

CONTROL OF NO<sub>x</sub> 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<sub>x</sub> 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 Department of Environmental Protection**  
**Control of NO<sub>x</sub> Emissions from Glass Melting Furnaces**  
**Advance Notice of Final Rulemaking**  
**Rulemaking # 7-420**  
**(IRRC # 2683)**

<b>ID</b>	<b>Name/Address</b>
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<sub>x</sub> emission limits for fiberglass plants consistent with the 4.0 pounds of NO<sub>x</sub> per ton of glass pulled (lbs NO<sub>x</sub>/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<sub>x</sub> 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<sub>x</sub>/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<sub>x</sub> Emission Limits**

2. **Comment:** The commentator stated that it is an arbitrary and capricious action to base the regulation's proposed NO<sub>x</sub> 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<sub>x</sub> emission limit requirements are arbitrary and capricious. The Department proposed the allowable NO<sub>x</sub> 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<sub>x</sub>, 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<sub>x</sub> 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<sub>2.5</sub> 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<sub>x</sub> emissions are precursors to the development of PM<sub>2.5</sub> 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<sub>x</sub> 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<sub>x</sub> emissions from the furnaces, controls already in place on the furnaces, anticipated additional NO<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> 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%. Additionally, subsection 129.304(c)(1) in the final-form rulemaking provides glass melting furnace owners and operators a petition process for an alternative emission limitation for furnaces that produce a glass product other than flat, container, fiberglass or pressed or blown glass.

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.

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<sub>x</sub> 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 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<sub>x</sub> 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<sub>x</sub> emissions from glass melting furnaces will result in additional NO<sub>x</sub> 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<sub>x</sub>, 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<sub>x</sub> 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<sub>2.5</sub> and the formation of regional haze. The EPA, in its “Clean Air Fine Particle Implementation Rule,” determined that NO<sub>x</sub> emissions are also precursors to the formation of PM<sub>2.5</sub>. 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<sub>2.5</sub> NAAQS. See 74 FR 58688 (November 13, 2009). The EPA is also evaluating the adequacy of the 2006 PM<sub>2.5</sub> 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 SO<sub>2</sub>, 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<sub>x</sub> emission reduction provisions of the final-form rulemaking for glass melting furnaces will help to reduce formation of ozone, PM<sub>2.5</sub> 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 PM2.5 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 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. (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. 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 in subsection 129.304(c). Additionally, the SJVAPCD Rule 4354, whose NOx 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<sub>x</sub> at greater than 20 pounds per hour, but otherwise emits below 50 tons per year of NO<sub>x</sub>, 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<sub>x</sub> per hour but on a long term basis emit below the primary criterion of 50 tons per year of NO<sub>x</sub>, 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<sub>x</sub> 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<sub>x</sub> 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 NOx 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 NOx 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 NOx 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 NOx regulation that reducing NOx 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 NOx emissions are precursors to the formation of PM2.5. 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 PM2.5 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 PM2.5.

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<sub>x</sub> 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<sub>x</sub> from glass melting furnaces, while the EPA's CAIR addresses NO<sub>x</sub> 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<sub>x</sub> emissions from various source types within this Commonwealth. The EPA did not intend CAIR to comprise the entire solution to control NO<sub>x</sub> emissions from all types of sources, but only to address interstate transport of ozone and PM<sub>2.5</sub> precursors from the electric generating unit sector. In fact, this Commonwealth and other OTC members have determined that additional NO<sub>x</sub> 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<sub>2.5</sub> 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<sub>x</sub> 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<sub>x</sub>. 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<sub>x</sub> “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<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> allowances to achieve compliance. The Department therefore removed from the draft final-form regulation the compliance option to purchase CAIR NO<sub>x</sub> 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<sub>x</sub> 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.