.

40. **Comment:** The Senate and House Environmental Committees commented to the Board on behalf of PPG Industries during the ANFR comment period that the petition process described in subsections 129.304(b) and (c) of the ANFR final-form rulemaking should specify what factors the Department will consider in order for a glass melting furnace to qualify for an alternative compliance deadline. The Committees commented that specifying such factors will avoid confusion and misunderstanding regarding what a glass melting furnace must demonstrate and submit for the Department's approval by January 1, 2011. Those factors should consist of whether the furnace in question meets its existing emission limitations, the anticipated date of the next furnace rebricking, and whether the furnace will continue to meet its existing emission limitations. (7,8,10)

Response: The Department believes the petition process contained in subsections 129.304(b) and (c) of the final-form rulemaking is comprehensive but not overly prescriptive and includes all the factors suggested by the Committee. In addition, the Department revised this section in the final-form rulemaking to require submittal, and not approval, of a petition request to the Department by January 1, 2012, and not by January 1, 2011. The Department maintains that the

concern expressed by the Committees on behalf of PPG Industries regarding the petition process will be alleviated by the change to the final-form regulation that requires submittal of the petition by January 1, 2012, and does not require approval of the petition by January 1, 2011. This timeframe will provide the owners and operators of glass melting furnaces the flexibility to coordinate with the Department on a case-by-case basis the exact information the Department requires in order to determine the approval of a petition submittal.

Table of Commentators to the Department of Environmental Protection
Control of NO_x Emissions from Glass Melting Furnaces
Advance Notice of Final Rulemaking
Rulemaking # 7-420
(IRRC # 2683)

ID	Name/Address
1.	Edward Hines Plant Manager PQ Corporation Chester, PA
2.	Steven B. Smith Vice President, Environmental Affairs Saint-Gobain Containers Muncie, IN
3.	Steven F. Faeth Senior Counsel EHS PPG Industries, Inc. Pittsburgh, PA
4.	Louis A. Naugle Reed Smith LLP, for: Pittsburgh Corning Corporation Port Allegheny, PA
5.	Thomas J. McDonald Manager, Environmental, Health and Safety SCHOTT North America, Inc. Duryea, PA
6.	Matthew H. Gontarz Plant Manager Osram Sylvania Wellsboro, PA
7.	Joseph D. Stas Pittsburgh Glass Works, LLC Pittsburgh, PA
8.	Joel Daoust Plant Manager Guardian Industries Corp. Jefferson Hills, PA
9.	Angus E. Crane Vice President, General Counsel NAIMA (North American Insulation Manufacturers Association) Alexandria, VA

10.	Senator Mary Jo White Chairperson Senate Environmental Resources and Energy Committee Harrisburg, PA
11.	Senator Raphael J. Musto Democratic Chairman Senate Environmental Resources and Energy Committee Harrisburg, PA
12.	Representative Scott E. Hutchinson Republican Chairman House Environmental Resources and Energy Committee Harrisburg, PA
13.	Senator Jane Clare Orié Majority Whip Senate of Pennsylvania Harrisburg, PA
14.	Senator Robert D. Robbins State Senator Senate of Pennsylvania Harrisburg, PA
15.	Representative Scott Perry State Representative House of Representatives Harrisburg, PA
16.	Barbara A. McNees President Greater Pittsburgh Chamber of Commerce Pittsburgh, PA
17.	James E. Thompson Air Director Allegheny County Health Department Pittsburgh, PA

General Support

1. **Comment:** The commentator supports the adoption of the NO_x emission limits for fiberglass plants consistent with the 4.0 pounds of NO_x per ton of glass pulled (lbs NO_x/ton glass pulled) adopted by the Ozone Transport Commission (OTC). This commentator states that a performance standard based on 4.0 lbs/ton of glass pulled emission limit is a technologically feasible and pragmatic approach that requires implementation of low-NO_x combustion technology. They further state that this emission limit is supported by regulatory precedent as it the same limit adopted by other jurisdictions and by the recommendation of the OTC, therefore creating uniformity in emission standards. (9)

Response: The Department of Environmental Protection (Department) appreciates the commentator's support of the draft final-form rulemaking for fiberglass plants. The Department agrees with the commentator that the OTC-recommended emission limit of 4.0 lbs NO_x/ton glass pulled for fiberglass plants in the final-form rulemaking achieves consistency and uniformity among the 13 members (12 states and the District of Columbia) of the OTC, and that the emission limit for fiberglass furnaces can be achieved with technologies currently available.

Proposed NO_x Emission Limits

2. **Comment:** The commentator stated that it is an arbitrary and capricious action to base the regulation's proposed NO_x emission limits on a California rule without an explanation as to why they are appropriate to Pennsylvania. (4)

Response: The Department disagrees with the commentator that the rule's allowable NO_x emission limit requirements are arbitrary and capricious. The Department proposed the allowable NO_x emission requirements as a result of the research conducted by and the recommendations of the Northeast OTC. The Northeast OTC is a multi-state organization created under Section 184 of the CAA. 42 U.S.C.A. § 7511c. The OTC is responsible for advising the EPA on ground-level ozone pollution transport issues and for developing and implementing regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic regions. The members of the OTC (this Commonwealth, CT, DE, MA, MD, ME, NH, NJ, NY, RI, VA and VT, and the District of Columbia) are required to demonstrate attainment with the 1997 8-hour ozone standard of 80 ppb. See 62 FR 38855 (July 18, 1997).

Additionally, on March 12, 2008, the EPA issued a more protective 8-hour ozone standard of 75 ppb that would require additional reductions of ozone precursor emissions. See 73 FR 16436 (March 27, 2008). The 2008 revised standard would require additional reductions of emissions of ozone precursors, including NO_x, that impact each member's nonattainment status. As required by the Federal Clean Air Act (CAA), the Commonwealth submitted recommendations to the EPA in 2009 to designate 29 counties as nonattainment for the 2008 8-hour ozone NAAQS. The EPA was expected to take final action on the designation recommendations by March 2010. However, the EPA has reconsidered the 2008 ozone NAAQS and on January 19, 2010, published a proposed rulemaking to set a more protective 8-hour primary standard at a lower level within the range of 0.060-0.070 ppm; the final revised ozone standard is expected in

August 2010. See 75 FR 2938. If, as is widely expected, the EPA tightens the ozone standard, the additional NO_x emissions from the final-form rulemaking for glass melting furnaces will be even more important than if the current 2008 ozone standard remains in place. In addition, Northeast states are conducting attainment planning work to support development of PM_{2.5} and regional haze SIPs to satisfy obligations under the CAA and regulations issued under the CAA. See 74 FR 58688 (November 13, 2009) and 64 FR 35714 (July 1, 1999). NO_x emissions are precursors to the development of PM_{2.5} and regional haze.

The OTC undertook a study to identify a suite of additional control measures that could be used by the members in attaining their goals. Workgroups of staff from within the OTC members were established to evaluate control measures for specific sectors or issues. Department staff actively participated in these workgroups. Based on a review of 1,000 candidate control measures, the workgroups developed a short list of measures to be considered for more detailed analysis. The technical information for this short list of measures is found in the OTC report: *Identification and Evaluation of Candidate Control Measures, Final Technical Support Document*, prepared by MACTEC Federal Programs, Inc., Herndon, VA, February 28, 2007. Control of NO_x emissions from glass melting furnaces in the six states within the OTR that have glass melting furnaces (this Commonwealth, MA, MD, NJ, NY and RI) was on the short list as a measure for further analysis by the workgroups. The workgroups reviewed information on current NO_x emissions from the furnaces, controls already in place on the furnaces, anticipated additional NO_x emissions reductions from the control measures, preliminary cost and cost-effectiveness data, and other implementation issues. The workgroups discussed all the candidate control measures, including controlling NO_x emissions from glass melting furnaces, during a series of conference calls and workshops to further refine the emission reduction estimates, the cost data and implementation issues.

The workgroups also discussed comments from stakeholders, including glass melting furnace stakeholders (North American Insulation Manufacturers Association and Glass Association of North America). The OTC Commissioners summarized the glass melting furnace control measures and made a recommendation at the Commissioners' meetings in 2006 that the affected member states consider NO_x emission reductions from glass melting furnaces. The glass melting furnace stakeholders were provided multiple opportunities to review and comment on the glass melting furnace control measures summary. Public meetings were held as an opportunity for stakeholders to review and respond to the Commissioners' recommendations, stakeholders provided written comments, and the workgroups conducted conference calls with specific stakeholders to allow the stakeholders to vocalize their concerns directly to state regulatory staff and to discuss the control options. The OTC staff and state workgroups carefully considered the verbal and written comments received during this process.

The OTC's control measures summary recommends that states may allow the owners or operators of glass melting furnaces to propose compliance methods based on California's San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4354 (relating to glass melting furnaces) which allows a "mix of control options to meet specified emission limits." The NO_x emission rates recommended in the OTC control measures summary document are the rates specified in the SJVAPCD Rule 4354. The Department reviewed, analyzed and concurred with the OTC's control measures summary document for glass melting furnaces with respect to the

individual glass melting furnaces located in this Commonwealth, and determined that proposing a glass melting furnaces regulation based on the SJVAPCD Rule's 4354 mix of control options to meet specified emission limits was the appropriate implementation strategy for a rulemaking to control NOx emissions from this Commonwealth's glass melting furnaces.

This Commonwealth, along with the other affected OTC member states, agreed to establish NOx emission limits and controls for glass melting furnaces that are based on the SJVAPCD Rule 4354 so that there would be a level playing field among the OTC states. The owners and operators of glass melting furnaces in this Commonwealth remain competitive with those states not in the OTC with the option of an alternative compliance schedule contained in the petition process that is provided in subsections 129.304(b) and (c) (relating to emission requirements) of the final-form rulemaking.

3. **Comment:** A commentator requests that the Department add to the final-form rulemaking a definitive and feasible alternate standard or exemption applicable to unique specialty glass operations such as theirs. (5)

Response: The Department recognized that furnaces within this Commonwealth that produce a glass product other than the four types listed in the proposed rulemaking (flat, container, fiberglass and pressed and blown) were not adequately considered in the proposed rulemaking. The furnaces that produce a glass product other than flat, container, fiberglass or pressed and blown glass were not considered during the glass melting furnaces control measures strategy and planning by the OTC, so providing them an alternative emission limitation is also reasonable. As a result, the Department has added under § 129.304 in the final-form rulemaking an emission limit of 6.0 lbs NOx/ton glass pulled for any other glass melting furnace that does not produce flat, container, fiberglass and pressed and blown glass products. The Department, in researching and analyzing these types of furnaces in this Commonwealth, considered the limit of 6.0 lbs NOx/ton glass pulled to be a reasonable limit based on the low NOx burner technology that is available to reduce uncontrolled NOx emissions by 30-35%. The final-form rulemaking provides a petition process for an alternative NOx emission limitation or compliance schedule to the owner or operator of any glass melting furnace that demonstrates it is economically or technologically infeasible to meet the NOx emission limitations specified in Section 129.304(a). The alternative NOx emission limitation must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency.

4. **Comment:** Several commentators questioned why the draft final-form regulation only provided an alternative emission limitation petition process in subsection 129.304(c) to the owners and operators of glass melting furnaces that produce an "other" glass product. (4,7,8)

Response: The glass melting furnaces in this Commonwealth that produce an "other" glass product were not considered during the glass melting furnace control measures strategy and planning within the OTC, so providing them an opportunity to petition the Department for an alternative emission limitation is appropriate and reasonable. However, the final-form rulemaking was modified to provide a petition process for an alternative emission limitation to the owner or operator of any glass melting furnace that demonstrates it is economically or

technologically infeasible to meet the established emission limitations under Section 129.304. The alternative emission limitation must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. Moreover, this final-form rulemaking also provides for an alternative compliance schedule to an owner or operator of any glass melting furnace that cannot meet the January 1, 2012 compliance date under Section 129.304.

5. **Comment:** The Senate and House Committees on Environmental Resources and Energy (Committees), several legislators, and other commentators commented that the Department should consider providing a variance procedure or exception from the regulation for a glass melting furnace that definitively demonstrates that its emissions are not materially contributing to the development of ground-level ozone. (3,7,10,11,12,14,15,16)

Response: The Department maintains that a demonstration using air dispersion modeling (point-source or regional scale) to show that a single facility “does not contribute to the failure of any nonattainment area to comply with the air quality standards for ozone” is not the determination of whether a facility is subject to a proposed rulemaking. Air dispersion models are not designed to simulate source-specific contributions to ozone nonattainment areas. A finding that emission reductions at one source of NO_x does not contribute to the failure of any nonattainment area to comply with the air quality standards for ozone is not surprising. Sensitivity analyses have often shown that the Community Multiscale Air Quality (CMAQ) model used by states for attainment demonstrations is relatively “stiff” considering even large emission changes; that is, the model may not predict large changes in ozone concentrations even when large emission reductions are made. Therefore, a variance relying on modeling would be inappropriate. Nevertheless the final-form rulemaking provides a petition process, rather than a variance, for an alternative NO_x emission limitation or compliance schedule to the owner or operator of any glass melting furnace that demonstrates it is economically or technologically infeasible to meet the NO_x emission limitations specified in Section 129.304(a). The alternative NO_x emission limitation must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. Moreover, this final-form rulemaking also includes a petition process for an alternative compliance schedule, rather than a variance, to an owner or operator of any glass melting furnace that demonstrates that compliance will not be achieved by the January 1, 2012, compliance date. The OTC undertook a study to identify a suite of control measures that could be used by the members as part of a regional effort to attain and maintain the 1997 NAAQS for ozone. The NO_x emissions reductions from glass melting furnaces are a necessary component in this regional strategy. Certain areas of this Commonwealth continue to exceed the health-based 1997 8-hour NAAQS for ozone. This final-form rulemaking to control NO_x emissions from glass melting furnaces will result in additional NO_x emission reductions that are necessary to support attaining and maintaining the health-based 1997 8-hour ozone NAAQS of 80 ppb in this Commonwealth and downwind areas. See 62 FR 38855 (July 18, 1997). Furthermore, on March 12, 2008, the EPA issued a more protective 8-hour ozone standard of 75 ppb that would require additional reductions of ozone precursor emissions, including NO_x, that impact each OTR member’s nonattainment status. See 73 FR 16436 (March 27, 2008). However, the EPA has reconsidered the 2008 ozone NAAQS and on January 19, 2010, published a proposed rulemaking to set a more protective 8-hour primary standard at a lower level within the range of 0.060-0.070 ppm; the final revised ozone

standard is expected in August 2010. See 75 FR 2938. If, as is widely expected, the EPA tightens the ozone standard, the additional NO_x emissions from the final-form rulemaking for glass melting furnaces will be even more important than if the current 2008 ozone standard remains in place.

This final-form rulemaking will also reduce concentrations of PM_{2.5} and the formation of regional haze. The EPA, in its “Clean Air Fine Particle Implementation Rule,” determined that NO_x emissions are also precursors to the formation of PM_{2.5}. See 72 FR 20586 (April 25, 2007). Additionally, in November 2009, the EPA designated six areas (all or part of 22 counties) in this Commonwealth as not attaining the 2006 24-hour PM_{2.5} NAAQS. See 74 FR 58688 (November 13, 2009). The EPA is also evaluating the adequacy of the 2006 PM_{2.5} NAAQS as part of its periodic review required under Section 109(d)(1) of the CAA. 42 U.S.C.A. § 7409(d)(1). Furthermore, when initially adopting the visibility protection provisions of the 1977 Clean Air Act Amendments, Congress specifically recognized that the “visibility problem is caused primarily by emission into the atmosphere of SO₂, oxides of nitrogen, and particulate matter, especially fine particulate matter, from inadequate[ly] controlled sources.” See 64 FR 35713 at p.35715 (July 1, 1999). Section 169A(a)(1) of the CAA sets forth a National goal for visibility which is the “prevention of any future, and the remedying of any existing, impairment of visibility in Class I areas which impairment results from manmade air pollution.” 42 U.S.C.A. § 7491(a)(1). If adopted, the NO_x emission reduction provisions of the final-form rulemaking for glass melting furnaces will help to reduce formation of ozone, PM_{2.5} and regional haze pollution in this Commonwealth and throughout the OTR. As a result, this rulemaking is reasonably necessary to achieve and maintain the ozone and PM_{2.5} NAAQS.

Compliance Date of the Regulation

6. Comment: A comment made by numerous commentators, including the Committees, is that in order to avoid possible economic disruption to the operations at the affected furnaces, the Department should allow an existing furnace to operate through its full life cycle before requiring it to be replaced or rebuilt with control technology in order to meet the regulation’s NO_x emission limits. The commentators suggest that it may assist the Department as well as the regulated industry to not base the compliance timeframe on a specific date. The commentators also state that other states permit furnaces to be upgraded after their normal and anticipated life expectancy has been exhausted. (3,4,10,11,12,13,14,15,16)

Response: The Department disagrees with the commentators. The Department agrees that it could possibly be infeasible for all affected owners or operators of glass melting furnaces to comply with the allowable emission limits by January 1, 2012. The final-form rulemaking provides a petition process for an alternative NO_x emission limitation or compliance schedule to the owner or operator of any glass melting furnace that demonstrates it is economically or technologically infeasible to meet the NO_x emission limitations specified in Section 129.304(a). The alternative NO_x emission limitation must be included in either a plan approval or an operating permit issued by the Department or a permit issued by the appropriate approved local air pollution control agency. Moreover, this final-form rulemaking also includes a petition

process for an alternative compliance schedule, rather than a variance, to an owner or operator of any glass melting furnace that demonstrates that compliance will not be achieved by the January 1, 2012, compliance date. The Department believes that a final compliance date specified in the regulation is necessary to ensure that the owners and operators of the glass melting furnaces in this Commonwealth limit the NO_x emissions from their furnaces by a date certain, either by January 1, 2012, or by the date specified on a case-by-case basis as determined through the petition process for an alternative compliance schedule in subsection 129.304(c). Additionally, the SJVAPCD Rule 4354, whose NO_x emission limits and compliance methods were recommended by the OTC control measures group, specifies a final compliance date.

7. Comment: Several commentators commented that the petition process described in subsections 129.304(b) and (c) of the draft final-form rulemaking should specify what factors the Department will consider in order for a glass melting furnace to qualify for an alternative compliance deadline. Comments were made that specifying such factors will avoid confusion and misunderstanding regarding what the owner or operator of a glass melting furnace must demonstrate and submit for the Department's approval by January 1, 2011, and those factors should consist of whether the furnace in question meets its existing emission limitations, the anticipated date of the next furnace rebricking, and whether the furnace will continue to meet its existing emission limitations. (2,3,4,7,8,10,11,12)

Response: The Department believes the petition process contained in subsections 129.304(b) and (c) is comprehensive but not overly prescriptive and includes all the factors suggested by the commentators. In addition, the Department has revised this section in the final-form rulemaking to require submittal of a petition request to, and not approval by, the Department by January 1, 2012, rather than approval by January 1, 2011. The Department maintains that the concerns expressed by the commentators regarding the petition process will be alleviated by the change to the final-form regulation that requires submittal of the petition by January 1, 2012, and does not require approval of the petition by January 1, 2011. This timeframe will provide the owners and operators of glass melting furnaces the flexibility to coordinate with the Department on a case-by-case basis the exact information the Department requires in order to determine the approval of a petition submittal.

Applicability of the Regulation

8. Comment: A comment was made requesting that the short-term applicability criteria for a furnace that emits NO_x at greater than 20 pounds per hour, but otherwise emits below 50 tons per year of NO_x, be deleted from the rulemaking. The commentator states that the rulemaking's short-term applicability criteria places an unreasonable burden on glass melting operations that have unique processes and may emit at times greater than 20 pounds of NO_x per hour but on a long term basis emit below the primary criterion of 50 tons per year of NO_x, and making these unique glass melting operations subject to the regulation will not result in significant overall emission reductions. (5)

Response: The Department agrees with the commentator that applying the regulation to these unique glass melting operations will not result in significant overall emission reductions. Section 129.302 (relating to applicability) in the final-form rulemaking has been revised to include only

owners and operators of furnaces that emit NO_x at greater than 50 tons per year as subject to the regulation.

9. **Comment:** The Allegheny County Health Department (ACHD) commented that the final-form rulemaking should be modified to state that the regulation applies to furnaces under the jurisdiction of a local air pollution control agency, and in order for ACHD to implement the provisions of the regulation, all reports and notifications required under the regulation should be submitted directly to the local agency. (17)

Response: The Department agrees with the commentator. Applicability § 129.302 in the final-form rulemaking was modified to include those glass melting furnaces under the jurisdiction of an approved local air pollution control agency, and all references in the final-form rulemaking that reports and notifications are to be submitted to the Department now also include the approved local air pollution control agency, which will ensure that ACHD can fully implement and enforce this regulation.

Exemptions

10. **Comment:** One commentator stated that the exemptions section should be revised to require that the owner or operator of a glass melting furnace notify the Department within 24 hours after the initiation of an exemption operation, instead of within 24 hours prior to initiating the operation, because there are some instances where an unforeseen problem requires a facility to immediately go into an unanticipated idling position. (1)

Response: The Department agrees with the commentator. Subsection 129.303(b) (relating to exemptions) was modified as requested in the final-form rulemaking.

11. **Comment:** One commentator stated that the timing of any written notification to the Department contained in the exemptions § 129.303 not be tied to the occurrence of the exemption event itself. (2)

Response: The Department disagrees with the commentator. The Department maintains that the requirement in subsection 129.303(b) to notify the Department within 24 hours of initiating the exempt operation, and the requirement in subsection 129.303(d) to notify the Department in writing within 24 hours after completion of the exempt operation, is reasonable and not burdensome to the facility claiming the exemption.

12. **Comment:** Several commentators commented that an exemption from the emission limits should be included for glass melting furnaces during “periods of upset or malfunction” that affect an emission control device. Comments were also made that the routine maintenance exemption of 144 hours in total for add-on emission controls is not long enough to account for the complexities of the control techniques likely to be employed, and that each major component of the control system should be exempted from the emission limits for 144 hours each calendar year for routine maintenance. (2,3,7,10,11,12)

Response: The Department believes that an exemption for a furnace malfunction or upset period is not required. The Department does not routinely provide exemptions from emission limits for periods of upset or malfunction in regulations to control emissions from sources. The Department proposed a glass melting furnace regulation based on the SJVAPCD Rule 4354 that was recommended by the OTC as an appropriate implementation strategy for a rulemaking to control NO_x emissions from glass melting furnaces. The Department believes that the SJVAPCD Rule 4354 addresses the issue of exemption from emission limits during maintenance appropriately, by allowing a total of 144 hours each calendar year for routine maintenance on all add-on controls. The SJVAPCD Rule 4354 does not provide an exemption from the emission limits for periods of upset or malfunction. The Department considered that the furnace itself should be included within the framework of routine maintenance, and has added subsection 129.304(d) to the final-form rulemaking to address exemptions from emission limits for the maintenance or repair measures on the furnace components.

Furnace Start-Up Requirements

13. **Comment:** Several commentators commented that the furnace start-up section should be modified to require a plan approval application for a start-up exemption only ‘if required,’ and not for activities associated with routine repair or maintenance of the furnace. They comment further that the start-up exemption in the draft final-form rulemaking unnecessarily restricts the exemption to a new furnace or furnace rebuild and does not account for an idled existing furnace, and implies that a plan approval would be required in connection with a furnace start-up, which is not necessarily the case. (1,2,3,10,11,12)

Response: The Department has revised this section of the final-form rulemaking. Subsection 129.305(b) specifies that a plan approval application for a furnace start-up exemption request shall be submitted ‘if required,’ in recognition that some furnace start-ups may not require a plan approval.

14. **Comment:** The ‘not to exceed 5% excess oxygen’ restriction during a furnace combustion start-up should be eliminated, as it does not appear to have a relationship or a benefit to NO_x emissions. (3,7,10,11,12)

Response: The Department retains in the final-form rulemaking the furnace start-up restriction in subsection 129.305(f) (relating to start-up requirements) of ‘not to exceed 5% excess oxygen’, which is consistent with the furnace start-up requirements in the SJVAPCD Rule 4354.

Definitions

15. **Comment:** Several commentators commented that the definition of “start-up” should be revised consistent with the San Joaquin rule to include necessary language on furnace stabilization, that is, the phrase “and systems and instrumentation are brought to stabilization”. (2,3,7,10,11,12)

Response: The Department agrees with the commentators. The definition of “start-up” has been revised in the final-form rulemaking to include the furnace stabilization phrase suggested by the commentator, and to be consistent with the SJVAPCD Rule 4354.

16. **Comment:** Two commentators commented that the definition of “rebricking” and the revised definition of “furnace rebuild” in the draft final-form rulemaking are confusing, and further comment that they have concern over whether routine repairs to a furnace would be considered a rebuild or rebrick of the furnace. (1,6)

Response: The Department agrees with the commentators, and has deleted both definitions in the final-form rulemaking and has added a definition for “cold shutdown,” and included the term “scheduled” whenever the term “cold shutdown” is used within the final-form rulemaking to distinguish between furnace repair activities and a scheduled cold shutdown when the furnace is cold and does not contain molten glass. The Department believes this will alleviate the concerns about routine repairs to a furnace.

Continuous Emissions Monitoring System (CEMS)

17. **Comment:** Several commentators commented that the data substitution method for emissions monitoring in the compliance determination section that requires the highest valid 1-hour emission value during the reporting quarter be substituted for invalidated data is unreasonable and punitive. They comment further that for periods of invalid data, the Department should allow substituting data that is more representative of the actual emissions. (1,2,4,6)

Response: The Department agrees with the commentators, and revised the data substitution method in the final-form rulemaking to require the highest valid 1-hour value that occurred under similar source operating conditions during the reporting quarter be substituted for the invalidated data. In addition, the Department added to subsection 129.308(c) (relating to compliance determination) an option for the owners and operators of glass melting furnaces to submit for the Department’s approval an alternative procedure to quantify the furnace NO_x emissions and glass production data instead of using the data substitution method for invalidated data.

18. **Comment:** Several commentators commented that the requirements in §§ 129.308 and 129.309 (relating to compliance demonstration) to report CEMS data and daily glass production data on a quarterly basis is inconsistent with existing Title V reporting requirements, and creates a duplicative and burdensome additional reporting obligation on the regulated community. (1,6,8)

Response: The Department disagrees with the commentators. The Department does not believe that maintaining records of daily glass production will present a significant inconvenience to any owner or operator. Daily records may be needed to enable the Department to verify the relationship between NO_x emissions recorded by CEMS, and glass produced during the compliance period. Records sufficiently precise to quantify glass produced by each glass melting furnace during a reporting quarter are necessary to enable owners and operators to

demonstrate compliance. Continuous emission monitoring is the most precise means of determining emissions over extended time periods. Because the CEMS data is recorded and reported quarterly, in accordance with the procedures outlined in the Department's Continuous Source Monitoring Manual (DEP 274-0300-001), the Department does not believe that submitting CEMS data on a quarterly basis in order to demonstrate compliance with the allowable emission limits is duplicative or burdensome.

Miscellaneous

19. **Comment:** Several commentators requested the Department work with the regulated industry in a transparent manner so that the true benefits and costs of the regulation will be known. The commentators further state that although the Department asserts several times in the preamble to the proposed NO_x regulation that reducing NO_x emissions will also result in reduced emissions of fine particulate matter, they have not provided the regulated community with data or information that supports this assertion. (14,15,16)

Response: The Department's commitment to transparency is supported by our decision to publish an ANFR on the draft final-form regulation to provide stakeholders with further opportunity to comment. The EPA, in its "Clean Air Fine Particle Implementation Rule," determined that NO_x emissions are precursors to the formation of PM_{2.5}. See 72 FR 20586 (April 25, 2007). In November 2009, the EPA designated six areas (all or part of 22 counties) in this Commonwealth as not attaining the 2006 24-hour PM_{2.5} NAAQS. See 74 FR 58688 (November 13, 2009). The adoption of the final-form rulemaking for glass melting furnaces will help to reduce the formation of PM_{2.5}.

20. **Comment:** A commentator stated that the Department did not adequately address, while drafting and promulgating the draft rulemaking and in accordance with Executive Order 1996-1, whether the costs of the regulation exceed its benefits or not, and also that the proposed rulemaking does not support a conclusion that its costs will not exceed the benefits, and therefore the cost/benefit analysis must be provided. (4)

Response: The Department disagrees with the commentator. The Department addressed the benefits and the costs associated with the proposed rulemaking in the preamble to the proposed rulemaking's public notice published in the *Pennsylvania Bulletin* (38 Pa. B. 1831, April 19, 2008). Additionally, as part of the Commonwealth's comprehensive rulemaking process, the Department is required to evaluate all costs associated with the rulemaking on the affected industry as part of a detailed regulatory analysis form. This form is required to be submitted for review to the Governor's Office of General Counsel, the Senate and House Environmental Committees and the Attorney General as part of the rulemaking package. Commonwealth Executive Order 1996-1 applies to the final-form rulemaking since there is not a companion Federal rule that reduces NO_x emissions from glass melting furnaces. However, this proposed rulemaking is reasonably necessary to attain and maintain the 1997 8-hour ozone NAAQS. The criteria for adopting state regulations more stringent than Federal regulations (when Federal regulations exist) are in the Air Pollution Control Act (APCA), Section 4.2 (35 P.S. § 4004.2). Section 4.2 of the APCA authorizes the Board to adopt regulations more

stringent than Federal requirements when the control measures are reasonably necessary to attain and maintain the ambient air quality standards.

21. Comment: The commentator states that the EQB acknowledges in the ANFR *Pennsylvania Bulletin* notice that the EPA advised Pennsylvania that CAIR does not apply to glass melting furnaces, and therefore the draft final-form rulemaking imposes requirements on glass melting furnaces that are more stringent than Federal standards. (4)

Response: The purpose of the rulemaking is to address reductions of NO_x from glass melting furnaces, while the EPA's CAIR addresses NO_x reductions from electric generating units, certain boilers, stationary combustion turbines and stationary internal combustion engines. Therefore, these are two different regulatory strategies with the goal of reducing NO_x emissions from various source types within this Commonwealth. The EPA did not intend CAIR to comprise the entire solution to control NO_x emissions from all types of sources, but only to address interstate transport of ozone and PM_{2.5} precursors from the electric generating unit sector. In fact, this Commonwealth and other OTC members have determined that additional NO_x reductions may be necessary in some areas, in combination with reduction of interstate transport, to attain and maintain the NAAQS. This proposed rulemaking is reasonably necessary to attain and maintain the 1997 8-hour ozone and PM_{2.5} NAAQS. The criteria for adopting state regulations more stringent than Federal regulations (when Federal regulations exist) are in the Air Pollution Control Act (APCA), Section 4.2 (35 P.S. § 4004.2). Section 4.2 of the APCA authorizes the Board to adopt regulations more stringent than Federal requirements when the control measures are reasonably necessary to attain and maintain the ambient air quality standards.

22. Comment: A commentator commented that the final-form rulemaking violates Section 4.2 of the Pennsylvania APCA, because Section 4.2 restricts the EQB from adopting by regulation: "...only those control measures or other requirements which are reasonably required, in accordance with the Clean Air Act deadlines, to achieve and maintain the ambient air quality standards or to satisfy related Clean Air Act requirements..." They further quote Section 4.2: "Control measures or other requirements adopted under subsection (a) of this section shall be no more stringent than those required by the Clean Air Act unless authorized or required by this Act or specifically required by the Clean Air Act." The commentator maintains that NO_x emissions from glass melting furnaces are not currently regulated by the EPA, so therefore this rulemaking is prohibited by Section 4.2 since it is more stringent than required by the Clean Air Act. (4)

Response: The Department disagrees with the commentator. The Department has the legal authority to require glass melting furnaces to limit their emissions of NO_x. The law in this Commonwealth is well-settled regarding whether a regulation is valid and binding. A court must evaluate if the regulation is 1) within the agency's granted power, 2) issued pursuant to proper procedures and 3) reasonable. See for example, *Rohrbaugh v. PUC*, 556 Pa. 199, 727 A.2d 1080 (1999); and *Housing Authority v. Pa. Civil Service Com'n*, 556 Pa. 621, 730 A.2d 935 (1999). Section 5 of the APCA provides that the Board shall adopt rules and regulations, for the prevention, control, reduction and abatement of air pollution, applicable throughout the Commonwealth. Clearly the intent of the glass melting furnace regulation is to reduce air pollution, and so therefore the Board has the requisite legal authority. The Board is proceeding

with this rulemaking through the proper rulemaking procedures, as identified under the APCA, the Regulatory Review Act and the Commonwealth Documents Law. An environmental regulation is reasonable if it prevents the possibility of pollution (see *Department of Environmental Resources v. Metzger*, 347 A.2d 743 (Pa. Cmwlth. 1975)), protects the public health and safety (see *Chambers Development Company, Inc. v. Department of Environmental Resources*, 545 A.2d 404 (Pa. Cmwlth. 1988)), or reduces pollution (see *Rochez Bros., Inc. v. Department of Environmental Resources*, 334 A.2d 790 (Pa. Cmwlth. 1975)). Since this rulemaking reduces pollution it is reasonable.

23. **Comment:** The Department should consider development of a pool of surplus NO_x “credits” from glass melting furnaces and allow trading and use of these credits by owners and operators of said furnaces to demonstrate compliance with the regulation, in light of the elimination of using CAIR NO_x allowances as a compliance option in the draft final-form rulemaking. (6)

Response: The Department disagrees with the commentator. Subsequent to the closing of the public comment period on June 23, 2008, for the proposed rulemaking (38 Pa.B. 1831, April 19, 2008), but prior to the vacatur of the EPA’s CAIR, the Department held discussions with the EPA regarding the proposed rulemaking’s option to demonstrate compliance with the emission limits through the purchase of CAIR NO_x allowances under the EPA’s CAIR regulation. During those discussions, the EPA indicated to the Department that a glass melting furnace regulation that would provide a compliance option to purchase CAIR NO_x allowances would be problematic as far as approvability by the EPA for the Commonwealth’s SIP, because glass melting furnaces are not specifically included in the EPA’s CAIR program as a source category able to purchase CAIR NO_x allowances to achieve compliance. The Department therefore removed from the draft final-form regulation the compliance option to purchase CAIR NO_x allowances. A replacement for the EPA’s CAIR program could possibly include interstate trading, and the Department could possibly grant an owner or operator of a glass melting furnace approval to voluntarily participate in an interstate trading program in the future. However, by creating a “pool of surplus NO_x credits” to allow owners and operators of glass melting furnaces in this Commonwealth to demonstrate compliance with the allowable emission limits in this final-form rulemaking and thereby avoid emission reductions, the Department would essentially be providing them the larger framework of an emissions trading program, which is beyond the scope and intent of the final-form rulemaking.

CONTROL OF NO_x EMISSIONS FROM
GLASS MELTING FURNACES

25 Pa. Code Chapters 121 and 129

*38 Pa.B.*1831 (April 19, 2008)

Environmental Quality Board Regulation #7-420
(Independent Regulatory Review Commission #2683)

Comment/Response Document

Control of NO_x Emissions from Glass Melting Furnaces

On April 19, 2008, the Environmental Quality Board (Board, EQB) published a notice of public hearings and comment period on a proposed rulemaking concerning revisions to 25 *Pa. Code* Chapters 121 and 129 to control the emissions of nitrogen oxides (NO_x) from glass melting furnaces during the ozone season (38 *Pa. B.* 1831). The public comment period closed on June 23, 2008.

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

May 19, 2008
2:00 p.m. Department of Environmental Protection
Rachel Carson State Office Building
Room 105
400 Market Street
Harrisburg, PA 17105

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

May 23, 2008
2:00 p.m. Department of Environmental Protection
Southwest Regional Office
Waterfront A & B Conference Room
400 Waterfront Drive
Pittsburgh, PA 15222

This document summarizes the testimony received during the public hearings and the written comments received from the public during the public comment period. Each public comment is listed with an identifying number for each commentator that made the comment. A list of the commentators, including name, affiliation (if any), and location, can be found at the beginning of this document. The Board invited each commentator to prepare a one-page summary of the commentator's comments. One one-page summary was submitted to the Board for this rulemaking. If adopted by the Board, the final regulation will be submitted to the U.S. Environmental Protection Agency (EPA) as a revision to the State Implementation Plan (SIP).



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

POLICY OFFICE

April 12, 2010

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

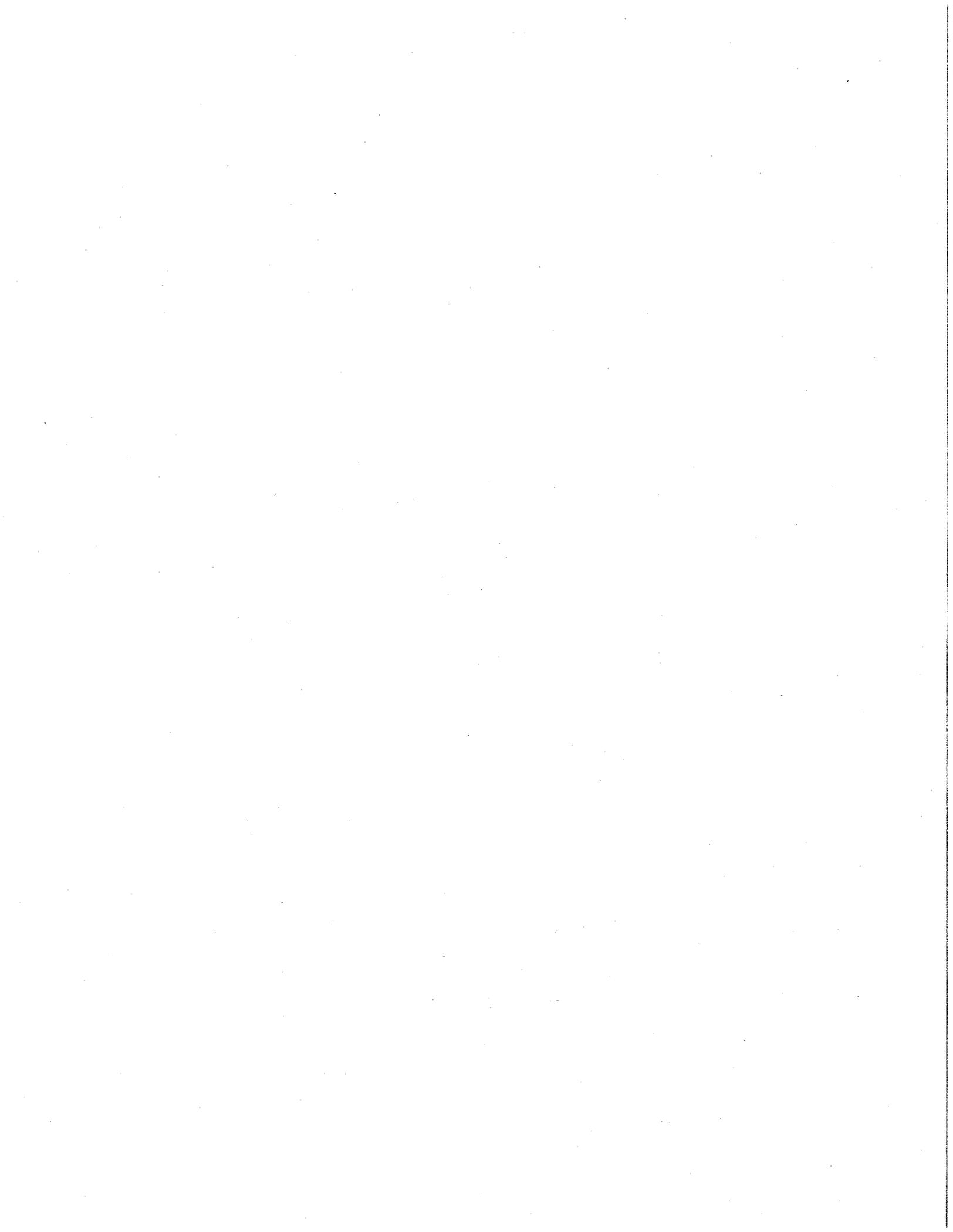
Re: Final-Form Rulemaking – Control of NOx Emissions from Cement Kilns (#7-419); and
Final-Form Rulemaking – Control of NOx Emissions from Glass Melting Furnaces (#7-420)

Dear Mr. Kaufman:

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

The Control of NOx Emissions from Cement Kilns final rulemaking amends existing requirements in *25 Pa Code*, Chapter 145 in order to further reduce NOx emissions from Portland cement kilns in Pennsylvania during the ozone season (May 1 – September 30). Emissions of NOx are precursors to the formation of ground-level ozone and fine particulate matter (PM2.5) pollution, both of which are serious human health and public welfare threats. In Pennsylvania, there are nine cement plants with 21 cement kilns. These kilns are one of the largest industrial NOx emission source categories, and account for approximately 29% of the more than 45,000 tons per year of NOx emitted into the air from all nonelectric generating unit sources in the Commonwealth. Adoption of the revised NOx emission limits for cement kilns in this rulemaking is part of the Commonwealth's strategy, in concert with other Ozone Transport Reduction (OTR) jurisdictions, to reduce the transport of ozone in order to attain and maintain the health-based 2008 8-hour ozone National Ambient Air Quality Standards (NAAQS) of 0.075 parts per million in this state and throughout the OTR. If approved, the revised NOx emission limits in the final-form rulemaking must be met by owners and operators of Portland cement kilns by May 1, 2011.

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



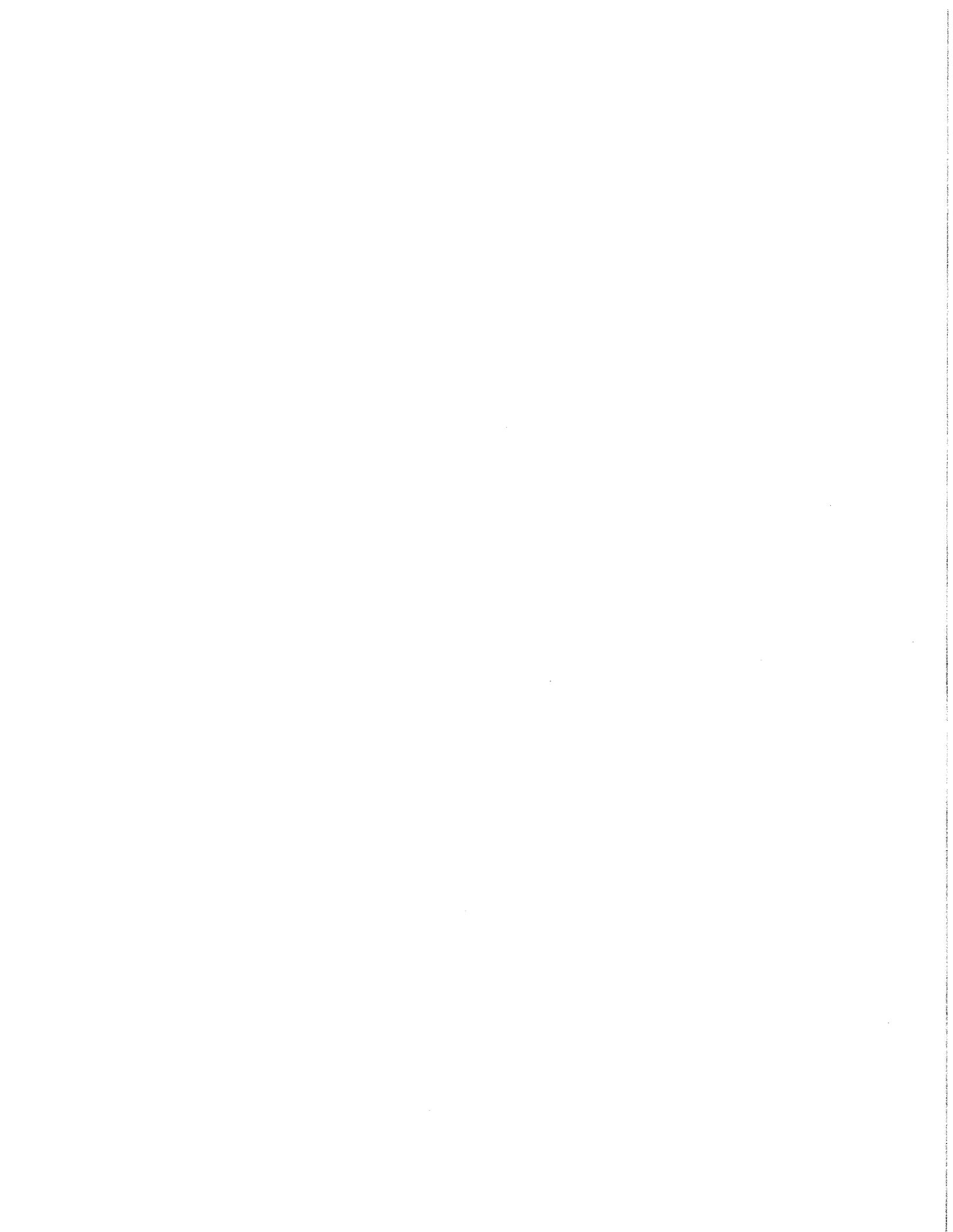
aspects of the rulemaking including provisions that subject new cement kilns to lower emission limits than existing cement kilns and the necessity for restricting NOx emissions trading to only those kilns owned or operated under common control. The rulemaking includes a Comment and Response document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

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

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

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

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

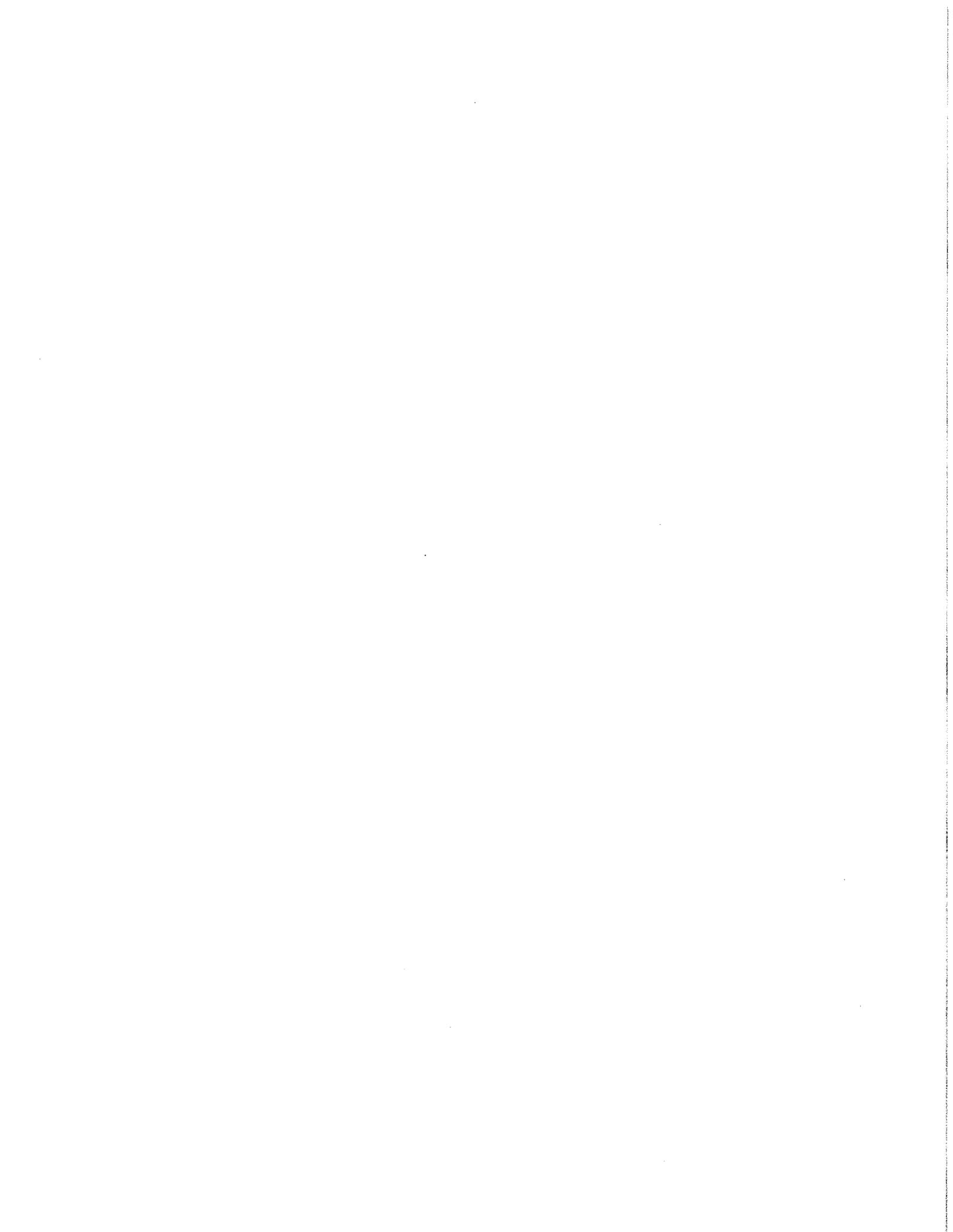


provided comments to the Board on the proposed rulemaking, including Senators Mary Jo White and Raphael Musto, Representative Hutchinson, and IRRC. Although some commentators lauded the Department's efforts to reduce NOx emissions in the state through the rulemaking, some commentators expressed specific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

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

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

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



Mr. Kim Kaufman, Executive Director

- 4 -

April 12, 2010

Sincerely,

A handwritten signature in cursive script that reads "Michele L. Tate". The signature is written in black ink and is positioned above the printed name.

Michele L. Tate
Regulatory Coordinator

Enclosures

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for ensuring the integrity of the financial statements and for providing a clear audit trail.

2. The second part of the document outlines the specific procedures that should be followed when recording transactions. This includes the use of double-entry bookkeeping and the requirement to post all entries to the general ledger.

3. The third part of the document discusses the importance of reconciling the accounts regularly. This helps to identify any discrepancies between the recorded transactions and the actual bank statements or other external records.

4. The fourth part of the document discusses the importance of maintaining proper documentation for all transactions. This includes retaining receipts, invoices, and other supporting documents for a sufficient period of time.

5. The fifth part of the document discusses the importance of reviewing the financial statements regularly. This helps to ensure that the statements are accurate and that any potential issues are identified and addressed in a timely manner.



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

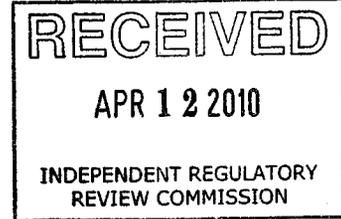
I.D. NUMBER: 7- 420

SUBJECT: Control of NOx Emissions from Glass Melting Furnaces

AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION

TYPE OF REGULATION

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



3:08 p.m

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
4-12-10	<u>D Newton</u>	Majority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY Rep. Camille George
4-12-10	<u>K Watters</u>	Minority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
4-12-10	<u>J. Castle</u>	Majority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY Senator Mary Jo White
4-12-10	<u>A. Rybarczyk</u>	Minority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
4/12/10	<u>St. Helms</u>	INDEPENDENT REGULATORY REVIEW COMMISSION
_____	_____	ATTORNEY GENERAL (for Final Omitted only)
_____	_____	LEGISLATIVE REFERENCE BUREAU (for Proposed only)

