

<h1>Regulatory Analysis Form</h1> <p>(Completed by Promulgating Agency)</p>		<p><b>INDEPENDENT REGULATORY REVIEW COMMISSION</b></p>	
<p>(All Comments submitted on this regulation will appear on IRRC's website)</p>			
<p>(1) Agency Environmental Protection</p>		<p>2016 JAN 14 PM 2:31 IRRC RECEIVED</p>	
<p>(2) Agency Number: Identification Number: 7-485</p>		<p>IRRC Number: 3052</p>	
<p>(3) PA Code Cite: 25 Pa. Code Chapters 121 and 129</p>			
<p>(4) Short Title: Additional RACT Requirements for Major Sources of NO<sub>x</sub> and VOCs</p>			
<p>(5) Agency Contacts (List Telephone Number and Email Address):</p> <p>Primary Contact: Laura Edinger, 783-8727, ledinger@pa.gov Secondary Contact: Patrick McDonnell, 783-8727, pmcdonnell@pa.gov</p>			
<p>(6) Type of Rulemaking (check applicable box):</p> <p><input type="checkbox"/> Proposed Regulation <input checked="" type="checkbox"/> Final Regulation <input type="checkbox"/> Final Omitted Regulation</p>		<p><input type="checkbox"/> Emergency Certification Regulation <input type="checkbox"/> Certification by the Governor <input type="checkbox"/> Certification by the Attorney General</p>	
<p>(7) Briefly explain the regulation in clear and nontechnical language. (100 words or less)</p> <p>The final-form rulemaking amends 25 Pa. Code Chapter 129 (relating to standards for sources) by adding §§ 129.96—129.100 (relating to additional RACT requirements for major sources of NO<sub>x</sub> and VOCs) to establish reasonably available control technology (RACT) requirements for the owner and operator of certain types of sources located at a major NO<sub>x</sub> emitting facility or a major VOC emitting facility that was in existence on or before July 20, 2012 – the effective date of the United States Environmental Protection Agency's (EPA) designations and classifications for the 2008 ozone NAAQS. The final rulemaking establishes presumptive RACT requirements and RACT emission limitations for major stationary source categories including the following: combustion units; boilers; process heaters; turbines; stationary internal combustion engines; municipal solid waste landfills; municipal waste combustors; cement kilns and other major sources not currently regulated under Chapter 129. In addition, the final rulemaking amends Chapter 121 (relating to general) to revise four existing definitions and add five definitions in § 121.1 (relating to definitions) to support the amendments to Chapter 129.</p> <p>Emissions of NO<sub>x</sub> and VOCs are precursors to the formation of ground-level ozone, a criteria air pollutant. High concentrations of ground-level ozone air pollution are a serious threat to public health and welfare. This final rulemaking is reasonably required to attain and maintain the health- and welfare-based 8-hour ozone National Ambient Air Quality Standards (NAAQS) in this Commonwealth and to satisfy related Clean Air Act (CAA) (42 U.S.C.A. §§ 7401—7671q) requirements. This final rulemaking will be submitted to the EPA Region III Administrator for approval as a revision to the State Implementation Plan (SIP).</p>			

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

The final rulemaking is authorized under section 5(a)(1) of the Air Pollution Control Act (APCA) (35 P.S. § 4005(a)(1)), which grants the Environmental Quality Board (Board) the authority to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth. Section 5(a)(8) of the APCA (35 P.S. § 4005(a)(8)) also grants the Board the authority to adopt rules and regulations designed to implement the provisions of the CAA.

(9) 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.

Yes. The final rulemaking is mandated by Federal law.

Section 110(a) of the CAA requires each state to adopt and submit to the EPA a plan which provides for the implementation, maintenance and enforcement of the NAAQS. The principal mechanism at the state level for complying with Section 110(a) is the SIP. A SIP includes the regulatory programs, actions and commitments a state will carry out to implement its responsibilities under the CAA. Section 172(c)(1) of the CAA (42 U.S.C.A. § 7502(c)(1)) provides that a SIP for an ozone nonattainment area must include “reasonably available control measures,” including RACT requirements, for major sources of NO<sub>x</sub> and VOC emissions located in the ozone nonattainment area. Emissions of NO<sub>x</sub> and VOC are precursors to the formation of ground-level ozone. RACT is defined as the lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. See 44 FR 53762 (September 17, 1979). RACT may be established on a case-by-case basis, considering the technological and economic circumstances of the individual source. See 57 FR 55620 (November 26, 1992).

Section 110(a) of the CAA (42 U.S.C.A. § 7410(a)) provides that each state shall adopt and submit to the EPA a plan to implement measures to enforce the NAAQS or revision to the NAAQS promulgated under Section 109(b) of the CAA. Therefore the evaluation or reevaluation of what constitutes RACT for affected sources must be fulfilled each time the EPA promulgates a new NAAQS as was the case in 1979 for the 1-hour ozone standard and in 1997 for the 8-hour ozone standard or revises a NAAQS as was the case in 2008 for the 8-hour ozone standard. State regulations to control emissions of NO<sub>x</sub> and VOCs from major stationary sources will be reviewed by the EPA to determine if the provisions meet the RACT requirements of the CAA and its implementing regulations designed to attain and maintain the ozone NAAQS. Once approved by the EPA as a revision to the state’s SIP, the measures in a SIP are legally enforceable under both Federal and state law.

Section 182(b)(2) of the CAA (42 U.S.C.A. § 7511a(b)(2)) provides that for moderate ozone nonattainment areas, a state must revise its SIP to include RACT for sources of VOC emissions covered by a control techniques guidelines (CTG) document issued by the EPA prior to the area’s date of attainment; sources of VOC emissions covered by a CTG issued prior to November 15, 1990; and all other major stationary sources of VOC emissions located in the area.

The entire Commonwealth is treated as a “moderate” ozone nonattainment area because Pennsylvania is located in the Ozone Transport Region (OTR), established by operation of law under sections 184 and 176A of the CAA (42 U.S.C.A. §§ 7511c and § 7506a). Section 184(b)(1)(B) of the CAA (42 U.S.C.A. § 7511c(b)(1)(B)) requires that OTR states to submit a SIP revision to EPA for the implementation of RACT for all sources of VOC emissions in the state covered by a specific CTG. Section 184(b)(2) (42 U.S.C.A. §

7511c(b)(2)) of the CAA establishes that a major stationary source located in a state included in the OTR is subject to the requirements that would be applicable to the major stationary source if it were located in an area classified as a “moderate” ozone nonattainment area.

Under sections 182(f)(1) and 184(b)(2) of the CAA, these RACT requirements are applicable to all sources in this Commonwealth that emit or have a potential to emit greater than 100 tons per year of NO<sub>x</sub>. Under sections 182(b)(2) and 184(b)(2) of the CAA, these RACT requirements are applicable to all sources in this Commonwealth that emit or have a potential to emit greater than 50 tons per year of VOCs. Additionally, because the five-county Philadelphia area was designated as severe ozone nonattainment for the 1979 1-hour ozone standard, sources of greater than 25 tons per year of either pollutant are required to implement RACT under section 182(d) of the CAA. The Commonwealth’s first round of RACT regulations in §§ 129.91—129.95 (relating to stationary sources of NO<sub>x</sub> and VOCs) were implemented to attain and maintain the 1979 1-hour ozone standard. These regulations were effective January 15, 1994 (24 Pa. B. 467).

Section 182(f) of the CAA (42 U.S.C.A. § 7511a(f)) provides that for areas designated as moderate ozone nonattainment areas or above, a state is required to adopt RACT requirements for all major stationary facilities that emit the ozone precursor NO<sub>x</sub>, in addition to RACT requirements for VOC emissions. The Commonwealth is therefore required to implement RACT requirements statewide for major stationary sources of NO<sub>x</sub> and VOCs as part of a Federally-approvable SIP for attaining and maintaining the 1997 and 2008 8-hour ozone NAAQS. These sources include combustion units, municipal solid waste landfills, municipal waste combustors, and other sources that are not regulated elsewhere in Chapter 129 through implementation of CTG recommendations for a source category.

(10) 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.

This final rulemaking establishes presumptive RACT requirements and RACT emission limitations for the owners and operators of affected sources at facilities that are major NO<sub>x</sub> emitting or major VOC emitting facilities not regulated elsewhere in Chapter 129. The requirement to adopt and implement RACT regulations is Federally mandated. Section 172(c)(1) of the CAA (42 U.S.C.A. § 7502(c)(1)) provides that a SIP for an ozone nonattainment area must include “reasonably available control measures,” including RACT requirements, for major sources of NO<sub>x</sub> and VOC emissions located in the ozone nonattainment area. NO<sub>x</sub> and VOC emissions from sources including combustion units, boilers, process heaters, turbines, stationary internal combustion engines, municipal solid waste landfills, municipal waste combustors and Portland cement kilns contribute to the formation of ground-level ozone air pollution. Ground-level ozone is not emitted directly into the atmosphere, but is formed by photochemical reactions between NO<sub>x</sub> and VOCs in the presence of sunlight.

The EPA regulates ground-level ozone as a criterion air pollutant because of its widespread adverse health and environmental effects. Exposure to high concentrations of ground-level ozone is a serious human and animal health and welfare threat, causing respiratory illnesses and decreased lung function, agricultural crop loss, visible foliar injury to sensitive plant species, and damage to forests, ecosystems and infrastructure. Implementation of the final-form NO<sub>x</sub> and VOC control measures for the affected major sources will benefit the health and welfare of the approximately 12.7 million residents and the numerous animals, crops, vegetation and natural areas of this Commonwealth by reducing emissions of NO<sub>x</sub> and VOCs, which are precursors to the formation of ground-level ozone air pollution. Ground-level ozone air pollution can also be transported downwind via regional air currents and meteorological events. Reductions of ground-level ozone in this Commonwealth will therefore also benefit the residents of

downwind states and environments. The measures in the final rulemaking are reasonably required to attain and maintain the health- and welfare-based 8-hour ozone NAAQS in this Commonwealth and to protect the livelihoods of numerous citizens and residents.

Exposure to high levels of ground-level ozone air pollution correlates to increased respiratory disease and higher mortality rates. Ozone can inflame and damage the lining of the lungs. Within a few days, the damaged cells are shed and replaced. Over a long time period, lung tissue may become permanently scarred, resulting in permanent loss of lung function and a lower quality of life. When ambient ozone levels are high, more people with asthma have attacks that require a doctor's attention or use of medication. Ozone also makes people more sensitive to allergens including pet dander, pollen and dust mites, all of which can trigger asthma attacks. The EPA has concluded that there is an association between high levels of ambient ozone and increased hospital admissions for respiratory ailments including asthma. While 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 high levels of ambient ozone while engaged in activities that involve physical exertion. High levels of ozone also affect animals including pets, livestock, and wildlife, in ways similar to humans.

The EPA has estimated the monetized health benefits of attaining the NAAQS. For example, the EPA estimated that the monetized health benefits of attaining the 8-hour ozone standard of 0.075 ppm range from \$8.3 billion to \$18 billion on a National basis. See Regulatory Impact Analysis, Final National Ambient Air Quality Standard for Ozone, July 2011, [http://epa.gov/glo/pdfs/201107\\_OMBdraft-OzoneRIA.pdf](http://epa.gov/glo/pdfs/201107_OMBdraft-OzoneRIA.pdf). Prorating that benefit to the Commonwealth, based on population, results in a public health benefit of \$337 million to \$732 million. The Department is not stating that these estimated monetized health benefits would all be the result of implementing the final-form rulemaking RACT measures, but the EPA estimates are indicative of the benefits to Commonwealth residents of attaining the NAAQS.

In addition to causing adverse human and animal health effects, the EPA has concluded that ozone affects vegetation and ecosystems, leading to reductions in agricultural crop and commercial forest yields by destroying chlorophyll; reduced growth and survivability of tree seedlings; and increased plant susceptibility to disease, pests, and other environmental stresses, including harsh weather. In long-lived species, these effects may become evident only after several years or even decades and have the potential for long-term adverse impacts on forest ecosystems. Ozone damage to the foliage of trees and other plants can decrease the aesthetic value of ornamental species used in residential landscaping, as well as the natural beauty of parks and recreation areas. Through deposition, ground-level ozone also contributes to pollution in the Chesapeake Bay. These effects can have adverse impacts including loss of species diversity and changes to habitat quality and water and nutrient cycles. High levels of ground-level ozone can also cause damage to buildings and synthetic fibers, including nylon, and reduced visibility on roadways and in natural areas.

The economic value of some welfare losses due to ozone can be calculated, such as crop yield loss from both reduced seed production and visible injury to some leaf crops, including lettuce, spinach and tobacco, as well as visible injury to ornamental plants, including grass, flowers and shrubs. Other types of welfare loss may not be quantifiable, such as the reduced aesthetic value of trees growing in heavily visited parks.

Pennsylvania's 63,000 farm families are the stewards of more than 7.7 million acres of farmland. With \$5.7 billion in cash receipts annually from production agriculture, Pennsylvania farmers and agribusinesses are the leading economic driver in our state. In addition to production agriculture, the industry also raises revenue and supplies jobs through support services such as food processing, marketing, transportation, and farm equipment. In total, production agriculture and agribusiness contributes nearly \$57 billion to

Pennsylvania's economy. (Source: Pennsylvania Department of Agriculture.) These families, farms, and related businesses benefit directly from the reduction of ground-level ozone air pollution concentrations.

The Pennsylvania Department of Conservation and Natural Resources (DCNR) is the steward of the state-owned forests and parks. DCNR awards millions of dollars in construction contracts each year to build and maintain the facilities in its parks and forests. Timber sales on state forest lands contribute to the \$5 billion a year timber industry. Hundreds of concessions throughout the park system help complete the park experience for both state and out-of-state visitors. (Source: Pennsylvania Department of Conservation and Natural Resources.)

Further, Pennsylvania leads the nation in growing volume of hardwood species, with 17 million acres in forest land. As the leading producer of hardwood lumber in the United States, Pennsylvania also leads in the export of hardwood lumber. Recent U.S. Forest Service data shows that the state's forest growth-to-harvest rate is better than 2 to 1. This vast renewable resource puts the hardwoods industry at the forefront of manufacturing in the commonwealth. Through 2006, the total annual direct economic impact generated by Pennsylvania's wood industry was \$18.4 billion. The industry employed 128,000 people, with \$4.7 billion in wages and salaries earned. Production was 1.1 billion board feet of lumber annually. (Strauss, Lord, Powell; PSU, June 2007). (Source: Pennsylvania Hardwoods Development Council Biennial Report, 2009-2010, [http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS\\_0\\_2\\_24476\\_10297\\_0\\_43/AgWebsite/Files/Publications/Hardwoods%20Biennial%20Report%202010.pdf](http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_24476_10297_0_43/AgWebsite/Files/Publications/Hardwoods%20Biennial%20Report%202010.pdf))

The Department projects that the cost to the owner and operator of an affected source that would require installation of add-on control technology to comply with the applicable presumptive RACT requirement or RACT emission limitation would be less than \$2,800.00 maximum per ton of NO<sub>x</sub> emission reductions, no matter which source type and add-on control technology is considered, and very likely much less than \$2,800.00 per ton of NO<sub>x</sub> emissions reduced. This cost is minimal compared to the monetized health benefits of attaining and maintaining the NAAQS and to the economic benefits generated by the Commonwealth's agricultural and hardwoods industries.

(11) 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.

Section 110(a) of the CAA provides that each state shall adopt and submit to the EPA a plan to implement measures to enforce the NAAQS or revision to the NAAQS promulgated under section 109(b) of the CAA. Therefore the evaluation or re-evaluation of what constitutes RACT for affected sources must be fulfilled each time the EPA promulgates a new NAAQS as was the case in 1979 for the 1-hour ozone standard and in 1997 for the 8-hour ozone standard or revises a NAAQS as was the case in 2008 for the 8-hour ozone standard.

There are no "companion" Federal standards that are analogous to this rulemaking. However, states are required to develop their own standards and SIP revisions to implement RACT requirements mandated under the CAA. This final rulemaking is not more stringent than Federal requirements.

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

This final rulemaking is similar to RACT regulations already adopted by Wisconsin and New York and approved by the EPA as revisions to the respective state SIPs. The determinations of what add-on control

technologies are reasonably available to meet presumptive RACT requirements included in the final rulemaking are consistent with the determinations of what add-on control technologies are reasonably available to meet the presumptive RACT requirements in New York. The RACT limits included in the final rulemaking are comparable to emission limits included in other states' RACT regulations, including New York and Wisconsin. The final rulemaking has no adverse effect on Pennsylvania's ability to compete with other states.

Due to variability in source type, combustion characteristics, unit size, fuel usage, operating conditions, and source age, there are differences between the final rulemaking and the New York RACT regulations in terms of emission limits, exceptions, size cutoffs, etc. For example, New York determined that combined cycle combustion turbines operated after July 1, 2014, should undergo case-by-case analysis due to limited numbers of this source type in New York. As New York noted in their Regulatory Impact Statement, "Because of the limited number of sources and the wide range of available control technologies, the [NY] Department was not able to identify a presumptive NO<sub>x</sub> RACT emission limit for combined cycle combustion turbines." However, due to the large number of these sources operating in Pennsylvania, the Department was able to determine presumptive NO<sub>x</sub> RACT emission limitations for different categories of combined cycle combustion turbines, including large combustion turbines that will likely be required to use SCR control to meet the applicable NO<sub>x</sub> RACT emission limitation.

A 30-day rolling average has been approved by the EPA to demonstrate compliance with the RACT limitations in SIP revisions submitted by certain states including New York and Wisconsin. New York's RACT regulation was approved by the EPA on July 12, 2013 (78 FR 41846). While the 24-hour average for New York is applicable during the ozone season, the 30-day rolling average is applicable outside the ozone season. Wisconsin's RACT regulation, which the EPA approved on October 19, 2010, includes emission averaging on a 30-day rolling basis for determining compliance (75 FR 64155). Wisconsin described such a period as short-term and noted that this approach would allow averaging of the typical variations in emission levels from a single unit. Further, it is important to note that the same NO<sub>x</sub> emission limit (0.12 lb/million Btu) established for coal-fired EGUs in Pennsylvania has been approved by the EPA as a SIP revision for the State of New York.

The final rulemaking improves Pennsylvania's ability to compete with other states by eliminating, in most cases, the time-consuming and costly case-by-case RACT review procedure that the owners and operators of affected facilities had to complete in the past to meet the RACT requirements implemented under §§ 129.91—129.95 for the 1-hour ozone standard. See 24 Pa. B. 467 (January 15, 1994).

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

No other regulations promulgated by this agency or other state agencies will be affected.

(14) Describe the communications with and solicitation of input from the public, any advisory council/group, small businesses and groups representing small businesses in the development and drafting of the regulation. List the specific persons and/or groups who were involved. ("Small business" is defined in Section 3 of the Regulatory Review Act, Act 76 of 2012.)

On November 7, 2014, the Air Quality Technical Advisory Committee (AQTAC) was briefed on the draft final-form regulation and public comments submitted to the Board on the proposed rulemaking. The AQTAC voted 11-5-0 (yes; no; abstain) to concur with the Department's recommendation to forward the final rulemaking to the Board for consideration. The draft final-form regulation was discussed with the

Small Business Compliance Advisory Committee (SBCAC) on January 28, 2015. The SBCAC voted 6-2-0 to concur with the Department's recommendation to forward the final rulemaking to the Board. The draft final-form regulation was discussed with the Citizens Advisory Council (CAC) Policy and Regulatory Oversight (PRO) Committee on February 20, 2015, and May 12, 2015. The Policy and Regulatory Oversight Committee recommended that the CAC concur with the Department's recommendation to move the final rulemaking forward to the Board. However, the CAC tabled their consideration of the draft final-form regulation at both its March 17 and May 20 meetings. The CAC considered the final-form rulemaking at its September 15, 2015 meeting. The CAC raised several concerns and recommendations that were considered by the Department. The CAC supported the adoption of the regulations and unanimously voted to concur with advancing it to the Board for action.

The AQTAC, SBCAC, and CAC meetings are advertised and open to the public.

(15) Identify the types and number of persons, businesses, small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012) and organizations which will be affected by the regulation. How are they affected?

The final rulemaking affects the owner and operator of certain types of stationary air contamination sources located at any major NO<sub>x</sub> emitting facility or any major VOC emitting facility that was in existence in this Commonwealth on or before July 20, 2012, for which a requirement or emission limitation, or both, has not been established in §§ 129.51—129.52c, §§ 129.54—129.69, §§ 129.71—129.73, § 129.75, § 129.77, §§ 129.101—129.107 or §§ 129.301—129.310. The final rulemaking requirements and limitations also apply when the installation of a new source or a modification at or a change in operation of an existing source after July 20, 2012, results in the source or facility meeting the definition of either a major NO<sub>x</sub> emitting facility or a major VOC emitting facility. The Board has established presumptive RACT requirements and emission limitations for nine source categories including the following: combustion units; boilers; process heaters; turbines; stationary internal combustion engines; municipal solid waste landfills; municipal waste combustors; cement kilns; and a category for sources other than those listed that are not regulated elsewhere under Chapter 129.

Approximately 810 emission sources of NO<sub>x</sub>, VOCs, or both, located at about 192 facilities (excluding facilities in Allegheny and Philadelphia Counties) fit these nine categories and will be subject to the final-form regulation. Of the 810 emission sources, the Department has identified 79 sources that may require add-on control to comply with the RACT requirements. See Table 1.

Table 1. Number of Sources Requiring Additional Control under §§ 129.96—129.100

	<b>A</b>	<b>B</b>
Source Type	Number of Units Subject to RACT II* for NO <sub>x</sub> Emissions	Number of Units Requiring Additional Control for NO <sub>x</sub> Emissions under RACT II*
Boilers	257	34
Boilers (EGUs) with SCR	12	0
Engines	393	28
Turbines	148	17
<b>Total</b>	<b>810</b>	<b>79</b>

\*RACT II refers to §§ 129.96—129.100

The sources included in these nine categories are located at various facility types including fossil fuel-burning and other electric generation plants; natural gas pipeline transport and distribution; petroleum refining; petroleum and coal products manufacturing; steam and air conditioning supply; fats and oils refining and blending; specialty canning; tobacco products manufacturing; carpet and rug milling; reconstituted wood product manufacturing; paper and paperboard products manufacturing; printing; medicinal and botanical products manufacturing; iron and steel milling, manufacturing and forging; ferroalloy manufacturing; nonferrous metal smelting and refining; semiconductor and related device manufacturing; aircraft manufacturing; chemicals manufacturing; Portland cement manufacturing; railroad rolling stock manufacturing; motorcycle manufacturing; wireless telecommunications carriers; colleges and universities; home health care services; hospitals; pharmaceuticals manufacturing; beer brewing; and biotechnology.

The Department reviewed its database of regulated facilities with RACT-related permit conditions to determine how many, and which, potentially meet the definition of small business now specified in Section 3 of the Regulatory Review Act, as “in accordance with the size standards described by the SBA’s Small Business Size Regulations under 13 CFR Chapter 1 Part 121 (relating to Small Business Size Regulations) or its successor regulation.” The Department cross-referenced facility North American Industry Classification System (NAICS) information from its database with the “Table of Small Business Size Standards Matched to North American Industry Classification System Codes effective January 7, 2013,” obtained from the SBA website at [http://www.sba.gov/sites/default/files/files/Size\\_Standards\\_Table\(1\).pdf](http://www.sba.gov/sites/default/files/files/Size_Standards_Table(1).pdf). The SBA table gives different determination criteria for different NAICS codes. A small business may be defined, for example, by sales, number of employees, or electric generation capacity in the case of utilities.

The Department then accessed the SBA Dynamic Small Business Search database which contains information about small businesses that have registered with the SBA. This self-certifying database incorporates the small business criteria contained in 13 CFR Chapter 1 Part 121, including NAICS codes, when the owners/operators of the companies register. This registration benefits the owners and operators of small businesses because the database assists government contracting officers in determining whether a company is eligible as a small business. The Department also reviewed information available on individual company internet sites for information that could identify a company as a small business based on sales or number of employees. In addition, the Department contacted the Small Business Development Center and used its access to Environmental Management Assistance Programs (EMAP) information to identify small businesses potentially affected by the final-form rulemaking.

For electric generation facilities, the Department obtained yearly generation information from the Federal Energy Information Agency databases at <http://www.eia.gov/electricity/data/eia860/>. This information was correlated with the NAICS table definitions cited above to determine which electric generation facilities could be classified as small businesses. The Department determined that the owners and operators of approximately 20 affected major facilities meet the definition of “small business” now specified in Section 3 of the Regulatory Review Act. The Department expects that the negative impact on the owners and operators of these major facilities/small businesses will be minimal due to the flexibility provided in the final rulemaking to achieve compliance with the requirements.

Under final-form § 129.98 (relating to facility-wide or system-wide NO<sub>x</sub> emissions averaging plan general requirements), the owner or operator of an affected major NO<sub>x</sub> emitting facility/small business subject to § 129.96 that includes at least one air contamination source subject to a NO<sub>x</sub> RACT emission limitation in § 129.97 (relating to presumptive RACT requirements, RACT emission limitations and petition for

alternative compliance schedule) that cannot meet the applicable presumptive NO<sub>x</sub> RACT emission limitation may elect to meet the applicable emission limitation in § 129.97 by averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average. System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth.

Under final-form § 129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule), the owner or operator of an air contamination source located at any major NO<sub>x</sub> emitting facility or major VOC emitting facility subject to § 129.96 that cannot meet the applicable presumptive RACT requirement or RACT emission limitation specified in § 129.97 may propose an alternative RACT requirement or RACT emission limitation.

This flexibility afforded to the owners and operators of affected facilities, including small businesses, in the final rulemaking ensures minimal negative effect on their operations. The owners and operators of the affected facilities are familiar with the existing requirements for emissions control, emissions reporting, and recordkeeping for their entity and have the professional and technical skills needed for continued compliance with these requirements.

(16) List the persons, groups or entities, including small businesses, which will be required to comply with the regulation. Approximate the number that will be required to comply.

The Department estimates that the owners and operators of approximately 810 emission sources of NO<sub>x</sub>, VOCs, or both, located at about 192 major facilities (excluding facilities in Allegheny and Philadelphia Counties) will be subject to the final rulemaking. Of the 810 emission sources, the Department has identified 79 sources that may require add-on control to comply with the final-form RACT requirements. See Table 1 in the response to Question 15.

The final-form rulemaking affects the owner and operator of certain types of stationary air contamination sources located at any major NO<sub>x</sub> emitting facility or any major VOC emitting facility that was in existence in this Commonwealth on or before July 20, 2012, for which a requirement or emission limitation, or both, has not been established in §§ 129.51—129.52c, §§ 129.54—129.69, §§ 129.71—129.73, § 129.75, § 129.77, §§ 129.101—129.107 or §§ 129.301—129.310. The final rulemaking requirements and limitations also apply when the installation of a new source, a modification at or a change in operation of an existing source after July 20, 2012, results in the source or facility meeting the definition of either a major NO<sub>x</sub> emitting facility or a major VOC emitting facility.

The sources are located at various facility types including fossil fuel-burning and other electric generation; natural gas pipeline transport and distribution; petroleum refining; petroleum and coal products manufacturing; steam and air conditioning supply; fats and oils refining and blending; specialty canning; tobacco products manufacturing; carpet and rug milling; reconstituted wood product manufacturing; paper and paperboard products manufacturing; printing; medicinal and botanical products manufacturing; iron and steel milling, manufacturing and forging; ferroalloy manufacturing; nonferrous metal smelting and refining; semiconductor and related device manufacturing; aircraft manufacturing; chemicals manufacturing; Portland cement manufacturing; railroad rolling stock manufacturing; motorcycle manufacturing; wireless telecommunications carriers; colleges and universities; home health care services; hospitals; pharmaceuticals manufacturing; beer brewing; and biotechnology.

As described in the response to question (15), the Department has determined that the owners and operators of approximately 20 affected major facilities meet the definition of “small business” specified in Section 3

of the Regulatory Review Act. The major facilities in this group include petroleum and coal products manufacturers; electric power generators; paper mills; pharmaceuticals manufacturers; and colleges and universities. The Department expects that the negative impact on the owners and operators of these major facilities/small businesses will be minimal due to the flexibility provided in the final rulemaking to achieve compliance with the requirements. The provisions in the final-form regulation will not supersede more stringent NO<sub>x</sub> requirements and NO<sub>x</sub> emission limitations.

(17) Identify the financial, economic and social impact of the regulation on individuals, small businesses, businesses and labor communities and other public and private organizations. Evaluate the benefits expected as a result of the regulation.

*Social impact and benefits on public health and welfare; projected amount of emission reductions achieved*

The EPA designated 37 counties in this Commonwealth as 8-hour ozone nonattainment areas for the 1997 8-hour ozone NAAQS at 69 FR 23858, 23931 (April 30, 2004). On May 21, 2012, the EPA published final designations and classifications for the 2008 8-hour ozone NAAQS. The designations were effective July 20, 2012 (77 FR 30088; May 21, 2012). The following nonattainment areas were classified as “marginal” ozone nonattainment areas: Allentown-Bethlehem-Easton (Carbon, Lehigh and Northampton), Lancaster (Lancaster County), Philadelphia-Wilmington-Atlantic City (the Pennsylvania areas include Bucks, Chester, Delaware, Montgomery and Philadelphia counties), Pittsburgh-Beaver Valley (Allegheny, Armstrong, Beaver, Butler, Fayette, Washington and Westmoreland counties) and the Reading area (Berks County); the remainder of the Commonwealth was designated “Unclassifiable/Attainment” (77 FR 30143, 30144). The Commonwealth must ensure that these areas attain the 2008 ozone standard by July 20, 2015, and that they continue to maintain the standard thereafter. The DEP will seek an extension of the July 2015 8-hour ozone NAAQS attainment date for the five-county Philadelphia Area (Bucks, Chester, Delaware, Montgomery and Philadelphia counties) due to several violating monitors in Maryland and New Jersey. An extension of the attainment date for 2008 ozone standard will also be requested for the seven-county Pittsburgh-Beaver Valley Area (Allegheny, Armstrong, Beaver, Butler, Fayette, Washington and Westmoreland counties).

The total projected maximum *potential* NO<sub>x</sub> emission reductions anticipated as a result of implementing final-form §§ 129.96—129.100 are 253,623 tons per year. The amount of NO<sub>x</sub> and VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source’s potential to emit before and after the application of RACT-level control. The amount of *actual* NO<sub>x</sub> emission reductions achieved may be less depending on 1) whether a source is already controlled sufficiently to comply with the final-form RACT requirements and emission limitations or 2) what type of control is implemented for a source that needs additional control to achieve compliance with the final-form RACT requirements and emission limitations. Implementing the final-form control measures for reducing the emissions of NO<sub>x</sub> and VOCs will assist the Commonwealth in its efforts to attain and maintain the health- and welfare-based 8-hour ozone NAAQS statewide.

The final rulemaking is reasonably necessary to attain and maintain the health- and welfare-based 8-hour ozone NAAQS in this Commonwealth and to comply with Clean Air Act requirements. The final-form regulation will be submitted to the EPA as a revision to the SIP following final-form publication in the *Pennsylvania Bulletin*.

*Financial and economic impacts and benefits*

Impacts of the final rulemaking on industry vary due to the diverse types of affected source categories as

listed in item (15). The Department's circumstances from 1995 to 2006 of making numerous submittals to the Administrator of the EPA for Federal approval of revisions to the SIP required for the approximately 600 case-by-case RACT determinations made under §§ 129.91—129.95 for attaining and maintaining the 1979 1-hour ozone standard will be averted with the implementation of the final-form presumptive RACT requirements and emission limitations; optimization of existing control measures on certain affected sources may be necessary, however, to meet the final-form presumptive RACT requirements and emission limitations. This final rulemaking establishes applicability requirements for the implementation of specified RACT control measures for the nine identified source types for attaining and maintaining the 1997 and 2008 8-hour ozone standards. The final rulemaking incorporates operational flexibility including the option to request approval to use facility-wide and system-wide NO<sub>x</sub> emissions averaging. Additional flexibility in the final-form regulation allows an owner or operator to propose a source-specific RACT NO<sub>x</sub> requirement or emission limitation or RACT VOC requirement or emission limitation as alternative methods of compliance.

Benefits of the final rulemaking to the affected owners and operators include implementation of consistent presumptive RACT requirements and RACT emission limitations across the Commonwealth. This will minimize the need for owners and operators to develop a case-by-case RACT permit application with its associated costs, fees and time constraints. Annual fees for applications for operating permits and plan approvals currently range from \$750 for Title V operating permit fees to \$5,300 for a plan approval application submitted for the installation of air cleaning devices. See §§ 127.704 and 127.702(b), respectively. These costs are not applicable to the owners and operators of sources that comply with the presumptive RACT requirements and RACT emission limitations.

Implementation of consistent presumptive RACT requirements and RACT emission limitations will also minimize the downtime for the operation and allow owners and operators to maintain and grow their operations, maintain jobs and staffing levels, and maintain or increase their revenues.

Benefits to the Department include the minimization of the number of requests for case-by-case permit reviews and SIP revisions and the associated demands on staff resources.

Benefits to the Commonwealth include the avoidance of mandatory sanctions under section 179 of the CAA including "2:1 emission offsets" for the construction of new or modified sources of NO<sub>x</sub> or VOC emissions and the loss of Federal highway funds. See 40 CFR 52.31. The Commonwealth receives approximately \$1.6 billion in Federal transportation funding annually.

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

Each time the EPA revises the ozone NAAQS, the owners and operators of existing facilities subject to RACT are required to reevaluate what constitutes RACT for their source to achieve the lowest emission limit for NO<sub>x</sub> or VOCs that the source is capable of meeting considering technological and economic feasibility. The presumptive RACT requirements and RACT emission limitations implemented in the final rulemaking significantly reduce or eliminate the need to request case-by-case analysis and the associated costs for most of the owners and operators of affected facilities. Implementing the final-form control measures for reducing the emissions of NO<sub>x</sub> and VOCs will assist the Commonwealth in its efforts to attain and maintain the 1997 and 2008 8-hour ozone NAAQS statewide.

In the Department's current RACT program implemented in 1994 under §§ 129.91—129.95 for the 1-hour ozone standard, the case-by-case analysis process began in 1995 and was not completed until 2006 due to the need for EPA approval of SIP submittals for the case-by-case RACT determinations. Many facility

owners and operators had to hire consultants or additional staff to complete their case-by-case RACT analyses and proposals and handle the permitting requirements.

Given that implementation of RACT requirements is Federally required, the Department estimates that the final-form presumptive RACT requirements and RACT emission limitations will achieve greater emission reductions at a lower cost to the affected owners and operators and to the Commonwealth than implementing RACT solely through case-by-case determinations. Further, these emission reductions will occur in a more timely manner than implementation of another round of case-by-case RACT determinations for every affected major source of NO<sub>x</sub> or VOCs as occurred under §§ 129.91—129.95 from 1995–2006. For example, the emissions averaging provisions under § 129.98 will provide ozone precursor emission reductions at the lowest cost while preserving existing reductions or realizing additional reductions.

By establishing consistent presumptive RACT requirements and RACT emission limitations Commonwealth-wide for the owners and operators of affected major NO<sub>x</sub> emitting or VOC emitting facilities, or both, and by providing flexibility in compliance through NO<sub>x</sub> emissions averaging and case-specific NO<sub>x</sub> and VOC emission limitation options, the owners and operators of affected facilities will be able to achieve compliance in the most cost-effective manner. The final rulemaking minimizes the need for most case-by-case determinations through the establishment of presumptive RACT requirements and emission limitations. The owners and operators of affected NO<sub>x</sub>-emitting facilities that cannot meet the presumptive RACT requirements and emission limitations have the option to elect to achieve compliance by meeting the presumptive limits through a NO<sub>x</sub> emissions averaging protocol before having to resort to a time-consuming and costly case-by-case analysis.

The Department estimates that the projected maximum total cost of controls for the owners and operators of the 79 affected sources identified as potentially needing add-on control would be \$81,505,401 as shown in Table 3 in the response to Question 19. Benefits from the implementation of the final-form NO<sub>x</sub> and VOC control measures for the affected major sources will include protection of the health and welfare of the approximately 12.7 million residents and the numerous animals, crops, vegetation and natural areas of this Commonwealth by reducing emissions of NO<sub>x</sub> and VOCs, which are precursors to the formation of ground-level ozone air pollution. Ground-level ozone air pollution can also be transported downwind via regional air currents and meteorological events. Reductions of ground-level ozone in this Commonwealth will therefore also benefit the residents of downwind states and environments. The measures in the final rulemaking are reasonably required to attain and maintain the health- and welfare-based 8-hour ozone NAAQS in this Commonwealth and to protect the livelihoods of numerous citizens and residents.

Compliance with the final-form NO<sub>x</sub> and VOC emission reduction measures will assist the Commonwealth in its efforts to attain and maintain the health- and welfare-based 8-hour ozone NAAQS statewide. The total projected maximum *potential* NO<sub>x</sub> emission reductions anticipated as a result of implementing final-form §§ 129.96—129.100 are 253,623 tons per year. The amount of NO<sub>x</sub> and VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source's potential to emit before and after the application of RACT-level control. The amount of *actual* NO<sub>x</sub> emission reductions achieved may be less depending on 1) whether a source is already controlled sufficiently to comply with the final-form RACT requirements and emission limitations or 2) what type of control is implemented for a source that needs additional control to achieve compliance with the final-form RACT requirements and emission limitations.

Adverse effects are not anticipated from the adoption and implementation of the RACT final-form regulation. Additionally, a mandatory sanctions clock would be triggered under section 179 of the CAA

(42 U.S.C.A. § 7509), following the issuance of a “failure to submit” finding” by the EPA if the RACT SIP revision for the 2008 8-hour ozone standard is not submitted to the EPA for approval. If the SIP deficiency is not corrected within 18 months after the EPA finding, the EPA Administrator would first impose 2-to-1 emission offset sanctions for new or modified major stationary sources statewide in accordance with section 179 of the CAA and its implementing regulations in 40 CFR 52.31 (relating to selection of sequence of mandatory sanctions for findings made pursuant to section 179 of the Clean Air Act). If the deficiency has not been corrected within 6 months after the 2-to-1 emission offset sanctions are imposed, the EPA would apply the Federal highway funding sanctions. Pennsylvania receives approximately \$1.6 billion in Federal transportation funding annually, which would be at risk if the Commonwealth does not implement RACT requirements statewide for the 2008 8-ozone NAAQS. The EPA is also authorized to withhold discretionary funding including grants issued under section 103 (relating to research, investigation, training, and other activities) and section 105 (relating to research programs; grants; contracts; pilot and demonstration plants; byproducts research).

(19) 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.

#### *Background analysis*

The Department conducted a generic RACT analysis of existing sources for which a RACT determination was previously made under §§ 129.91—129.95 for the 1-hour ozone standard to evaluate whether the RACT determination under §§ 129.91—129.95 would represent RACT-level control for the 8-hour ozone standards or if new or additional add-on control technology would represent RACT-level control for the 8-hour ozone NAAQS. That generic analysis identified existing affected source categories by size and fuel type; identified available feasible NO<sub>x</sub> or VOC control options for each type of existing source; estimated emission reduction potential for each control technology; identified costs for technologies, using appropriate updates; evaluated cost-effectiveness per the guidance provided in the EPA Air Pollution Control Cost Manual, EPA/452/B-02-001, 6<sup>th</sup> edition, January 2002, for both uncontrolled and controlled sources (combinations of technologies); and projected what type of control technology might be applied to each affected source.

For the combustion units and process heaters, combustion turbines and stationary internal combustion engines source types, the Department reviewed its permit databases and cataloged existing sources subject to case-by-case NO<sub>x</sub> and VOC emission limitations under the first round of RACT (RACT 1) implemented under §§ 129.91—129.95 from 1995–2006. The information collected included the RACT 1 emission limitation and required emission control technology for each source. The RACT 1 potential to emit rates were used as a baseline to determine technical and economic feasibility for emission controls for the second round of RACT (RACT 2) being implemented in this final rulemaking. The amount of NO<sub>x</sub> and VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source’s potential to emit before and after the application of RACT-level control.

Based on this analysis the Department determined that certain add-on control technologies represent RACT for the 8-hour ozone NAAQS for nine existing source categories that currently do not have presumptive RACT requirements or emission limitations codified in Chapter 129. These nine source categories include combustion units; boilers; process heaters; turbines; stationary internal combustion engines; municipal solid waste landfills; municipal waste combustors; cement kilns; and certain other sources that are not regulated elsewhere under Chapter 129.

### *Compliance costs*

For the owner and operator of an affected source that will need to install add-on control technology to comply with the applicable presumptive RACT requirement or RACT emission limitation, the compliance costs will include the total capital investment of the add-on control equipment, the annual operating costs of the add-on control equipment, and the effectiveness of the control equipment in reducing emissions from the source. The cost-effectiveness of the add-on control equipment is calculated by dividing the annual operating costs of the add-on control equipment by the amount of emission reductions achieved annually from operation of the add-on control equipment.

It is not possible to provide a precise estimate of the costs that will be incurred by the owner or operator of a specific source due to not knowing what type of add-on control equipment the owner or operator may choose and to the variability in capital investment costs and annual operating costs for the chosen add-on control equipment. Capital costs include the purchase and installation costs for the chosen add-on control technology and the costs of monitoring equipment that may be required for the add-on control equipment, along with delivery costs, start-up costs, initial testing and taxes. Annual operating costs include the costs of electricity or fuel to operate the add-on control equipment and the monitoring equipment, if needed, maintenance and repair costs, overhead costs, capital recovery, and property taxes. Precisely estimating the cost-effectiveness of each available add-on control technology for each affected source is not possible since the actual amount of emissions reduced will not be known until the add-on control equipment is installed and operated.

The Department adjusted the RACT 1 cost benchmarks of \$1,500.00 and \$3,000.00 per ton of NO<sub>x</sub> or VOC emissions removed, respectively, by multiplying by the consumer price index (CPI) differential between 1990 and 2014 of 1.84 to arrive at benchmarks of \$2,800.00 and \$5,500.00 per ton of NO<sub>x</sub> or VOC emissions removed, respectively, for RACT 2. The NO<sub>x</sub> benchmark of \$2,800.00 exceeds Wisconsin's NO<sub>x</sub> cost benchmark of \$2,500.00 and the Wisconsin SIP revision was approved by the EPA at 75 FR 64155 (October 19, 2010). No other state has adopted a RACT VOC emission limitation for these sources, with an accompanying cost benchmark. Using these cost benchmarks as a guide, the Department evaluated technically feasible emission controls for cost-effectiveness and economic feasibility. From this evaluation, the RACT 2 NO<sub>x</sub> and VOC emission limitations included in the final-form regulation were determined.

A source was assumed to require additional add-on control if the applicable NO<sub>x</sub> RACT 2 emission limitation was less than 50% of the NO<sub>x</sub> RACT 1 emission limitation currently applied to the source. Using these benchmarks, the Department projects that the cost of complying with the applicable final-form presumptive RACT requirement or RACT emission limitation by installing add-on control technology or by complying through an averaging protocol will be less than \$2,800.00 maximum per ton of NO<sub>x</sub> emission reductions, no matter which source type and add-on control technology is considered. The estimated cost for the worst case scenario to meet the applicable presumptive RACT requirement or RACT emission limitation will be roughly \$2,800.00 per ton of NO<sub>x</sub> emission reduction required.

The Department anticipates that the owners and operators of most of the affected source units will be able to meet the presumptive RACT requirement or emission limitation without the purchase, installation and operation of add-on air pollution control technology, so there is likely to be little to no cost incurred by most of the affected owners and operators. Additionally, most affected owners and operators will likely not need to hire consultants or additional staff to perform a case-by-case analysis to determine what control measures are needed at the affected facility to comply with the final-form RACT regulation requirements and emission limitations.

### *Alternative compliance options*

Compliance costs will vary for each source or facility depending on which compliance option is chosen by the owner and operator of the affected source or facility. The final rulemaking includes a provision for the owner and operator of an affected facility that cannot meet the applicable presumptive NO<sub>x</sub> RACT emission limitation to elect to meet the applicable presumptive NO<sub>x</sub> RACT emission limitation by averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average. The owner and operator of an affected source that cannot meet the applicable presumptive RACT requirement or RACT emission limitation may also elect to propose a source-specific NO<sub>x</sub> RACT emission limitation or VOC RACT emission limitation, or both, on a case-by-case basis. Under these alternative compliance provisions, the owner or operator must demonstrate to the Department's satisfaction that it is economically or technically infeasible to meet the applicable presumptive requirement or emission limitation. The flexibility provided by these alternative compliance provisions may minimize compliance costs to the owner or operator of an affected facility.

### *Average cost-effectiveness*

As shown in Table 2 below, Department has estimated that the average cost-effectiveness for implementing add-on controls, where applicable, ranges from \$105.00 per ton of NO<sub>x</sub> emissions reduced for operation of a non-selective catalytic regenerative oxidizer (NSCR) installed on a rich burn engine to \$2,446.00 per ton of NO<sub>x</sub> emissions reduced for use of low emission combustion technology in a lean burn engine.

Table 2. Average Cost per Ton of NO<sub>x</sub> Emissions Reduced

Source	Fuel or Type	Control	Average Cost per ton NO <sub>x</sub> Controlled
Boiler	Natural Gas	LNB	\$ 2,427.00
Boiler	No. 2 Oil	LNB	\$ 2,427.00
Boiler	No. 4 & 6 Oil	LNB	\$ 1,452.50
Boiler	Refinery Fuel Gas	LNB	\$ 2,335.00
Boiler	Coal without SCR	LNB	\$ 649.00
Boiler	Other Solid Fuel	LNB	\$ 649.00
Engine	Rich Burn	NSCR	\$ 105.00
Engine	Lean Burn	LEC	\$ 2,446.00
Turbine	Natural Gas	DLNC	\$ 2,437.50
Turbine	Diesel	DLNC	\$ 1,523.00

The Department provides two examples to demonstrate the range of compliance costs that may be incurred by the owner or operator of an affected source.

Example 1: The source is a natural gas-fired rich-burn engine rated at 1100 brake horsepower (bhp). The engine's current RACT limitation implemented under §§ 129.91—129.95 is 26.32 g/bhp-hr with potential to emit NO<sub>x</sub> emissions of 279.3 tpy. A feasible add-on control for this source is NSCR with estimated capital and installation costs of \$45,520 and estimated annual operating costs of \$14,744. The engine's RACT limitation under the final-form regulation would be 2 g/bhp-hr and it would emit 21.2 tpy of NO<sub>x</sub>. The projected emission reductions would be 258.1 tpy. The estimated cost-effectiveness of installing and operating the NSCR add-on control for this source would be \$57.13 per ton of NO<sub>x</sub> emissions reduced

[\$14,744 operating costs per year / 258.1 tpy NO<sub>x</sub> emissions reduced = \$57.13 per ton of NO<sub>x</sub> emissions reduced]. The estimated cost-effectiveness for this example, \$57.13, is below the average cost-effectiveness for this type of add-on control for this type of source – \$105.00.

Example 2: The source is a 100 MMBtu/hr heat input natural gas-fired boiler. The boiler's uncontrolled NO<sub>x</sub> emissions after implementation of RACT under §§ 129.91—129.95 are 0.3 lb NO<sub>x</sub>/MMBtu or 131 tpy. A feasible add-on control for this source is a low-NO<sub>x</sub> burner with estimated equipment cost of \$100,000 and estimated installation cost of \$70,000. The estimated annual operating costs are \$127,854. The boiler's RACT limitation under the final-form regulation would be 0.10 lb NO<sub>x</sub>/MMBtu with anticipated annual NO<sub>x</sub> emissions of 65.3 tpy. The projected NO<sub>x</sub> emission reductions would be 65.7 tpy. The estimated cost-effectiveness of installing and operating the low- NO<sub>x</sub> burner technology for this source would be \$1,946 per ton of NO<sub>x</sub> emissions reduced [\$127,854 operating costs per year / 65.7 tpy NO<sub>x</sub> emissions reduced = \$1,946 per ton of NO<sub>x</sub> emissions reduced]. The estimated cost-effectiveness for this example, \$1,946, is below the average cost-effectiveness for this type of add-on control for this type of source – \$2,427.

*Projected maximum total cost of control*

The Department reevaluated the number of total units for each source type requiring control and the associated control costs as a result of revisions to emission limitations from proposed to final rulemaking. The numbers of total units by source type are shown in Table 3. The number of turbines requiring control has dropped from 64 under the proposed rulemaking to 17 primarily due to the final-form regulation setting forth a presumptive RACT emission limitation of 150 ppmvd NO<sub>x</sub> @ 15% oxygen for simple cycle or regenerative cycle turbines equal to or greater than 1,000 bhp and less than 6,000 bhp. These turbines did not have a presumptive RACT emission limitation established in the proposed rulemaking and would therefore have been subject to case-by-case determinations under § 129.99(b).

Table 3. Total Cost of Control for Units Requiring Additional Control under §§ 129.96—129.100

	<b>A</b>	<b>B</b>	<b>C</b>
<b>Source Type</b>	<b>Number of Units Subject to RACT II* for NO<sub>x</sub> Emissions</b>	<b>Number of Units Requiring Additional Control for NO<sub>x</sub> Emissions under RACT II*</b>	<b>Total Cost of Control for Units Requiring Additional Control for NO<sub>x</sub> Emissions under RACT II*</b>
Boilers, except EGUs with SCR	257	34	\$ 39,206,476
EGUs (Boilers) with SCR	12	0	N/A
Engines	393	28	\$ 25,941,478
Turbines	148	17	\$ 16,357,447
<b>Total</b>	<b>810</b>	<b>79</b>	<b>\$ 81,505,401</b>

\*RACT II refers to §§ 129.96—129.100

Table 3 calculates the anticipated total cost of control based on the number of units requiring additional control to achieve the level of emissions required under final-form §§ 129.96—129.100. For the purposes

of Table 3, no additional control is needed for EGUs (boilers) with SCR since these units already have the control installed. Therefore there is no cost of control to be calculated for these sources as a result of the implementation of the final rulemaking.

The Department estimates that the projected maximum total cost of control for the owners and operators of the 79 affected sources identified as potentially needing add-on control would be \$81,505,401 as shown in Table 3. The actual costs are likely to be much less since many of the potentially affected source owners and operators are not expected to need to install additional add-on controls to comply with the final-form RACT requirements and emission limitations. Further, the owners and operators of affected sources that already achieve the level of emissions required under the final-form RACT regulation would have no costs to comply.

#### *Amount of emission reductions achieved*

The amount of NO<sub>x</sub> and VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source's potential to emit before and after the application of RACT-level control. The total projected maximum *potential* NO<sub>x</sub> emission reductions anticipated as a result of implementing final-form §§ 129.96—129.100 are 253,623 tons per year.

The amount of *actual* NO<sub>x</sub> emission reductions achieved may be less depending on 1) whether a source is already controlled sufficiently to comply with the final-form RACT requirements and emission limitations or 2) what type of control is implemented for a source that needs additional control to achieve compliance with the final-form RACT requirements and emission limitations.

#### *Legal, accounting and consulting procedures*

No new legal, accounting or consulting procedures are anticipated.

(20) 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.

The Department identified 11 local government-owned permitted Title V facilities that are subject to the final rulemaking. All of the landfills identified already comply with the applicable Federal New Source Performance Standard. The remaining affected sources are boilers rated at less than 50 MMBtu/hr, engines rated at less than 500 bhp, or engines with an operating-hours cap of 500 or fewer hours per year. The Department does not anticipate additional compliance costs or savings for these sources.

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

The Department identified 24 state-owned permitted Title V facilities that are subject to the final rulemaking. Of these 24 facilities, the Department expects that the owners of two natural gas-fired boilers would need to install add-on control to comply with the final-form regulation. The NO<sub>x</sub> emissions from each boiler would be 62 tpy less after control. At an estimated cost per ton controlled of \$2,427.00, the Department projects that the estimated control cost for each boiler would be \$150,348, for a total of \$300,696.

The Department would realize administrative savings compared to the previous case-by-case RACT determinations and permitting implemented under §§ 129.91—129.95 with regard to paid salaries and benefits due to the lower amount of review time required under the final-form presumptive RACT program. The state could save more than \$3,500.00 for every 100 hours of review time that has been averted under the final rulemaking. The flexibility provided in the final-form regulation is designed to minimize the number of case-by-case applications that would have to be processed without the final-form presumptive requirements.

The Department will incorporate the RACT requirements as applicable requirements at the time of permit renewal, if less than 3 years remain in the permit term, as specified under § 127.463(c) (relating to operating permit revisions to incorporate applicable standards). If 3 years or more remain in the permit term, the requirements will be incorporated as applicable requirements in the permit within 18 months of the promulgation of the final rulemaking, as required under § 127.463(b). Most importantly, § 127.463(e) specifies that “[r]egardless of whether a revision is required under this section, the permittee shall meet the applicable standards or regulations promulgated under the Clean Air Act within the time frame required by standards or regulations.” Consequently, upon promulgation as final-form rulemaking, the requirements will apply to affected owners and operators irrespective of a modification to the Operating Permit.

(22) For each of the groups and entities identified in items (19)-(21) above, submit a statement of legal, accounting or consulting procedures and additional reporting, recordkeeping or other paperwork, including copies of forms or reports, which will be required for implementation of the regulation and an explanation of measures which have been taken to minimize these requirements.

The final rulemaking gives owners and operators of the groups identified in items (19)-(21) above the opportunity to limit additional legal, accounting, or consulting procedures. The final-form amendments do not add or change the existing reporting, recordkeeping, or other paperwork requirements for the owners and operators of facilities subject to the final-form regulation. The presumptive emission limitations established by the final rulemaking will not require the submission of applications for amendments to existing operating permits. These final-form requirements will be incorporated as applicable requirements at the time of permit renewal, if less than 3 years remain in the permit term, as specified under § 127.463(c). If 3 years or more remain in the permit term, the requirements will be incorporated as applicable requirements in the permit within 18 months of the promulgation of the final rulemaking, as required under § 127.463(b). Most importantly, § 127.463(e) specifies that “[r]egardless of whether a revision is required under this section, the permittee shall meet the applicable standards or regulations promulgated under the Clean Air Act within the time frame required by standards or regulations.” Consequently, upon promulgation as final-form rulemaking, the requirements will apply to affected owners and operators irrespective of a modification to the Operating Permit.

The owners and operators of the affected facilities are familiar with the existing requirements for reporting and recordkeeping for their entity and have the professional and technical skills needed for continued compliance with these requirements.

(23) 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.

	<b>Current FY Year 14/15</b>	<b>FY+1 Year 15/16</b>	<b>FY+2 Year 16/17</b>	<b>FY+3 Year 17/18</b>	<b>FY+4 Year 18/19</b>	<b>FY+5 Year 19/20</b>
<b>SAVINGS:</b>	\$	\$	\$	\$	\$	\$
<b>Regulated Community</b>	0.00	0.00	0.00	0.00	0.00	0.00
<b>Local Government</b>	0.00	0.00	0.00	0.00	0.00	0.00
<b>State Government</b>	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Savings</b>	0.00	0.00	0.00	0.00	0.00	0.00
<b>COSTS:</b>	\$	\$	\$	\$	\$	\$
<b>Regulated Community</b>	0.00	0.00	40,602,352	81,204,705	81,204,705	81,204,705
<b>Local Government</b>	0.00	0.00	0.00	0.00	0.00	0.00
<b>State Government</b>	0.00	0.00	150,348	300,696	300,696	300,696
<b>Total Costs</b>	0.00	0.00	40,752,700	81,505,401	81,505,401	81,505,401
<b>REVENUE LOSSES:</b>	\$	\$	\$	\$	\$	\$
<b>Regulated Community</b>	0.00	0.00	0.00	0.00	0.00	0.00
<b>Local Government</b>	0.00	0.00	0.00	0.00	0.00	0.00
<b>State Government</b>	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Revenue Losses</b>	0.00	0.00	0.00	0.00	0.00	0.00

(23a) Provide the past three year expenditure history for programs affected by the regulation.

<b>Program</b>	<b>FY-3 2012-13</b>	<b>FY-2 2013-14</b>	<b>FY-1 2014-15</b>	<b>Current FY 2015-16</b>
Environmental Program Management (161-10382)	\$24,965,000	\$25,733,000	\$28,517,000	\$29,967,000
Clean Air Fund Major Emission Facilities (215-20077)	\$18,464,000	\$18,413,000	\$16,870,000	\$22,039,000
Clean Air Fund Mobile and Area Facilities (233-20084)	\$10,198,000	\$8,036,000	\$9,811,000	\$10,250,000

(24) For any regulation that may have an adverse impact on small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012), provide an economic impact statement that includes the following:

(a) An identification and estimate of the number of small businesses subject to the regulation.

The Department reviewed its database of regulated facilities with RACT-related permit conditions to determine how many, and which, potentially meet the definition of small business now specified in Section 3 of the Regulatory Review Act, as “in accordance with the size standards described by the SBA’s Small Business Size Regulations under 13 CFR Chapter 1 Part 121 (relating to Small Business Size Regulations) or its successor regulation.” The Department cross-referenced facility North American Industry Classification System (NAICS) information from its database with the “Table of Small Business Size Standards Matched to North American Industry Classification System Codes effective January 7, 2013,” obtained from the SBA website at [http://www.sba.gov/sites/default/files/files/Size\\_Standards\\_Table\(1\).pdf](http://www.sba.gov/sites/default/files/files/Size_Standards_Table(1).pdf). The SBA table gives different determination criteria for different NAICS codes. A small business may be defined by sales, number of employees, or generation capacity in the case of utilities.

The Department then accessed the SBA Dynamic Small Business Search database which contains information about small businesses that have registered with the SBA. This self-certifying database incorporates the small business criteria contained in 13 CFR Chapter 1 Part 121, such as NAICS codes when the owners or operators of the companies register. This registration benefits small businesses because the database assists government contracting officers in determining whether a company is eligible as a small business. The Department reviewed information available on individual companies’ internet sites for information that could identify a company as a small business based on sales or number of employees. Finally, the Department contacted the Small Business Development Center and used its access to EMAP programs.

For power generation facilities, the Department obtained yearly generation information from the Federal Energy Information Agency databases at <http://www.eia.gov/electricity/data/eia860/>. This information was correlated with the NAICS table definitions cited above to determine which generation facilities could be classified as small businesses.

From these sources, the Department determined that approximately twenty facilities meet the definition of “small business” specified in Section 3 of the Regulatory Review Act. These facilities include petroleum and coal products manufacturers, electric power generators, paper mills, pharmaceutical preparation manufacturer, and colleges and universities. The Department expects that the impact on these small businesses will be minimal. In those cases where a small business is not able to comply with the specified presumptive RACT requirements, owners and operators may submit a request to meet emission limitations by facility-wide or system-wide averaging protocol, or may submit a request for an alternative source-specific emission limitation. The flexibility afforded small businesses in the regulation ensures minimal negative effect on their operations.

(b) The projected reporting, recordkeeping, and other administrative costs required for compliance with the final-form regulation, including the type of professional skills necessary for preparation of the report or record.

No new reporting, recordkeeping, and other administrative procedures are required in the final-form regulation for small businesses. The final-form amendments do not add or change the existing reporting, recordkeeping, or other paperwork requirements for the owners and operators of facilities subject to the

final-form regulation. The owners and operators of subject facilities are familiar with the existing requirements for reporting and recordkeeping for their entity and have the professional and technical skills needed for continued compliance with these requirements.

(c) A statement of probable effect on impacted small businesses.

By establishing consistent standards for all facilities that are major NO<sub>x</sub> emitting or major VOC emitting facilities, or both, and by providing flexibility in compliance through emissions averaging and case-specific options, the owners and operators of these facilities will be able to achieve compliance in the most cost-effective manner. The effects on the regulated community should be very limited and are minimized through these alternative provisions.

(d) A description of any less intrusive or less costly alternative methods of achieving the purpose of the final-form regulation.

The requirement to adopt and implement RACT requirements is Federally mandated. All businesses, whether or not meeting the designation of small business, that are major NO<sub>x</sub> emitting or major VOC emitting facilities, or both, will be required to control emissions to meet the presumptive levels established in the final rulemaking. The final rulemaking incorporates flexibility to achieve mandated standards. By establishing consistent standards for all facilities that are major NO<sub>x</sub> emitting or major VOC emitting facilities, or both, and by providing flexibility in compliance through emissions averaging and case-specific options, the owners and operators of affected facilities will be able to achieve compliance in the most cost-effective manner. These options provide all owners or operators, whether small business or not, increased flexibility to meet Federally mandated RACT requirements in the most cost-effective manner.

Many owners or operators of major NO<sub>x</sub> emitting or major VOC emitting facilities, or both, will not require additional control measures to comply with the final-form RACT requirements. The effects on any small business should be very limited and are minimized through these alternative provisions including emissions averaging to demonstrate compliance with the RACT requirements.

No new legal, accounting or consulting procedures would be required.

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

RACT is Federally mandated and applies to the owners and operators of major air contamination sources of NO<sub>x</sub> or VOCs, or both. All businesses, whether or not they are considered a small business, that are major NO<sub>x</sub> emitting or major VOC emitting facilities, or both, will be required to control emissions, if necessary, to meet the presumptive levels established in the final-form regulation. The final rulemaking provides flexibility for demonstrating compliance through emissions averaging and case-by-case RACT determination options. Facilities will be able to achieve compliance in the most cost-effective manner. These options provide all owners or operators, whether minorities or small businesses, increased flexibility to meet Federal RACT requirements in the most cost-effective manner available.

Minorities, the elderly, small businesses, and farmers who are not owners or operators of a major NO<sub>x</sub> emitting or major VOC emitting facility, or both, would not be affected by the final rulemaking.

(26) 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.

The final rulemaking is considered the least burdensome acceptable method of ensuring compliance with the Federal RACT mandate. Many owners or operators of major NO<sub>x</sub> emitting or major VOC emitting facilities, or both, will not need to do anything more to control emissions than they have already done. The final-form regulation incorporates flexibility to achieve mandated standards. The final-form regulation establishes consistent standards Commonwealth-wide for all facilities that are major NO<sub>x</sub> emitting or VOC emitting facilities, or both. No new legal accounting or consulting procedures would be required.

(27) In conducting a regulatory flexibility analysis, explain whether regulatory methods were considered that will minimize any adverse impact on small businesses (as defined in Section 3 of the Regulatory Review Act, Act 76 of 2012), including:

(a) The establishment of less stringent compliance or reporting requirements for small businesses.

RACT is Federally mandated under the CAA. Owners and operators of major NO<sub>x</sub> emitting or major VOC emitting facilities, or both, that are also small businesses would have several options available to comply with the final-form RACT requirements. The final rulemaking incorporates flexibility to achieve mandated standards. By establishing consistent standards for all facilities that are major NO<sub>x</sub> emitting or major VOC emitting facilities, or both, and by providing flexibility in compliance through emissions averaging and case-by-case RACT determinations, the owners and operators of affected facilities that are also small businesses would be able to achieve compliance in the most cost-effective manner. These options provide all owners or operators, whether small business or not, increased flexibility to meet Federal RACT requirements in the most cost-effective manner available.

Many owners or operators of major NO<sub>x</sub> emitting or major VOC emitting facilities, or both, will not need to do anything more to control emissions than they have already done. Others will be able to meet the requirements using the flexible options provided in the final rulemaking. The negative effects on any small business should be very limited and will be minimized through these alternative provisions.

(b) The establishment of less stringent schedules or deadlines for compliance or reporting requirements for small businesses.

The final-form rulemaking includes provisions for all owners or operators of major NO<sub>x</sub> emitting or major VOC emitting facilities, or both, to submit requests for alternative compliance schedules.

(c) The consolidation or simplification of compliance or reporting requirements for small businesses.

The owners and operators of subject facilities are familiar with the existing requirements for reporting and recordkeeping for their entity and have the professional and technical skills needed for continued compliance with these requirements.

(d) The establishment of performing standards for small businesses to replace design or operational standards required in the regulation.

Many owners or operators of major NO<sub>x</sub> emitting or major VOC emitting facilities, or both, will not need to do anything more to control emissions than they have already done. Others will be able to meet the requirements using the flexible options provided in the final rulemaking.

(e) The exemption of small businesses from all or any part of the requirements contained in the regulation.

RACT is Federally mandated under the CAA. All businesses, whether or not meeting the designation of small business, that are major NO<sub>x</sub> emitting or major VOC emitting facilities will be required to control emissions to meet the presumptive levels established in the final-form regulation. The owner or operator of an air contamination source subject to § 129.97 located at a major facility subject to § 129.96 that cannot meet the applicable presumptive RACT requirement or RACT emission limitation of § 129.97 may propose an alternative RACT requirement or RACT emission limitation in accordance with § 129.99(d). The owner or operator of an affected source would have to demonstrate that the affected source cannot comply with the applicable standard in § 129.97 as part of the application for an Operating Permit Modification or Plan Approval, if otherwise required, for a case-by-case determination under § 129.99(a). The owner or operator of a major NO<sub>x</sub> emitting facility subject to § 129.96 that includes at least one source subject to a NO<sub>x</sub> RACT emission limitation in § 129.97 that cannot meet the applicable NO<sub>x</sub> RACT emission limitation may elect to meet the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 by averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average. System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth. These options provide all owners or operators, whether small business or not, increased flexibility to meet Federal RACT requirements in the most cost-effective manner available.

The final rulemaking is considered the most flexible and least burdensome acceptable method of ensuring compliance with the Federal RACT mandate. The final rulemaking incorporates flexibility to achieve mandated standards and establishes consistent standards for all facilities that are major NO<sub>x</sub> emitting or major VOC emitting facilities, or both.

(28) If data is the basis for this regulation, please provide a description of the data, explain in detail how the data was obtained, and how it meets the acceptability standard for empirical, replicable and testable data that is supported by documentation, statistics, reports, studies or research. Please submit data or supporting materials with the regulatory package. If the material exceeds 50 pages, please provide it in a searchable electronic format or provide a list of citations and internet links that, where possible, can be accessed in a searchable format in lieu of the actual material. If other data was considered but not used, please explain why that data was determined not to be acceptable.

RACT is Federally mandated under the CAA.

*Acceptability standards for empirical, replicable, and testable data*

The Department reviews its own ambient air quality ozone monitoring data for purposes of reporting to the EPA to establish attainment and maintenance of the NAAQS for all areas of this Commonwealth as discussed in the response to Question 9. The Commonwealth's Ambient Air Monitoring Network is operated in accordance with all network design, siting, monitoring and quality assurance requirements set forth in 40 CFR Part 58 (relating to ambient air quality surveillance). All ozone concentration data measured during the ozone monitoring season, which runs from April to October, are subject to comparison with the ozone NAAQS set forth in 40 CFR Part 50 (relating to National primary and secondary ambient air quality standards). Specific guidance on the requirements for quality assurance and quality control of the ozone monitoring network can be found in the EPA's Quality Assurance Handbook for Air Pollution

Measurement Systems, Volume II, Ambient Air Quality Monitoring Program, EPA-454/B-13-003, May 2013. The QA Handbook is available on the EPA web site at <http://www.epa.gov/ttnamti1/files/ambient/pm25/qa/QA-Handbook-Vol-II.pdf>.

The following list provides complete citations for data sources referenced in this Regulatory Analysis Form:

Pennsylvania Department of Agriculture: The cited information is posted on their 'About PDA' page at this link:

[http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS\\_0\\_2\\_24476\\_10297\\_0\\_43/AgWebsite/Page.aspx?name=About-PDA&navid=30&parentnavid=0&pageid=9&](http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_24476_10297_0_43/AgWebsite/Page.aspx?name=About-PDA&navid=30&parentnavid=0&pageid=9&)

Pennsylvania Department of Conservation and Natural Resources: The cited information is posted on their 'Do Business' page, 'Bids and Business Opportunities,' at this link:

<http://www.dcnr.state.pa.us/dobusiness/index.htm>

Pennsylvania Hardwoods Development Council, Biennial Report, 2009-2010.

[http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS\\_0\\_2\\_24476\\_10297\\_0\\_43/AgWebsite/Files/Publications/Hardwoods%20Biennial%20Report%202010.pdf](http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_24476_10297_0_43/AgWebsite/Files/Publications/Hardwoods%20Biennial%20Report%202010.pdf)

Pennsylvania Hardwoods Development Council, Photo, *Pennsylvania Hardwood Leading the Nation*.

[http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS\\_0\\_2\\_24476\\_10297\\_0\\_43/AgWebsite/Files/Publications/8631\\_panel11\\_Leading\\_the\\_Nation\\_100ppi.jpg](http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_24476_10297_0_43/AgWebsite/Files/Publications/8631_panel11_Leading_the_Nation_100ppi.jpg).

*Regulatory Impact Analysis, Final National Ambient Air Quality Standard for Ozone*, July 2011, U.S.

Environmental Protection Agency, Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, NC, 27711, [http://epa.gov/glo/pdfs/201107\\_OMBdraft-OzoneRIA.pdf](http://epa.gov/glo/pdfs/201107_OMBdraft-OzoneRIA.pdf).

*State Implementation Plans; General Preamble for Proposed Rulemaking on Approval of Plan Revisions for Nonattainment Areas—Supplement (on Control Techniques Guidelines)*, 44 FR 53761 (September 17, 1979).

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

A. The date by which the agency received public comments: June 30, 2014

B. The date or dates on which public meetings or hearings were held: May 27, 28, 29, 2014

C. The expected date of promulgation of the proposed regulation as a final-form regulation: 4<sup>th</sup> Quarter 2015

D. The expected effective date of the final-form regulation: Date of publication

E. The date by which compliance with the final-form regulation will be required: January 1, 2017, for

sources that do not install add-on control. Within 3 years after the written approval of the petition by the Department or the appropriate approved local air pollution control agency for sources that install add-on control.

F. The date by which required permits, licenses or other approvals must be obtained:

NA

(30) Describe the plan developed for evaluating the continuing effectiveness of the regulations after its implementation.

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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**FACE SHEET  
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WITH THE LEGISLATIVE REFERENCE  
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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.

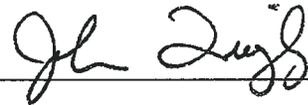
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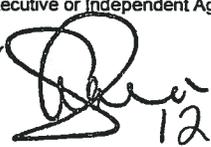
DATE OF ADOPTION NOVEMBER 17, 2015

BY 

TITLE JOHN QUIGLEY  
CHAIRMAN

EXECUTIVE OFFICER CHAIRMAN OR SECRETARY

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

BY    
12/24/2015  
DATE OF APPROVAL

(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**

**Additional RACT Requirements for Major Sources of NOx and VOCs**

**25 Pa. Code, Chapters 121 and 129**





**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION

**Bureau of Air Quality**

## **COMMENT AND RESPONSE DOCUMENT**

### **ADDITIONAL RACT REQUIREMENTS FOR MAJOR SOURCES OF NO<sub>x</sub> AND VOCs**

*25 Pa. Code* Chapters 121 and 129  
44 Pa.B. 2392-2404 (April 19, 2014)  
Environmental Quality Board Regulation #7-485  
(Independent Regulatory Review Commission #3052)



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COMMENT AND RESPONSE  
DOCUMENT

ADDITIONAL FACT REVISIONS FOR  
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## Introduction

### **Additional RACT Requirements for Major Sources of NO<sub>x</sub> and VOCs**

On April 19, 2014, the Environmental Quality Board (Board, EQB) published a notice of public hearings and comment period for a proposed rulemaking concerning revisions to 25 *Pa. Code* Chapters 121 and 129 (relating to general provisions; and standards for sources).

The proposed rulemaking would amend Chapter 129 to adopt presumptive reasonably available control technology (RACT) requirements and RACT emission limitations for major stationary sources of oxides of nitrogen (NO<sub>x</sub>) and volatile organic compound (VOC) emissions in existence on or before July 20, 2012. In addition, the proposed rulemaking would amend § 121.1 (relating to definitions) to revise four existing definitions and add five definitions to support the amendments to Chapter 129. Emissions of NO<sub>x</sub> and VOCs are precursors to the formation of ground-level ozone, a criteria air pollutant. High concentrations of ground-level ozone air pollution are a serious threat to public health and welfare. This rulemaking is reasonably required to attain and maintain the health- and welfare-based 8-hour ozone National Ambient Air Quality Standards (NAAQS) in this Commonwealth and to satisfy related Clean Air Act (CAA) (42 U.S.C.A. §§ 7401—7671q) requirements.

The proposed rulemaking will be effective upon publication in the *Pennsylvania Bulletin* as a final-form regulation. The final-form regulation will be submitted to the United States Environmental Protection Agency (EPA) as a revision to the State Implementation Plan (SIP).

## **Public Comment Period and Public Hearings**

Notice of the public comment period on the proposed RACT amendments was published in the Pennsylvania Bulletin on April 19, 2014 (44 Pa.B. 2392). The EQB's public comment period opened on April 19, 2014, and closed on June 30, 2014, for a 73-day public comment period.

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

May 27, 2014 1 p.m.	Department of Environmental Protection Southwest Regional Office Waterfront Conference Rooms A and B 400 Waterfront Drive Pittsburgh, PA 15222-4745
May 28, 2014 1 p.m.	Department of Environmental Protection Southeast Regional Office Delaware and Schuylkill Conference Rooms 2 East Main Street Norristown, PA 19401
May 29, 2014 1 p.m.	Department of Environmental Protection Rachel Carson State Office Building Conference Room 105 400 Market Street Harrisburg, PA 17105

This document summarizes the comments received during the Board's public comment period. Each public comment is listed with an identifying commentator number for each commentator that made the comment. A list of the commentators, including name and affiliation (if any) can be found on pages 5–17 of this document. The Board invited each commentator to prepare a one-page summary of the commentator's comments. Sixteen one-page summaries were submitted to the Board for this rulemaking. Twenty-five persons presented testimony during the public hearings. The House and Senate Environmental Resources and Energy Committees did not submit comments on the proposal.

Copies of all comments received by the Board are posted on the web site of the Independent Regulatory Review Commission (IRRC) at <http://www.irc.state.pa.us>. Search by Regulation # 7-485 or IRRC # 3052.

**Table of Commentators for the Environmental Quality Board**  
**Proposed Rulemaking for**  
**Additional RACT Requirements for Major Sources of NOx and VOCs**  
**Environmental Quality Board # 7-485**  
**(IRRC # 3052)**

<b>ID</b>	<b>Name/Address</b>	<b>One Page Summary Submitted to the EQB</b>	<b>Provided Testimony</b>	<b>Requested Copy of Final Rulemaking after EQB Action</b>
1.	Carolyn Schellhorn 119 E. Montgomery Avenue Ardmore, PA 19003			
2.	Drew Shaw 1306 East Evergreen Drive Phoenixville, PA 19460			
3.	Richard Eynon 175 S. Spring Mill Rd. Villanova, PA 19085-1408			
4.	Thomas Ronan 4469 Richmond St. Philadelphia, PA 19137-2031			
5.	John Wright 854 N. Ringgold St. Philadelphia, PA 19130			
6.	Ron Lane 4782 Manayunk Avenue Philadelphia, PA 19128			
7.	Chris Miles 3330 Tilden Street Philadelphia, PA 19129			
8.	Gabrielle Lavin 101 Yarmouth Ln Media, PA 19063			
9.	Mark Shlomchik 1067 Devon Road Pittsburgh, PA 15213			
10.	Alex Bomstein 1438 S. 9th St. Philadelphia, PA 19147			
11.	Priscilla Mattison 138 Montrose Ave., Unit 28 Bryn Mawr, PA 19010			

<b>ID</b>	<b>Name/Address</b>	<b>One Page Summary Submitted to the EQB</b>	<b>Provided Testimony</b>	<b>Requested Copy of Final Rulemaking after EQB Action</b>
12.	Moshe Ben-Reuven 51 Clover Lane Princeton, NJ 08540			
13.	Gerritt Baker-Smith 338 Braeside East Stroudsburg, PA 18301			
14.	Elizabeth Baker-Smith 338 Braeside East Stroudsburg, PA 18301			
15.	Michael Miller Jr. 1512 Spruce St., Apt. 809 Philadelphia, PA 19102			
16.	Carmen McKenzie 6901 Walnut St. Pittsburgh, PA 15225			
17.	Carolyn Mather 7425 Boyer St. Philadelphia, PA 19119			
18.	Bonita Hay 9 Deaver PL Wyncote, PA 19095			
19.	Mark Fabian 30 Pearl Drive Pittsburgh, PA 15227			
20.	Hans van Huijkelom 1026 Brassington Drive Collegeville, PA 19426			
21.	Jim Kippen 131 Carriage Court Plymouth Mtg., PA 19462			
22.	Thomas Nelson 105 Drexel Ave. Lansdowne, PA 19050			
23.	Frances Meenan 7107 Church St Pittsburgh, PA 15218			
24.	Steve Bremner 3209 Baring St. Philadelphia, PA 19104-2510			

<b>ID</b>	<b>Name/Address</b>	<b>One Page Summary Submitted to the EQB</b>	<b>Provided Testimony</b>	<b>Requested Copy of Final Rulemaking after EQB Action</b>
25.	Michael Heller 30 East Jefferson Street Media, PA 19063			
26.	Lori Flanagan-Cato 525 Prescott Road Merion Station, PA 19066			
27.	Bill Ferullo 4834 Leraysville Rd. Warren Center, PA 18851			
28.	Susan Mucha 269 Clearview Avenue Crafton, PA 15205			
29.	John Verbosky 534 Clifton Road Bethel Park, PA 15102			
30.	Joe Wyzkoski 714 Ravenswood Avenue Pittsburgh, PA 15202			
31.	Roberta Camp 713 S. Warnock St. Philadelphia, PA 19147-1927			
32.	Laurie Kubli 1072 Craigsville Rd Worthington, PA 16262			
33.	Russ Allen The Writers Studio 1510 Grove Ave. Jenkintown, PA 19046			
34.	Liz Hughes 5624 Hempstead Rd. Pittsburgh, PA 15217			
35.	Charles Gerlach 138 Berry Ln. New Albany, PA 18833			
36.	Harold Denenberg 833 Persimmon Ln. Langhorne, PA 19047			

<b>ID</b>	<b>Name/Address</b>	<b>One Page Summary Submitted to the EQB</b>	<b>Provided Testimony</b>	<b>Requested Copy of Final Rulemaking after EQB Action</b>
37.	Connor Hanlon 621 Maryland Ave. Pittsburgh, PA 15232			
38.	Silvana Borrelli 56 Cornell Rd. Bala Cynwyd, PA 19004			
39.	Robert Johnson 116 W Lincoln St. Media, PA 19063			
40.	J.T. Smith 1000 Old Bethlehem Pike Sellersville, PA 18960			
41.	Margaret Carman 89 Walker Rd. Limerick, PA 19468			
42.	Shawn Towey 6135 Mccallum St. Philadelphia, PA 19144			
43.	Kathy Dabanian 210 Washington Ave. Sellersville, PA 18960			
44.	Norman Weiss 559 Carpenter Ln. Philadelphia, PA 19119			
45.	Nicole Metas 71308 Delaire Landing Rd. Philadelphia, PA 19114			
46.	Minnie Ospa 876 Scott St. Stroudsburg, PA 18360			
47.	Patrick Vogelsong 443 W Penn St. Carlisle, PA 17013			
48.	Jennifer Sperling 2309 E Boston Street Philadelphia, PA 19125			
49.	Thomas Talamo 4959 Simmons Circle Export, PA 15632			

<b>ID</b>	<b>Name/Address</b>	<b>One Page Summary Submitted to the EQB</b>	<b>Provided Testimony</b>	<b>Requested Copy of Final Rulemaking after EQB Action</b>
50.	Barbara Susang-Talamo 4959 Simmons Circle Export, PA 15632			
51.	Donna Reppert 720 N 10th St. Allentown, PA 18102			
52.	John Luikart 807 N. 15th St. Philadelphia, PA 19130			
53.	Barbara Montabana 41 S Elm Ave Aldan, PA 19018			
54.	Eric Durante 241 Goss Hollow Ln. Port Matilda, PA 16870			
55.	Heather Wechter 141 Longuevue Drive Pittsburgh, PA 15228		Y	
56.	Alyson Holt 4830 Primrose Ln. Murrysville, PA 15668			
57.	Claudia Kirkpatrick Sierra Club 3763 Orpwood Street Pittsburgh, PA 15213			
58.	David Kagan 885 Torbert Ln. Jersey Shore, PA 17740			
59.	Bill Thwing 610 Luzerne Street Johnstown, PA 15905		Y	
60.	Thomas Schuster Sierra Club Windber, PA 15963		Y	
61.	Rachel Martin Golman 4212 Saline Street Pittsburgh, PA 15217		Y	

<b>ID</b>	<b>Name/Address</b>	<b>One Page Summary Submitted to the EQB</b>	<b>Provided Testimony</b>	<b>Requested Copy of Final Rulemaking after EQB Action</b>
62.	Tom Hoffman Clean Water Action 100 5th Ave., Suite 1108 Pittsburgh, PA 15222		Y	
63.	Valessa Souter-Kline Penn Future 200 First Avenue Pittsburgh, PA 15222		Y	
64.	Jamin Bogi Group Against Smog and Pollution 5135 Penn Avenue Pittsburgh, PA 15224		Y	
65.	Randy Francisco 425 N. Briggs Street Pittsburgh, PA 15217		Y	
66.	Barbara Grover 5226 Wilkins Avenue Pittsburgh, PA 15217		Y	
67.	Fred Kraybill 7211 Thomas Blvd. Pittsburgh, PA 15208		Y	
68.	Taylor Elliott-DelBuono 375 Meyran Avenue, Apt 1 Pittsburgh, PA 15213		Y	
69.	Bob Schmetzer Beaver County Marcellus Awareness Committee		Y	
70.	Susan Edwards 32 College Avenue Swarthmore, PA 19081		Y	
71.	Russell Zerbo Clean Air Council 1330 S. Millville Street Philadelphia, PA 19143		Y	
72.	Robin Mann 266 Beechwood Drive Rosemont, PA 19010		Y	

<b>ID</b>	<b>Name/Address</b>	<b>One Page Summary Submitted to the EQB</b>	<b>Provided Testimony</b>	<b>Requested Copy of Final Rulemaking after EQB Action</b>
73.	Karen Melton Chester County Citizens for Climate Protection 3232 W. Penn St. Philadelphia, PA 19129		Y	
74.	Elizabeth Tatham League of Women Voters		Y	
75.	Kelise Poels 631 Carey Ave. Wilkes Barre, PA 18702			
76.	Jack Miller 130 Delong Rd Middleburg, PA 17842			
77.	Benita J. Campbell 23 Hindman Ave Burgettstown, PA 15021			
78.	Bill Deutschlander 7 Solar Drive New Providence, PA 17560			
79.	Kevin Stewart American Lung Association 3001 Old Gettysburg Rd. Camp Hill, PA 17011		Y	
80.	Thomas Au Clean Air Board of Central Pennsylvania 1528 Dogwood Drive Harrisburg, PA 17110		Y	
81.	Thomas Schuster Sierra Club P.O. Box 51 Windber, PA 15963		Y	
82.	Susan Carty League of Women Voters 1507 Von Steuben Drive West Chester, PA 19380		Y	
83.	David Twining 683 Barnstable Street Carlisle, PA 17055		Y	

<b>ID</b>	<b>Name/Address</b>	<b>One Page Summary Submitted to the EQB</b>	<b>Provided Testimony</b>	<b>Requested Copy of Final Rulemaking after EQB Action</b>
84.	Jacob Smeltz Electric Power Generation Association 417 Walnut Street Harrisburg, PA 17101	Y		
85.	Jeffery Smith Keystone Cement Company Rt. 329, P.O. Box A Bath, PA 18014	Y	Y	
86.	Craig Jurgensen 38 Bullock Circle Carlisle, PA 17055		Y	
87.	Mary Hills Hoffman 124 B Emerald Street Harrisburg, PA 17110		Y	
88.	Purnima Barve 427 Dorothy Drive King of Prussia, PA 19406			
89.	Kristie Weiland Stagno 1108 Winterton St. Pittsburgh, PA 15206-1732			
90.	Mary Beth Doheny Pittsburgh City Council Office of the City Clerk Pittsburgh, PA 15219			
91.	Paul Stavros 108 Biddle Dr. Exton, PA 19341			
92.	William Orkoskey 3620 Elmhurst Ave. Pittsburgh, PA 15212			
93.	Michael L. Steele Jeld-Wen, Inc. P.O. Box 311 Towanda, PA 18848			

<b>ID</b>	<b>Name/Address</b>	<b>One Page Summary Submitted to the EQB</b>	<b>Provided Testimony</b>	<b>Requested Copy of Final Rulemaking after EQB Action</b>
94.	Linda Miller New Jersey Department of Environmental Protection 401 E. State Street, 2nd Floor Trenton, NJ 08625	Y		
95.	Robert Klee Connecticut DEEP 79 Elm Street Hartford, CT 06106			
96.	Doris Adebajo 508 Benson Ln. Chester Springs, PA 19425			
97.	Rob Harmon Bemis Company, Inc. 3 Neenah Center Neenah, WI 54957			
98.	E C Yarter 7725 N Blanco Wash Trl. Marana, AZ 85653			
99.	Julie Viergutz 5227 Daleside Ave. Parma, OH 44134			
100.	Helen Stickney 617 2nd St. Verona, PA 15147			
101.	Trevor Penning University of Pennsylvania 421 Curie Blvd. Philadelphia, PA 19104-6061			
102.	Justin Bucks Magnesita Refractories Company York, PA 17408			
103.	Molly Berger Maryland Department of Natural Resources 1800 Washington Blvd. Baltimore, MD 21230			

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104.	Mike Stoneberger Honeywell 905 E. Randolph Rd. Hopewell, VA 23860	Y		
105.	John Tissue Exelon Power 300 Exelon Way Kennett Square, PA 19348			
106.	Rachel Filippini Group Against Smog and Pollution 5135 Penn Ave. Pittsburgh, PA 15224			
107.	Mary Beth Whitfield The Williams Companies, Inc. 2800 Post Oak Boulevard L-9 Houston, TX 77056	Y		
108.	Adam Swercheck Buzzi Unicem USA, Inc. 100 Brodhead Road Bethlehem, PA 18017			
109.	Fred P. Osman Osman Environmental Solutions, LLC 4708 Rock Ledge Drive Harrisburg, PA 17110			
110.	Gene Barr PA Chamber of Business and Industry 417 Walnut St. Harrisburg, PA 17101	Y		
111.	Leslie Witherspoon Solar Turbines Incorporated 9330 Sky Park Court San Diego, CA 92123			
112.	Rick Sterner Lehigh Cement Company LLC 7660 Imperial Way Allentown, PA 18195			

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<b>113.</b>	Zachary Fabish Sierra Club 50 F St NW Washington, DC 20001			
<b>114.</b>	Patrick Zaepfel on behalf of Pennsylvania Chemical Industry Council Zaepfel Law PC 201 Willow Valley Sq. Lancaster, PA 17602			
<b>115.</b>	Lisa Beal INGAA 20 F Street NW Washington, DC 20001	Y		
<b>116.</b>	Nancy F Parks Sierra Club Clean Air Research Committee 201 West Aaron Square Aaronsburg, PA 16820	Y		
<b>117.</b>	Maureen Turman NiSource, Columbia Gas Transmission 801 E. 86th Avenue Merrillville, IN 46410	Y		
<b>118.</b>	Roberta Gellner Dominion Resources 55 Ashby Ridge Road Parkersburg, WV 26104			
<b>119.</b>	Sean McGowan Carpenter Technology Corporation 101 Bern Street Reading, PA 19610			
<b>120.</b>	Jeff McNelly ARIPPA 2015 Chestnut St. Camp Hill, PA 17011			

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121.	Russell Dudek AK Steel - Butler Works 210 Pittsburgh Road Butler, PA 16001	Y		
122.	Michael Winek Babst Calland on behalf of ArcelorMittal Two Gateway Center Pittsburgh, PA 15222			
123.	Ron Amirikian State of Delaware, DNREC 655 S. Bay Road, Suite 5N Dover, DE 19901	Y		
124.	Mark Hammond LandAirWater on behalf of PWIA 1000 Westlakes Drive Berwyn, PA 19312	Y		
125.	Arundhati Khanwalkar PPL Services Corporation Two North Ninth Street Allentown, PA 18101	Y		
126.	Daniel Havallo United States Steel Corporation 1350 Penn Ave. Pittsburgh, PA 15222			
127.	Peter Kimmel Armstrong Cement 100 Clearfield Road Cabot, PA 16023			
128.	Kimberly Dennis CEMEX, Odessa Plant Odessa, TX 79760			
129.	John Shimshock NRG Energy, Inc. 121 Champion Way Canonsburg, PA 15317	Y		

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130.	Charles Barksdale Philadelphia Energy Solutions Refining & Marketing 3144 Passyunk Avenue Philadelphia, PA 19145	Y		
131.	Chet Thompson on behalf of Homer City Generation 1001 Pennsylvania Avenue, NW Washington, DC 20004	Y		
132.	Allen R. Kramer The Boeing Company P.O. Box 16858 Philadelphia, PA 19142			
133.	Diana Esher U.S. Environmental Protection Agency, Region III 1650 Arch St. Philadelphia, PA 19103	Y		
134.	David Sumner Independent Regulatory Review Commission 333 Market Street, 14 <sup>th</sup> Floor Harrisburg, PA 17101			

## **Acronyms used in this Comment/Response Document**

APCA – Pennsylvania Air Pollution Control Act  
BAT – Best Available Technology  
BACT – Best Available Control Technology  
BAQ – Bureau of Air Quality  
CAA – Federal Clean Air Act  
CAIR – Clean Air Interstate Rule  
CFB – Circulating Fluidized Bed  
CSAPR – Cross-State Air Pollution Rule  
CTG – Control Techniques Guideline  
EGU – Electric Generating Unit  
EMAP – Environmental Management Assistance Program  
EPA – United States Environmental Protection Agency  
EQB – Environmental Quality Board  
GP – General Permit  
HAP – Hazardous Air Pollutant  
HHV – Higher Heating Value  
IRRC – Independent Regulatory Review Commission  
LAER – Lowest Achievable Emission Rate  
LHV – Lower Heating Value  
LLP – Lithographic Printing and Letterpress Printing  
MACT – Maximum Achievable Control Technology  
MMBtu – Million British Thermal Units  
NESHAP – National Emission Standards for Hazardous Air Pollutants  
NSPS – New Source Performance Standards  
NSR – New Source Review  
OAQPS – Office of Air Quality Planning and Standards  
OTR – Ozone Transport Region  
PADEP – Pennsylvania Department of Environmental Protection  
RACT – Reasonably Available Control Technology  
RICE – Reciprocating Internal Combustion Engines  
SIP – State Implementation Plan  
TPY – Tons Per Year  
TSD – Technical Support Document

## COMMENTS AND RESPONSES

### General Comments

**1. Comment:** Based on the U.S. Environmental Protection Agency's (EPA) comments, it does not appear that the proposed regulation will be viable as a SIP revision. We recommend that the EQB meet with the EPA to gain a thorough understanding of their concerns and how to successfully address them. In the final-form regulation submittal, the EQB should explain how the revised regulation addresses each issue raised in the EPA comments and constitutes a viable SIP revision. (134)

**Response:** The final-form regulation has been revised to address concerns raised by the EPA. The Department of Environmental Protection's staff met with representatives from EPA Region III on October 8, 2014, to discuss the EPA's comments and to seek clarification regarding the proposed RACT regulation published in the Pennsylvania Bulletin on April 19, 2015. The preamble for the EPA's final rule entitled *Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements* (80 Fed. Reg. 12264, March 6, 2015) provides additional guidance concerning the RACT requirements for the National Ambient Air Quality Standards (NAAQS) for ozone. Detailed responses to the EPA comments can be found in the responses to comments numbered 13, 55, 61, 90, 100, 123, 124, 130, 134, 135, 152, 153, 154, 158, 161, 162, 163, and 191.

**2. Comment:** DEP has found an appropriate balance between reducing emissions and providing an economic path forward for Pennsylvania's electric generators while simultaneously preserving grid reliability. The proposal represents an opportunity to achieve lower emissions while preserving and maintaining one of the Commonwealth's core industries – electric power production. (84, 93, 105, 110)

**Response:** The Department appreciates the commentators' support of the proposed RACT rulemaking.

**3. Comment:** The commentators support the Department's decision in the proposal to provide compliance flexibility to the regulated sources. (84, 105, 114, 127)

**Response:** The Department appreciates the commentators' support of the proposed rulemaking.

**4. Comment:** The proposal demonstrates the intent to balance the efficiency of presumptive RACT emission limits and standards with averaging and case-by-case provisions. (110)

**Response:** The Department agrees that the proposed rulemaking includes provisions that provide flexibility for compliance demonstrations.

**5. Comment:** The increase of smog pollutants will be a negative influence on controlling climate change. (4, 69, 70, 116)

**Response:** Based on current ambient air monitoring data and the implementation of federal and state measures that reduce ozone precursor emissions, an increase in “smog pollutants” is not expected. The implementation of the RACT final-form regulation will provide reductions of both potential and actual NO<sub>x</sub> and VOC emissions from major NO<sub>x</sub> and VOC emitting facilities. The final rulemaking establishes RACT requirements and does not address climate change directly.

**6. Comment:** The new RACT standards are not going to result in reduced smog pollution and help Delaware County, Centre County, and other Pennsylvania Counties improve their air safety grade from “F.” (72, 79, 80, 116)

**Response:** The Department disagrees. The final rulemaking, which applies statewide, includes emission limitations for NO<sub>x</sub> or VOCs that are achievable using technologies that are reasonably available and will also ensure continued attainment and maintenance of the 1997 and 2008 ozone standards. For example, the final-form regulation will require that the owners and operators of any combustion unit equipped with a selective catalytic reduction (SCR) system that is operating with an inlet temperature equal to or greater than 600°F shall meet a NO<sub>x</sub> emission limit of 0.12 lb NO<sub>x</sub>/million Btu. Compliance with this emission limit will also be required when by-passing the SCR system. The more stringent NO<sub>x</sub> emission limitation for coal-fired units equipped with SCR systems will reduce NO<sub>x</sub> emissions from the electric generation sector to approximately 59,000 tons of actual NO<sub>x</sub> emissions. It is also important to note that NO<sub>x</sub> emissions have declined significantly in Pennsylvania, especially from coal-fired electric generating units—NO<sub>x</sub> emissions decreased from approximately 192,004 tons in 2000 to 119,025 tons of NO<sub>x</sub> emissions in 2013. The final-form regulation will result in further reductions in actual NO<sub>x</sub> emissions from one of the largest sources of NO<sub>x</sub> emissions in the DEP emissions inventory. Please also see the Response to Comment 9.

**7. Comment:** The proposed rulemaking will weaken current emissions limits. Regulatory and policy changes will add ozone and other criteria pollutants to some of the most overburdened communities in the Commonwealth. (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 56, 57, 58, 59, 60, 61, 62, 67, 68, 70, 73, 75, 76, 77, 78, 80, 81, 88, 89, 91, 96, 98, 99, 100, 101, 103, 113, 116)

**Response:** The Department disagrees that the proposed rulemaking would have weakened existing emissions limits. The final rulemaking strengthens the RACT requirements from what was established under §§ 129.91—129.95 for the 1-hour ozone standard. The final-form RACT regulation sets forth emission limitations for NO<sub>x</sub> or VOCs that are achievable using technologies that are reasonably available to achieve and maintain the 8-hour ozone standards.

Additionally, the actual NO<sub>x</sub> emissions from the coal-fired electric generating sector in Pennsylvania for the year 2013 were 119,025 tons, of which 92,728 tons were from coal-fired EGUs that are not scheduled for retirement or for fuel-switching. The expected future NO<sub>x</sub> emissions from these EGUs, based on 2013 production rates and the NO<sub>x</sub> emission limitations set forth in the final-form regulation, are 59,039 tons per year. This is an anticipated reduction of

approximately 36% in actual emissions from the coal-fired EGU sector as a result of the final-form limitations.  $[(92,728 \text{ tons} - 59,039 \text{ tons}) / 92,728 \text{ tons} \times 100 = 36 \%$ ]

In addition, the final-form regulation specifically provides under § 129.97(i) and (j) that the more stringent limitation or requirement applies to the owner or operator of a facility subject to the regulation.

**8. Comment:** NO<sub>x</sub> and VOC limits should be set that are in line with existing, available, feasible technology, to protect public health and welfare. (64, 65, 67, 71, 72, 80, 90, 92, 106)

**Response:** The term “RACT—Reasonably Available Control Technology” is defined in § 121.1 (relating to definitions) as the lowest emission limit for VOCs or NO<sub>x</sub> that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. The final-form RACT regulation, which addresses the 1997 and 2008 ozone NAAQS, includes emission limitations for NO<sub>x</sub> or VOCs that are achievable using control technologies that are reasonably available considering technological and economic feasibility.

The EPA has proposed to adopt a more protective ozone NAAQS, ranging from 65 to 70 parts per billion (ppb), with an expected promulgation date in October 2015; the EPA also requested comments on retaining the existing 2008 ozone standard (75 ppb) or lowering the standard to 60 ppb. See 79 FR 75234 (December 17, 2014). If the EPA promulgates a more protective ozone NAAQS in October 2015, the Clean Air Act requires a reevaluation of RACT programs for the implementation, maintenance and enforcement of the new standard.

**9. Comment:** For the class of the largest NO<sub>x</sub>-emitting sources, the representations of “Anticipated Effect on Emissions” are overstatements in contrast with the much more common-sense approach of comparing the proposed emission limitation with current actual emissions. The latter comparison demonstrates that the proposed RACT requirements are no substantial improvement with respect to controlling NO<sub>x</sub> emissions from large coal-fired power plants. (79)

**Response:** The Department disagrees that the representation of “anticipated effect on emissions” should be based on a comparison of the emissions expected as a result of implementation of the presumptive RACT requirements and RACT emission limitations with current actual emissions. The amount of NO<sub>x</sub> and VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source’s potential to emit before and after the application of RACT-level control. The proposed and final RACT rulemakings establish presumptive RACT requirements and RACT emission limitations for NO<sub>x</sub> or VOCs that are achievable and sustainable during the expected life of the affected unit using technologies that are both technically and economically feasible. Implementation of the final rulemaking presumptive RACT requirements and RACT emission limitations will reduce the amount of ozone precursor emissions that the owner and operator of a facility subject to the final-form provisions in §§ 129.96—129.100 would be legally allowed to emit to the atmosphere.

The anticipated reductions in the amount of potential NO<sub>x</sub> emissions beyond current RACT potential to emit (allowable) emissions as a result of implementation of the final rulemaking RACT requirements and RACT emission limitations are presented in Table 1. As shown in column E of Table 1, the anticipated percent reduction in the potential NO<sub>x</sub> emissions from coal-fired boilers (EGUs) equipped with selective catalytic reduction (SCR) control technology is approximately 75%.

Table 1. Anticipated Reductions in the Amount of Potential NO<sub>x</sub> Emissions by Source Type

	A	B	C	D	E
				B - C	$[(B - C)/B] \times 100 = \%$
Source Type	Number of Units Subject to RACT II* for NO <sub>x</sub> Emissions	Current NO <sub>x</sub> Potential to Emit (TPY)	RACT II* NO <sub>x</sub> Potential to Emit (TPY)	Reduction in Potential NO <sub>x</sub> Emissions (TPY)	Percent Reduction in Potential NO <sub>x</sub> Emissions (TPY)
Boilers, except EGUs with SCR	257	246,453	176,304	70,149	28%
EGUs (Boilers) with SCR	12	186,474	47,501	138,972	75%
Engines	393	46,705	26,110	20,596	44%
Turbines	148	59,743	35,837	23,906	40%
<b>Total</b>	<b>810</b>	<b>539,375</b>	<b>285,752</b>	<b>253,623</b>	<b>47%</b>

\*RACT II refers to §§ 129.96—129.100

Reductions in actual NO<sub>x</sub> emissions from coal-fired boilers or electric generating units (EGUs) are also anticipated as a result of the implementation of the final-form RACT requirements and RACT emission limitations. The actual NO<sub>x</sub> emissions from coal-fired EGUs in Pennsylvania for the year 2013 were 119,025 tons. The actual 2013 NO<sub>x</sub> emissions from coal-fired boilers (EGUs) that are not scheduled for retirement or for fuel-switching were 92,728 tons. The expected NO<sub>x</sub> emissions from coal-fired boilers (EGUs) that are not scheduled for retirement or fuel-switching, based on 2013 production rates and the NO<sub>x</sub> emission limitations set forth in the final-form regulation, are 59,039 tons per year. This is an anticipated reduction in actual emissions of approximately 36% from this sector.

$$[(92,728 \text{ tons} - 59,039 \text{ tons}) / 92,728 \text{ tons} \times 100 = 36 \%]$$

**10. Comment:** This proposed regulation is not RACT. It does not accomplish reasonably available control technology (RACT), but maintains a status quo that does not meet the Federal Clean Air Act test of reducing air pollution emissions for nitrogen oxides and VOCs (volatile organic chemicals) "... as expeditiously as practicable". The proposed regulation allows higher limit (132,000 tons NO<sub>x</sub>) than what is already emitted (93,000 tons NO<sub>x</sub>). Power plants will be

ALLOWED to increase emissions, while the purpose of RACT is to decrease emissions.  
(116)

**Response:** The Department disagrees that the proposed rulemaking provisions are not RACT. The evaluation or reevaluation of what constitutes RACT-level control for affected sources is a requirement that must be fulfilled each time the EPA promulgates a new NAAQS as was the case in 1979 for the 1-hour ozone standard and in 1997 for the 8-hour ozone standard; reevaluation of RACT is also required when the EPA revises a NAAQS as was the case in 2008 for the 8-hour ozone standard. The proposed rulemaking addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and 2008. The final rulemaking will be applicable to the owners and operators of major sources of NO<sub>x</sub> or VOC emissions (precursors to ozone formation) in existence in this Commonwealth on or before July 20, 2012 – the effective date of the EPA’s designations and classifications for the 2008 ozone NAAQS. See 77 FR 30088 (May 21, 2012).

The Department agrees that the purpose of RACT is to decrease ozone precursor emissions. However, the amount of NO<sub>x</sub> or VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source’s potential to emit before and after the application of RACT-level control, not on comparison with a source’s current actual emissions. The proposed and final RACT rulemakings establish presumptive RACT requirements and RACT emission limitations for NO<sub>x</sub> or VOCs that are achievable and sustainable during the expected life of the affected unit using technologies that are both technically and economically feasible. Implementation of the final-form regulation presumptive RACT requirements and RACT emission limitations will reduce the amount of NO<sub>x</sub> and VOC emissions that the owner and operator of a facility subject to final-form §§ 129.96—129.100 would be legally allowed to emit to the atmosphere.

In response to comments and the EPA’s March 6, 2015, Ozone NAAQS Implementation Rule, the DEP conducted additional reviews of historical emissions data for coal-fired EGUs equipped with selective catalytic reduction (SCR) technology. The DEP determined that the NO<sub>x</sub> limit specified in § 129.97(g)(1)(viii) should be revised. Subparagraph 129.97(g)(1)(viii) specifies that the owner and operator of any combustion unit equipped with an SCR system that is operating with an inlet temperature equal to or greater than 600°F shall meet a NO<sub>x</sub> emission limit of 0.12 lb NO<sub>x</sub>/million Btu. Compliance with this emission limit is also required when bypassing the SCR system. The DEP acknowledges that the NO<sub>x</sub> RACT limit in the final rulemaking is not the lowest achievable emissions rate (LAER) for this technology. However, the EPA has indicated in the preamble for the final rule approving a SIP revision for Wisconsin’s NO<sub>x</sub> RACT Rule that:

“RACT limits are not meant to be the lowest achievable emissions rate. The Nitrogen Oxides Supplement to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990 addresses the issue of an acceptable emission limit. See section 4.6 *RACT for Certain Electric Utility Boilers* (57 FR 55626), “The EPA expects States, to the extent practicable, to demonstrate that the variety of emission controls adopted are consistent with the most effective level of combustion modification reasonably available for its individual affected sources.””

See 75 FR 64155, 64157 (October 19, 2010). The Department's reevaluation of the NO<sub>x</sub> RACT limit for coal-fired EGUs, taking into consideration cost-effectiveness and technological feasibility, is consistent with the approach outlined in the preamble of the October 19, 2010, EPA rule approving Wisconsin's RACT SIP revision.

Please see the response to Comment 9 for a discussion of the anticipated reductions in the amount of potential NO<sub>x</sub> emissions beyond current RACT potential to emit (allowable) emissions as a result of implementation of the final rulemaking RACT requirements and RACT emission limitations, as well as a discussion of anticipated reductions in actual emissions from the coal-fired boilers (EGUs) sector.

**11. Comment:** Additional support and analysis is needed in the regulatory analysis form (RAF) and Preamble to justify the proposed regulation. (107, 114, 115, 117, 119, 122)

**Response:** The Department disagrees that there is insufficient information in either the preamble or RAF of the proposed rulemaking to justify the regulation. Both of these documents are replete with substantive information related to emissions data, cost-effectiveness numbers, public health information, statutory requirements, small business information, and other types of analyses to demonstrate that this regulation is legally required, is in the public interest, is economically and technologically feasible, and will reduce NO<sub>x</sub> and VOC emissions. The estimates included in the RAF for the proposed and the final rulemakings are based on the information available to the Department. The presumptive RACT emission limitations were established based on cost-effectiveness of available control technology and are not based on the total number of affected units or number of total units requiring control. The RAF and preamble for the final rulemaking contain additional information to support the final-form RACT regulation.

**12. Comment:** DEP should withdraw the proposed rulemaking until it can address comments and prepare a revised RAF. (107, 115, 117)

**Response:** The Department disagrees. The estimates included in the RAF for the proposed and final rulemakings are based on the information available to the Department. Both of these documents are replete with substantive information related to emission data, cost-effectiveness numbers, public health information, statutory requirements, small business information, and other types of analyses to demonstrate that this regulation is legally required, is in the public interest, is economically and technologically feasible, and will reduce emissions. The presumptive RACT emission limitations were established based on cost-effectiveness of available control technology and not based on the total number of affected units or number of total units requiring control. The Department reviewed the comments received on the proposed rulemaking. Where appropriate, the Department revised the final-form regulation in response to comments. The Department does not believe that there is a need to withdraw the rulemaking; reevaluation of RACT will be required if the EPA promulgates a more protective ozone NAAQS in October 2015.

**13. Comment:** The EPA therefore strongly cautions PA DEP not to rigidly apply a benchmark as low as \$2,500 per ton to exclude consideration of technically feasible controls. Rather, Pennsylvania needs to consider a broader range of cost-effectiveness to see if some level of additional control falls within that range. Based on Wisconsin's analysis, PA DEP should consider raising its cost-effectiveness "benchmark" like Wisconsin and New York after considering and evaluating thoroughly the states' analysis mentioned above. (113, 133)

**Response:** The Department did not establish a bright-line cost-effectiveness threshold to determine RACT. DEP initially used minimum cost-effectiveness thresholds of \$1,500 and \$3,000 per ton of NO<sub>x</sub> and VOC controlled, respectively, in 1990 dollars, for the implementation of RACT requirements for the 1979 1-hour ozone NAAQS in §§ 129.91—129.95. These cost-effectiveness thresholds were consistent with thresholds used at that time by other states for RACT determinations for the 1979 1-hour ozone NAAQS as well.

DEP used the Bureau of Labor Statistics (BLS) Consumer Price Index (CPI) to adjust \$1,500 in 1990 dollars to \$2,500 in 2010 dollars. When extrapolated into 2014 dollars, this figure is approximately \$2,750. DEP used a NO<sub>x</sub> emission cost-effectiveness upper bound of \$2,800 per ton NO<sub>x</sub> controlled for the RACT determinations for the final-form regulation.

Even with an additional 25% margin, the upper bound cost-effectiveness threshold would not be any greater than \$3,500 per ton NO<sub>x</sub> controlled. Similarly for VOC, the upper-bound cost-effectiveness threshold would not be any greater than \$7,000 per ton VOC controlled. Applying these new thresholds does not have an effect on the add-on control technology decisions for the presumptive RACT requirements established in the final rulemaking. The RACT limits included in the final-form regulation are comparable to emission limits included in other states' RACT regulations as well.

It should be further noted that Wisconsin's SIP-approved RACT regulations in 2010 were based on a NO<sub>x</sub> cost-effectiveness benchmark of \$2,500 per ton controlled. EPA Region 5 stressed that the dollar-per-ton factor should be weighed in combination with the actual limits adopted by a state to determine RACT levels. See 75 FR 64157, 64160. The revised NO<sub>x</sub> RACT limit of 0.12 lb NO<sub>x</sub>/MMBtu in Pennsylvania's final RACT rulemaking is consistent with RACT limits adopted for coal-fired boilers in other states including New York, New Jersey and Delaware.

**14. Comment:** Given that NO<sub>x</sub> is actually the more significant ozone precursor in the Northeast U.S., especially considering sources such as coal-fired power plants located in Pennsylvania and other upwind states, the NO<sub>x</sub> cost-effectiveness threshold should be as high, if not higher, than the VOC cost-effectiveness threshold. (113)

**Response:** The Department disagrees. The major facility thresholds for VOC and NO<sub>x</sub> emissions are 50 and 100 tons per year, respectively. In 2012, point sources in Pennsylvania emitted 165,771 tons of NO<sub>x</sub>, but only 19,382 tons of VOCs. The VOC emissions represent 11% of the combined NO<sub>x</sub> and VOC total emissions. Because fewer VOCs are emitted from point sources compared to NO<sub>x</sub> emissions, the cost per ton of VOC controlled is greater than the cost of NO<sub>x</sub> controls. Therefore, it is appropriate that the VOC cost-effectiveness benchmark is higher than the NO<sub>x</sub> cost-effectiveness benchmark.

Please see the Response to Comment 13 for an explanation of how the Department developed the cost-effectiveness thresholds.

**15. Comment:** RAF Section (19) states: "...developing a precise estimate of compliance costs ... is not possible...". A detailed source-specific RACT cost estimate is imperative, such an analysis would likely show significantly higher costs. (111)

**Response:** The RAF reflects the costs associated with compliance with the presumptive RACT emission limitations. This is a generic cost analysis for a given source category and may not exactly reflect actual costs incurred by owners or operators of individual affected sources in the given source category. However, the owner or operator of any affected source that cannot meet a presumptive RACT emission limitation may propose, to the DEP or local air pollution control program, an alternative emission limitation determined on a case-by-case basis. The proposal for an alternative RACT emission limitation must include a detailed cost analysis on a source-specific basis. The alternative RACT emission limitation would be based on the cost-effectiveness of control for the specific source. As a result, there is no way to predict what type of alternative limit a facility owner or operator may choose for its source. The case-by-case option is a built-in flexibility provided under the regulation that gives the affected facility owners and operators options to comply cost-effectively with the regulation. Nevertheless, the Department has completed a robust analysis of the costs associated with compliance with the presumptive RACT emission limitations that shows compliance costs as a general matter are reasonable.

**16. Comment:** The RAF states that the compliance costs are \$114 million. NO<sub>x</sub> and VOCs must be controlled separately in lean burn engines. DEP should reevaluate the number of impacted sources, associated cost and technical feasibility of controls. (118)

**Response:** The estimates for the number of affected units included in the RAF for the proposed and final rulemakings are based on the information available to the Department. The presumptive RACT requirements and RACT emission limitations set forth in the proposed and final rulemakings were established based on cost-effectiveness of reasonably available control technology for each pollutant for each type of source and not based on the total number of affected units or number of total units requiring control.

The Department reevaluated the number of total units requiring control as a result of revisions to emission limitations set forth in § 129.97 from proposed to final rulemaking. The number of turbines requiring additional control has dropped from 64 to 17 primarily due to the final rulemaking setting forth a presumptive RACT emission limitation of 150 ppmvd NO<sub>x</sub> @ 15% oxygen for simple cycle or regenerative cycle turbines with a rated output equal to or greater than 1,000 bhp and less than 6,000 bhp. Subsection 129.97(g) is revised from proposed to final rulemaking to establish a presumptive NO<sub>x</sub> RACT emission limitation of 150 ppmvd NO<sub>x</sub> @ 15% oxygen for a simple cycle or regenerative cycle turbine with a rated output equal to or greater than 1,000 bhp and less than 6,000 bhp in final-form § 129.97(g)(2)(iii). Proposed § 129.97(g)(2)(iii) is revised to § 129.97(g)(2)(iv) in the final-form rulemaking.

The Department also reevaluated the control costs due to revisions of presumptive RACT emission limitations from proposed to final rulemaking. Table 2 calculates the anticipated total cost of controls based on the number of units requiring additional controls to achieve the level of NO<sub>x</sub> emission reductions required under final-form §§ 129.96—129.100. For the purposes of Table 2, no additional control is needed for boilers (EGUs) with SCR since these units already have the control installed. Therefore, there is no cost of control to be calculated for these sources as a result of the implementation of the final-form rulemaking. The control costs in Column C have been included in the final-form rulemaking RAF under question 19.

Table 2. Total Cost of Control for Units Requiring Additional Control for NO<sub>x</sub> Emissions under §§ 129.96—129.100

	A	B	C
Source Type	Number of Units Subject to RACT II* for NO <sub>x</sub> Emissions	Number of Units Requiring Additional Control for NO <sub>x</sub> Emissions under RACT II*	Total Cost of Control for Units Requiring Additional Control for NO <sub>x</sub> Emissions under RACT II*
Boilers except EGUs with SCR	257	34	\$ 39,206,476
EGUs (Boilers) with SCR	12	0	N/A
Engines	393	28	\$ 25,941,478
Turbines	148	17	\$ 16,357,447
<b>Total</b>	<b>810</b>	<b>79</b>	<b>\$ 81,505,401</b>

\*RACT II refers to §§ 129.96—129.100

**17. Comment:** RACT is one of several upcoming regulatory requirements that will reduce NO<sub>x</sub> emissions in the Commonwealth. Some of these requirements are overlapping or will achieve reductions through different methods. Achieving NO<sub>x</sub> reductions in an overly prescriptive manner in RACT can counter efforts to achieve cost-effective compliance with the other regulations. (84, 105, 130)

**Response:** While the DEP agrees that the RACT final rulemaking will reduce NO<sub>x</sub> emissions in Pennsylvania, the Department disagrees with the commentator's position that implementation of RACT will counter compliance with other regulations. The DEP is obligated to reevaluate RACT whenever the EPA promulgates a NAAQS and RACT-level control must be applied statewide in the Commonwealth. The Department believes that the final rulemaking contains appropriate presumptive RACT requirements and emission limitations for purposes of attaining and maintaining the current ozone standards. RACT will be reevaluated by the DEP for Pennsylvania if the EPA adopts a more protective ozone NAAQS in October 2015. In addition, the owner or operator of any affected source that cannot meet a presumptive RACT emission limitation may propose an alternative limit determined on a case-by-case basis. Moreover,

subsections 129.97(i) and (j) provide that the more stringent provisions related to a NO<sub>x</sub> or VOC reduction applies to affected facilities. Alternatively, any other more stringent provisions are subsumed under the Title V Operating Permit. Compliance is therefore streamlined.

**18. Comment:** The proposed rulemaking significantly underestimates the number of affected units that would require installation of NO<sub>x</sub> or VOC control technology. Approximately 150 units operated by natural gas transmission companies would be affected by the rulemaking; this exceeds the PA DEP estimate for all affected units statewide. The rulemaking would have significant impact on natural gas transmission company operations, including many requirements to install control technology and associated costs that are significantly under-estimated by PA DEP. (107, 115, 117, 118)

**Response:** The estimates for the number of affected units included in the RAF for the proposed and final rulemakings are based on the information available to the Department. The presumptive RACT emission limitations were established based on cost-effectiveness of available control technology and not based on the total number of affected units or number of total units requiring control.

The Department reevaluated the number of total units requiring controls as a result of revisions to emission limitations set forth in the final-form regulation. The number of turbines requiring control has dropped from 64 to 17 primarily due to the final-form regulation setting forth a presumptive RACT emission limitation of 150 ppmvd NO<sub>x</sub> @ 15% oxygen for simple cycle or regenerative cycle turbines with a rated output equal to or greater than 1,000 bhp and less than 6,000 bhp. Subsection 129.97(g) is revised from proposed to final rulemaking to establish a presumptive NO<sub>x</sub> RACT emission limitation of 150 ppmvd NO<sub>x</sub> @ 15% oxygen for a simple cycle or regenerative cycle turbine with a rated output equal to or greater than 1,000 bhp and less than 6,000 bhp in final-form § 129.97(g)(2)(iii). Proposed § 129.97(g)(2)(iii) is revised to § 129.97(g)(2)(iv) in the final-form regulation.

**19. Comment:** DEP did not provide a cost basis for making RACT control decisions and did not provide the technological and economic basis for determining presumptive RACT and economic feasibility per ton removed. (107, 114, 115, 117, 119, 121, 122, 126)

**Response:** The Department disagrees. The basis for the determination of presumptive RACT requirements is included in the preamble and the RAF of the proposed and final rulemakings. Both of these documents are replete with substantive information related to emissions data, cost-effectiveness numbers, public health information, statutory requirements, small business information, and other types of analyses to demonstrate that this regulation is legally required, is in the public interest, is economically and technologically feasible, and will reduce emissions.

**20. Comment:** Polluters should help to pay for the costs of climate change & respiratory problems due to bad air. (67)

**Response:** The Department defines the term “RACT—Reasonably Available Control Technology” in § 121.1 as the lowest emission limit for VOCs or NO<sub>x</sub> that a particular source is capable of meeting by the application of control technology that is reasonably available

considering technological and economic feasibility.” The final rulemaking sets forth RACT-level emission limitations for NO<sub>x</sub> or VOCs that are achievable using technologies that are reasonably available based on the costs associated with achieving reductions of ozone precursor emissions. The emission limitations and requirements set forth in this final-form regulation will substantially reduce emissions of ozone precursors. The final-form rulemaking is not designed to address the cost of climate change. However, the DEP covers the cost of certain climate change-related activities using civil penalties collected by the Department for violations of the CAA, Air Pollution Control Act (APCA) and regulations adopted under the acts.

### **§ 129.96. Applicability**

**21. Comment:** While a number of existing regulations are referenced in the applicability section, there is no clarifying statement of prior presumptive RACT requirements that were promulgated under §§ 129.91—129.95. It isn't until almost the end of § 129.97 that those regulations are superseded. It may be clearer to address all the applicability pieces under § 129.96 instead of having it split up so much. (97, 109)

**Response:** The Department disagrees. Sections 129.91—129.95 are not superseded by the final-form regulation. The affected owners and operators of major VOC and NO<sub>x</sub> emitting facilities will be subject to §§ 129.91—129.95 and §§ 129.96—129.100. Subsection 129.97(i) is intended to ensure that an owner or operator complies with the more stringent of either the RACT requirements contained in a RACT permit issued by the DEP under §§ 129.91—129.95 and the presumptive RACT requirements established in the final rulemaking. Subsections 129.97(i) and (j) specifically provide that the more stringent provisions apply whether that provision is under the final-form regulation, some other regulation, or a previously issued permit. These safeguards prevent backsliding from the most stringent applicable requirements.

**22. Comment:** The proposed rulemaking reasonably excludes very small sources of NO<sub>x</sub> and VOCs. (102, 110)

**Response:** The Department agrees. Section 129.96 is revised from proposed to final rulemaking to set forth a de minimis threshold for the affected owner and operator with a source that has the potential to emit less than 1 ton per year of NO<sub>x</sub> or VOCs. Section 129.97 is revised from proposed to final rulemaking to set forth a generic presumptive requirement in § 129.97(c)(1) and (2) for the affected owner and operator of a source with the potential to emit less than either 5 tons of NO<sub>x</sub> per year or 2.7 tons of VOC per year, respectively.

Please note that the requirement in proposed § 129.97(c)(1) is provided in final-form § 129.97(c)(3) and the requirements in proposed § 129.97(c)(2), (3), (4), (5) and (6) are revised and set forth in final-form § 129.97(c)(4), (5), (6), (7) and (8), respectively.

**23. Comment:** It is arbitrary and capricious to heavily regulate trivial emission units in the same manner as significant units. The same thresholds for non-combustion units should be applied to combustion units. The regulations should have a lower size threshold for which RACT does not apply, such as 10 MMBTU/hr, or state clearly that the ≤ 20 MMBTU/hr presumptive RACT

requirements do not need to be demonstrated, nor have any record keeping requirements. (119, 121)

**Response:** The Department disagrees that lower size thresholds expressed as heat input in MMBtu/hr are appropriate. Potential and actual emissions vary with fuel type and combustion methodology, even for units with the same heat input rating. Applicability thresholds expressed in tons per year provide a standard that can be used across all emission categories. The final rulemaking covers a broad spectrum of source categories. Given the diversity of sources subject to the final-form regulation, it is more appropriate to have one applicability threshold than to have several different thresholds. Regulations developed for only one source category or type tend to have applicability thresholds expressed in units of minimum source size that are appropriate for each regulation.

In order to minimize the number of case-by-case determinations that may be submitted to the Department under § 129.99, § 129.96 is revised from proposed to final rulemaking to set forth a de minimis threshold for the affected owner and operator with a source that has the potential to emit less than 1 ton per year of NO<sub>x</sub> or VOCs. Section 129.97 is revised from proposed to final rulemaking to set forth a generic presumptive requirement in § 129.97(c)(1) and (2) for the affected owner and operator of a source with the potential to emit less than either 5 tons of NO<sub>x</sub> per year or 2.7 tons of VOC per year, respectively.

The generic applicable presumptive requirement is the installation, maintenance, and operation of the source in accordance with the manufacturer's specifications and with good operating practices. In the proposed rulemaking, these emission thresholds for generic presumptive requirements were applicable only to sources undergoing case-by-case determinations.

Please note that the requirement in proposed § 129.97(c)(1) is provided in final-form § 129.97(c)(3) and the requirements in proposed § 129.97(c)(2), (3), (4), (5) and (6) are renumbered and set forth in final-form § 129.97(c)(4), (5), (6), (7) and (8), respectively.

**24. Comment:** The preamble should clearly indicate that the proposed rulemaking only applies to major sources of NO<sub>x</sub> and VOCs. (107, 115, 117, 118)

**Response:** The Department agrees that the NO<sub>x</sub> RACT requirements only apply to the owners and operators of major NO<sub>x</sub> emitting facilities and the VOC RACT requirements only apply to the owners and operators of major VOC emitting facilities. The NO<sub>x</sub> requirements of final-form §§ 129.96—129.100 apply Statewide to the owner and operator of a major NO<sub>x</sub> emitting facility and the VOC requirements of §§ 129.96—129.100 apply Statewide to the owner and operator of a major VOC emitting facility. Section 129.96 has been amended in the final-form regulation to clarify the applicability.

**25. Comment:** As far as new sources are concerned, DEP should consider specifying that any sources that have undergone BACT, BAT permitting, or LAER permitting after July 20, 2012, have established presumptive BACT limits in their plan approvals which supersede the requirements of §§ 129.97—129.100. The requirement for sources with recent plan approvals to

go through a RACT exercise is nothing more than wasted effort on the part of the permittee and the Department. (109, 122)

**Response:** The final rulemaking RACT requirements are applicable only to the owners and operators of major NO<sub>x</sub> emitting facilities or major VOC emitting facilities that were in existence in this Commonwealth on or before July 20, 2012 – the effective date of the EPA’s designations and classifications for the 2008 ozone NAAQS. See 77 FR 30088 (May 21, 2012). New sources as defined in § 121.1 that are subject to lowest achievable emission rate (LAER), best available control technology (BACT), or best available technology (BAT) requirements and are constructed after July 20, 2012, are not subject to the final-form RACT regulation. The Department disagrees that LAER, BACT, or BAT requirements supersede the requirements of the final RACT rulemaking, which applies solely to the owners and operators of existing major NO<sub>x</sub> or VOC emitting sources. The evaluation or reevaluation of what constitutes RACT-level control for affected existing sources is a requirement that must be fulfilled each time the EPA promulgates a new NAAQS as was the case in 1979 for the 1-hour ozone standard and in 1997 for the 8-hour ozone standard or revises a NAAQS as was the case in 2008 for the 8-hour ozone standard. The final-form regulation addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008 and is applicable to the owners and operators of subject sources in existence on or before July 20, 2012. Sources that have undergone BACT or LAER evaluation must be evaluated to verify compliance with the RACT requirements set forth in the final rulemaking. In accordance with § 129.99, the owner or operator may opt to propose an alternative RACT limitation on a case-by-case basis that includes the previously determined BACT or LAER limitations as the alternative limitation for RACT compliance.

**26. Comment:** Maintenance and operation of sources that have been approved within the past 5 years as LAER or BACT for NO<sub>x</sub> should be presumptive RACT for these sources. (109, 122)

**Response:** The evaluation or reevaluation of what constitutes RACT for affected sources is a requirement that must be fulfilled each time the EPA promulgates a new NAAQS as was the case in 1979 for the 1-hour ozone standard and in 1997 for the 8-hour ozone standard or revises a NAAQS as was the case in 2008 for the 8-hour ozone standard. The final rulemaking addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008 and is applicable to the owners and operators of subject sources in existence on or before July 20, 2012. Sources that have undergone BACT or LAER evaluation must be evaluated to verify compliance with the RACT requirements set forth in the final rulemaking. In accordance with § 129.99, the owner or operator may opt to propose an alternative RACT limitation on a case-by-case basis that includes the previously determined BACT or LAER limitations as the alternative limitation for RACT compliance.

**27. Comment:** The owner and operator of an affected source may choose, without precondition, among the compliance options. (125)

**Response:** The Department agrees in part with the commentator that the owner and operator of an affected source may choose the compliance option. Therefore, the language in proposed § 129.99(a) specifying that the owner or operator shall demonstrate that they cannot participate in

either a facility-wide or system-wide NO<sub>x</sub> emissions averaging RACT operating permit modification under § 129.98 is deleted from final-form § 129.99(a).

The Department disagrees, however, that there are no conditions pertaining to the election of compliance options. Subsection 129.98(a) has been revised from proposed to final rulemaking to clarify that the owner or operator of a major NO<sub>x</sub> emitting facility subject to § 129.96 that includes at least one source subject to a NO<sub>x</sub> RACT emission limitation in § 129.97 that cannot meet the applicable NO<sub>x</sub> RACT emission limitation may elect to meet the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 by averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average. System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth. The source that cannot meet the applicable NO<sub>x</sub> RACT emission limitation must be included in the emissions averaging plan so that its excess emissions can be averaged with the emissions from sources that are emitting below their limit.

The owner and operator may include other sources in the emissions averaging plan to meet the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 on a 30-day rolling average as long as the other sources meet the requirement of § 129.98(c), which specifies that each NO<sub>x</sub> air contamination source included in the application for an operating permit modification or a plan approval, if otherwise required, for averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average submitted under subsection 129.98(b) must be an air contamination source subject to a NO<sub>x</sub> RACT emission limitation in § 129.97. Further, as specified in final-form § 129.98(a), sources which are included in a system-wide averaging plan must be under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth.

The Department agrees that owners and operators of affected sources should not have to demonstrate that they cannot participate in either a facility-wide or system-wide NO<sub>x</sub> emissions averaging plan before proposing an alternative RACT requirement or RACT emission limitation. Consequently, § 129.99(a) has been revised in the final-form regulation to specify that the owner or operator of an air contamination source subject to § 129.97 located at a major facility subject to § 129.96 that cannot meet the applicable presumptive RACT requirement or RACT emission limitation of § 129.97 may propose an alternative RACT requirement or RACT emission limitation in accordance with § 129.99(d). The owner or operator of an affected source would have to demonstrate that the affected source cannot comply with the applicable standard in § 129.97 as part of the application for a case-by-case determination under § 129.99(a).

The Department agrees in part that the owner and operator may use multiple compliance options, but only one compliance option may be used at a time to demonstrate compliance for an individual source. The owner and operator of an individual affected source may demonstrate compliance for that source in one of three ways: first, with the applicable presumptive RACT requirement or emission limitation in § 129.97; secondly, either by participating in an emissions averaging plan under § 129.98 or by submitting a request for a case-by-case RACT determination under § 129.99.

**28. Comment:** The commentators suggest that the applicability thresholds be raised. Some suggested alternatives would be: set the de minimis level at 40 tpy for both NO<sub>x</sub> and VOCs (the thresholds at which New Source Review is triggered for a modification); set the de minimis level based on actual emissions rather than potential emissions, with a caveat that RACT compliance (either presumptive RACT or submittal of a case-by-case analysis) would be triggered in the event that annual emissions exceed that threshold; or adopt the de minimis thresholds that other states have included (e.g., 10 tpy PTE for Maine (see 06-096 CMR 138 section (1)(B)). (93, 122)

**Response:** The Department disagrees. A de minimis level of 40 tons per year is significantly greater than current levels considered to be de minimis in Pennsylvania. Using 40 tons per year as a de minimis level would constitute backsliding from most case-by-case determinations issued under §§ 129.91—129.95 and approved by the EPA as revisions to the Commonwealth's SIP. In addition, the Department cannot show that installation and operation of additional NO<sub>x</sub> or VOC control technologies are cost prohibitive at an uncontrolled emission level of 40 tons per year for all sources.

In order to minimize the number of case-by-case determinations that may be submitted under § 129.99, § 129.96 is revised from proposed to final rulemaking to set forth a de minimis threshold for the affected owner and operator with a source that has the potential to emit less than 1 ton per year of NO<sub>x</sub> or VOCs. Section 129.97 is revised from proposed to final rulemaking to set forth a generic presumptive requirement in § 129.97(c)(1) and (2) for the affected owner and operator of a source with the potential to emit less than either 5 tons of NO<sub>x</sub> per year or 2.7 tons of VOC per year, respectively. Therefore, the Department does not believe that a de minimis level of 40 tons per year is appropriate or approvable as a SIP revision.

Please note that the requirement proposed § 129.97(c)(1) is provided in final-form § 129.97(c)(3); the proposed requirements in § 129.97(c)(2), (3), (4), (5) and (6) are renumbered and set forth in final-form § 129.97(c)(4), (5), (6), (7) and (8), respectively.

**29. Comment:** Subsections 129.96(a) and (b) list circumstances when the additional RACT standards are not applicable "... and for which a requirement or emission limitation, or both, has not been established in §§ 129.51—129.52c..." However, there are other exemptions within the body of the regulation, such as subsection 129.97(i) which allows a prior RACT permit to remain effective "...to the extent the RACT permit contains more stringent requirements or emission limitations, or both." We found similar exceptions in subsections 129.97(j), 129.99(g) and (k), and 129.100(a). We recommend that the regulation include in § 129.96 a full list of exceptions by reference so that the reader can readily determine whether the additional RACT requirements apply to their source. (134)

**Response:** Subsections 129.96(a) and (b) reference other sections of Chapter 129, which have been incorporated into the Commonwealth's SIP as meeting RACT for the covered sources. These SIP-approved provisions include §§ 129.51—129.52c, 129.54—129.69, 129.71—129.73, 129.75, 129.77, 129.101—129.107 and 129.301—129.310. An affected owner and operator of a major NO<sub>x</sub> emitting facility or a major VOC emitting facility that was in existence on or before July 20, 2012, with a source that is subject to the requirements set forth in one or more of the

provisions of §§ 129.51—129.52c, 129.54—129.69, 129.71—129.73, 129.75, 129.77, 129.101—129.107 and 129.301—129.310 would not also be subject to the requirements of §§ 129.96—129.100 for that source.

Subsections 129.97(i) and (j), 129.99(g) and (k), and 129.100(a) of the final-form regulation do not exempt an affected owner and operator from the applicability of the requirements set forth in final-form §§ 129.96—129.100. Subsections 129.97(i) and (j) and 129.99(g) and (k) refer to instances where a more stringent RACT limit already applies to the affected owner and operator of a source subject to final-form §§ 129.96—129.100. The exceptions in subsections 129.97(i) and (j) and 129.99(g) and (k) provide that previously issued plan approval or operating permit requirements will continue to apply if the previously issued requirements are more stringent than the requirements set forth in final-form §§ 129.96—129.100. The exception in subsection 129.100(a) provides that an affected owner or operator may request a waiver from the requirement to demonstrate compliance with the applicable emission limitation listed in § 129.97, if the requirements set forth under § 129.100(c) are met.

These instances are not exceptions to RACT applicability. In addition, it is not feasible to define all exemptions in only one section. Therefore, the Department believes that the final rulemaking adequately explains which sources are subject to regulation under the final rulemaking.

**30. Comment:** The intent of the regulation appears to be to regulate NO<sub>x</sub> emissions from major sources of NO<sub>x</sub> and VOC emissions from major sources of VOCs. The proposed language, however, makes this interpretation difficult to glean. We suggest the following amendments to § 129.96 Applicability: (a) *[This section and] The NO<sub>x</sub> requirements and/or limitations of §§ 129.97-129.100 apply Statewide to the owner and operator of a major NO<sub>x</sub> emitting facility and the VOC requirements and for limitations of §§ 129.97-129.100 apply Statewide to the owner and operator of [or] a major VOC emitting facility [, or both,] that was in existence on or before July 20, 2012, for which a requirement or emission limitation, or both, has not been established in §§ 129.51-129.52c, 129.54-129.69, 129.71-129.73, 129.75, 129.77, 129.101-129.107 and 129.301-129.310. Similar amendments would apply to (b) as well as § 129.97. (109)*

**Response:** The Department agrees that the NO<sub>x</sub> RACT requirements are applicable only to the owners and operators of major NO<sub>x</sub> emitting facilities and the VOC RACT requirements are applicable only to the owners and operators of major VOC emitting facilities. The NO<sub>x</sub> requirements of §§ 129.96—129.100 apply Statewide to the owner and operator of a major NO<sub>x</sub> emitting facility and the VOC requirements of §§ 129.96—129.100 apply Statewide to the owner and operator of a major VOC emitting facility. The final-form regulation was amended to clarify the applicability for the owners and operators of NO<sub>x</sub> and VOC emitting facilities.

**31. Comment:** As proposed, § 129.96 trips the requirements for both NO<sub>x</sub> and VOC controls even when a unit may only be major for one of the contaminants. Why was a common approach taken to NO<sub>x</sub> and VOC instead of identifying VOC emission sources of concern and addressing those separately from the NO<sub>x</sub> sources? The most likely result of this blending is a lot of effort being spent for really small gains. (97, 109)

**Response:** The Department agrees that the NO<sub>x</sub> RACT requirements are applicable only to the owners and operators of major NO<sub>x</sub> emitting facilities and the VOC RACT requirements are applicable only to the owners and operators of major VOC emitting facilities. The NO<sub>x</sub> requirements of §§ 129.96—129.100 apply Statewide to the owner and operator of a major NO<sub>x</sub> emitting facility and the VOC requirements of §§ 129.96—129.100 apply Statewide to the owner and operator of a major VOC emitting facility. The final-form regulation has been amended to clarify the applicability so that § 129.96 does not trip the requirements for both NO<sub>x</sub> and VOC controls when the facility is major for only NO<sub>x</sub> or only VOC.

**32. Comment:** Our understanding of EPA policy is that those sources that have already installed air pollution control equipment as a result of previous RACT are not required to install additional controls absent new information indicating otherwise. See, e.g., 70 Fed. Reg. 71612, 71655 (Nov. 29, 2005); *NRDC v. U.S. EPA*, 571 F.3d 1245, 1253-55 (D.C. Cir. 2008). The Department should amend the proposed § 129.96 to exclude NO<sub>x</sub> and VOC sources that have already undergone RACT review and have resulting NO<sub>x</sub> and/or VOC limits or restrictions, unless new information indicates that a new RACT analysis is justified. (114, 119)

**Response:** The Department believes that the commentator is referring to *NRDC v. EPA*, 571 F.3d 1245 (D.C. Cir. 2009), decided by the D.C. Circuit Court in 2009, not 2008. The evaluation or reevaluation of what constitutes RACT-level control for affected sources is a requirement that must be fulfilled each time the EPA promulgates a new NAAQS as was the case in 1979 for the 1-hour ozone standard and in 1997 for the 8-hour ozone standard or revises a NAAQS as was the case in 2008 for the 8-hour ozone standard. The final rulemaking addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008. The final-form rulemaking requirements are applicable to the owners and operators of subject sources in existence on or before July 20, 2012, and to owners and operators of subject sources when the installation of a new source or a modification or change in operation of an existing source after July 20, 2012, results in the source or facility meeting the definition of a major NO<sub>x</sub> emitting facility or a major VOC emitting facility.

The EPA's Phase 2 Rule certification provision allows states to certify that the control measures approved as RACT under the 1-hour ozone standard also satisfy the RACT requirements under the 8-hour ozone standard absent information indicating it should not be approved (emphasis added). See 70 FR 71612, 71652 and 71655 (November 29, 2005). This approach adequately ensures that RACT determinations will take into account advances in technology.

The Department reviewed all available information, including Federal regulations and RACT regulations from various states. This review showed that a new RACT analysis is justified. The Department believes that the presumptive RACT requirements and emission limitations included in the final-form regulation are appropriate. Should an affected owner or operator not be able to comply with the presumptive requirement or emission limitation, the owner or operator may propose an alternative RACT emission limitation under § 129.99(a) based on the source's potential to emit NO<sub>x</sub> or VOCs.

**33. Comment:** Section 129.96 also fails to exclude sources where a requirement or emission limitation, or both, has been established by Federal regulatory programs that are not reflected in

these state regulations. In practice, this leads to some illogical results. For example, the proposed rulemaking would exclude VOC storage tanks subject to §§ 129.56 and 129.57 where there is a requirement or emission limitation or both, but it would fail to exclude VOC storage tanks that are currently regulated by 40 CFR Part 60 Subpart Kb. Depending on the capacity and vapor pressure of the vessel, these standards can include requirements more restrictive than § 129.56 or § 129.57. The proposed rulemaking should exclude sources that are subject to Federal regulations that have imposed a requirement or limitation, including those sources subject to 40 CFR Part 60 Subpart Kb. (114, 119, 121, 134)

**Response:** In the vast majority of cases, VOC emitting storage tanks subject to 40 CFR Part 60, Subpart Kb are also subject to § 129.56 or § 129.57. The applicability of final-form § 129.96 would exclude VOC emitting storage tanks subject to §§ 129.56 and 129.57 where there is a requirement or emission limitation from the RACT requirements. In addition, § 129.96 is revised from proposed to final rulemaking to set forth a de minimis threshold for the affected owner and operator with a source that has the potential to emit less than 1 ton per year of NO<sub>x</sub> or VOCs. Section 129.97 is revised from proposed to final rulemaking to set forth a generic presumptive requirement in § 129.97(c)(1) and (2) for the affected owner and operator of a source with the potential to emit less than either 5 tons of NO<sub>x</sub> per year or 2.7 tons of VOC per year, respectively.

**34. Comment:** Section 129.97(c)(1) doesn't have a lower bound for applicability. It would theoretically catch every boiler or other combustion source (which is very broad) with a heat input rating of less than 20 MMBTU/hr. The cost benefit of regulating the smallest end of this range is questionable. In particular, very small engines, including those associated with maintenance equipment, portable pumps and small generators should be expressly excluded from regulatory coverage under this provision. Section 129.97(d) should limit applicability. (97, 134)

**Response:** The Department disagrees that lower size thresholds expressed as heat input in MMBtu/hr are appropriate. Potential and actual emissions vary with fuel type and combustion methodology, even for units with the same heat input rating. Applicability thresholds expressed in tons per year provide a standard that can be used across all emission categories. The final rulemaking covers a broad spectrum of source categories. Given the diversity of sources subject to the final-form regulation, it is more appropriate to have one applicability threshold than to have several different thresholds. Regulations developed for only one source category or type tend to have applicability thresholds expressed in units of minimum source size that are appropriate for each regulation.

In order to minimize the number of case-by-case determinations that may be submitted under § 129.99, § 129.96 is revised from proposed to final rulemaking to set forth a de minimis threshold for the affected owner and operator with a source that has the potential to emit less than 1 ton per year of NO<sub>x</sub> or VOCs. Section 129.97 is revised from proposed to final rulemaking to set forth a generic applicable presumptive requirement in § 129.97(c)(1) and (2) for the affected owner and operator of a source with the potential to emit less than either 5 tons of NO<sub>x</sub> per year or 2.7 tons of VOC per year, respectively.

The generic applicable presumptive requirement is the installation, maintenance, and operation of the source in accordance with the manufacturer's specifications and with good operating practices. In the proposed rulemaking, these emission thresholds for generic presumptive requirements were applicable only to the owners and operators of sources undergoing case-by-case determinations.

Please note that the requirement proposed in § 129.97(c)(1) is provided in final-form § 129.97(c)(3). The requirements proposed in § 129.97(c)(2), (3), (4), (5) and (6) are renumbered and set forth in final-form § 129.97(c)(4), (5), (6), (7) and (8), respectively.

**35. Comment:** Why doesn't § 129.97(d) also include NO<sub>x</sub> sources? (134)

**Response:** Subsection 129.97(d) addresses presumptive VOC requirements for combustion units at major VOC facilities. NO<sub>x</sub> emission limitations for combustion units at major NO<sub>x</sub> facilities are addressed in § 129.97(g)(1).

**36. Comment:** The combustion turbine threshold should be 50 MMBtu/hr (higher heating value or HHV) or 6,000 horsepower. Please refer to the EPA Docket for Subpart KKKK (OAR – 2004 – 0490) for documentation and discussion of why a 50 MMBtu/hr (HHV) size threshold is appropriate for combustion turbines. See subparagraphs 129.97(g)(2)(i) and (g)(2)(iii). To alleviate the potential for numerous case-by-case RACT analyses, the commenters recommend changing the 1000 hp trigger threshold to 50 MMBtu/hr (HHV) (reference EPA Docket OAR-2004-0490). The proposed RACT levels found in clauses 129.97(g)(2)(i)(A) and (B) assume dry low NO<sub>x</sub> or water/steam injection emissions capabilities which are not commercially available on many combustion turbines <50 MMBtu/hr (HHV) or 6,000 horsepower. (107, 111, 115, 117, 129)

**Response:** Subsection 129.97(g) is revised from proposed to final rulemaking to establish a presumptive NO<sub>x</sub> RACT emission limitation of 150 ppmvd NO<sub>x</sub> @ 15% oxygen for a simple cycle or regenerative cycle turbine with a rated output equal to or greater than 1,000 bhp and less than 6,000 bhp in final-form § 129.97(g)(2)(iii). This requirement is consistent with 40 CFR Part 60, Subpart KKKK. The owners and operators of turbines unable to meet the requirements established in final-form § 129.97(g)(2)(iii) may elect to propose a case-by-case RACT emission limitation. However, since it is expected that turbines rated greater than 1,000 bhp and less than 6,000 bhp will be able to meet the presumptive requirement of 150 ppmvd NO<sub>x</sub> @ 15% oxygen without the addition of new dry low NO<sub>x</sub> or water/steam injection, the Department does not anticipate a significant number of turbine owners and operators requiring a case-by-case alternative RACT emission limitation for these sources.

**37. Comment:** What is the applicability to engines used by third parties on site? (114)

**Response:** The RACT requirements are applicable to all subject engines, including engines used by third parties, located at major NO<sub>x</sub> emitting facilities or major VOC emitting facilities that were in existence on or before July 20, 2012.

**38. Comment:** Several commentators believe that since they are subject to more stringent requirements under other programs (such as Maximum Achievable Control Technology (MACT), National Emission Standards for Hazardous Air Pollutants (NESHAP) and New Source Performance Standards (NSPS)) they should be exempt from the RACT requirements. The Department should exempt emergency generators and other sources with applicable Federally mandated NO<sub>x</sub> and VOC control requirements from RACT requirements. Additional exemptions are needed to accommodate facilities that are already subject to more stringent requirements or have already completed a RACT process. (104, 119, 134)

**Response:** The Department disagrees. An evaluation or reevaluation of what constitutes RACT for affected sources is required under Section 182 of the CAA for existing major NO<sub>x</sub> emitting or existing major VOC emitting facilities each time the EPA promulgates or revises a NAAQS. The final rulemaking addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008. RACT applies to the owners and operators of existing major stationary sources of NO<sub>x</sub> and VOC in ozone nonattainment areas. RACT for covered categories is required statewide and not just in designated ozone nonattainment areas in Pennsylvania because the state is located in the Northeast Ozone Transport Region established under Section 184 of the CAA.

Section 182(b)(2) (42 U.S.C.A. §7511a(b)(2)) requires that the Commonwealth implement RACT for each category of existing VOC sources in the area covered by a Control Techniques Guidelines (CTG) document issued by the Administrator between November 15, 1990, and the date of attainment of the area, as well as for all existing VOC sources in the area covered by any CTG issued before November 15, 1990, and all other major stationary sources of VOCs that are located in the area. Under CAA sections 182(f)(1) and 184(b)(2) (42 U.S.C.A. § 7511a(f)(1) and § 7511c(b)(2)), RACT requirements are applicable to all existing major sources of NO<sub>x</sub> in this Commonwealth.

The MACT and NESHAP requirements apply to the control of emissions of hazardous air pollutants (HAP) as required under section 112 of the CAA (42 U.S.C.A. §7412). Many HAPs are also VOCs, but not all VOCs are HAPs. Oxides of nitrogen are also not HAP. Therefore the owner and operator of an existing major source subject to MACT/NESHAP requirements for the control of HAP emissions may also be subject to RACT requirements for the control of NO<sub>x</sub> and VOC emissions. It is important to mention that the EPA's Implementation Rule for the 2008 ozone NAAQS provides additional guidance. The EPA recently finalized the agency's "proposed approach for VOC sources subject to MACT standards, such that states would be allowed to streamline their RACT analysis by including an assessment of the MACT controls and how they relate to VOC RACT considerations. This approach is consistent with the EPA's current policy." (80 FR 12279, March 6, 2015).

Therefore, no additional exemptions are warranted to accommodate the owners and operators of facilities that are already subject to more stringent requirements or have already completed a RACT process.

**39. Comment:** The commentator requests clarification regarding applicability of NO<sub>x</sub> RACT regulations to temporary engines. RACT operating requirements and/or emission limits for all

internal combustion engines at major sources of NO<sub>x</sub> and VOC should not apply to engines which are onsite for temporary periods of time. (130)

**Response:** The RACT requirements are applicable to all engines, including temporary engines, located at major NO<sub>x</sub> emitting facilities or major VOC emitting facilities that were in existence on or before July 20, 2012.

**40. Comment:** Proposed § 129.97(i) states that the requirements and emission limits of this section supersede the requirements and emission limitations of a RACT permit issued to an owner operator prior to the effective date of adoption of this proposed rulemaking, except to the extent that the RACT permit contains more stringent requirements or emission limitations, or both. What happens in the event that an existing RACT permit has a higher limit but a shorter averaging time than the proposed RACT requirements or conversely, in the event that an existing RACT permit has a lower limit but a longer averaging time than the proposed RACT requirements? The RACT regulations should be revised to clarify how existing RACT permits are to be handled to avoid potentially overlapping and conflicting requirements between existing RACT plans and the new provisions. (130)

**Response:** The owner or operator of an affected source shall comply with all applicable requirements, including the current requirements of the operating permit. Subsection 129.97(i) is intended to ensure that an owner or operator complies with the more stringent of the RACT requirements contained in a RACT permit issued under §§ 129.91—129.95 or the presumptive RACT requirements in the final-form regulation. In the event that an existing RACT permit has either a higher limit but a shorter averaging time than the final-form RACT requirements or a lower limit but a longer averaging time than the final-form RACT requirements, then the owner or operator shall comply with both the existing RACT permit requirements and the final rulemaking RACT requirements. However, both sets of requirements could be streamlined in the Title V Operating Permit to avoid any potential confusion.

**41. Comment:** Subsection 129.99(b) fails to exempt de minimis sources (below 5 tpy NO<sub>x</sub> and below 2.7 tpy VOC). (109, 114)

**Response:** In order to minimize the number of case-by-case determinations that may be submitted under § 129.99, § 129.96 is revised from proposed to final rulemaking to set forth a de minimis threshold for the affected owner and operator with a source that has the potential to emit less than 1 ton per year of NO<sub>x</sub> or VOCs. Section 129.97 is revised from proposed to final rulemaking to set forth a generic presumptive requirement in § 129.97(c)(1) and (2) for the affected owner and operator of a source with the potential to emit less than either 5 tons of NO<sub>x</sub> per year or 2.7 tons of VOC per year, respectively.

The generic applicable presumptive requirement is the installation, maintenance, and operation of the source in accordance with the manufacturer's specifications and with good operating practices. In the proposed rulemaking, these emission thresholds for generic presumptive requirements were applicable only to the owners and operators of sources undergoing case-by-case determinations.

Please note that the requirement proposed in § 129.97(c)(1) has been revised and set forth in final-form § 129.97(c)(3). The requirements proposed in § 129.97(c)(2), (3), (4), (5) and (6) are renumbered and set forth in final-form § 129.97(c)(4), (5), (6), (7) and (8), respectively.

**42. Comment:** The commentators object to the Department reopening post-RACT 1 [ §§ 129.91—129.95] construction permitting decisions that included NO<sub>x</sub> and or VOC control requirements/applying new RACT requirements to sources already subject to MACT, NESHAP and new source performance standards (NSPS) requirements. The commentators recommend removing the requirements of § 129.99(b) as this is a redo of RACT 1 and would probably yield the same results. (119, 121)

**Response:** The evaluation or reevaluation of what constitutes RACT for affected sources is a requirement that must be fulfilled each time the EPA promulgates a new NAAQS, as was the case in 1979 for the 1-hour ozone standard and in 1997 for the 8-hour ozone standard, or revises a NAAQS, as was the case in 2008 for the 8-hour ozone standard. The final rulemaking addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008 and is applicable to the owners and operators of subject sources in existence on or before July 20, 2012 – the effective date of the EPA’s designations and classifications for the 2008 ozone NAAQS. See 77 FR 30088 (May 21, 2012).

The EPA’s Phase 2 Rule certification provision allows states to certify that the control measures approved as RACT under the 1-hour ozone standard also satisfy the RACT requirements under the 8-hour ozone standard absent information indicating it should not be approved (emphasis added). See 70 FR 71612, 71652 and 71655 (November 29, 2005). This approach adequately ensures that RACT determinations will take into account advances in technology.

The Department reviewed all available information, including Federal regulations and RACT regulations from various states. This review showed that additional reductions and requirements are appropriate. The Department believes that the presumptive RACT requirements and emission limitations included in the final rulemaking are appropriate. Should the owner or operator not be able to comply with the presumptive RACT requirement or emission limitation, the owner or operator may propose an alternative RACT emission limitation under § 129.99(a) based on the source’s potential to emit NO<sub>x</sub> or VOCs.

**43. Comment:** Does § 129.99(b) apply to boilers using fuels other than those listed in § 129.97? (114)

**Response:** Proposed § 129.97(g) has been amended in the final rulemaking to address the firing of non-traditional liquid and solid fuels in combustion units. However, if a presumptive RACT limitation has not been established in § 129.97 for any other combustion unit, then the owner or operator shall propose an alternative RACT emission limitation, to the Department or approved local air pollution control agency, as set forth under § 129.99(b) based on the source’s potential to emit.

**44. Comment:** Does § 129.99(c) apply to combustion sources only or to all VOC sources? (114)

**Response:** Section 129.99(c) is not limited to combustion sources. The owner or operator of any VOC air contamination source with a potential emission rate equal to or greater than 2.7 tons of VOC per year that is not subject to § 129.97 and is located at a major VOC emitting facility subject to § 129.96 shall propose a VOC RACT emission limitation.

### § 121.1. Definitions

**45. Comment:** All definitions should match Federal definitions. The proposed new definition for “stationary source internal combustion engine” opens up application to the entirety of air quality regulations. It appears the Pennsylvania definition has always included portable (not mobile) internal combustion engines. The definition should be the same as the EPA’s reciprocating internal combustion engines (RICE) rule (40 CFR 63, Subpart ZZZZ). Add definitions consistent with Federal definitions: “capacity factor” in 40 CFR 72, “combustion turbine” in 40 CFR 60 NSPS, and “stationary internal combustion engine” in NSPS IIII and JJJJ and NESHAPS ZZZZ. (97, 104, 107, 109, 115, 117, 118, 119, 121, 129, 130, 134)

**Response:** The final-form rulemaking contains definitions consistent with Federal regulations. Definitions for “regenerative cycle combustion turbine,” “simple cycle combustion turbine” and “stationary combustion turbine” are added to § 121.1 in the final-form regulation. The definition of “stationary internal combustion engine” is revised to include the term “stationary reciprocating internal combustion engine.”

Final-form § 129.97(c)(7)(i) establishes that the “annual capacity factor” for a combustion unit is the ratio of the unit’s heat input (in million Btu or equivalent units of measure) to the unit’s maximum rated heat input (in million Btu or equivalent units of measure) times 8,760 hours during a period of 12 consecutive calendar months. The “annual capacity factor” for an electric generating unit is established in final-form § 129.97(c)(7)(ii) as the ratio of the unit’s actual electric output (expressed in mwe/hr) to the unit’s nameplate capacity (or maximum observed hourly gross load (in mwe/hr) if greater than the nameplate capacity) times 8,760 hours during a period of 12 consecutive calendar months. Final-form § 129.97(c)(7)(iii) specifies that for any other unit, the “annual capacity factor” is the ratio of the unit’s actual operating level to the unit’s potential operating level during a period of 12 consecutive calendar months.

**46. Comment:** Clarify that new definitions contained in the proposed rulemaking, such as “process unit” and “stationary internal combustion engine” are consistent with Federal definitions so that there is no confusion or additional regulation placed on sources without adequate opportunity for review. (119)

**Response:** The final-form regulation contains definitions consistent with Federal regulations. The term “process unit” is in common use across various source categories and does not need to be defined in the final-form RACT regulation.

**47. Comment:** The definition for “stationary internal combustion engine” and “process heater” should be the same as the Federal RICE rules and not include non-road (portable) engines. (97, 104, 107, 109, 115, 117, 118, 119, 121, 129, 130)

**Response:** The final-form regulation contains a definition for “stationary internal combustion engine” that is consistent with the Federal RICE regulations and a definition for “process heater” that is consistent with the Federal Boiler MACT regulations.

**48. Comment:** The following terms should be defined: “furnace,” “kiln,” and “individual heat input rating.” Under § 129.97(d), the phrase “other combustion source” is vague. It is unclear whether the phrase “other combustion source” is an unnecessary redundancy or if sources other than combustion units are encompassed in this term. (93, 109, 119, 121, 122, 128, 130, 134)

**Response:** The Department disagrees; the terms “furnace,” “kiln” and “individual heat input rating” are in common use across various source categories, and definitions for these terms are not needed in the final-form RACT regulation. The term “combustion source” has been in use since the RACT regulations codified at 25 Pa. Code §§ 129.91—129.95 were promulgated by the EQB in 1994.

**49. Comment:** The proposed definition for “CEMS” states, “All of the equipment that may be required to meet the data acquisition and availability requirements ... to monitor, measure, calculate, sample, condition, analyze and provide a *permanent* (emphasis added) record of emissions from an affected unit on a continuous basis.” This contradicts the records retention requirement of 5 years. (108, 112, 128, 134)

**Response:** The Department agrees. The word “permanent” was deleted from the final-form definition of CEMS.

The final-form definition reads as follows:

*CEMS—Continuous emissions monitoring system*—All of the equipment that may be required to meet the data acquisition and availability requirements established under the act or Clean Air Act to monitor, measure, calculate, sample, condition, analyze and provide a record of emissions from an affected unit on a continuous basis.

**50. Comment:** In §§ 129.97(g)(2)(i)(A), (g)(2)(i)(C), (g)(2)(iii)(A), and (g)(2)(iii)(C), what is a noncommercial gaseous fuel? A definition was not found in the regulation. Did the emission values proposed take into consideration the emissions capabilities of all gases that would fall into the “noncommercial gaseous fuel” category? (111, 134)

**Response:** The term “noncommercial fuel” is already defined in § 121.1 as follows:

*Noncommercial fuel*—A gaseous or liquid fuel generated as a byproduct or waste product which is not specifically produced and manufactured for sale. A mixture of noncommercial and a commercial fuel oil where at least 50% of the heat content is derived from the noncommercial fuel portion is considered a noncommercial fuel.

The Department examined the emissions from natural gas-fired engines and turbines. Based on the Department’s engineering judgment, the emissions profile for landfill gas is comparable to the emissions profile for natural gas. The Department included noncommercial gaseous fuel

with the presumptive NO<sub>x</sub> RACT emission limitations for natural gas in order to include engines and turbines that fire gaseous fuels with emission characteristics similar to natural gas. However, the owner or operator of any affected source subject to a presumptive RACT requirement or RACT emission limitation in § 129.97 that cannot meet the applicable presumptive RACT requirement or RACT emission limitation may submit a proposal under § 129.99 for an alternative limit determined on a case-by-case basis.

**51. Comment:** The commentator recommends including definitions of “malfunction,” “start-up,” and “shutdown” in relation to proposed § 129.97(h). (112)

**Response:** The Department disagrees. The presumptive NO<sub>x</sub> RACT emission limitations for Portland cement kilns are applicable at all times, including start-up, shutdown, and malfunction (SSM). Therefore, the Department does not see a need to define the terms start-up, shutdown, or malfunction solely for the purposes of § 129.97(h) for cement kilns—there are no exceptions for SSM events.

**52. Comment:** Section 129.97(c)(3) should read "A stationary internal combustion engine ... " Please add the word "stationary." (122, 134)

**Response:** The Department agrees and has incorporated the requested change in the final rulemaking. Proposed § 129.97(c)(3) has been revised and set forth in final-form § 129.97(c)(5) and reads as follows:

A stationary internal combustion engine rated at less than 500 bhp (gross).

**53. Comment:** Define “refinery gas” as “gas produced at a refinery which produces petroleum products, including gasoline, from refinery units.” (126, 130, 134)

**Response:** The Department agrees. The term “refinery gas” has been added to § 121.1 in the final rulemaking and is defined as follows:

*Refinery gas*—Gas produced at a refinery which produces petroleum products, including gasoline, from refinery units.

**54. Comment:** The term “air contamination sources” is broadly defined and becomes problematic when used in subsections 129.99(b) and (c). Does it apply to each individual piece of equipment or a grouping of equipment? (114)

**Response:** The term “air contamination source” is defined in Section 3 of the Air Pollution Control Act (APCA), 35 P.S. § Section 4003, as follows:

"Air contamination source." Any place, facility or equipment, stationary or mobile, at, from or by reason of which there is emitted into the outdoor atmosphere any air contaminant.

See also the definition of “air contamination source” set forth in § 121.1, as follows:

*Air contamination source*—Any place, facility or equipment, stationary or mobile, at, from or by reason of which there is emitted into the outdoor atmosphere any air contaminant.

Any amendments to the definition in § 121.1 would require a legislative amendment to the APCA.

The applicability threshold values set forth in subsections 129.99(b) and (c) in the final-form regulation were determined as generic potential emission levels below which the application of add-on emission control technology is not economically feasible.

**55. Comment:** Proposed § 129.98(b) refers to an "operating permit modification" that has two interpretations, as proposed: that which is submitted by the owner or operator and that which is issued by PA DEP. Neither use comports with the definition of "modification" in existing § 121.1. At a minimum, the word "application" or "proposal" should be added after "modification" wherever this section refers to that document which is submitted by the owner or operator. (133)

**Response:** The Department agrees. Section 129.98 has been revised in the final-form regulation to replace the term "operating permit modification" with the term "averaging plan" where appropriate. The averaging plan will be incorporated into the operating permit through the use of an operating permit modification procedure or Plan Approval, when necessary.

**§ 129.97. Presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule.**

**56. Comment:** The commentator supports the form and level of the presumptive emission limits included in the proposed rulemaking as they are consistent with Ohio's. (129)

**Response:** The Department appreciates the commentator's support of the proposed RACT regulation.

**57. Comment:** The Board is right not to establish presumptive limits for source categories that are relatively rare and for which RACT cannot be readily determined without a close review of the particular source. It would not be equitable or efficient for the Board to establish presumptive RACT requirements for these sources. (102)

**Response:** The Department agrees. Those categories containing a limited number of sources include iron and steel industries, coke oven batteries, lime kilns and refractory brick kilns.

**58. Comment:** RACT limits apply only during normal operations. (112, 127, 128, 130)

**Response:** The Department disagrees. The presumptive RACT emission limitations are applicable at all times, including start-up, shutdown, and malfunction.

**59. Comment:** In § 129.97, several subsections reference "a source in this subsection." It would be clearer to state "a source described in this subsection." (134)

**Response:** The Department agrees. In § 129.97 of the final-form regulation, the wording of the subsections has been clarified to read, “a source SPECIFIED in this subsection.”

**60. Comment:** Subsection 129.97(a) states that sources listed in subsections (b)—(h) “located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility, or both, subject to § 129.96 shall comply. ...” This phrase or portions of it are unnecessarily repeated in most of the following subsections (b)—(h). (134)

**Response:** The Department agrees that the proposal was unnecessarily repetitive. As a result, certain modifications have been made from proposed to final rulemaking to reduce or eliminate that repetition.

**61. Comment:** The commentators feel that the proposed regulations are less stringent than those that similarly-situated Mid-Atlantic States, including New Jersey, are proposing. The commentators request that the Board explain how the final regulation will ensure that Pennsylvania is adequately addressing emissions under its jurisdiction so that Pennsylvania is properly meeting its pollution control responsibilities to other states. (65, 72, 80, 90, 94, 95, 101, 113, 123, 133, 134)

**Response:** The Department reviewed and considered RACT regulations from similarly-situated Mid-Atlantic States, including New Jersey, during the development of the proposed and final rulemakings. Source categories in Pennsylvania are diverse, with numerous sources having varying characteristics differing from those of the other Mid-Atlantic States. The Department evaluated these source categories and determined that the presumptive RACT requirements included in the final-form regulation are appropriate. This approach is consistent with the EPA guidance provided in the March 16, 1994, memorandum from D. Kent Berry, Acting Director, Air Quality Management Division (MD-15), to the EPA Regional Air Directors, as follows:

*“In general, the actual cost, emission reduction, and cost-effectiveness levels that an individual source will experience in meeting the NO<sub>x</sub> RACT requirements will vary from unit to unit and from area to area. These factors will differ from unit to unit because the sources themselves vary in age, condition, and size, among other considerations. The EPA’s general RACT guidance urges States to judge the feasibility of imposing specific controls based on the economic and technical circumstances of the particular unit being regulated. In many cases, these factors are not the same in all States since the specific NO<sub>x</sub> RACT emission limitations and averaging times will differ from State to State.”* See Memorandum, Cost-Effective Nitrogen Oxides (NO<sub>x</sub>) Reasonably Available Control Technology (RACT), March 16, 1994, D. Kent Berry, Acting Director, Air Quality Management Division (MD-15).

In response to comments and the EPA’s March 6, 2015, Ozone NAAQS Implementation Rule, the DEP conducted additional reviews of historical emissions data for coal-fired EGUs equipped with SCR technology. DEP determined that the NO<sub>x</sub> limit specified in § 129.97(g)(1)(viii) should be revised. Subparagraph 129.97(g)(1)(viii) specifies that any combustion unit equipped with a selective catalytic reduction (SCR) system that is operating with an inlet temperature equal to or greater than 600°F must meet a NO<sub>x</sub> emission limit of 0.12 lb NO<sub>x</sub>/million Btu. Compliance with this emission limit is also required when by-passing the SCR system. The DEP

acknowledges that the NO<sub>x</sub> RACT limit in the final rulemaking is not the lowest achievable emissions rate (LAER) for this technology. However, the EPA has indicated in the preamble for the final rule approving a SIP revision for Wisconsin's NO<sub>x</sub> RACT Rule that: "RACT limits are not meant to be the lowest achievable emissions rate." The EPA also stated that "reductions necessary for attainment may vary from nonattainment area to nonattainment area and will often require greater reductions than RACT level reductions." See 75 FR 64155, 64157. Therefore, certain states may adopt more stringent "beyond RACT" requirements to address nonattainment.

On May 18, 2015, the U.S. Environmental Protection Agency (EPA) Region III Air Protection Division Director, Diana Esher, sent a letter to DEP stating that the 0.12 lb/MMBTU heat input NO<sub>x</sub> limit for coal-fired EGUs "is consistent with what the agency has "previously approved for RACT in other nearby Ozone Transport Commission states such as Delaware, Maryland and New Jersey." The EPA also indicated that based on its review of data for EGUs in Pennsylvania including Bruce Mansfield, Cheswick, Homer City and Keystone, "a limit of the 0.12 lb/MMBTU NO<sub>x</sub> heat input appears to be achievable by Pennsylvania EGUs with SCR."

**62. Comment:** Section 129.97(c) appears to establish an absolute obligation for relevant sources to be maintained and operated in accordance with both manufacturer's specifications and good engineering practices. However, in many cases, existing sources are components of complex process systems, integrated operations, or are specialized and custom designed, such that the equipment-specific manufacturer's specifications do not exist or are no longer relevant or applicable, and indeed can be inconsistent with "good engineering practice." Even more simply, with respect to older sources, manufacturer's specifications may no longer even be available. Therefore, the regulation should be revised to require operation and maintenance of regulated sources in accordance with good engineering practice, which, in appropriate circumstances, would include operation in accordance with manufacturer's specifications. (104, 107, 114, 115, 118, 119, 121, 122, 126, 129, 134)

**Response:** It should be noted that the existing presumptive RACT requirements codified in 25 *Pa. Code* § 129.93 specify the installation, maintenance and operation of the source in accordance with manufacturer's specifications; this provision, which has been implemented since 1995, is also approved by the EPA in the Commonwealth's SIP. In addition, an affected owner or operator that is not able to comply with the applicable presumptive RACT requirements and emission limitations set forth in the final-form regulation may opt to determine RACT requirements on a case-by-case basis under § 129.99.

However, subsections 129.97(c) and (d) have been revised in the final-form regulation to replace the term "good engineering practices" with the term "good operating practices." The word "engineering" refers to design, whereas the word "operating" refers to operation. Since this final rulemaking is applicable to the owners and operators of existing operating sources, it is more appropriate to regulate operating practices. In addition, this language is consistent with the SIP-approved permit compliance requirements found in 25 *Pa. Code* § 127.444 (relating to compliance requirements).

**63. Comment:** Exemptions for start-up and shutdown periods and regularly scheduled maintenance activities should be included in the proposed rulemaking. (112, 127, 128, 130, 134)

**Response:** The Department disagrees. The presumptive RACT emission limitations are applicable at all times, including start-up, shutdown, malfunction, and maintenance activities. Moreover, on May 22, 2015, the EPA Administrator Gina McCarthy signed a final action to ensure states have plans in place that are fully consistent with the Clean Air Act (CAA) and recent court decisions concerning start-up, shutdown and malfunction operations. *See e.g., Sierra Club et al. v. Jackson*, No. 3:10-cv-04060–CRB (N.D. Cal.). Exemptions from emission limits during periods of start-up, shutdown and malfunction exist in a number of state rules, some of which were adopted and approved into SIPs by the EPA many years ago. Recent court decisions have held that under the CAA, such exemptions are not allowed in SIPs.

**64. Comment:** Change “good engineering practices” to “good operating practices.” (129)

**Response:** The Department agrees. Subsections 129.97(c) and (d) have been revised in the final-form regulation to replace the term “good engineering practices” with the term “good operating practices.” The word “engineering” refers to design, whereas the word “operating” refers to operation. Since this final rulemaking is applicable to the owners and operators of existing operating sources, it is more appropriate to regulate operating practices. In addition, this language is consistent with the SIP-approved permit compliance requirements found in § 127.444.

**65. Comment:** Subsection 129.97(g) provides sufficient clarity on the applicability issue but then misapplies the threshold applicability requirement to the source rather than the facility. Does § 129.97(g) apply to the source or the facility? (109, 134)

**Response:** Subsection 129.97(g) has been revised in the final-form regulation to clarify that the RACT requirements are applicable to the owner and operator of subject sources located at a major facility.

**66. Comment:** The commentator recommends a VOC RACT requirement of “good engineering practices for the control of VOC emissions from the combustion unit or... source.” If not, then a 9 ppm VOC (as propane) limit for the existing fleet of combustion sources should be added. (111)

**Response:** Subsections 129.97(g)(2)(i)(C) and 129.97(g)(2)(i)(D) have been revised in the final-form regulation to establish presumptive RACT emission limitations of 5 and 9 ppmvd VOC @ 15% oxygen (as propane) for combined cycle turbines or combined heat and power combustion turbines with a rated output equal to or greater than 1,000 bhp and less than 180 MW firing natural gas or a noncommercial gaseous fuel and firing fuel oil, respectively.

**67. Comment:** Proposed subsection 129.97(d) suffers from deficiencies in regulatory clarity. For example, subsections 129.97(c) and (d) are not, on their face, mutually exclusive, yet, those provisions should not properly be applied simultaneously to the same sources. In both cases the presumptive RACT ends up the same (good engineering practices). Subsection 129.97(d) should be revised to limit applicability to sources exceeding certain size thresholds. (97, 104, 107, 115, 117, 134)

**Response:** The Department agrees that subsections 129.97(c) and (d) should not be applied simultaneously to the same sources. Section 129.97 is revised in the final-form regulation to set forth a generic presumptive requirement in § 129.97(c)(1) and (2) for the affected owner and operator of a source with the potential to emit less than either 5 tons of NO<sub>x</sub> per year or 2.7 tons of VOC per year, respectively.

Subsection 129.97(d) has been revised in the final-form regulation to clarify that except as specified under subsection 129.97(c), the owner and operator of a combustion unit or other combustion source located at a major VOC emitting facility subject to § 129.96 shall install, maintain and operate the source in accordance with the manufacturer's specifications and with good operating practices for the control of VOC emissions from the combustion unit or other combustion source. Subsection 129.97(d) does not specify a size threshold, but would not apply to the owner and operator of a VOC emitting source subject to § 129.97(c).

Please note that the requirement in proposed § 129.97(c)(1) has been provided in final-form § 129.97(c)(3). The requirements proposed in § 129.97(c)(2), (3), (4), (5) and (6) are renumbered and set forth in final-form § 129.97(c)(4), (5), (6), (7) and (8), respectively.

**68. Comment:** Federal RICE and turbine rules provide justification for rulemaking requirements such as a higher applicability threshold for turbines subject to a 42 PPMV NO<sub>x</sub> standard and appropriate VOC standards for lean burn engines. Federal standards should be used as a basis to define technical limits, with turbine limits applicable at 75% of rated load and higher, and lean burn RICE limits applicable at 90% of rated load and higher. (107, 115)

**Response:** The Department disagrees that turbine and engine NO<sub>x</sub> limits should be applicable only at or above a certain rated load or that the Federal standards should be used as the sole basis to define technical limits. The requirements set forth under 40 CFR Part 60, Subpart JJJJ and 40 CFR Part 60, Subpart KKKK express the conditions (e.g. source load) under which the source must be tested to demonstrate compliance with the Federal emission limitations. However, Federal emission limitations for engines and turbines are applicable under all load conditions. The owner or operator is required to show compliance with the presumptive NO<sub>x</sub> emission limits contained in the final-form regulation through the use of CEMS or through monitoring and testing in accordance with a Department-approved emissions source test that meets the requirements of Chapter 139, Subchapter A (relating to sampling and testing methods and procedures), which may specify load conditions under which the source is to be tested.

Subsection 129.97(g) is revised in the final-form regulation to establish a presumptive NO<sub>x</sub> RACT emission limitation of 150 ppmvd NO<sub>x</sub> @ 15% oxygen for a simple cycle or regenerative cycle turbine with a rated output equal to or greater than 1,000 bhp and less than 6,000 bhp in final-form § 129.97(g)(2)(iii). This requirement is consistent with 40 CFR Part 60, Subpart KKKK. Proposed § 129.97(g)(2)(iii) is revised to § 129.97(g)(2)(iv) in the final-form regulation. Subsection 129.97(g)(3)(i)(B) is revised from proposed to final rulemaking to revise the VOC RACT emission limitation from 0.4 gram VOC/bhp-hr to 1.0 gram VOC/bhp-hr, excluding formaldehyde, for a lean burn stationary internal combustion engine with a rating equal to or greater than 500 bhp when fired with natural gas or a noncommercial gaseous fuel, liquid fuel or

dual-fuel. This requirement is consistent with new source performance standards codified in 40 CFR Part 60, Subpart JJJJ.

**69. Comment:** The VOC emission standards for engines and turbines should be deleted, or replaced with a compliance option based on good combustion practices. (107, 111, 115, 117, 118)

**Response:** The Department disagrees. The VOC emission standards should not be deleted or replaced with a compliance option based on good combustion practices for either engines or turbines. For engines, the use of certain control devices, such as non-selective catalytic reduction (NSCR), are feasible for the purposes of VOC RACT. Additionally, Federal regulations such as 40 CFR Part 60, Subpart JJJJ, also have VOC emission limitation requirements. Many turbines currently have SIP-approved case-by-case RACT determinations established under 25 Pa. Code §§ 129.91—129.95 for VOC emissions that include numerical emission limitations. The Department, after further review of available emissions data, believes that the VOC RACT emission limitations for turbines established in the final-form regulation are appropriate. The owner or operator may be able to achieve compliance without add-on controls through the application of “good combustion practices.”

Subsection 129.97(g)(3)(i)(B) is revised in the final-form regulation to establish a RACT emission limitation of 1.0 gram VOC/bhp-hr, excluding formaldehyde, for lean burn stationary internal combustion engines with a rating equal to or greater than 500 bhp fired with natural gas or a noncommercial gaseous fuel, liquid fuel or dual-fuel. This requirement is consistent with the Federal Standards of Performance for Stationary Spark Ignition Internal Combustion Engines codified in 40 CFR Part 60, Subpart JJJJ; the standards are also adopted and incorporated by reference in 25 Pa. Code Chapter 122 (relating to national standards of performance for new stationary sources).

Subsections 129.97(g)(2)(i)(C) and 129.97(g)(2)(i)(D) have been revised in the final-form regulation to establish presumptive RACT emission limitations of 5 and 9 ppmvd VOC @ 15% oxygen (as propane) for combined cycle turbines or combined heat and power combustion turbines with a rated output equal to or greater than 1,000 bhp and less than 180 MW firing natural gas or a noncommercial gaseous fuel and firing fuel oil, respectively.

In addition, the owner or operator of any affected source that cannot meet a presumptive RACT emission limitation may propose an alternative limit under § 129.99(a); the alternative limits will be established by the Department or local air pollution control agency on a case-by-case basis.

**70. Comment:** In § 129.97(g)(3), there appears to be some disparity between the combustion turbine and the reciprocating engine proposed requirements. The proposed combustion turbine level of 42 ppm on natural gas is ~four times lower than the RACT level for a lean burn reciprocating engine and ~two times lower than a rich burn engine. Uncontrolled combustion turbines are close to the proposed RACT levels for reciprocating engines. With reciprocating engines far outnumbering gas turbines in Pennsylvania does it make sense, from an environmental and/or cost impact basis, to have a RACT for combustion turbines, especially small combustion turbines? The RACT compliance cost analysis conducted by the agency is not

detailed enough to determine if the RACT emissions level proposed for combustion turbines is cost effective. (111, 134)

**Response:** The Department disagrees with the comparison of emission rates for engines to turbines. They are different combustion technologies and are considered to be different source types for the purposes of RACT determinations. Therefore, the Department disagrees that presumptive RACT requirements and emission limitations should not be established for turbines. The number of turbines subject to RACT requirements in Pennsylvania justifies the establishment of presumptive RACT emission limitations for turbines in order to minimize the number of applications for case-by-case RACT determinations.

Presumptive RACT emission limitations are implemented for each source category based on reasonably available control technology determinations and associated emissions data. In addition, the owner or operator of any affected source that cannot meet a presumptive RACT emission limitation may propose an alternative limit under § 129.99(a); the alternative limits will be established by the Department or local air pollution control agency on a case-by-case basis.

**71. Comment:** Emission limits should consider technology limitations at reduced load, consistent with Federal regulations. (107, 115, 117, 118)

**Response:** The Department disagrees that the final-form rulemaking emission limitations are not consistent with Federal regulations related to reduced loads. The requirements set forth under 40 CFR Part 60, Subpart JJJJ and 40 CFR Part 60, Subpart KKKK express the conditions (e.g. source load) under which the source must be tested to demonstrate compliance with the Federal emission limitations. However, Federal emission limitations for engines and turbines are applicable under all load conditions. The owner or operator is required to show compliance with the presumptive NO<sub>x</sub> emission limits contained in the final rulemaking through the use of CEMS or through monitoring and testing in accordance with a Department-approved emissions source test that meets the requirements of Chapter 139, Subchapter A, which may specify load conditions under which the source is to be tested.

**72. Comment:** The commentator recommends that the regulation address the use of multiple fuels consistent with the Boiler MACT. In accordance with the Boiler MACT, units that combust 90 percent by volume or more of a specified fuel are not considered as a dual-fuel unit and are appropriately categorized as the corresponding single fuel unit. (126)

**Response:** The Department disagrees. The final-form rulemaking retains the equation that was proposed in § 129.97(g)(4) to determine the applicable RACT multiple fuel emission limit on a total heat input fuel weighted basis for a unit firing multiple fuels. However, based on the EPA's Implementation Rule for the 2008 ozone NAAQS, "states would be allowed to streamline their RACT analysis by including an assessment of the MACT controls and how they relate to VOC RACT considerations. This approach is consistent with the EPA's current policy." See 80 FR 12279 (March 6, 2015).

**73. Comment:** While § 129.97(g) addresses a multitude of fuels, some commentators believe further direction is needed for units that use dual fuels, use different fuels at different times, or

use landfill gas rather than natural gas. We ask the EQB to review the list of fuels and add more categories of fuels where appropriate and also provide further direction on what category a dual fuel-fired source falls into. (134)

**Response:** Subsection 129.97(g) has been revised in the final rulemaking to clarify the use of multiple fuels. The presumptive RACT emission limitations are applicable only to sources identified in final-form paragraphs 129.97(g)(1)—(3). Paragraph 129.97(g)(4) sets forth an equation to determine the applicable RACT multiple fuel emission limit on a total heat input fuel weighted basis for a unit firing multiple fuels. The owner and operator of any other combustion source firing multiple fuels would be subject to the case-by-case RACT requirements under § 129.99.

The Department established presumptive levels applicable to landfill gas-fired internal combustion engines in § 129.97(g)(3) of the final-form regulation. Landfill gas-fired engines will be subject to the same emission limitations established for natural gas-fired engines in § 129.97(g)(3)(i)(A) and (iii)(A).

**74. Comment:** The Board should clarify the presumptive RACT requirement of paragraph 129.97(g)(4) for units firing multiple fuels simultaneously. The Board should clarify that paragraph 129.97(g)(4) does not apply to a source that happens to fire multiple fuels but does not otherwise fall within a source category under paragraphs 129.97(g)(1)—(3) or another source category for which a presumptive RACT limit would apply, and is not intended to cover a source that would be subject to a case-by-case determination under subsection 129.99(b) were it to fire just one fuel type. The regulation addresses units burning multiple fuels during the compliance period, not necessarily "simultaneously." (102, 109)

**Response:** Paragraph 129.97(g)(4) has been revised from proposed to final rulemaking to clarify the use of multiple fuels. The presumptive RACT emission limitations are applicable only to sources identified in paragraphs 129.97(g)(1)—(3). Paragraph 129.97(g)(4) addresses units firing multiple fuels. Any other combustion source firing multiple fuels would be subject to the case-by-case RACT requirements of § 129.99.

**75. Comment:** In RAF Question 12, the EQB states that the proposed regulations are "similar to regulations already adopted by Wisconsin and New York and approved by the EPA." However, Delaware (Delaware comments, page 3) and Connecticut (Connecticut comments, page 2) both commented that New York has in place significantly more stringent emissions limits than Pennsylvania. The EQB should either support or amend its response to RAF Question 12. (134)

**Response:** The Department reviewed and considered RACT regulations from various states when evaluating what constitutes reasonably available control technology for the types of sources affected by the final rulemaking. Source categories in Pennsylvania are diverse with numerous individual sources having varying characteristics. The Department evaluated these source categories and determined that the presumptive RACT requirements and emission limitations included in the final-form regulation are appropriate.

Due to variability in source type, combustion characteristics, unit size, fuel usage, operating conditions, and source age, there are differences between the final-form regulation and the New York RACT regulations in terms of emission limits, exceptions, size cutoffs, etc. For example, New York determined that combined cycle combustion turbines operated after July 1, 2014, should undergo case-by-case analysis due to limited numbers of this source type in New York. As New York noted in their Regulatory Impact Statement, “Because of the limited number of sources and the wide range of available control technologies, the [NY] Department was not able to identify a presumptive NO<sub>x</sub> RACT emission limit for combined cycle combustion turbines.”

However, due to the large number of these sources operating in Pennsylvania, the Department was able to determine presumptive NO<sub>x</sub> RACT emission limitations for different categories of combined cycle combustion turbines, including large combustion turbines that will likely be required to use SCR control to meet the applicable NO<sub>x</sub> RACT emission limitation. The basis for the determination of the presumptive RACT requirements and emission limitations is included in the preamble and the RAF for the final rulemaking. Both of these documents are replete with substantive information related to emission data, cost-effectiveness numbers, public health information, statutory requirements, small business information, and other types of analyses to demonstrate that this regulation is legally required, is in the public interest, is economically and technologically feasible, and will reduce emissions.

This approach is consistent with the EPA guidance provided in the March 16, 1994, memorandum from D. Kent Berry, Acting Director, Air Quality Management Division (MD-15), to the EPA Regional Air Directors, as follows:

*“In general, the actual cost, emission reduction, and cost-effectiveness levels that an individual source will experience in meeting the NO<sub>x</sub> RACT requirements will vary from unit to unit and from area to area. These factors will differ from unit to unit because the sources themselves vary in age, condition, and size, among other considerations. The EPA’s general RACT guidance urges States to judge the feasibility of imposing specific controls based on the economic and technical circumstances of the particular unit being regulated. In many cases, these factors are not the same in all States since the specific NO<sub>x</sub> RACT emission limitations and averaging times will differ from State to State.”* See Memorandum, Cost-Effective Nitrogen Oxides (NO<sub>x</sub>) Reasonably Available Control Technology (RACT), March 16, 1994, D. Kent Berry, Acting Director, Air Quality Management Division (MD-15).

The determinations of what add-on control technologies are reasonably available to meet the presumptive RACT requirements and emission limitations included in the final-form regulation are consistent with the determinations of what add-on control technologies are reasonably available to meet the presumptive RACT requirements in New York. The RACT emission limits included in the final-form regulation are comparable to emission limits included in other states’ RACT regulations, including New York and Wisconsin.

In response to comments and the EPA’s March 6, 2015, Ozone NAAQS Implementation Rule, the DEP conducted additional reviews of historical emissions data for coal-fired EGUs equipped with SCR technology. The DEP determined that the NO<sub>x</sub> limit specified in § 129.97(g)(1)(viii) should be revised. Subparagraph 129.97(g)(1)(viii) specifies that any combustion unit equipped

with a selective catalytic reduction (SCR) system that is operating with an inlet temperature equal to or greater than 600°F must meet a NO<sub>x</sub> emission limit of 0.12 lb NO<sub>x</sub>/MMBtu. Compliance with this emission limit is also required when by-passing the SCR system. The DEP acknowledges that the NO<sub>x</sub> RACT limit in the final rulemaking is not the lowest achievable emissions rate (LAER) for this technology. However, the EPA has indicated in the preamble for the final rule approving a SIP revision for Wisconsin's NO<sub>x</sub> RACT Rule that: "RACT limits are not meant to be the lowest achievable emissions rate." The EPA also stated that "reductions necessary for attainment may vary from nonattainment area to nonattainment area and will often require greater reductions than RACT level reductions." See 75 FR 64155, 64157. Therefore, certain states may adopt more stringent "beyond RACT" requirements for attainment purposes.

On May 18, 2015, the U.S. Environmental Protection Agency (EPA) Region III Air Protection Division Director, Diana Esher, sent a letter to DEP stating that the 0.12 lb/MMBtu heat input NO<sub>x</sub> limit for coal-fired EGUs "is consistent with what the agency has "previously approved for RACT in other nearby Ozone Transport Commission states such as Delaware, Maryland and New Jersey." The EPA also indicated that based on its review of data for EGUs in Pennsylvania including Bruce Mansfield, Cheswick, Homer City and Keystone, "a limit of the 0.12 lb/MMBTU NO<sub>x</sub> heat input appears to be achievable by Pennsylvania EGUS with SCR."

- **§ 129.97(b) and § 129.97(g)(1). Combustion units**

**76. Comment:** Does subsection 129.97(b) provide alternative compliance options or does it apply simultaneously with subsections 129.97(c)—(h)? (134)

**Response:** Subsection 129.97(b) does not apply simultaneously with subsections 129.97(c)—(h). Subsection 129.97(b) only applies to combustion units with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour.

**77. Comment:** Under paragraph 129.97(b)(1), it is not clear how an adjustment under subparagraph (i) relating to "fuel burning equipment, including the burners" is a different requirement than subparagraph (ii) relating to the "flame pattern" and subparagraph (iii) relating to the "air to fuel ratio." (134)

**Response:** Paragraph 129.97(b)(1) has been revised from proposed to final rulemaking to specify that the applicable requirement for the owner and operator of a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour is a biennial tune-up conducted in accordance with the procedures described in 40 CFR 63.11223. The inspection and adjustment of the fuel burning equipment, including the burners and components, the flame pattern, and the air to fuel ratio are separate and distinct components of the tune-up procedures described in 40 CFR 63.11223.

**78. Comment:** As written, subparagraph 129.97(b)(1)(i) could be satisfied by just an inspection. Is that the intent? (134)

**Response:** Yes, subparagraph 129.97(b)(1)(i) may be satisfied by just an inspection. Subparagraph 129.97(b)(1)(i) has been revised from proposed to final rulemaking to clarify that

cleaning or replacement of fuel-burning equipment, including the burners and components, is done as necessary for proper operation as specified by the manufacturer. Paragraph 129.97(b)(1) has been revised from proposed to final rulemaking to specify that the applicable requirement for the owner and operator of a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour is a biennial tune-up conducted in accordance with the procedures described in 40 CFR 63.11223.

**79. Comment:** As written, subparagraphs 129.97(b)(1)(ii) and (iii) would require an adjustment in all circumstances. What if an adjustment is not needed? (134)

**Response:** Subparagraphs 129.97(b)(1)(i)—(iii) have been revised in the final-form regulation to clarify that the adjustments are done as necessary to optimize the flame pattern. Paragraph 129.97(b)(1) has been revised from proposed to final rulemaking to specify that the applicable requirement for the owner and operator of a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour is a biennial tune-up conducted in accordance with the procedures described in 40 CFR 63.11223. The biennial tune-up performed to comply with paragraph 129.97(b)(1) must include, at a minimum, the inspections set forth in subparagraphs 129.97(b)(1)(i)—(iii).

**80. Comment:** Subsection 129.97(b) purports to establish standards applicable to sources located at major NO<sub>x</sub> or VOC emitting facilities, and specifies distinct control measures under paragraphs 129.97(b)(1) and (2). However, the same regulatory provision fails to clarify that paragraphs 129.97(b)(1) and (2) should constitute alternative compliance options, and should not apply simultaneously to affected sources. Does the site have the option of complying with either paragraph 129.97(b)(1) or paragraph 129.97(b)(2), or is compliance with both required? (104, 114, 134)

**Response:** The applicable requirements of paragraphs 129.97(b)(1) and (2) have been clarified in the final-form regulation. The owner and operator of an affected combustion unit which is located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility subject to § 129.96 shall comply with the applicable requirements in paragraph 129.97(b)(1) or paragraph 129.97(b)(2). Paragraph 129.97(b)(1) has been revised from proposed to final rulemaking to remove the reference to the requirements in paragraph (2) and to specify that the applicable requirement for the owner and operator of a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour is a biennial tune-up conducted in accordance with the procedures described in 40 CFR 63.11223. The biennial tune-up performed to comply with paragraph 129.97(b)(1) must include, at a minimum, the inspections set forth in subparagraphs 129.97(b)(1)(i)—(iii).

Paragraph 129.97(b)(2) has been revised from proposed to final rulemaking to remove the requirements that applied only to an oil-fired, a gas-fired or a combination oil-fired and gas-fired combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour. Additionally, the reference to the 1983 EPA document has been removed. Final-form paragraph 129.97(b)(2) specifies that the owner or operator of a combustion unit with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up shall conduct a tune-up of the boiler one time in each 5-year

calendar period. The tune-up performed to comply with paragraph 129.97(b)(2) must include, at a minimum, the inspections set forth in subparagraphs 129.97(b)(2)(i)—(iii).

**81. Comment:** Subsection 129.97(b) is formulated in a somewhat convoluted fashion. It appears that the proposed rulemaking is attempting to regulate solid fueled boilers in subsection 129.97(b)(1) and all other boilers in subsection 129.97(b)(2), and in addition references a very old (1983) EPA document (EPA-340/1-83-023) as a reference for the non-solid fuel boilers. This document is outdated. (109, 114, 134)

**Response:** The applicable requirements of paragraphs 129.97(b)(1) and (2) have been clarified in the final-form regulation. Please see the Response to Comment 80.

**82. Comment:** The commentators recommend that DEP modify § 129.97(b) to have one rule for tune-ups regardless of the fuel combusted, that that rule mirror the existing boiler MACT requirements, and that those requirements be listed in the rule, as opposed to referencing an external document. The referenced document was developed to address 1983 and earlier boiler designs, not modern boilers and control systems. In addition, the cited document, "Combustion Efficiency Optimization Manual for Operators of Oil and Gas-fired Boilers," is not readily available on the PA DEP or EPA websites. (109, 132)

**Response:** Paragraph 129.97(b)(1) has been revised from proposed to final rulemaking to specify that the applicable requirement for the owner and operator of a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour is a biennial tune-up conducted in accordance with the procedures described in 40 CFR 63.11223. The biennial tune-up performed to comply with paragraph 129.97(b)(1) must include, at a minimum, the inspections set forth in subparagraphs 129.97(b)(1)(i)—(iii).

Paragraph 129.97(b)(2) has been revised in the final-form regulation to remove the requirements that applied only to an oil-fired, a gas-fired or a combination oil-fired and gas-fired combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour. The reference to the 1983 EPA document has been removed. Final-form paragraph 129.97(b)(2) specifies that for the owner and operator of a combustion unit with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up, the applicable requirement is a tune-up conducted one time in each 5-year calendar period. The tune-up performed to comply with paragraph 129.97(b)(2) must include, at a minimum, the inspections set forth in subparagraphs 129.97(b)(2)(i)—(iii).

**83. Comment:** The proposed rulemaking requires minimization of NO<sub>x</sub> and CO emissions which is inconsistent with the boiler MACT rule. Recommend modify this provision to mirror the boiler MACT requirements. Also state that a periodic tune-up conducted in accordance with boiler MACT satisfies § 129.99 in the year in which it is conducted. (109)

**Response:** The applicable requirements of paragraphs 129.97(b)(1) and (2) have been clarified in the final-form regulation. Please see the Response to Comment 82.

**84. Comment:** We request the Department eliminate the proposed annual maintenance on natural gas units stated in paragraph 129.97(b)(1) as this required maintenance is not expected to result in any reduction of emissions and will add unnecessary recordkeeping burden. The EQB should explain why an annual tune-up is needed and reasonable. (118, 134)

**Response:** The Department agrees. The applicable requirements of paragraphs 129.97(b)(1) and (2) have been clarified in the final-form regulation. Please see the Responses to Comments 80 and 82.

**85. Comment:** We request the Department eliminate the proposed annual maintenance on natural gas units stated in 129.97(b)(1) as this required maintenance is not expected to result in any reduction of emissions and will add unnecessary recordkeeping burden. We further request that the Department allow maintenance and inspection of combustion heaters using the manufacturer's recommendations or the company's site specific maintenance and inspection plan. If the Department includes a requirement for other natural gas-fired units we ask that the requirement to "operate and maintain equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions" be used in place of required annual maintenance. (104, 107, 114, 115, 118, 119, 121, 122, 129)

**Response:** The Department disagrees that the requirement to "operate and maintain equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions" can be used in place of required annual maintenance for the natural gas units subject to § 129.97(b)(1). However, the applicable requirements of paragraphs 129.97(b)(1) and (2) have been clarified in the final-form regulation. Please see the Responses to Comments 80 and 82.

**86. Comment:** In § 129.97(b)(1), please denote either HHV or LHV after the MMBtu/hr in the final-form rulemaking. We assume the intent was HHV and base some of our other comments on such assumption. (111)

**Response:** Federal regulations for combustion units do not specify higher heating value (HHV) or lower heating value (LHV) for applicability purposes. The final rulemaking is consistent with the Federal regulations. Generally, HHV is used for determine applicability for Federal and state regulations.

**87. Comment:** The reference to "flame pattern" is not applicable to all combustion sources. The commentator has seen instances where combustion unit language has made its way into a combustion turbine permit rendering an irrelevant and impossible-to-comply-with permit condition. (111)

**Response:** The Department agrees that the requirements for combustion units referencing "flame pattern" are not applicable to all combustion sources, including turbines. The presumptive RACT requirement set forth in § 129.97(b)(1) for the owner and operator of a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour is a biennial tune-up conducted in accordance with the procedures described

in 40 CFR 63.11223. The biennial tune-up performed to comply with paragraph 129.97(b)(1) must include, at a minimum, the inspections set forth in subparagraphs 129.97(b)(1)(i)—(iii).

The term “combustion unit” is defined in § 121.1 as “a stationary equipment used to burn fuel primarily for the purpose of producing power or heat by indirect heat transfer [emphasis added].” While turbines are combustion sources, they produce power by direct heat transfer and are not combustion units by definition. Therefore, the tune-up requirement is not applicable to combustion turbines. In addition, this tune-up requirement should not appear as an applicable permit requirement for combustion turbines.

**88. Comment:** The language at § 129.97(b)(1) should be modified to match § 129.93(b)(2). (121)

**Response:** The Department disagrees that the language at § 129.97(b)(1) should be modified to match § 129.93(b)(2). The detail of the requirements included in combustion unit inspection procedures have increased since the promulgation of § 129.93(b)(2) in January 1994. The final-form regulation requirements are written to address the updated RACT requirements and procedures. The presumptive RACT requirement of paragraph 129.97(b)(1) has been revised in the final-form regulation to set forth that the affected owner and operator of a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour shall conduct a biennial tune-up in accordance with the procedures described in 40 CFR 63.11223. The biennial tune-up performed to comply with paragraph 129.97(b)(1) must include, at a minimum, the inspections set forth in subparagraphs 129.97(b)(1)(i)—(iii). Should the owner or operator not be able to comply with the presumptive requirement or emission limitation, the owner or operator may propose an alternative NO<sub>x</sub> RACT emission limitation under § 129.99(a) based on the source’s potential to emit NO<sub>x</sub>.

**89. Comment:** The commentator objects to incorporating by reference as a presumptive RACT requirement at § 129.97(c)(1) (and other locations in the proposed rulemaking) that, “... the operation and maintenance of the source in accordance with the manufacturer’s specifications and good engineering practices.” This will arbitrarily incorporate by reference an untold number of new requirements (manufacturer’s specifications) that are not known to and not reviewed by the Department and in the case of many units, especially older units or units that do not come with specifications, may not be known to the operator. Additionally, manufacturing specifications may be incorrect and arbitrary in themselves and not in keeping with good engineering practices. Uncertainty is not desirable for either the regulated industries or the DEP. The Department should provide a list of presumptive good engineering practices. (97, 107, 115, 117, 119, 121, 132, 134)

**Response:** It should be noted that the presumptive RACT requirement included in § 129.93 requires the installation, maintenance and operation of the source in accordance with manufacturer’s specifications. This requirement has been implemented since January 1994. In addition, the owner or operator may opt to determine RACT requirements on a case-by-case basis in place of presumptive RACT requirements.

In the final-form regulation, the term “good engineering practices” has been replaced with “good operating practices.” “Engineering” refers to design, whereas “operating” refers to operation. Since the requirements of this final rulemaking are for existing operating sources, it is more appropriate to regulate operating practices. In addition, this language is consistent with the permit compliance requirements found in 25 Pa. Code § 127.444.

**90. Comment:** The commentators recommend that the presumptive RACT requirements for coal-fired boilers should be established based on actual emission levels achieved in practice while operating with post-combustion controls, such as selective catalytic reduction (SCR) or selective non-catalytic reduction (SNCR). The RACT regulations should require the use of SCR or other control device(s) continuously to minimize NO<sub>x</sub> pollution. (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 49, 50, 51, 52, 53, 54, 55, 56, 58, 59, 60, 61, 62, 63, 64, 65, 66, 68, 70, 71, 72, 73, 75, 76, 77, 78, 79, 80, 81, 88, 89, 90, 91, 94, 96, 98, 99, 100, 101, 103, 106, 113, 116, 123, 133)

**Response:** The Department disagrees that the presumptive RACT requirements for coal-fired boilers should be established based solely on the lowest actual emission levels achieved in practice by some of the affected units while operating with post-combustion controls. The proposed and final RACT rulemakings establish presumptive emission limitations for NO<sub>x</sub> or VOCs that are achievable and sustainable during the expected life of the affected unit using technologies that are both technically and economically feasible. Implementation of the final rulemaking presumptive RACT requirements and RACT emission limitations will reduce the amount of ozone precursor emissions that the owner and operator of a facility subject to the final-form provisions in §§ 129.96—129.100 would be legally allowed to emit to the atmosphere.

Design limitations of the existing SCR and SNCR control technology installed on the affected coal-fired boilers dictate the operating parameters that are reasonably achievable. However, based on consideration of comments received during the public comment period and on the evaluation of NO<sub>x</sub> emissions data for coal-fired boilers for a 5-year period, the final-form regulation addresses the use of installed SCR or SNCR equipment in § 129.97(g)(1)(viii) and § 129.97(g)(1)(ix). Further, the NO<sub>x</sub> emission limit for CFB combustion units in § 129.97(g)(1)(vi)(A) is revised from the proposed 0.20 lb NO<sub>x</sub>/million Btu heat input to 0.16 lb NO<sub>x</sub>/million Btu heat input in the final-form regulation.

Currently, there are six coal-fired power plants with 15 coal-fired EGUs in Pennsylvania that are not scheduled for retirement or fuel-switching from coal to natural gas. Of these six facilities, five plants with 12 EGUs are equipped with SCR control technology. The sixth plant is authorized to burn natural gas as well as coal. Upon reevaluation of the NO<sub>x</sub> emissions data from the coal-fired EGUs equipped with SCR, the Department concluded that a NO<sub>x</sub> emission limit of 0.12 lb/MMBtu was achievable with operation of SCR when an inlet temperature of 600°F is reached. This limit accounts for the design limitations of the existing SCR systems. In addition, compliance with this emission limit is also required when by-passing the SCR system.

Final-form subparagraph 129.97(g)(1)(viii) establishes an emission limitation for a combustion unit equipped with SCR control technology as follows:

(viii) For a combustion unit with a selective catalytic reduction system operating with an inlet temperature equal to or greater than 600°F, 0.12 lb NO<sub>x</sub>/million Btu heat input. Compliance with this emission limit is also required when by-passing the selective catalytic reduction system.

EGU flue gas temperature is directly affected by boiler load. EGU flue gas temperatures must be at or above a minimum operating temperature to allow for the injection of ammonia since adequate catalyst bed temperatures are needed to sustain the catalytic reaction for NO<sub>x</sub> control. The injection of ammonia below a minimum operating temperature would not achieve the required levels of NO<sub>x</sub> emissions reduction and would likely create excessive ammonia “slip.” The excessive ammonia slip would then increase the amount of additional ammonium compounds, such as ammonium bisulfate.

Ammonium bisulfate is a sticky, corrosive liquid that forms at lower flue gas temperatures. Deposition of ammonium bisulfate can reduce EGU operational capabilities by plugging the boiler’s air heater. Because a plugged air heater limits the capacity of the boiler, it also limits the amount of ammonia that can be injected. This then limits the amount of NO<sub>x</sub> emissions that can be reduced. The plugged air heater also increases the amount of ammonia slip. This operating condition can ultimately result in excessive system back pressure that requires the boiler to be taken out of service to allow water washing of the air heater. Additionally, higher ammonia slip could contribute to additional PM<sub>2.5</sub> concentrations.

While the minimum operating temperature varies depending on the type of SCR system, typically for the SCR to function at its target efficiency rate and optimize the control of NO<sub>x</sub> emissions, the temperature of the EGU flue gas entering the SCR must be no less than 600°F. When the EGU flue gas temperature falls below 600°F, less efficient NO<sub>x</sub> emission reduction occurs along with increased ammonia slip and increased potential for air heater fouling leading to unscheduled outages.

Similarly, the minimum operating temperature for SNCR systems is typically 1600°F and operating the SNCR system at a temperature below 1600°F would likely result in excessive ammonia slip with a significant negative impact on the ability of the systems to achieve NO<sub>x</sub> emission reductions.

Final-form subparagraph 129.97(g)(1)(ix) establishes an emission limitation for a combustion unit with a selective non-catalytic reduction (SNCR) system as follows:

(ix) For a combustion unit with a selective non-catalytic reduction system, the selective non-catalytic reduction system shall be operated with the injection of reagents including ammonia or other NO<sub>x</sub>-reducing agents, when the temperature at the area of the reagent injection is equal to or greater than 1600°F.

Circulating fluidized bed (CFB) combustion units are typically controlled by SNCR systems. In Pennsylvania, most CFB combustion units burn coal refuse such as anthracite culm and bituminous gob. Due to significant variability in coal refuse and design of combustion units, the NO<sub>x</sub> emissions from these units are widely varied. NO<sub>x</sub> emissions from certain combustion units not equipped with any SNCR system are comparable to NO<sub>x</sub> emissions from other units equipped with and operating SNCR systems. Upon reevaluation of the NO<sub>x</sub> emission data from CFB boilers, the Department concluded that a NO<sub>x</sub> emission limit of 0.16 lb/MMBtu is achievable. The owner and operator of a CFB combustion unit subject to § 129.97(g)(1)(vi)(A) shall achieve the emission limitation of 0.16 lb/MMBtu NO<sub>x</sub> emission level at all times and additionally, if the combustion unit is equipped with SNCR, the SNCR must be in operation with the injection of reagents including ammonia or other NO<sub>x</sub>-reducing agents, when the temperature at the area of the reagent injection is 1600°F or greater.

The NO<sub>x</sub> emission limit for CFBs has been lowered from the proposed 0.20 lb NO<sub>x</sub>/million Btu heat input to 0.16 lb NO<sub>x</sub>/million Btu heat input in final-form § 129.97(g)(1)(vi)(A) as follows:

(g) The owner and operator of a NO<sub>x</sub> air contamination source specified in this subsection, which is located at a major NO<sub>x</sub> emitting facility or a VOC air contamination source specified in this subsection, which is located at a major VOC emitting facility subject to § 129.96 may not cause, allow or permit NO<sub>x</sub> or VOCs to be emitted from the air contamination source in excess of the applicable presumptive RACT emission limitation:

(1) A combustion unit or process heater:

...

(vi) For a coal-fired combustion unit with a rated heat input equal to or greater than 250 million Btu/hour that is:

(A) A circulating fluidized bed combustion unit, 0.16 lb NO<sub>x</sub>/million Btu heat input.

...

The Department further believes that continuous operation of existing SCR and SNCR control technology installed on the combustion units subject to final-form §§ 129.97(g)(1)(vi)(A), 129.97(g)(1)(viii) and 129.97(g)(1)(ix) cannot be required, due to changing market conditions and deployment of electric generating capacity. The onset of lower natural gas prices and additional regulatory obligations has spurred an industry-wide shift in the operation of coal-fired electric generating units (EGUs) from high capacity factor base load operation to variable modes of operation. Variable modes of operation include load following and minimum load operations. The increase in time spent in variable modes of operation rather than in high capacity factor base load operation is reflected in recent monthly coal-fired generation data. Because of potential increased operation of lower cost natural gas-fired EGUs, the deployment of renewable sources of electric generation and the availability of increased nuclear electric-generating capacity following the adoption of the EPA's Clean Power Plan, coal-fired plants are increasingly likely over the next several years to be operated only to provide load balancing electric generation. It is also very difficult to compare future operation of coal-fired EGUs with recent historical operations because the coal that is currently being burned possesses different characteristics than the coal that was burned in the prior years. Therefore, due to the design limitations of the SCR

and SNCR control technology and the minimum operating temperatures required for efficient operation and optimized NO<sub>x</sub> emission reduction, operation of the existing SCR and SNCR controls below the minimum designed temperature cannot be required in the final rulemaking.

**91. Comment:** The proposed rulemaking fails to set strict NO<sub>x</sub> emission limits for coal-fired EGUs. SCR can reduce NO<sub>x</sub> emissions to as low as 0.05 lb/MMBtu. The RACT limit should be 0.05 lb/MMBTU NO<sub>x</sub>. (103, 116)

**Response:** The Department disagrees that the presumptive RACT emission limitation for coal-fired EGUs should be established at 0.05 lb NO<sub>x</sub>/MMBtu in the final-form regulation. There are specific operating conditions that may allow SCR to achieve NO<sub>x</sub> emissions as low as 0.05 lb NO<sub>x</sub>/MMBtu on a very limited basis, but typical operating conditions for combustion units in Pennsylvania are not conducive to a presumptive RACT emission limitation of 0.05 lb NO<sub>x</sub>/MMBtu. The final-form regulation sets forth emission limitations for NO<sub>x</sub> or VOCs that are achievable using technologies that are reasonably available. The emission limitations and requirements set forth in this final-form regulation will reduce emissions of ozone precursors. Please also see the Response to Comment 90.

**92. Comment:** In developing a State-wide rule, the EQB should consider worst-case costs, including the cost of installing SCRs since not all units in the state currently have SCRs. The EQB should finalize its proposed limit of 0.40 lb NO<sub>x</sub>/MMBtu for large units (over 250 MMBtu /hr). (131)

**Response:** The Department acknowledges that not all combustion units in the state are equipped with SCR control technology. The Department considered the costs of installing control technology as part of its evaluation of what constitutes reasonably available control technology for the final rulemaking. Please also see the Response to Comment 90. The final-form regulation limit in § 129.97(g)(1)(vi)(C) for any other type of coal-fired combustion unit with a rated heat input equal to or greater than 250 million Btu/hour remains 0.40 lb NO<sub>x</sub>/MMBtu.

**93. Comment:** Coal-fired EGUs with existing SCR controls cannot continue to inject ammonia into the catalyst bed at operating rates below 60-65% load, due to inadequate catalyst bed temperatures needed to sustain the catalytic reaction for NO<sub>x</sub> control. By way of specific example, a coal-fired EGU equipped with SCR may be able to achieve NO<sub>x</sub> emission rates approaching 0.1 lb/MMBtu at full load conditions; however, the same unit operating at a load below 65% will emit NO<sub>x</sub> at a rate closer to 0.3-0.35 lb/MMBtu. (125)

**Response:** The Department acknowledges that coal-fired EGU flue gas temperature is directly affected by boiler load. EGU flue gas temperatures must be at or above a minimum operating temperature to allow for the injection of ammonia since adequate catalyst bed temperatures are needed to sustain the catalytic reaction for NO<sub>x</sub> control. The injection of ammonia below a minimum operating temperature would not achieve the required levels of NO<sub>x</sub> emissions reduction and would likely create excessive ammonia "slip." Please also see the Response to Comment 90.

**94. Comment:** The proposed regulations fail to specify the application of any presumptive standard to combustion units using non-traditional fuel sources rather than conventional fossil fuels. (104, 114)

**Response:** The Department disagrees that the proposed rulemaking failed to specify the application of a presumptive standard to combustion units using non-traditional fuel sources rather than conventional fossil fuels. However, the Department has revised the presumptive RACT requirements and emission limitations in the final-form regulation to expressly set forth the emission limitations for the firing of non-traditional liquid and solid fuels in combustion units with a rated heat input equal to or greater than 50 million Btu/hour.

Final-form § 129.97(g)(1)(iii) has been revised from proposed to final rulemaking to address other liquid fuel-fired combustion units as follows:

(iii) For a residual oil-fired **OR OTHER LIQUID FUEL-FIRED** combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour, 0.20 lb NO<sub>x</sub>/million Btu heat input.

Final-form § 129.97(g)(1)(vii) addresses solid fuels as follows:

(vii) For any other type of solid fuel-fired combustion unit, with a rated heat input equal to or greater than 50 million Btu/hour, 0.25 lb NO<sub>x</sub>/million Btu heat input.

**95. Comment:** A more stringent NO<sub>x</sub> standard could have the perverse outcome of increasing the emission of other “non-NO<sub>x</sub>” air pollutants. For example, SCRs will be used to oxidize elemental mercury to ionic mercury to facilitate mercury removal across wet flue gas desulfurization (FGD) controls for the upcoming Federal Mercury and Air Toxics Standards (MATS) Rule. If the SCR is operated at high removal rates (i.e., high ammonia injection rates), the beneficial effects of mercury oxidation will be reduced by the high ammonia injection rates. (125, 131)

**Response:** The use of SCR has a beneficial effect on the removal of mercury emissions since the oxidized mercury could be removed by the scrubbers more effectively than elemental mercury. Based on the available data, the units equipped with SCR and wet FGD combusting bituminous coal achieve as much as 90% mercury reduction.

**96. Comment:** Provide the technical analysis that supports the 0.08 lb NO<sub>x</sub>/MMBtu heat input, as that is different from the EPA’s New Source Performance Standard (NSPS) which recognizes 0.1 lb NO<sub>x</sub>/MMBtu. (122)

**Response:** The Department determined that the average uncontrolled NO<sub>x</sub> emission rate for natural gas-fired combustion units was 0.2 lb/MMBtu. At an average NO<sub>x</sub> control efficiency of 50% for low-NO<sub>x</sub> burners (LNB), the feasible control for natural gas-fired combustion units, the presumptive NO<sub>x</sub> RACT emission limitation for natural gas-fired combustion units rated at or above 50 million Btu/hour is 0.1 lb NO<sub>x</sub>/MMBtu. The Department established the presumptive limit in the proposed rulemaking as 0.08 lb NO<sub>x</sub>/MMBtu to reflect the upper-bound low NO<sub>x</sub>

burner (LNB) NO<sub>x</sub> control efficiency of 60% and to be consistent with Wisconsin's SIP-approved presumptive RACT requirements.

Upon further analysis, the Department could not find sufficient information to support Pennsylvania retaining a presumptive NO<sub>x</sub> RACT emission limitation of 0.08 lb/MMBtu solely to be consistent with Wisconsin's RACT requirements using upper-bound control efficiencies. Therefore, in the final-form regulation, the presumptive NO<sub>x</sub> RACT emission limitation is revised from 0.08 lb NO<sub>x</sub>/MMBtu to 0.10 lb NO<sub>x</sub>/MMBtu for a natural gas-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour. This requirement is now consistent with the requirement in the NSPS requirements in 40 CFR Part 50, Subpart Db and 25 Pa. Code § 129.201.

**97. Comment:** Due to the larger combustion zone available on natural gas-fired combustion units rated greater than 50 million Btu/hour, the presumptive RACT emission rate of 0.08 lb NO<sub>x</sub>/MMBtu for such units is not achievable for a unit that was designed to burn coal or fuel oil and has been converted to firing natural gas. For example, the units at the Martins Creek facility were converted from an oil-fired design to allow combustion of natural gas. Stack testing of these units revealed that NO<sub>x</sub> emission rates cannot approach the standard that may be achievable for units originally designed to combust primarily or exclusively natural gas. Therefore, the commentator believes that case-by-case RACT determinations are appropriate for these sources. (125)

**Response:** The presumptive NO<sub>x</sub> RACT emission limitation for a natural gas-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour is revised from the proposed 0.08 lb NO<sub>x</sub>/MMBtu to 0.10 lb NO<sub>x</sub>/MMBtu in the final-form regulation. This requirement is now consistent with the requirement in the NSPS requirements specified in 40 CFR Part 60, Subpart Db and 25 Pa. Code § 129.201. Should the owner or operator of a combustion unit not be able to comply with the presumptive requirement, the owner or operator may propose an alternative NO<sub>x</sub> RACT emission limitation under § 129.99(a) based on the source's potential to emit NO<sub>x</sub>.

**98. Comment:** Even for those few boilers that lack controls superior to the contemplated RACT of low NO<sub>x</sub> burners, installation and operation of SNCR would achieve reductions of NO<sub>x</sub> at significantly less than \$2,500 per ton. (113)

**Response:** The Department disagrees. The Department reviewed all available information, including Federal regulations and RACT regulations from various states. The cost-effectiveness of technically feasible add-on control devices, including SNCR, was calculated in accordance with the EPA Office of Air Quality Planning and Standards OAQPS Cost Manual. The Department believes that the presumptive RACT requirements and emission limitations included in the final-form regulation are appropriate.

**99. Comment:** Section 129.97(g)(1) seems to potentially have an interaction with the two Boiler MACT regulations finalized by US EPA (40 CFR 63, Subparts JJJJJ and DDDDD). Was this interaction analyzed for conflicts? (97)

**Response:** The Department examined the requirements in the EPA's Boiler MACT regulations (40 CFR Part 63, Subparts JJJJJ and DDDDD) for conflicts with the final rulemaking NO<sub>x</sub> requirements. The Department found that the Boiler MACT regulations have no emission limitations for NO<sub>x</sub>. Therefore, the Department believes that there is no conflict between the EPA's Boiler MACT regulations (40 CFR 63, Subparts JJJJJ and DDDDD) and the requirements and emission limitations established in the final-form regulation. The owner or operator of an affected source must comply with all applicable requirements, which includes the EPA's Boiler MACT regulations as well as applicable state requirements.

**100. Comment:** Regarding proposed § 129.97(g)(vi)(C): EPA recommends that this provision be modified to substitute the words "any other" for "another" read as follows: "(C) Any other combustion unit, 0.40 pounds NO<sub>x</sub>/million Btu heat input." The word "another" generally means "extra, additional" whereas "another" generally means "some other" thus better conveying in context "some other type of combustion unit" or "all other types." (133)

**Response:** The Department believes that the commentator is referring to § 129.97(g)(1)(vi)(C). Section 129.97(g)(1)(vi)(C) has been revised from proposed to final rulemaking to read, "Any other type of coal-fired combustion unit, 0.40 lb NO<sub>x</sub>/million Btu heat input."

**101. Comment:** With regard to coal-fired combustion units with a rated heat input equal to or greater than 250 million Btu/hour heat input, we believe that the Department should consider what can be achieved by the latest generation of low NO<sub>x</sub> burner technologies, based on various boiler configurations, as being the basis for updated NO<sub>x</sub> RACT standards, with current and future transport rules identifying additional NO<sub>x</sub> emission reduction needs across the eastern states in the form of lowered regional and state emission budgets. (84, 105)

**Response:** The Department believes that the final-form regulation contains appropriate presumptive RACT requirements and emission limitations for coal-fired combustion units with a rated heat input equal to or greater than 250 million Btu/hour heat input. RACT regulations are not intended to be the lowest achievable emission rate. Reevaluation of RACT will be necessary if the EPA promulgates a new ozone standard in October 2015.

- **§ 129.97(g)(2). Combustion Turbines**

**102. Comment:** The DEP analysis does not indicate whether a meaningful environmental benefit would be derived from VOC reductions. The DEP should provide background documentation to support the basis for the concentration-based turbine standard. (107, 115)

**Response:** The Department found that the typical uncontrolled VOC emission limit for the first round of RACT requirements established under §§ 129.91—129.95 was 25 ppm VOC (as methane) @ 15% oxygen for turbines rated equal to or greater than 1,000 bhp and less than 180 MW. This translates into 9 ppm VOC (as propane) @ 15% oxygen. The cost of VOC control using an oxidation catalyst was found to be \$21,112 to \$421,095, which is not cost-effective. Therefore, the final-form regulation establishes a presumptive RACT VOC emission limitation of 9 ppm VOC (as propane) @ 15% oxygen for simple cycle turbines with a rated output equal

to or greater than 1,000 bhp and for combined cycle turbines with a rated output equal to or greater than 1,000 bhp and less than 180 MW when firing fuel oil.

Continuous emission monitoring system (CEMS) data indicates that combined cycle turbines with a rated output equal to or greater than 1,000 bhp and less than 180 MW when firing natural gas or a noncommercial gaseous fuel can meet a VOC emission limitation of 5 ppm VOC (as propane) @ 15% oxygen. Additionally, CEMS data indicates that combined cycle turbines with a rated output equal to or greater than 180 MW can meet a VOC emission limitation of 2 ppm VOC (as propane) @ 15% oxygen when firing natural gas or a noncommercial gaseous fuel. Therefore, these emission limitations were established in the final-form regulation. VOC reductions of the type contemplated under this final rulemaking will assist in the maintenance of the 1997 and 2008 8-hour ozone standards, thereby reducing the incidences of high concentrations of ground-level ozone and the associated adverse health and welfare effects on the residents and environment of the Commonwealth.

**103. Comment:** The commentator recommends that the applicability for combustion turbines should be based on heat input basis rather than output basis. Change “turbine... output less than 1000 bhp...” to “turbine ... heat input less than 10 million BTU/hr...” (129)

**Response:** The Department disagrees with changing “turbine... output less than 1000 bhp...” to “turbine ... heat input less than 10 million BTU/hr...” The applicability levels for combustion turbines are based on power output and are consistent with the Federal New Source Performance Standards (NSPS) for Stationary Combustion Turbines codified in 40 CFR Part 60, Subpart KKKK; these NSPS provisions are also adopted and incorporated by reference in 25 Pa. Code Chapter 122. Therefore, the final-form regulation retains the output-based applicability thresholds.

**104. Comment:** In § 129.97(g)(2)(i)(B) and (g)(2)(iii)(B), the fuel oil emission limitations should be changed to 96 ppm. The 96 ppm value is in line with 40 CFR 60, Subpart KKKK for modified and reconstructed combustion turbines, or said another way, what older existing units are capable of with a dry low-NO<sub>x</sub> (DLN) retrofit. (111)

**Response:** The Department agrees. In the final-form regulation, the NO<sub>x</sub> emission limitation for simple cycle or regenerative cycle turbines equal to or greater than 6,000 bhp and combined cycle turbines equal to or greater than 1,000 bhp and less than 180 MW when firing fuel oil has been revised from 75 ppmvd NO<sub>x</sub> @ 15% oxygen to 96 ppmvd NO<sub>x</sub> @ 15% oxygen. This requirement is consistent with 40 CFR Part 60, Subpart KKKK.

**105. Comment:** In RAF Section (11), PADEP answered ‘no’. There is an NSPS for modified and reconstructed combustion turbines. The emission values proposed are stricter than Subpart KKKK levels. To reduce the number of case-by-case RACT reviews... should heed the same size categories and emission levels as the NSPS Subpart KKKK. (111)

**Response:** The Department disagrees. There is no companion Federal regulation or standard to the final-form RACT regulation for existing sources of NO<sub>x</sub> and VOC emissions. The Federal

New Source Performance Standards, such as 40 CFR Part 60, Subpart KKKK for Stationary Combustion Turbines, are applicable only to new, modified, and reconstructed sources.

Subsection 129.97(g) has been revised in the final-form regulation to establish a presumptive NO<sub>x</sub> RACT emission limitation of 150 ppmvd NO<sub>x</sub> @ 15% oxygen for a simple cycle or regenerative cycle turbine with a rated output equal to or greater than 1,000 bhp and less than 6,000 bhp in final-form § 129.97(g)(2)(iii). This requirement is consistent with 40 CFR Part 60, Subpart KKKK. Proposed § 129.97(g)(2)(iii) is revised and set forth in § 129.97(g)(2)(iv) of the final-form regulation.

To ensure consistency with 40 CFR Part 60, Subpart JJJJ, § 129.97(g)(3)(i)(B) has been revised in the final-form regulation to revise the VOC RACT emission limitation from 0.4 gram VOC/bhp-hr to 1.0 gram VOC/bhp-hr, excluding formaldehyde, for a lean burn stationary internal combustion engine with a rating equal to or greater than 500 bhp when fired with natural gas or a noncommercial gaseous fuel, liquid fuel or dual-fuel.

- **§ 129.97(g)(3). Internal Combustion Engines**

**106. Comment:** The language in § 129.97(g)(3) is unclear. The language should clearly state that emergency engines greater than 500 bhp are excluded from the emission limits for stationary internal combustion engines greater than 500 bhp. Sections 129.97(c)(6) and (g)(3) are not compatible. One exempts emergency stand-by engines operating less than 500 hours in a 12-month rolling period, while the other generally includes stationary internal combustion engines. Please add the phrase "Except as provided in § 129.97(c)(6)" to the beginning of § 129.97(g)(3), so that it reads, "Except as provided in § 129.97(c)(6), a stationary internal combustion engine." (121, 122)

**Response:** The Department agrees that the regulatory language as proposed is unclear. The final-form regulation has been revised to clarify that the owner or operator of a source that meets the requirements under § 129.97(c) would not be required to also meet the numerical presumptive RACT emission limitations under § 129.97(g) for that source. Section 129.97 has been revised in the final-form regulation to read as follows:

(g) EXCEPT AS SPECIFIED UNDER SUBSECTION (c), the owner and operator of a NO<sub>x</sub> air contamination source specified in this subsection, which is located at a major NO<sub>x</sub> emitting facility or a VOC air contamination source specified in this subsection, which is located at a major VOC emitting facility subject to § 129.96 may not cause, allow or permit NO<sub>x</sub> or VOCs to be emitted from the air contamination source in excess of the applicable presumptive RACT emission limitation:

**107. Comment:** Paragraphs 129.97(c)(2) and (6) and paragraph 129.97(g)(3) seem to be redundant with existing Federal Requirements. The majority of engines fitting these categories are already subject to requirements under the Reciprocating Internal Combustion Engines (RICE) NESHAP (40 CFR Part 63, Subpart ZZZZ). Was the interaction with this Federal rule considered in the development of this proposed rulemaking? (97, 121, 134)

**Response:** The Department disagrees that the requirements in the final rulemaking are redundant with the requirements contained in 40 CFR Part 63, Subpart ZZZZ. The final rulemaking addresses RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008. An evaluation or reevaluation of what constitutes RACT for affected sources is required under Section 182 of the CAA for existing major NO<sub>x</sub> emitting or existing major VOC emitting facilities each time a NAAQS is promulgated or revised. RACT applies to the owners and operators of existing major stationary sources of NO<sub>x</sub> and VOC in ozone nonattainment areas. RACT for covered categories is required statewide and not just in designated ozone nonattainment areas in Pennsylvania because the state is located in the Northeast Ozone Transport Region established under Section 184 of the CAA.

The National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines codified at 40 CFR Part 63, Subpart ZZZZ address emissions of hazardous air pollutants (HAP) and are not intended to address NO<sub>x</sub> emissions. NESHAP requirements apply to the control of emissions of HAP as required under section 112 of the CAA (42 U.S.C.A. §7412). Many HAPs are also VOCs, but not all VOCs are HAPs. Oxides of nitrogen are also not HAP. Therefore the owner and operator of an existing major source subject to NESHAP requirements for the control of HAP emissions may also be subject to RACT requirements for the control of NO<sub>x</sub> and VOC emissions.

The Department reviewed available information, including Federal regulations and RACT regulations from various states, during the development of the proposed and final rulemakings. The Department believes that the presumptive RACT requirements and emission limitations included in the final-form regulation are appropriate for attainment purposes in Pennsylvania. The owner and operator of an affected source must comply with all applicable requirements, including MACT regulations. A reevaluation of RACT will be required if the EPA promulgates a new ozone standard in October 2015.

Any interaction between the final rulemaking RACT requirements for NO<sub>x</sub> and VOC emissions and the 40 CFR Part 63, Subpart ZZZZ requirements for HAP should not cause compliance issues. However, both sets of requirements could be streamlined in the operating permit to avoid any potential confusion. In addition, it is not possible to predict any future inadvertent interaction with the final-form regulation due to subsequent revisions to 40 CFR Part 63, Subpart ZZZZ.

**108. Comment:** Although we believe that the level of controls established in these provisions for landfill gas-fired turbines are aggressive, we agree that the level of controls would be technically and economically available for most, but not necessarily all, landfill gas-fired turbines and therefore support their promulgation as presumptive RACT. We recommend that presumptive NO<sub>x</sub> RACT for landfill gas-fired internal combustion engines be established at the same level as proposed in § 129.97(g)(3)(i)(A) and (iii)(A). This is supported by 40 CFR Part 60 Subpart JJJJ. Addition of the phrase "or a noncommercial gaseous fuel" to § 129.97(g)(3)(i)(A) and (iii)(A). In the alternative, the phrase "landfill gas" could be used in place of "noncommercial gaseous fuel." (124)

**Response:** The Department agrees. The Department has included presumptive levels applicable to landfill gas-fired internal combustion engines in the final rulemaking. Landfill gas-fired engines will be subject to the same emission limitations established for natural gas-fired engines in final-form § 129.97(g)(3)(i)(A) and (iii)(A), which are set forth as follows:

(3) A stationary internal combustion engine:

(i) For a lean burn stationary internal combustion engine with a rating equal to or greater than 500 bhp fired with:

(A) Natural gas OR A NONCOMMERCIAL GASEOUS FUEL, 3.0 grams NO<sub>x</sub>/bhp-hr.

...

(iii) For a rich burn stationary internal combustion engine with a rating equal to or greater than 500 bhp fired with:

(A) Natural gas OR A NONCOMMERCIAL GASEOUS FUEL, 2.0 grams NO<sub>x</sub>/bhp-hr.

**109. Comment:** In NSPS Part 60 Subpart JJJJ, formaldehyde is excluded when calculating VOC emissions (see subsection D). The proposed rich-burn engine standard is consistent with Subpart JJJJ if formaldehyde is excluded and is achievable with NSCR technology. (107, 111, 115, 117, 118)

**Response:** The Department agrees with the commentators. The final-form regulation has been revised to exclude formaldehyde from the lean-burn engine VOC emission limitations. The VOC emission limitation for the lean-burn engine with a rating equal to or greater than 500 bhp set forth in § 129.97(g)(3)(i)(B) has been revised from proposed to final rulemaking to exclude formaldehyde. This requirement is now consistent with the Subpart JJJJ requirements. In the case of rich-burn engines, the formaldehyde will be effectively destroyed through the use of non-selective catalytic reduction (NSCR). Therefore, formaldehyde exclusion is not needed for demonstration of compliance for rich-burn engines. However, formaldehyde emissions must be included in VOC emissions for emission inventory purposes.

**110. Comment:** For lean-burn engines, the proposed rulemaking should be revised for consistency with Subpart JJJJ, and a section similar to JJJJ §60.4241(h) should be inserted. (107, 111, 115, 117, 118)

**Response:** The Department agrees and has revised the final-form regulation for consistency with Subpart JJJJ. The VOC limitation for a lean-burn engine with a rating equal to or greater than 500 bhp set forth in § 129.97(g)(3)(i)(B) has been revised in the final-form regulation to establish a limit of 1.0 g/bhp-hr, excluding formaldehyde. Consistent with 40 CFR 60.4241(h), the emissions of VOCs now exclude emissions of formaldehyde.

**111. Comment:** There is no reasonable basis to conclude that a VOC limit of 0.4 g/bhp-hr is achievable either with or without catalyst controls; gas transmission companies would incur

significant costs to comply with the proposed VOC emission limits. Using the EPA's Control Cost Manual, a cost-effectiveness analysis for a 2,100 hp lean-burn engine shows costs between \$14,000 and \$33,000 per ton, therefore VOC controls are not cost effective. VOC limits should be removed from the proposed rulemaking. (107, 115, 134)

**Response:** The Department disagrees in regards to the commentator's claim that VOC controls are not cost effective. The Department's analysis shows that the use of an oxidation catalyst for a lean-burn engine has a VOC cost-effectiveness of less than \$5,500 per ton VOC controlled, which is economically feasible for RACT purposes.

The Department further evaluated VOC emissions from natural gas-fired lean-burn engines. Uncontrolled VOC emissions from these engines are typically 2.0 g/bhp-hr. An oxidation catalyst, at a VOC control efficiency of 60%, then yields a VOC emission rate of 0.8 g/bhp-hr. Due to the variation in the existing data and the limits in the Subpart JJJJ, the VOC limitation for a lean-burn engine has been revised in the final-form regulation to establish a limit of 1.0 g/bhp-hr, excluding formaldehyde. Emissions of VOCs now exclude emissions of formaldehyde, consistent with 40 CFR 60.4241(h),

**112. Comment:** The commentator requests that the proposed rulemaking for reciprocating internal combustion engines be changed to express emission limits in pounds per hour rather than grams per brake horsepower hour. (118)

**Response:** The Department disagrees. The emissions for the engines are generally expressed in grams per brake horsepower hour, consistent with the Federal New Source Performance Standards (NSPS) for Stationary Spark Ignition Internal Combustion Engines codified in 40 CFR Part 60, Subpart JJJJ; these NSPS provisions are also adopted and incorporated by reference in 25 Pa. Code Chapter 122.

**113. Comment:** The commentator requests that the Department consider the unintended impact of further NO<sub>x</sub> controls on carbon monoxide (CO) emissions. Engines currently in compliance for permitted CO emissions may exceed the CO limit if required to install NO<sub>x</sub> controls. (118)

**Response:** RACT applies to the owners and operators of existing major stationary sources of NO<sub>x</sub> and VOCs in ozone nonattainment areas. RACT is defined in § 121.1 as: "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility." In the final rulemaking, the Department addresses only NO<sub>x</sub> and VOC emissions. The control measures required to meet VOC emission limits would also limit CO emissions.

- **§ 129.97(h). Portland Cement Kilns**

**114. Comment:** The emissions limitations required of Portland cement kilns would likely require the significant expenditure of funds for the installation of NO<sub>x</sub> air pollution control technologies such as selective non-catalytic reduction (SNCR) systems. (85)

**Response:** The presumptive RACT emission limitations included in the final-form regulation for Portland cement kilns are consistent with the emission limitations for Portland cement kilns set forth in § 145.143 (relating to standard requirements). The Department believes that the final rulemaking contains appropriate presumptive RACT emission limitations for Portland cement kilns. In addition, several existing Portland cement kilns are already equipped with SNCR. Should the owner or operator of a Portland cement kiln not be able to comply with the applicable NO<sub>x</sub> RACT presumptive emission limitation, the owner or operator may propose an alternative NO<sub>x</sub> RACT emission limitation under § 129.99(a) based on the source's potential to emit NO<sub>x</sub>.

**115. Comment:** The EPA has recently promulgated regulations applicable to cement kilns with no sub-categorization based on combustion source. No level of sub-categorization is appropriate other than "new" and "existing." Accordingly, a single source category of "cement kilns" is warranted. (85)

**Response:** The Department disagrees. The presumptive RACT emission limitations set forth in the final-form regulation for Portland cement kilns are consistent with the emission limitations for Portland cement kilns set forth in § 145.143. The Department believes that the final rulemaking contains appropriate presumptive RACT emission limitations for Portland cement kilns. Should the owner or operator of a Portland cement kiln not be able to comply with the applicable presumptive requirement, the owner or operator may propose an alternative NO<sub>x</sub> RACT emission limitation under § 129.99(a) based on the source's potential to emit NO<sub>x</sub>.

**116. Comment:** A compliance alternative needs to be included for cement kilns in this program, be it Clean Air Interstate Rule (CAIR) allowances or some other program's NO<sub>x</sub> allowances. To ensure that this program does not result in an increase of emissions over what was contemplated in this proposal, any such allowance program should require a two-for-one allowance surrender. Such a provision would provide necessary flexibility to the cement industry and would also provide even greater emission offsets in the event a facility found itself out of compliance with the rulemaking as drafted. (108, 127)

**Response:** The Department disagrees that a compliance alternative using allowances should be included in the provisions of the final rulemaking. The final rulemaking addresses the Commonwealth's obligations under the APCA, the CAA and regulations issued under the CAA to establish RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008. RACT-level control applies to the owners and operators of existing major stationary sources of NO<sub>x</sub> and VOCs in ozone nonattainment areas. RACT is defined in § 121.1 as: "the lowest emission limit for VOCs or NO<sub>x</sub> that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility." Therefore, CAIR allowances or some other program's NO<sub>x</sub> allowances cannot be used to comply with the applicable RACT emission limitations.

Furthermore, the EPA commented on the proposed rulemaking that designated ozone nonattainment areas required to implement RACT must achieve RACT-level emission reductions inside the nonattainment area. This change is necessary to conform to the CAA under the ruling of the D.C. Circuit Court in *NRDC v. EPA*, 571 F.3d 1245 (D.C. Cir. 2009) in which the Court

concluded that designated ozone nonattainment areas required to implement RACT must achieve RACT-level emission reductions inside the nonattainment area.

In response to the EPA's comment, § 129.98(a) has been revised in the final-form regulation as follows: "System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area [emphasis added] in this Commonwealth." The final-form revision conforms to the applicable CAA requirement and the Court's 2009 ruling in *NRDC v. EPA*. This approach should assure that emissions averaging will occur among sources under common control in the same ozone nonattainment area.

To provide flexibility to the affected owners and operators of cement kilns, the owner or operator may use the option of facility-wide averaging to demonstrate compliance with the presumptive NO<sub>x</sub> RACT emission limitations. The facility-wide NO<sub>x</sub> emission averaging equation set forth under § 129.98(e) has been revised in the final-form regulation to reflect a mass-to-mass comparison between actual and allowable NO<sub>x</sub> emissions. The aggregated actual emissions from sources included in the averaging plan must be no greater than aggregated allowable emissions on a 30-day rolling basis.

**117. Comment:** Please revise § 129.97(j) to clearly indicate whether the presumptive RACT limits for cement kilns in § 129.97(h) supersede the existing rules governing NO<sub>x</sub> emissions from cement kilns (25 Pa. Code §§ 145.141—145.146) consistent with the approach in subsection 129.97(i). The presumptive RACT requirements and emission limits for cement kilns are known. They are stated in § 129.97(h). Therefore, the EQB can make a stringency determination in comparing § 129.97(h) to §§ 145.141—145.146. The commentator suggests that the new presumptive RACT limits for cement kilns are more stringent (based on a shorter averaging time, year-round compliance, and lack of an option to surrender NO<sub>x</sub> allowances). As discussed above, the commentator suggests that the new presumptive RACT limits mirror the existing limits in §§ 145.141—145.146 in which case § 129.97(j) can expressly state that the new rules supersede §§ 145.141—145.146. This will certainly simplify the rules and avoid confusion. If cement kilns are subject to both the presumptive RACT and §§ 145.141—145.146, they will need to determine compliance on a different averaging time. They will be able to comply by surrendering allowances under one program but not the other. This system of regulation simply creates confusion and potentially imposes additional and unnecessary compliance burdens. A simple approach would be to simply include §§ 145.141—145.146 in the applicability section (§ 129.96(a)). (127)

**Response:** The Department agrees that the language of proposed § 129.97(j) can be written to be consistent with proposed § 129.97(i) for clarity. The final-form regulation sets forth § 129.97(j) as follows:

(j) The requirements and emission limitations of this section supersede the requirements and emission limitations of §§ 129.201—129.205, 145.111—145.113 and 145.141—145.146 (relating to additional NO<sub>x</sub> requirements; emissions of NO<sub>x</sub> from stationary internal combustion engines; and emissions of NO<sub>x</sub> from cement manufacturing) unless the requirements or emission limitations of §§ 129.201—129.205, §§ 145.111—145.113 or §§ 145.141—145.146 are more stringent.

The Department disagrees, however, that a stringency requirement determination can be made at this time. The commentator's suggested approach of including §§ 145.141—145.146 in § 129.96(a) as an exception to the applicability of §§ 129.96—129.100 is not appropriate. The requirements of §§ 145.141—145.145 were established to implement regional solutions to provide additional reductions of ozone precursor emissions during the ozone season (May 1 through September 30) in concert with other members of the Ozone Transport Commission (OTC) created under section 184 of the CAA (42 U.S.C.A. § 7511c), including the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont and Virginia, and the District of Columbia. To date, members of the OTC, including the Commonwealth, have established a number of regulatory programs to achieve cost-effective ozone precursor emission reductions from a number of industrial sectors, including reductions of NO<sub>x</sub> emissions from cement kilns, on a regional basis.

The RACT control measures of final-form §§ 129.96—129.100, however, are being implemented to satisfy the Commonwealth's obligations under the CAA to attain and maintain the ozone NAAQS established under section 109 of the CAA. The ozone NAAQS are annual standards, therefore the RACT requirements of §§ 129.96—129.100 are applicable year-round. Consequently, the applicable requirements and emission limitations of final-form § 129.97 must apply to the affected owners and operators of cement kilns unless the applicable requirements or emission limitations of §§ 145.141—145.145 are more stringent. The allowance trading program set forth under §§ 145.141—145.145 cannot be used to demonstrate compliance with the RACT provisions in §§ 129.96—129.100 under any circumstances. Moreover, on August 30, 2013, the U.S. Court of Appeals for the D.C. Circuit granted the EPA's request for voluntary vacatur of the presumption that compliance with the Clean Air Interstate Rule (CAIR) or the NO<sub>x</sub> SIP Call automatically constitutes RACT or reasonably available control measures (RACM) for NO<sub>x</sub> emissions from EGUs participating in regional cap-and-trade programs. See *NRDC v. EPA*, No. 09-1198 (D.C. Cir.) (order of August 30, 2013).

**118. Comment:** The proposed rulemaking would impose year-round emission standards that are currently ozone season standards on cement kilns. This imposes additional costs without any public benefits. (108, 112, 128)

**Response:** The Department disagrees that the final rulemaking imposes additional costs without any public benefits. The DEP is obligated under Section 172 of the CAA to impose RACT requirements for NO<sub>x</sub> or VOC emissions in order to attain and maintain the ozone National Ambient Air Quality Standards (NAAQS) as expeditiously as practicable in nonattainment areas. The emissions reductions resulting from the implementation of year-round ozone NAAQS requirements will be beneficial to the public due to lower concentrations of ground-level ozone, with concomitant reduced adverse health and environmental effects.

The requirements of §§ 145.141—145.145 were established to implement regional solutions to provide additional reductions of ozone precursor emissions during the ozone season (May 1 through September 30) in concert with other members of the OTC. These requirements were applicable beginning with the 2005 ozone season.

The RACT control measures of final-form §§ 129.96—129.100, however, are being implemented to satisfy the Commonwealth's obligations under the CAA to attain and maintain the ozone NAAQS established under section 109 of the CAA. The ozone NAAQS are annual standards set by the EPA to protect public health and welfare.

The EPA designated 37 counties in this Commonwealth as 8-hour ozone nonattainment areas for the 1997 8-hour ozone NAAQS at 69 FR 23858, 23931 (April 30, 2004). Based on ambient air monitoring data for the 2013 ozone season, all monitored areas of this Commonwealth are attaining the 1997 8-hour ozone NAAQS. On March 6, 2015, however, the EPA revoked the 1997 ozone standard for all purposes. However, the anti-backsliding requirements specified in 40 CFR 51.1100(o) are applicable requirements for these areas.

The EPA made designations for the 2008 8-hour ozone standards on April 30, 2012, with an effective date of July 20, 2012. See 77 FR 30160 (May 21, 2012). The EPA designated all or portions of Allegheny, Armstrong, Beaver, Berks, Bucks, Butler, Carbon, Chester, Delaware, Fayette, Lancaster, Lehigh, Montgomery, Northampton, Philadelphia, Washington and Westmoreland Counties as nonattainment for the 2008 8-hour ozone NAAQS. See 77 FR 30088, 30143 (May 21, 2012). The Commonwealth must ensure that these areas attain the 2008 ozone standard by 2015 and that they continue to maintain the standard thereafter. Furthermore, five monitors in areas of this Commonwealth that the EPA considered "unclassifiable/attainment" when it designated nonattainment areas in April 2012 violated the 2008 standard in 2012. The Commonwealth must also ensure that these "unclassifiable/attainment" areas attain and maintain the standard to avoid having them designated as nonattainment areas. Therefore, the Commonwealth must submit a SIP revision achieving emission reductions of NO<sub>x</sub> and VOC emissions to demonstrate how it will attain and maintain the 2008 8-hour ozone standard in the nonattainment areas.

There are nine source categories that are affected by this final rulemaking: combustion units; boilers; process heaters; turbines; engines; municipal solid waste landfills; municipal waste combustors; cement kilns; and other sources that are not regulated elsewhere under Chapter 129. All together this final rulemaking will affect the owners and operators of approximately 810 individual sources at 192 major facilities throughout this Commonwealth. Under this final rulemaking, the Department anticipates that the total reduction in potential NO<sub>x</sub> emissions will be approximately 253,623 tons per year.

**119. Comment:** Please clarify that compliance with the presumptive RACT limits for cement kilns includes multiple kilns ducted to a common stack. The current NO<sub>x</sub> rules for cement kilns allow for compliance on a facility-wide or system-wide basis. See § 145.145(b). The proposed RACT rules should not change that approach. The rule should allow for calculating the combined total allowable emissions from individual sources and summing those into an allowable total for all combined sources. (108, 109, 127, 128)

**Response:** In the case of a single stack being used for multiple sources, the owner or operator of a RACT-affected source may use the option of facility-wide averaging to demonstrate compliance with the presumptive NO<sub>x</sub> RACT emission limitations. The facility-wide NO<sub>x</sub> emission averaging equation set forth under § 129.98(e) has been revised from proposed to final

rulemaking to reflect a mass-to-mass comparison between actual and allowable NO<sub>x</sub> emissions. The aggregated actual emissions from sources included in the averaging plan must be no greater than aggregated allowable emissions on a 30-day rolling basis.

**120. Comment:** The EQB should allow for compliance to be based on the mass of NO<sub>x</sub> emitted over the ozone season as was done when the EQB developed the NO<sub>x</sub> limits for cement kilns that are codified at §§ 145.141—145.146. (127)

**Response:** The Department disagrees that compliance with §§ 129.96—129.100 should be based on the mass of NO<sub>x</sub> emitted over the ozone season (currently a period of 5 months – May 1 to September 30). The CAA requires compliance with RACT year-round—RACT is not an ozone season rule. The requirements of §§ 145.141—145.145 were established under a regional market-based program to implement regional solutions to provide additional reductions of ozone precursor emissions during the ozone season (May 1 through September 30) to assist states in addressing their obligations under CAA section 110(a)(2)(D)(i) pertaining to transported pollution. The RACT measures established in the final rulemaking, however, are designed to meet Pennsylvania’s SIP obligations under Section 172(c)(1) of the CAA.

The RACT control measures of final-form §§ 129.96—129.100 are being implemented to satisfy the Commonwealth’s obligations under the CAA to attain and maintain the 1997 and 2008 8-hour ozone NAAQS established under section 109 of the CAA. The 8-hour ozone NAAQS are annual standards set by the EPA to protect public health and welfare. These standards have a form based on the 3-year average of the annual fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area. See 62 FR 38856 (July 18, 1997).

The Department reviewed the emissions averaging programs promulgated by other states, including Wisconsin. Wisconsin’s RACT regulations, which the EPA approved at 75 FR 64155 (October 19, 2010), include emissions averaging on a 30-day rolling basis for determining compliance. Wisconsin described such a period as short term and noted that this approach would allow averaging of the typical variations in emission levels from a single unit.

The Department therefore has retained the emissions averaging equation in § 129.98(e) based on a 30-day rolling average in the final-form regulation. For sources equipped with CEMS, a 30-day rolling averaging period is appropriate to accommodate operation at varying load and operating conditions. A 30-day rolling limit addresses problems that are faced by certain owners and operators, including variability in fuel, emission spikes during start-up and shutdown of the emission source, and emissions during malfunctions. The 30-day rolling average will require that the owners and operators operate below the allowable standard in order to account for the occasional higher emissions. For sources not equipped with CEMS, compliance with the presumptive NO<sub>x</sub> RACT emission limitations is to be shown with appropriate EPA reference-method source testing.

The Department has, however, revised the emissions averaging equation in § 129.98(e) final-form regulation to reflect an emissions mass-based averaging basis rather than an emissions rate averaging basis. An affected cement kiln owner or operator may elect to comply with the

applicable presumptive NO<sub>x</sub> RACT emission limitation set forth in § 129.97(h) on a facility-wide or system-wide basis using the emissions averaging option set forth in § 129.98(e).

- **§ 129.97(f). Municipal Waste Combustors**

**121. Comment:** The proposed NO<sub>x</sub> emissions limits for municipal waste combustors require only that municipal waste combustor operators meet emissions limits established in Federal emissions guidelines. While the hazardous air pollutant emissions limits in the Federal guidelines are Maximum Achievable Control Technology-based, and thus may be RACT for volatile organic compounds, the NO<sub>x</sub> limits are not MACT-based and are not RACT. Therefore, more stringent limitations should be established as RACT. (95, 123, 134)

**Response:** The presumptive RACT requirements for these sources set forth in proposed § 129.97(f) specified compliance with the emission guidelines of 40 CFR Part 60, Subpart Cb, finalized May 10, 2006, or with Subpart Eb, finalized May 10, 2006, as applicable. These emission guidelines range from 180 to 250 ppmvd NO<sub>x</sub> @ 7% oxygen. Out of six existing affected facilities, five are already limited to 180 ppm or less by permit conditions. One facility, the Covanta Plymouth (Montgomery County) facility, has CEM data (3<sup>rd</sup> quarter 2007) showing emissions above 180 ppm. Emissions from this facility were generally between 190 and 200 ppm, with a few data points near 180 (and one below 180). The units located at the Covanta Plymouth facility are equipped with SNCR. The existing SNCR could be optimized to achieve an emission limit of 180 ppm.

Upon reevaluation of the NO<sub>x</sub> emission data from municipal waste combustors, the Department concluded that a NO<sub>x</sub> emission limit of 180 ppmvd @ 7% oxygen was achievable. The presumptive NO<sub>x</sub> RACT requirement set forth in § 129.97(f) of the final-form regulation specifies a NO<sub>x</sub> limit of 180 ppmvd @ 7% oxygen for municipal waste combustors.

- **§ 129.97(e). Municipal Waste Landfills**

**122. Comment:** The commentator strongly endorses the issuance of the presumptive RACT requirements for municipal waste landfills that are proposed in § 129.97(e). (124)

**Response:** The Department appreciates the commentator's support.

**§ 129.98 Facility-wide or system-wide NO<sub>x</sub> emissions averaging plan general requirements.**

**123. Comment:** The EPA cautions Pennsylvania that it should consider addressing in its regulations permissible changes to sources with facility-wide caps or requirements for the owners and operators of sources to follow when seeking modifications if subject to facility-wide caps. (133)

**Response:** The Title V Operating Permit modification will address all applicable requirements for changes made to the sources with facility-wide caps. Therefore, there is no need to include any additional requirements in the final-form regulation regarding this issue.

**124. Comment:** The EPA recommends that the rulemaking specify that a permit issued under proposed § 129.98(i) ensure that the listing of "each air contamination source" at a Title V facility includes all NO<sub>x</sub> emitting sources at that facility. (133)

**Response:** The Department disagrees that the final-form regulation needs to specify the suggested change. The Title V Operating Permit lists all air contamination sources located at a given facility. The averaging proposal submitted under § 129.98 will include all of the sources required to demonstrate compliance on a facility-wide or system-wide basis. The existing Title V Operating Permit will be amended to include the RACT emission averaging provisions.

**125. Comment:** The commentators show overall support for emissions averaging. (102, 104, 110, 114, 125, 129, 131)

**Response:** The Department appreciates the commentators' support. However, emissions averaging must occur in the same ozone nonattainment area as prescribed under the CAA.

**126. Comment:** Without emissions averaging provisions, facilities will be required to develop case-by-case RACT proposals for the majority of individual sources. (114)

**Response:** The Department agrees that emissions averaging is an option that will provide flexibility and an alternative to a case-by-case RACT proposal. However, the Department believes that the owners and operators of the majority of affected sources will be able to comply with the presumptive RACT requirements and RACT emission limitations set forth in the final-form regulation.

**127. Comment:** The proposed rulemaking includes compliance flexibility using emissions averaging. (107, 111, 115, 117, 118)

**Response:** The Department appreciates the commentators' support. However, emissions averaging must occur in the same ozone nonattainment area as prescribed under the CAA.

**128. Comment:** NRG Energy, Inc. (formerly Reliant Energy and RRI Energy, and now including GenOn, Inc., after the 2012 GenOn-NRG merger) fully owns and operates five coal-fired EGUs in Pennsylvania, and has ownership stakes in two other facilities. All seven facilities are in areas where 30% or greater of the surrounding population is below the poverty line. Two facilities, Keystone and Cheswick, use SCR to control emissions of NO<sub>x</sub>. Conemaugh uses LNBs (although is installing SCR), and Seward uses SNCR. Under the proposal, in order to maximize cost savings, NRG could potentially operate controls at its SCR-equipped units and avoid having to operate or install more effective controls at its other units. Alternately, SCR controls could be operated only intermittently to hit a fleet-wide average, increasing emissions in local areas.

This outcome would be potentially disastrous for low-income Pennsylvanians living in close proximity to these facilities and is clearly out of step with the recommendations of the Environmental Justice Work Group. By allowing system-wide averaging, DEP is ignoring EPA

mandates on environmental justice concerns and the responsibilities of the Environmental Justice Advisory Board. (113)

**Response:** The Department understands the commentator's concerns regarding environmental justice issues. The system-wide averaging provision set forth in § 129.98(a) has been revised from proposed to final rulemaking as follows: "System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth." This clarification should assure that emissions averaging occurs among units under common control in the same ozone nonattainment area.

Further, upon reevaluation of the NO<sub>x</sub> emissions data from the plants equipped with SCR technology, the Department concluded that a NO<sub>x</sub> emission limit of 0.12 lb/MMBtu was achievable with operation of SCR when an inlet temperature of 600°F is reached. Subsection 129.97(g) has been revised from proposed to final rulemaking to add § 129.97(g)(1)(viii), which states that the presumptive emission limitation for a combustion unit with a selective catalytic reduction system operating with an inlet temperature equal to or greater than 600°F is 0.12 lb NO<sub>x</sub>/million Btu heat input. Subparagraph 129.97(g)(1)(viii) further states that compliance with this emission limit is also required when by-passing the selective catalytic reduction system. Therefore, operation of SCR for one facility cannot be used to offset non-operation of SCR from a different facility in an emissions averaging plan.

On page 12280 of the preamble to the final rule for Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements, the EPA supported the use of area-wide emissions averaging. The EPA states, "The EPA's existing policy recognizes that states can meet NO<sub>x</sub> RACT requirements by submitting as part of their NO<sub>x</sub> RACT SIP submittal a demonstration that the weighted average NO<sub>x</sub> emission rate from sources in the nonattainment area subject to RACT achieves RACT-level reductions." The EPA also states, "Consistent with previous guidance, the EPA continues to believe that RACT can be met on average by a group of sources within a nonattainment area rather than at each individual source." See 80 FR 12264, 12280. The emissions averaging provision included in § 129.98 is consistent with the EPA's final rule.

**129. Comment:** The proposed alternative compliance mechanisms must include a rate sufficient to lower system-wide emissions. The 30-day system-wide rolling average rate is set so high that it fails to require reductions at all sources. The rulemaking may have the effect of allowing operators to discontinue the operation of NO<sub>x</sub> control equipment simply by running controls on a different unit. Therefore, the emission rate needed to achieve compliance with system-wide average is not consistent with an appropriate level of post-combustion controls. The averaging mechanism itself must reflect some level of control. At minimum, the system-wide rate needs to incorporate a sufficient use of control technologies already installed on the unit(s). A revision of the NO<sub>x</sub> rate ought to take into account unit configuration and control technologies that have already been installed. (103)

**Response:** The final-form rulemaking will not allow the operator to discontinue the operation of NO<sub>x</sub> control equipment, such as SCR or SNCR, by operating controls on a different unit.

A 30-day rolling limit addresses problems that are faced by certain owners and operators, including variability in fuel (such as in waste coal combustors), emission spikes during start-up and shutdown of the emission source, and emissions during malfunctions. The 30-day rolling average will require that the owners and operators operate below the allowable standard in order to account for the occasional higher emissions. Design limitations of the existing SCR and SNCR control technology installed on the affected coal-fired boilers dictate the operating parameters that are reasonably achievable. However, based on consideration of comments received during the public comment period and on the evaluation of NO<sub>x</sub> emissions data for coal-fired boilers for a 5-year period, the final-form regulation addresses the use of installed SCR or SNCR equipment in § 129.97(g)(1)(viii) and § 129.97(g)(1)(ix). Further, the NO<sub>x</sub> emission limit for CFB combustion units in § 129.97(g)(1)(vi)(A) is lowered from the proposed 0.20 lb NO<sub>x</sub>/million Btu heat input to 0.16 lb NO<sub>x</sub>/million Btu heat input in the final-form regulation.

Subsection 129.97(g) has been revised from proposed to final rulemaking to add § 129.97(g)(1)(viii), which states that the presumptive emission limitation for a combustion unit with a selective catalytic reduction system operating with an inlet temperature equal to or greater than 600°F is 0.12 lb NO<sub>x</sub>/million Btu heat input. Subparagraph 129.97(g)(1)(viii) further states that compliance with this emission limit is also required when by-passing the selective catalytic reduction system. Therefore, operation of SCR for one facility cannot be used to offset non-operation of SCR from a different facility in an emissions averaging plan.

Final-form subparagraph 129.97(g)(1)(ix) establishes an emission limitation for a combustion unit with a selective non-catalytic reduction (SNCR) system as follows:

(ix) For a combustion unit with a selective non-catalytic reduction system, the selective non-catalytic reduction system shall be operated with the injection of reagents including ammonia or other NO<sub>x</sub>-reducing agents, when the temperature at the area of the reagent injection is equal to or greater than 1600°F.

The NO<sub>x</sub> emission limit for CFBs is lowered from proposed 0.20 lb NO<sub>x</sub>/million Btu heat input to 0.16 lb NO<sub>x</sub>/million Btu heat input in final-form § 129.97(g)(1)(vi)(A) as follows:

(g) The owner and operator of a NO<sub>x</sub> air contamination source specified in this subsection, which is located at a major NO<sub>x</sub> emitting facility or a VOC air contamination source specified in this subsection, which is located at a major VOC emitting facility subject to § 129.96 may not cause, allow or permit NO<sub>x</sub> or VOCs to be emitted from the air contamination source in excess of the applicable presumptive RACT emission limitation:

(1) A combustion unit or process heater:

...

(vi) For a coal-fired combustion unit with a rated heat input equal to or greater than 250 million Btu/hour that is:

(A) A circulating fluidized bed combustion unit, 0.16 lb NO<sub>x</sub>/million Btu heat input.

...

**130. Comment:** Utilities should not be allowed to average their NO<sub>x</sub> emissions over their entire fleet of power plants in addition to allowing them to average these emissions over 30 days rather than the 1-hour or 8-hour standards. Peaking units should not be allowed to average their NO<sub>x</sub> emissions over 30 days rather than 24 hours or less. (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 56, 58, 59, 60, 61, 62, 63, 65, 66, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 88, 90, 91, 95, 96, 98, 99, 100, 113, 116, 123, 133)

**Response:** The Department disagrees. A 30-day rolling averaging period is appropriate to accommodate operation at varying load and operating conditions. The 30-day rolling averages for combustion units are determined on an operating day basis by taking the total emissions during each 30-day rolling period and dividing by the total heat input during the same 30-day rolling period. Therefore, there is no difference in impact of the 30-day rolling average for peaking units as compared to other units.

A 30-day rolling limit addresses problems that are faced by certain owners and operators, including variability in fuel (such as in waste coal combustors), emission spikes during start-up and shutdown of the emission source, and emissions during malfunctions. Due to these unavoidable circumstances, which are not indicative of normal operation, it would not be appropriate for the owners and operators of utilities using NO<sub>x</sub> CEMS to monitor the emissions from the source to be required to show compliance with the presumptive NO<sub>x</sub> RACT emission limitations over a 1-hour or 8-hour averaging period. The 30-day rolling average will require that the owners and operators operate below the allowable standard in order to account for the occasional higher emissions. A 30-day rolling average has been approved by the EPA to demonstrate compliance with the short-term RACT limitations in SIP revisions submitted by certain states including Wisconsin and New York. Wisconsin's RACT regulations include emissions averaging on a 30-day rolling basis for determining compliance. Wisconsin described such a period as short term and noted that this approach would allow averaging of the typical variations in emission levels from a single unit. See 75 FR 64155 (October 19, 2010) for Wisconsin; 78 FR 41846 (July 12, 2013) for New York.

In a recent court decision from the 9<sup>th</sup> Circuit Court of Appeals, the court stated in *Nat'l Parks Conservation Ass'n v. EPA*, No. 12-73710 (9th Cir. 2015) that, "EPA also properly set emissions limits for Corette [a coal-fired power plant] on a 30-day rolling average. EPA's reasoned disagreement on this topic with PPL Montana's comment reflects its conclusion on a highly scientific question—the variance in emissions calculations that occurs when annualized rates are translated into thirty-day rolling averages—precisely the kind of question justifying deference to EPA's discretion. See *Nat'l Wildlife Fed'n v. U.S. Army Corps of Eng'rs*, 384 F.3d 1163, 1177–78 (9th Cir. 2004)." Similarly, the Department is setting a 30-day rolling average in order to accommodate variances in hourly or daily emission calculations. With these variances accommodated, the Department is able to set emission limitations at a lower level.

Additionally, the EPA supports the use of area-wide emissions averaging in the preamble to the final rule for Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements. See 80 FR 12264, 12280 (March 6, 2015). The EPA states on page 12280 that: "The EPA's existing policy recognizes that states can meet NO<sub>x</sub>

RACT requirements by submitting as part of their NO<sub>x</sub> RACT SIP submittal a demonstration that the weighted average NO<sub>x</sub> emission rate from sources in the nonattainment area subject to RACT achieves RACT-level reductions.” The EPA also states, “Consistent with previous guidance, the EPA continues to believe that RACT can be met on average by a group of sources within a nonattainment area rather than at each individual source. Therefore, states can show that SIP provisions for these sources meet the ozone RACT requirement using the averaging approach.” The emissions averaging provision set forth in § 129.98 is consistent with the EPA’s final rule for Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements.

**131. Comment:** Emissions averaging is guaranteed to create “hot-spotting” somewhere in PA. (116)

**Response:** The Department disagrees that emissions averaging will create “hot-spotting.” The system-wide averaging provision set forth in § 129.98(a) has been revised from proposed to final rulemaking as follows: “System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area [emphasis added] in this Commonwealth.” This clarification should assure that the emissions averaging occurs among units under common control in the same ozone nonattainment area.

Additionally, the EPA supports the use of area-wide emissions averaging in the preamble to the final rule for Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements. See 80 FR 12264, 12280 (March 6, 2015). The EPA states on page 12280 that: “The EPA’s existing policy recognizes that states can meet NO<sub>x</sub> RACT requirements by submitting as part of their NO<sub>x</sub> RACT SIP submittal a demonstration that the weighted average NO<sub>x</sub> emission rate from sources in the nonattainment area subject to RACT achieves RACT-level reductions.” The EPA also states, “Consistent with previous guidance, the EPA continues to believe that RACT can be met on average by a group of sources within a nonattainment area rather than at each individual source. Therefore, states can show that SIP provisions for these sources meet the ozone RACT requirement using the averaging approach.” The emissions averaging provision set forth in § 129.98 is consistent with the EPA’s final rule for Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements. As a result, the concern related to “hot-spotting” is minimized.

**132. Comment:** Individual sources should be required to provide accurate - not averaged emission levels. (55)

**Response:** Subsection 129.100(a) has been revised in the final-form regulation to set forth comprehensive requirements for measuring compliance with established emissions limitations. For the demonstration of compliance with the emissions averaging plan, the owner or operator of affected sources is required to include actual emissions from individual sources. In addition, the owner or operator is required to provide actual emissions from each source to the Department’s emission inventory. This information is publicly available.

**133. Comment:** Since some of the units at the site may have existing case-by-case RACT limitations or other permit limitations that are lower than the applicable presumptive RACT limit, the commentator recommends that such units be included in the emissions averaging equation at their permitted case-by-case RACT level rather than at the presumptive RACT level. (130)

**Response:** The Department agrees. Subsection 129.98(e) has been revised in the final-form regulation to clarify that if the owner or operator of an air contamination source included in an averaging plan is subject to a numerical emission rate limit that is more stringent than the applicable allowable emission rate limitation set forth in § 129.97, then the numerical emission rate limit shall be used for the calculation of the allowable NO<sub>x</sub> mass emissions.

Please note that the owners and operators of affected sources are required to meet the most stringent emission limitation as established in § 129.97(i) and § 129.97(j). The owners and operators of affected units that are currently required to meet a more stringent limit as a result of other regulatory requirements, such as BAT, shall continue to meet those requirements.

**134. Comment:** The commentator recommends including actual start-up and shutdown emissions in compliance demonstrations in § 129.98. (133)

**Response:** The Department agrees with the commentator. Subsection 129.98(e) has been revised from proposed to final rulemaking to clarify that start-up, shutdown and malfunction emissions are included in the compliance determinations.

**135. Comment:** In proposed § 129.98(e), the daily actual NO<sub>x</sub> emission rate for air contamination source *i*, ( $R_{i\text{actual}}$ ) must include emissions from start-ups and shutdowns. (133)

**Response:** The Department agrees with the commentator. Subsection 129.98(e) has been revised from proposed to final rulemaking to clarify that start-up, shutdown and malfunction emissions are included in the compliance determinations.

**136. Comment:** As presently drafted, it is not clear that the owners and operators of sources that do not fall under a presumptive RACT requirement in § 129.97 but meet the requirements § 129.99(b) and § 129.99(c) for potential to emit may avail themselves of the provisions of § 129.98 to propose a plan for compliance through emissions averaging. Emissions averaging offers important and appropriate flexibility to sources, but the regulations should clarify that sources not subject to presumptive RACT requirements may also avail themselves of the averaging option. (102, 104, 110, 114, 125, 129, 131)

**Response:** The owners and operators of affected sources must be subject to a numerical presumptive RACT emission limitation to participate in facility-wide or system-wide averaging in accordance with § 129.98. This numerical presumptive RACT emission limitation is used to determine compliance with the averaging standards.

The affected owner or operator of any source that is not subject to a presumptive RACT requirement in § 129.97 may propose an alternative RACT emission limitation under § 129.99.

Alternative RACT emission limitations are determined on a case-by-case basis. Compliance with an alternative RACT emission limitation may include emissions averaging, if appropriate.

**137. Comment:** Commentators support including emissions averaging in the proposed rulemaking, but that compliance option should be accessible at the discretion of the operator rather than requiring operators to first demonstrate that emission limits cannot be met for affected units. (84, 104, 105, 107, 109, 110, 114, 115, 117, 118, 121, 125, 127, 129, 131)

**Response:** The Department disagrees with the commentators that the owner and operator of an affected source may choose the emissions averaging compliance option without requiring the owner or operator to first demonstrate that emission limits cannot be met for the affected units. The owner or operator of an affected source would have to demonstrate that the affected source cannot comply with the applicable standard in § 129.97 as part of the application for an operating permit modification or a plan approval, if otherwise required, for an emissions averaging plan under § 129.98.

Subsection 129.98(a) has been revised in the final-form regulation to clarify that the owner or operator of a major NO<sub>x</sub> emitting facility subject to § 129.96 that includes at least one source subject to a NO<sub>x</sub> RACT emission limitation in § 129.97 that cannot meet the applicable NO<sub>x</sub> RACT emission limitation may elect to meet the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 by averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average. System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth. The source that cannot meet the applicable NO<sub>x</sub> RACT emission limitation must be part of the emissions averaging plan so that its excess emissions can be averaged with the emissions from sources that are emitting below their limit.

The owner and operator may choose the sources included in the emissions averaging plan to meet the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 on a 30-day rolling average as long as the other sources meet the requirement of § 129.98(c). An owner or operator must demonstrate that the emissions for other sources included in the averaging plan are below the applicable limits in § 129.97 in order to provide the cushion for averaging the excess emissions of the noncomplying source. Further, as specified in § 129.98(a), sources which are included in a system-wide averaging plan must be under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth.

**138. Comment:** The Board should revise the provisions of the proposed rulemaking governing emissions averaging by expressly clarifying that a regulated entity may elect which regulated sources to include in any emissions averaging group, and by further clarifying that the election by a regulated entity to participate in the emissions averaging provisions of the RACT standards does not preclude such entity from using any other compliance option for regulated sources not included within an emissions average. (104, 125, 130)

**Response:** The Department agrees in part with the commentators. Subsection 129.98(a) has been revised in the final-form regulation to clarify that the owner or operator of a major NO<sub>x</sub> emitting facility subject to § 129.96 that includes at least one source subject to a NO<sub>x</sub> RACT

emission limitation in § 129.97 that cannot meet the applicable NO<sub>x</sub> RACT emission limitation may elect to meet the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 by averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average. System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth. The source that cannot meet the applicable NO<sub>x</sub> RACT emission limitation must be part of the emissions averaging plan so that its excess emissions can be averaged with the emissions from sources that are emitting below their limit.

The owner and operator may choose which other sources may be included in the emissions averaging plan to meet the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 on a 30-day rolling average as long as the other sources meet the requirement of § 129.98(c). An owner or operator must demonstrate that the emissions for other sources included in the averaging plan are below the applicable limits in § 129.97 in order to provide the cushion for averaging the excess emissions of the noncomplying source. Further, sources which are included in a system-wide averaging plan must be under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth.

The Department agrees that an owner and operator should not have to demonstrate that they cannot participate in either a facility-wide or system-wide NO<sub>x</sub> emissions averaging plan before proposing an alternative RACT requirement or RACT emission limitation. Subsection 129.99(a) has been revised in the final-form regulation to specify that the owner or operator of an air contamination source subject to § 129.97 located at a major facility subject to § 129.96 that cannot meet the applicable presumptive RACT requirement or RACT emission limitation of § 129.97 may propose an alternative RACT requirement or RACT emission limitation in accordance with § 129.99(d). The owner or operator of an affected source would have to demonstrate that the affected source cannot comply with the applicable standard in § 129.97 as part of the application for an operating permit modification or a plan approval, if otherwise required, for a case-by-case determination under § 129.99(a). The language in proposed § 129.99(a) specifying that the owner or operator shall demonstrate that they cannot participate in either a facility-wide or system-wide NO<sub>x</sub> emissions averaging RACT operating permit modification under § 129.98 has been deleted from final-form § 129.99(a).

The Department agrees in part that the owner and operator may use multiple compliance options, but only one compliance option may be used at a time to demonstrate compliance for an individual source. The owner and operator of an individual affected source may demonstrate compliance for that source in one of three ways: first, with the applicable presumptive RACT requirement or emission limitation in § 129.97; secondly, either by participating in an emissions averaging plan under § 129.98 or by submitting a request for a case-by-case RACT determination under § 129.99.

**139. Comment:** Clarify that the owner or operator may choose which units are included in averaging, with the remaining units subject to presumptive or case-by-case. (130)

**Response:** Please see the Response to Comment 138.

**140. Comment:** The proposed rulemaking should be clarified to expressly allow a regulated entity to determine at any time to discontinue reliance on emissions averaging for any sources, and thereafter adopt any alternative RACT compliance option available under the regulation. (104)

**Response:** The Department disagrees. To preserve the overall emission limitations in an emissions averaging plan submitted to and approved by the Department under § 129.98, any changes to the number and type of sources in an approved emissions averaging plan would require the resubmission of the entire emissions averaging plan to the Department for review, analysis and approval. Please also see the Response to Comment 138.

**141. Comment:** The proposed rulemaking includes additional provisions that would severely restrict the appropriate compliance flexibility otherwise afforded by facility-wide or system-wide averaging. Among these provisions is calculating the emissions average and reducing it by 10% with no justification for the imposition of such penalty. Imposing a 10% reduction also effectively changes the cost-effectiveness analysis.

Two different facilities with the exact same sources could have different compliance limits based on whether they had combined or individual stacks, which could disproportionately penalize one facility in relation to a competitor.

Commentators feel that the 10% penalty is ill-advised, unfair, unnecessary, unprecedented, inappropriate, arbitrary, and not justified. The EQB should explain why the 90% factor is needed and reasonable. (104, 107, 108, 109, 110, 112, 115, 117, 118, 125, 127, 128, 129, 131, 134)

**Response:** Subsection 129.98(d) has been revised in the final-form regulation to clarify that the application for the Operating Permit Modification or the Plan Approval, if otherwise required, for averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average submitted under § 129.98(b) must demonstrate that the aggregate NO<sub>x</sub> emissions emitted by the air contamination sources included in a NO<sub>x</sub> emissions averaging plan using a 30-day rolling average are not greater than the NO<sub>x</sub> emissions that would be emitted by the group of included sources if each source complied with the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 on a source-specific basis.

Subsection 129.98(e) has been revised in the final-form regulation to incorporate the following changes in the facility-wide or system-wide NO<sub>x</sub> emission averaging equation: the 0.9 factor is removed and the final-form equation reflects a mass-to-mass comparison between actual and allowable NO<sub>x</sub> emissions. Since the final rulemaking sets forth more stringent requirements and emission limitations for certain affected sources than were proposed, the 0.9 factor is not included in the final-form averaging equation.

**142. Comment:** Several commentators expressed concerns that the Department's proposed emissions averaging approach would provide no certainty to source operators, and instead would result in considerable variation in the calculated emissions averaging standard imposed upon the facility or system. Because the 30-day average fluctuates constantly based upon the actual heat

input, it becomes extremely difficult for the facility or system operator to predict the standard to which the facility or system will be held at all times in the future. Section 129.98 is unclear how the 30-day rolling average compliance period is to be established and compliance demonstrated. (104, 114, 125, 134)

**Response:** The Department disagrees with the commentators that the emissions averaging plan compliance option would not provide certainty to source owners and operators. Subsection 129.98(a) has been revised in the final-form regulation to clarify that the owner or operator of a major NO<sub>x</sub> emitting facility subject to § 129.96 that includes at least one source subject to a NO<sub>x</sub> RACT emission limitation in § 129.97 that cannot meet the applicable NO<sub>x</sub> RACT emission limitation may elect to meet the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 by averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average. System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth. The source that cannot meet the applicable NO<sub>x</sub> RACT emission limitation must be part of the emissions averaging plan so that its excess emissions can be averaged with the emissions from sources that are emitting below their NO<sub>x</sub> emission limitation.

The owner and operator may choose which other sources are included in the emissions averaging plan to meet the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 on a 30-day rolling average as long as the other sources meet the requirement of § 129.98(c). An owner or operator must demonstrate that the emissions for other sources included in the emissions averaging plan are below the applicable limits in § 129.97 in order to provide the cushion for averaging the excess emissions of the noncomplying source. Further, sources which are included in a system-wide averaging plan must be under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth.

Subsection 129.98(d) has been revised from proposed to final rulemaking to clarify that the application for the Operating Permit Modification or the Plan Approval, if otherwise required, for averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average submitted under § 129.98(b) must demonstrate that the aggregate NO<sub>x</sub> emissions emitted by the air contamination sources included in the facility-wide or system-wide NO<sub>x</sub> emissions averaging plan using a 30-day rolling average are not greater than the NO<sub>x</sub> emissions that would be emitted by the group of included sources over a period of 30 operating days if each source complied with the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 on a source-specific basis. The allowable emissions are necessarily determined using the actual operation of the sources in the plan. The owner or operator assumes the responsibility to meet the allowable emission limit. Alternatively, the owner or operator may submit a proposal under § 129.99 for an alternative emission limit on a case-by-case basis.

Subsection 129.98(e) has been revised from proposed to final rulemaking to incorporate the following changes in the facility-wide or system-wide NO<sub>x</sub> emission averaging equation: the 0.9 factor is removed and the final-form equation reflects a mass-to-mass comparison between actual and allowable NO<sub>x</sub> emissions. The Department believes that the mass-to-mass comparison included in the final rulemaking provides enough certainty for source owners and operators for the demonstration of compliance on a facility-wide or system-wide basis. Since the final

rulemaking sets forth more stringent requirements and emission limitations for certain affected sources than were proposed, the 0.9 factor is not included in the averaging equation.

The final-form regulation clarifies that for combustion units the 30-day rolling averages are determined on an operating day basis by taking the mass of total emissions and dividing by the total heat input during each period of 30 consecutive operating days. The 30 consecutive operating days may span more than 30 consecutive calendar days.

**143. Comment:** The averaging provisions unfairly penalize facilities that want to average two or more sources to meet presumptive RACT limits. The averaging provisions do not provide a relevant mechanism for a cement kiln to demonstrate compliance. The section must address how cement kiln emissions in lb NO<sub>x</sub>/ton of clinker are to be averaged. The unprecedented 90% limit discourages presumptive RACT limits and should be dropped. (108, 112, 128)

**Response:** Subsection 129.98(d) has been revised in the final-form regulation to clarify that the application for the Operating Permit Modification or the Plan Approval, if otherwise required, for averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average submitted under § 129.98(b) must demonstrate that the aggregate NO<sub>x</sub> emissions emitted by the air contamination sources included in the facility-wide or system-wide NO<sub>x</sub> emissions averaging plan using a 30-day rolling average are not greater than the NO<sub>x</sub> emissions that would be emitted by the group of included sources if each source complied with the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 on a source-specific basis.

Subsection 129.98(e) has been revised in the final-form regulation to incorporate the following changes in the facility-wide or system-wide NO<sub>x</sub> emission averaging equation: the 0.9 factor is removed and the final-form equation reflects a mass-to-mass comparison between actual and allowable NO<sub>x</sub> emissions. Since the final rulemaking sets forth more stringent requirements and emission limitations for certain affected sources than were proposed, the 0.9 factor is not included in the averaging equation.

The final-form regulation clarifies that for combustion units the 30-day rolling averages are determined on an operating day basis by taking the mass of total emissions and dividing by the total heat input during each period of 30 consecutive operating days. The 30 consecutive operating days may span more than 30 consecutive calendar days.

**144. Comment:** The proposed rulemaking's equation for calculating the 30-day rolling average should reflect what the proposed rulemaking's actual text provides for, which is that the value for the 30-day rolling average is calculated by taking the total mass of NO<sub>x</sub> emissions for the sources under the plan (over the 30-day period) and comparing that with the total mass of NO<sub>x</sub> that the sources could have emitted by using the emission rates under the presumptive RACT. In such instances, the actual value of emissions must then be less than or equal to the allowable emissions over the 30-day period. Additionally, the averaging equation should also be generalized to allow operators to use engineering units consistent with the type of equipment or process. (84, 105, 107, 108, 112, 115, 117, 125, 128, 129)

**Response:** The Department agrees with the commentators' suggestion about the 30-day rolling average equation. The facility-wide NO<sub>x</sub> emission averaging equation set forth under § 129.98(e) has been revised in the final-form regulation to reflect a mass-to-mass comparison between actual and allowable NO<sub>x</sub> emissions. The aggregated actual emissions from sources included in the averaging plan must be no greater than aggregated allowable emissions on a 30-day rolling basis. The allowable emissions are necessarily determined using the actual operation of the emission sources included in the plan. The owner or operator assumes the responsibility to meet the allowable emission limit. Please see the Response to Comment 138 for information about how emission sources are selected for inclusion in an emissions averaging plan proposal submitted under § 129.98.

Subsection 129.98(d) has been revised in the final-form regulation to clarify that the application for the Operating Permit Modification or the Plan Approval, if otherwise required, for averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average submitted under § 129.98(b) must demonstrate that the aggregate NO<sub>x</sub> emissions emitted by the air contamination sources included in the facility-wide or system-wide NO<sub>x</sub> emissions averaging plan using a 30-day rolling average are not greater than the NO<sub>x</sub> emissions that would be emitted by the group of included sources if each source complied with the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 on a source-specific basis.

Subsection 129.98(e) has been revised in the final-form regulation to incorporate the following changes in the facility-wide or system-wide NO<sub>x</sub> emissions averaging equation: the 0.9 factor is removed and the final-form equation reflects a mass-to-mass comparison between actual and allowable NO<sub>x</sub> emissions. Since the final rulemaking sets forth more stringent requirements and emission limitations for certain affected sources than were proposed, the 0.9 factor is not included in the averaging equation.

**145. Comment:** Other states, for example New York, New Jersey and New Hampshire, established a fixed emission averaging standard (fixed mass approach) based on a presumptive RACT limit multiplied by the maximum hourly heat input for each unit in the system. The NO<sub>x</sub> facility-wide and system-wide emissions averaging provisions should be revised to establish a standard equal to a maximum aggregate hourly mass emission rate for the sources included within the average derived by multiplying the presumptive RACT for each EGU in the system by that unit's maximum rated heat input.

The recommended approach ensures that the calculation of the maximum mass emission rate for the group of sources is consistent with the allowable emission rates under RACT for each individual source included within the group. This approach could support a reduction in the presumptive RACT standards for certain coal-fired sources to be as low as 0.20 lb/MMBtu which is half the current RACT limit of 0.4 lb/MMBtu. (84, 105, 125, 129)

**Response:** The Department disagrees with the commentators' recommended approach. The Department believes that the commentators want to use the sum of the mass emissions calculated for all units operating at their respective maximum capacities to determine the allowable emission limit in the emissions averaging plan.

The approach of calculating the mass emission limitation with each individual source's maximum operating capacity versus actual operational conditions artificially inflates the calculated allowable emission limitation. The difference between the calculated values for mass emissions using the maximum operating capacity values and using actual operation values could then be used to offset an included source that significantly exceeds its individual applicable presumptive NO<sub>x</sub> emission limitation. Under this approach, each source in the emissions averaging plan could exceed the applicable presumptive NO<sub>x</sub> emission limitation while all sources in the emissions averaging plan as a whole would still be in compliance. This would be contrary to the Department's intent that the total emissions from the sources included in an emissions averaging plan are to be no greater than if each source individually met their applicable presumptive NO<sub>x</sub> emission limitation.

The facility-wide NO<sub>x</sub> emission averaging equation set forth under § 129.98(e) has been revised in the final-form regulation to reflect a mass-to-mass comparison between actual and allowable NO<sub>x</sub> emissions. The aggregated actual emissions from sources included in the emissions averaging plan must be no greater than aggregated allowable emissions on a 30-day rolling basis. The allowable emissions are necessarily determined using the actual operation of the emission sources included in the plan. The owner or operator assumes the responsibility to meet the allowable emission limit.

It is incorrect to assert that the New Jersey DEP RACT regulation allows a fixed mass approach for emissions averaging. Based on the Department's review, the New Jersey RACT regulation requires each unit to meet a daily maximum emission rate in addition to complying with RACT requirements on a 30-day rolling basis. For compliance with a 30-day rolling average, the allowable emission rate in the New Jersey DEP RACT regulation is calculated using the actual heat input to the averaging unit.

The New Hampshire Department of Environmental Services (DES) NO<sub>x</sub> RACT regulations address averaging of emissions to comply with NO<sub>x</sub> emission limits on a 24-hour basis. New York Department of Environmental Conservation (DEC) NO<sub>x</sub> RACT regulations require that the system averaging plan employ a weighted average permissible emission rate, which is not a fixed mass approach.

**146. Comment:** Use annual emissions averaging reconciliation rather than a 30-day rolling average. (107, 115, 117, 118)

**Response:** The Department believes that annual averaging is not appropriate for the demonstration of compliance with the RACT emission limitations. The averaging time for the RACT emission limits should be as short as practicable and consistent with the NAAQS for ozone. The Department believes that the 30-day rolling average is appropriate to accommodate variations in operational conditions. Additionally, Wisconsin's RACT regulations, approved by the EPA at 75 FR 64155 (October 19, 2010), include emissions averaging on a 30-day rolling basis for determining compliance. Wisconsin described such a period as short term and noted that this approach would allow averaging of the typical variations in emission levels from a single unit.

The Department therefore has retained the emissions averaging equation in § 129.98(e) based on a 30-day rolling average in the final-form regulation. For sources equipped with CEMS, a 30-day rolling averaging period is appropriate to accommodate operation at varying load and operating conditions. A 30-day rolling average limit addresses problems faced by certain owners and operators, including variability in fuel, emission spikes during start-up and shutdown of the emission source, and emissions during malfunctions. The 30-day rolling average requires that the owners and operators operate below the allowable standard in order to account for the occasional higher emissions. For the owners and operators of sources that are not equipped with CEMS, compliance with the presumptive NO<sub>x</sub> RACT emission limitations shall be shown with appropriate EPA reference-method source testing.

**147. Comment:** The proposed rulemaking fails to allow for averaging to be used with respect to VOC emissions. (107, 114, 115, 118)

**Response:** The number of facilities potentially subject to the presumptive VOC emission limitations included in the final rulemaking is too limited to justify the use of system-wide averaging. Unlike NO<sub>x</sub> emissions monitoring, VOC emissions are not monitored continuously through the use of CEMS. The VOC presumptive requirements for combustion units or other combustion sources located at major VOC emitting facilities do not include any VOC emission rates and therefore could not be included in emissions averaging plans.

**148. Comment:** We recommend that the averaging plan be structured to allow for facilities to provide deeper reductions during the ozone season when reductions are needed than during the remainder of the year while still complying with an annual average cap. (130)

**Response:** The Department disagrees. The Clean Air Act requires that RACT requirements be applicable to major sources of NO<sub>x</sub> or VOCs on a year-round basis. The final-form RACT regulation implements requirements for the control of NO<sub>x</sub> and VOC emissions on an annual basis. Requirements addressing ozone season emission reductions are not appropriate for inclusion in rulemakings setting forth RACT requirements. Therefore, the owners and operators of affected facilities are not required to further reduce emissions during ozone season under the final RACT rulemaking. The owners and operators of affected facilities are not restricted under RACT regulations, however, to further reduce their NO<sub>x</sub> emissions during ozone season if they so choose.

**149. Comment:** There are no ozone season restrictions in the proposed rulemaking nor are such restrictions mentioned in the supporting documentation for the proposed rulemaking. The commentators request that the rulemaking specify that the presumptive RACT averaging period applies only during the ozone season. (112, 113)

**Response:** The Department disagrees. The final rulemaking addresses the Commonwealth's obligations under the APCA, the CAA and regulations issued under the CAA to establish RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008. RACT applies to the owners and operators of existing major stationary sources of NO<sub>x</sub> and VOCs in ozone nonattainment areas on a year-round basis. Therefore, the final-form RACT regulation implements year-round requirements for the control of NO<sub>x</sub> and VOC emissions.

**150. Comment:** Eliminate "... that cannot meet the applicable NO<sub>x</sub> RACT requirement or NO<sub>x</sub> RACT emission limitation..." from § 129.98 as it prohibits a source from submitting a "compliant plan." (129)

**Response:** Subsection 129.98(a) has been revised in the final-form regulation to clarify that the owner or operator of a major NO<sub>x</sub> emitting facility that includes *at least one* source subject to a NO<sub>x</sub> RACT emission limitation that cannot meet the applicable NO<sub>x</sub> RACT emission limitation may elect to meet the applicable NO<sub>x</sub> RACT emission limitation by averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average.

**151. Comment:** The EQB should clarify that compliance with the 30-day rolling average emission rate is based upon the average of each daily average for the 30 operating day period. (131)

**Response:** Subsection 129.98(e) has been revised in the final-form regulation to clarify that the 30-day rolling averages for combustion units are determined on an operating day basis by taking the mass of total emissions and dividing by the total heat input during each period of 30 consecutive operating days to calculate the average mass of emissions for that 30-operating day period. The revisions to § 129.98(e) also incorporate the following changes in the facility-wide or system-wide NO<sub>x</sub> emission averaging equation: the 0.9 factor is removed and the final-form equation reflects a mass-to-mass comparison between actual and allowable NO<sub>x</sub> emissions.

Subsection 129.98(d) has been further revised in the final-form regulation to clarify that the application for the Operating Permit Modification or the Plan Approval, if otherwise required, for averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average submitted under § 129.98(b) must demonstrate that the aggregate NO<sub>x</sub> emissions emitted by the air contamination sources included in the facility-wide or system-wide NO<sub>x</sub> emissions averaging plan using a 30-day rolling average are not greater than the NO<sub>x</sub> emissions that would be emitted by the group of included sources over a period of 30 consecutive operating days if each source complied with the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 on a source-specific basis.

**152. Comment:** The commentator recommends that the Department identify what changes will mandate a change to the RACT averaging permit in § 129.98. (133)

**Response:** The Department does not agree that § 129.98 needs to identify what changes will mandate a change to the applicable operating permit. Any change that an owner or operator of an affected facility proposes to the RACT NO<sub>x</sub> emissions averaging plan would require a modification to the Title V Operating Permit, which incorporates the applicable RACT emission averaging requirements. The proposed modifications would be subject to at least a 30-day public comment period in accordance with existing public participation provisions in 25 Pa. Code Chapter 127, Subchapters F and G (relating to Operating Permit Requirements and Title V Operating Permit Requirements, respectively). It should be noted that there is no separate "RACT averaging permit."

**153. Comment:** The commentator recommends using the term "operating permit" and "operating permit modification" consistently in § 129.98. (133)

**Response:** The Department agrees with the commentator. The emissions averaging requirements of § 129.98 have been revised from proposed to final rulemaking to replace the term "operating permit modification" with the term "emissions averaging plan," where appropriate. The emissions averaging plan will be incorporated into the applicable Operating Permit through the use of an application for an Operating Permit Modification. The change from 'operating permit modification' to 'emissions averaging plan' should alleviate any potential ambiguity in the regulatory language.

**154. Comment:** The commentators advise the Board to amend the averaging provisions of proposed § 129.98 to ensure that averaging plans including units inside designated nonattainment areas achieve at least RACT level reductions - excess reductions from outside any designated nonattainment area boundaries cannot be used to offset emissions above allowable RACT emissions inside any designated nonattainment area boundary. This change is necessary to conform to the CAA under the ruling of the Courts in *NRDC v. EPA*, 571 F.3d 1245 (D.C. Cir. 2009). (109, 113, 133)

**Response:** The Department agrees. Subsection 129.98(a) has been revised from proposed to final rulemaking to address the commentators' concerns. Subsection 129.98(a) provides as follows: "System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth." This approach should assure that emissions averaging will occur among units under common control of the same owner or operator in the same ozone nonattainment area, as prescribed by the CAA and the DC Circuit ruling in the 2009 *NRDC v. EPA* case.

**155. Comment:** The proposed rulemaking does not expressly provide that a source subject to a RACT standard based on a case-by-case analysis would be able to demonstrate compliance over a 30-day rolling average. The proposed rulemaking should be revised to clarify that any source using a CEMS to demonstrate compliance with *any* established RACT standard shall be allowed to evaluate compliance as a 30-day rolling average. (104, 110, 125)

**Response:** The Department disagrees that the final rulemaking must expressly set forth that the owner and operator of a source subject to a RACT standard based on a case-by-case analysis may demonstrate compliance using a 30-day rolling average. The final rulemaking allows the owner or operator of an affected source equipped with NO<sub>x</sub> CEMS to demonstrate compliance with presumptive RACT limitations on a 30-day rolling basis. A proposal for an alternative case-by-case RACT requirement or limitation submitted under § 129.99 may include averaging to demonstrate compliance. For sources not subject to the presumptive RACT limits, the Department will determine appropriate RACT requirements and emission limitations on a case-by-case basis.

**156. Comment:** Eliminate the requirement for the permittee to seek a permit modification to establish a NO<sub>x</sub> RACT averaging plan. This requirement is unnecessary and inconsistent with EPA guidance. Operating permit modifications are NOT necessary per EPA's White Paper

Number 2 for Improved Implementation of the Part 70 Operating Permits Program. They should be replaced with “compliant plans.” (129)

**Response:** The Department disagrees. The emissions averaging plan must be memorialized in either an Operating Permit or a Plan Approval in order to be Federally enforceable. If the installation of control devices or other sources is not required, the NO<sub>x</sub> RACT emissions averaging plan will be incorporated in an applicable Operating Permit. If the installation or modification of sources or devices is necessary, the emissions averaging plan will be included in a Plan Approval issued by the Department.

**157. Comment:** Subsection 129.98(m) seems to intend to create liability for operating a source in violation of the averaging provision, but the language fails to actually describe the actions that create such liability. While it does describe that the violation is “at that source or other source in the operating permit modification,” it is difficult to understand how this description will impact enforcement as a practical matter. (114)

**Response:** Subsection 129.98(m) has been revised in the final-form regulation to clarify that the owner and operator of the air contamination sources included in a facility-wide or system-wide NO<sub>x</sub> emissions averaging plan submitted under § 129.98(b) shall be liable for a violation of an applicable NO<sub>x</sub> RACT emission limitation at each source included in the NO<sub>x</sub> emissions averaging plan. All sources included in a NO<sub>x</sub> RACT averaging plan are considered in violation should the calculated emission limitation be exceeded.

**158. Comment:** The language in proposed § 129.98(m) should be changed to state that an operating permit would be violated, not an operating permit modification. (133)

**Response:** Subsection 129.98(m) has been revised in the final-form regulation to read as follows: “The owner and operator of the air contamination sources included in a facility-wide or system-wide NO<sub>x</sub> emissions averaging plan submitted under subsection (b) shall be liable for a violation of an applicable NO<sub>x</sub> RACT emission limitation at each source included in the NO<sub>x</sub> emissions averaging plan.”

**§ 129.100. Compliance demonstration and recordkeeping requirements.**

• **§ 129.100(a) and § 129.100(c). Source Testing and Monitoring**

**159. Comment:** Many of these provisions do not meet the CAA requirement for monitored, verifiable, measurable and Federally enforceable emissions control. (55, 61, 116)

**Response:** The Department disagrees. Section 129.100 of the final-form regulation contains adequate requirements for monitoring that are measurable and verifiable. The requirements will be Federally enforceable upon approval by the EPA as a revision to the Commonwealth’s SIP.

**160. Comment:** Provide scientifically approved methods of measuring day to day compliance of NO<sub>x</sub> and VOCs, as required under the CAA. (55, 61, 116)

**Response:** Section 129.100 has been revised in the final rulemaking to set forth comprehensive monitoring and testing procedures for demonstrating compliance with presumptive RACT emissions limitations. The owner and operator of an air contamination source equipped with a CEMS, except for municipal waste combustors, must conduct monitoring and testing in accordance with the requirements of Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources). The owner and operator of a Portland cement kiln equipped with a CEMS must conduct monitoring of clinker production rates in accordance with the requirements in 40 CFR 63.1350(d). The owner and operator of a municipal waste combustor equipped with a CEMS must conduct monitoring and testing in accordance with the requirements in Chapter 139, Subchapter C, using a daily average. The owner and operator of an air contamination source that is not equipped with a CEMS must conduct monitoring and testing in accordance with a Department-approved emissions source test that meets the requirements of Chapter 139, Subchapter A. The Department-approved source test is required one time in each 5-year calendar period.

**161. Comment:** The commentator recommends that the rulemaking should mandate that sources not using CEMS monitor compliance with periodic stack tests and parametric monitoring. (133)

**Response:** The Department agrees with the commentator. Proposed § 129.100(a)(2) has been revised to final-form § 129.100(a)(4) as follows: “The source test shall be conducted one time in each 5-year calendar period.” The applicable Title V Operating Permit (as defined in § 121.1) will include source-specific monitoring requirements to ensure compliance with all applicable emission limitations.

**162. Comment:** NO<sub>x</sub> emissions should be monitored by pollution sources and over a 1-hour and 8-hour standard. (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 58, 59, 60, 66, 74, 75, 76, 77, 78, 79, 81, 88, 91, 94, 96, 98, 99, 100, 101, 113, 123, 133)

**Response:** The Department disagrees. For sources equipped with CEMS, a 30-day rolling averaging period is appropriate to accommodate operation at varying load and operating conditions.

A 30-day rolling limit addresses problems that are faced by certain owners and operators, including variability in fuel (such as in waste coal combustors), emission spikes during start-up and shutdown of the emission source, and emissions during malfunctions. Due to these unavoidable circumstances, which are not indicative of normal operation, it would not be appropriate for the owners and operators of utilities using NO<sub>x</sub> CEMS to monitor the emissions from the source to be required to show compliance with the presumptive NO<sub>x</sub> RACT emission limitations over a 1-hour or 8-hour averaging period. The 30-day rolling average requires that the owners and operators operate below the allowable standard in order to account for the occasional higher emissions. A 30-day rolling average has been approved by the EPA to demonstrate compliance with the short-term RACT limitations in SIP revisions submitted by certain states including New York and Wisconsin.

Wisconsin's RACT regulations, approved by the EPA at 75 FR 64155 (October 19, 2010), include emissions averaging on a 30-day rolling basis for determining compliance. Wisconsin described such a period as "short term" and noted that this approach would allow averaging of the typical variations in emission levels from a single unit.

For sources not equipped with CEMS, compliance with the presumptive NO<sub>x</sub> RACT emission limitations must be demonstrated with appropriate EPA reference-method source testing.

Therefore, § 129.100 of the final-form RACT regulation contains adequate requirements for monitoring that are measurable and verifiable. The requirements will be Federally enforceable upon approval by the EPA as a revision to the Commonwealth's SIP.

**163. Comment:** The RACT rulemaking should require that each RACT permit shall include periodic monitoring that is sufficient to yield reliable data from the relevant time periods that are representative of the source's compliance with the permit. Even with a more frequent source test, additional monitoring such as direct monitoring of NO<sub>x</sub> and VOCs, parametric monitoring where controls are in place, etc., may be required to assure compliance at all times. (133)

**Response:** The Department agrees with the commentator. Proposed § 129.100(a)(2) has been revised to final-form § 129.100(a)(4) and the following language is added: "The source test shall be conducted one time in each 5-year calendar period." The applicable Title V Operating Permit will include source-specific monitoring requirements to ensure compliance with all applicable emission limitations.

**164. Comment:** The commentators request that the Department allow the last approved emission source test that has been conducted within 5 years of the effective date of the rulemaking to be used to demonstrate compliance. This period is consistent with the term of the stack testing requirements of the Title V Operating Permits. The commentators further request that sources that already have a periodic testing requirement in their operating permit be allowed to stay on that same test schedule provided that there have been no changes to the source, i.e. the test clock would not be reset for applicable sources such that future testing would be required in the same time frame, possibly within a few weeks of one another, rather than staggered throughout the year. (118, 132, 134)

**Response:** The Department disagrees with the commentator. A waiver is available only if a Department-approved source test has been performed in accordance with the requirements of Chapter 139, Subchapter A, within 12 months prior to the effective date of adoption of the final-form regulation for a source subject to § 129.96(a) and within 12 months prior to the effective date of adoption of the final-form regulation or within 12 months prior to the date that the source meets the definition of a major NO<sub>x</sub> emitting facility or major VOC emitting facility, whichever is later, for a source subject to § 129.96(b). The data gathered from testing that is older than 1 year may not be representative of the current operation of the source. The final rulemaking has been revised, however, to allow subsequent stack testing to be conducted one time in each 5-year calendar period. Proposed § 129.100(a)(2) has been revised in final-form § 129.100(a)(4) as follows: "The source test shall be conducted one time in each 5-year calendar period."

**165. Comment:** The waiver related to stack testing compliance demonstration in § 129.100(c) should be available to all sources subject to the proposed rulemaking including those subject to § 129.99, the case-by-case RACT determination. (93)

**Response:** The affected owner or operator of any source that is not subject to a presumptive RACT requirement may propose an alternative RACT emission limitation under § 129.99. The alternative RACT proposal may include alternative methods of compliance demonstration, including the use of previously performed source testing. Since this would involve case-by-case approval by the Department, additional regulatory requirements for source-specific proposals should not be prescribed in the final rulemaking.

**166. Comment:** Cement kilns do not directly measure clinker production. Industry measures raw material feed to the kiln and uses a kiln feed to clinker factor to estimate clinker production. Adopt the same approach used in the Portland Cement MACT rule. Specifically, per 40 CFR 63.1350(d), the industry is required to "Install, calibrate, maintain, and operate a permanent weigh scale system to measure and record weight rates in tons-mass per hour of the amount of feed to the kiln. The system of measuring feed must be maintained within  $\pm 5$  percent accuracy. Calculate your hourly clinker production rate using a kiln-specific feed to clinker ratio based on reconciled clinker production determined for accounting purposes and recorded feed rates. This ratio must be updated monthly. Note that if this ratio changes at clinker reconciliation, you must use the new ratio going forward, but you do not have to retroactively change clinker production rates previously estimated." (108, 128, 134)

**Response:** The Department agrees with the commentators. Paragraph 129.100(a)(2) has been revised in the final-form regulation to specify that the owner and operator of a Portland cement kiln with a CEMS shall monitor clinker production rates in accordance with 40 CFR 63.1350(d). The requirements under 40 CFR 63.1350(d) allow the owner or operator of a Portland cement kiln to either measure hourly clinker production or calculate hourly clinker production rates using a kiln-specific feed to clinker ratio.

Please note that the requirement of proposed § 129.100(a)(2) for the owner and operator of an air contamination source without a CEMS is revised to § 129.100(a)(4) in the final-form regulation. This provision specifies that the source test shall be conducted one time in each 5-year calendar period, as follows:

For an air contamination source without a CEMS, monitoring and testing in accordance with a Department-approved emissions source test that meets the requirements of Chapter 139, Subchapter A (relating to sampling and testing methods and procedures). The source test shall be conducted one time in each 5-year calendar period.

**167. Comment:** Measuring compliance on a 30-day rolling average basis is complicated in this industry where daily clinker production is not directly measured. The EPA recently addressed this situation in the NESHAP for Portland Cement plants and allows for feed to be measured and clinker production then derived from the measured feed. Moreover, the EPA recognized that clinker production is reconciled for accounting purposes such that the feed to clinker ratio may be adjusted. See 40 CFR 63.1350(d)(1)(ii). Allowing for compliance on an ozone season basis

will greatly simplify the compliance demonstration, without increasing emissions in any measurable way. It will simply allow for sources to account for short term increases during abnormal. To the extent that the EQB requires year-round compliance, the compliance period should be based on calendar year performance because the 30-day rolling average is more complicated for this industry. (127, 128)

**Response:** The Department disagrees with the commentators. The final rulemaking addresses the Commonwealth's obligations under the CAA to establish RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008. RACT applies to the owners and operators of existing major stationary sources of NO<sub>x</sub> and VOCs in ozone nonattainment areas on a year-round basis. The final-form RACT regulation implements requirements for the control of NO<sub>x</sub> and VOC emissions year-round. Allowing for compliance on an ozone season basis will not address the annual RACT requirements. Consequently, the emissions averaging period applies year-round.

The monitoring requirements for the owners and operators of Portland cement kilns to measure clinker production have, however, been addressed. Paragraph 129.100(a)(2) has been revised in the final-form regulation to specify that the owner and operator of a Portland cement kiln with a CEMS shall monitor clinker production rates in accordance with 40 CFR 63.1350(d). The Federal requirements in 40 CFR 63.1350(d) allow the owner or operator of a Portland cement kiln to either measure hourly clinker production or calculate hourly clinker production rates using a kiln-specific feed to clinker ratio.

Please note that proposed § 129.100(a)(2) for the owner and operator of an air contamination source without a CEMS is revised to § 129.100(a)(4) of the final-form regulation. Paragraph 129.100(a)(4) specifies that the source test shall be conducted one time in each 5-year calendar period, as follows:

For an air contamination source without a CEMS, monitoring and testing in accordance with a Department-approved emissions source test that meets the requirements of Chapter 139, Subchapter A (relating to sampling and testing methods and procedures). The source test shall be conducted one time in each 5-year calendar period.

**168. Comment:** Please provide for a reasonable data substitution methodology for missing CEMS data. The proposed rulemaking appears to be silent on missing CEMS data. The previous rulemakings limiting NO<sub>x</sub> emissions from cement kilns specifically addressed data substitution and allowed for an alternative data substitution methodology to be negotiated with the DEP. (127)

**Response:** The CEMS used to demonstrate compliance with presumptive NO<sub>x</sub> RACT emission limitations must be operated in accordance with 25 Pa. Code Chapter 139 (relating to sampling and testing). The CEMS data substitution methodology will be approved by the Department in accordance with Chapter 139.

**169. Comment:** When demonstrating compliance via CEMS, is the compliance demonstration continuous or only required one time? If the intent is for CEMS to be used to continuously to demonstrate compliance, how will compliance be tracked (especially if multiple fuels are being burned)? (114)

**Response:** CEMS is a continuous demonstration of compliance. The applicable RACT multiple fuel emission limit for a unit firing multiple fuels must be determined on a total heat input fuel weighted basis using the equation set forth in § 129.97(g)(4) of the final rulemaking.

**170. Comment:** Clarify that any RACT-affected emission unit that demonstrates compliance through the use of a CEMS would perform that demonstration over at least a 30-day operating period, similar to the RACT regulations of other states. (125)

**Response:** Section 129.100 of the final rulemaking provides that the owner and operator of an affected air contamination source equipped with a CEMS, except for municipal waste combustors, shall conduct monitoring and testing in accordance with the requirements of Chapter 139 using a 30-day rolling average. The 30-day rolling average for combustion units is calculated using 30 operating days.

The monitoring requirements for the owners and operators of Portland cement kilns to measure clinker production have been addressed in the final-form regulation. Paragraph 129.100(a)(2) has been revised to final-form § 129.100(a)(4) to specify that the owner and operator of a Portland cement kiln with a CEMS shall monitor clinker production rates in accordance with 40 CFR 63.1350(d). The Federal requirements of 40 CFR 63.1350(d) allow the owner or operator of a Portland cement kiln to either measure hourly clinker production or calculate hourly clinker production rates using a kiln-specific feed to clinker ratio.

The monitoring requirement for the owner and operator of a municipal waste combustor equipped with a CEMS is also addressed in the final rulemaking. Paragraph 129.100(a)(3) specifies that monitoring and testing of a municipal waste combustor shall be conducted in accordance with the requirements in Chapter 139, Subchapter C, using a daily average.

Please note that the requirement of proposed paragraph 129.100(a)(2) for the owner and operator of an air contamination source without a CEMS has been revised to § 129.100(a)(4) in the final-form regulation. Paragraph 129.100(a)(4) specifies that the source test shall be conducted one time in each 5-year calendar period, as follows:

For an air contamination source without a CEMS, monitoring and testing in accordance with a Department-approved emissions source test that meets the requirements of Chapter 139, Subchapter A (relating to sampling and testing methods and procedures). The source test shall be conducted one time in each 5-year calendar period.

**171. Comment:** Section 129.100 states that compliance for each source subject to RACT limits is to be demonstrated through CEMS or source testing. The proposed rulemaking should provide that engines that are EPA certified for the New Source Performance Standards (40 CFR Part 60 Subparts IIII and JJJJ) comply with RACT without resorting to CEMS or source testing. The use

of an EPA-certified engine should be sufficient to demonstrate compliance with RACT emission limitations. (114)

**Response:** The Department disagrees. Compliance of affected units must be demonstrated in accordance with § 129.100, which sets forth that compliance for each source subject to RACT limits is to be demonstrated through either CEMS or stack testing. A certification in and of itself cannot show that a source is in compliance with an emission limit. Only a CEMS, stack test or other measuring protocol can demonstrate compliance. In the case of RACT, the Department decided that a CEMS or stack test is the most efficacious way to demonstrate compliance.

**172. Comment:** How will units combusting fuels other than those listed be regulated to demonstrate compliance? Without more direction, it appears that these would need to undergo case-by-case RACT. (114)

**Response:** Section 129.97 has been revised in the final-form regulation to address the firing of non-traditional liquid and solid fuels in combustion units. The owner and operator of any source burning fuels other than those for which presumptive RACT requirements are set forth in final-form § 129.97 must submit a proposal for an alternative RACT requirement or RACT emission limitation to be evaluated on a case-by-case basis under § 129.99(b) or (c).

**173. Comment:** As an alternative to stack testing, PA DEP could consider reliance on tune-ups, such as those required for smaller boilers that will affect the operation of the boiler across its full range of operation under typical conditions. In fact, Boeing's Nebraska-I Boiler is a Gas I boiler subject to the Boiler MACT of 40 CFR Part 63, Subpart DDDDD, which requires regular tune-ups. In the case of a Gas I boiler with a continuous oxygen trim system such as the Nebraska-I Boiler, the Boiler MACT only requires a tune-up every 5 years because a modern boiler equipped with oxygen trim is able to maintain its operating and emissions performance. In addition, testing when firing oil would consume about 6 hours of the allowable 48 hours per calendar year of non-curtailed firing for a Gas-I boiler under the Boiler MACT. Paragraph 129.97(b)(1) would require an annual tune-up to demonstrate compliance for smaller boilers. Alignment of the boiler tune-up frequency with the Boiler MACT for Gas I boilers with boiler controls which incorporate oxygen trim. (132)

**Response:** The applicable requirements of paragraphs 129.97(b)(1) and (2) have been clarified in the final rulemaking. The owner and operator of an affected combustion unit which is located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility subject to § 129.96 shall comply with the applicable requirements in paragraph 129.97(b)(1) or paragraph 129.97(b)(2). Paragraph 129.97(b)(1) has been revised in the final-form regulation by removing the reference to the requirements in paragraph (2). Paragraph 129.97(b)(1) specifies that the applicable requirement for the owner and operator of a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour is a biennial tune-up conducted in accordance with the procedures described in 40 CFR 63.11223. The biennial tune-up performed to comply with paragraph 129.97(b)(1) must include, at a minimum, the inspections set forth in subparagraphs 129.97(b)(1)(i)—(iii).

Paragraph 129.97(b)(2) has been revised in the final-form regulation to remove the requirements that applied only to an oil-fired, a gas-fired or a combination oil-fired and gas-fired combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour. Additionally, the reference to the 1983 EPA document has been removed.

Final-form paragraph 129.97(b)(2) specifies that the owner or operator of a combustion unit with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up shall conduct a tune-up of the boiler one time in each 5-year calendar period. The tune-up performed to comply with paragraph 129.97(b)(2) must include, at a minimum, the inspections set forth in subparagraphs 129.97(b)(2)(i)—(iii).

Should the owner or operator not be able to comply with the presumptive requirement, the owner or operator may propose an alternative NO<sub>x</sub> RACT emission limitation under § 129.99(a) based on the source's potential to emit NO<sub>x</sub>.

**174. Comment:** All VOC sources subject to case-by-case RACT cannot be stack tested. Provisions should be made for alternative methods of compliance demonstration such as by material balance and EPA computer modeling including WATER9, TANKS, etc. as approved by PADEP. (93)

**Response:** The Department agrees with the commentator. Final-form § 129.99(c) provides that the owner or operator of a VOC air contamination source with a potential emission rate equal to or greater than 2.7 tons of VOC per year that is not subject to § 129.97 located at a major VOC emitting facility subject to § 129.96 shall propose a VOC RACT requirement or RACT emission limitation in accordance with § 129.99(d). The alternative RACT proposal may include alternative methods of compliance demonstration for review and approval by the Department.

- **§ 129.97(a), § 129.97(k), § 129.99(i), § 129.100(b). Compliance Demonstration Timeline**

**175. Comment:** Several commentators expressed concerns that the timing included in the proposed rulemaking for the implementation of the RACT regulations is not adequate. A 1-year compliance schedule for implementing alternative RACT NO<sub>x</sub> limitations is infeasible, grossly inadequate, impractical, and/or unreasonable. The EQB should explain why the timeframes in the rulemaking are reasonable or provide a request for extension provision in the rulemaking. (85, 102, 104, 107, 109, 110, 111, 114, 115, 117, 118, 119, 120, 121, 122, 125, 126, 127, 130, 134)

**Response:** The Department disagrees with the commentators. The final rulemaking provides an adequate amount of time for the implementation of the alternative RACT requirement or RACT emission limitation. Moreover, the EPA recently established a January 1, 2017, RACT implementation deadline for the 2008 8-hour ozone NAAQS. In the preamble for the "SIP Implementation Requirements Rule," the EPA states as follows:

The EPA believes that the January 1, 2017, date allows a sufficient amount of time for states to make RACT determinations and for sources to meet RACT requirements on the

time-table originally anticipated under the 1990 CAA Amendments, and ensures that RACT measures are required to be in place throughout the last ozone season prior to the Moderate area attainment date of July 20, 2018. See 80 FR 12279 (March 6, 2015).

The final-form regulation provides additional time for compliance if the installation of air cleaning devices or approval of alternative emission limitations or compliance schedules will be necessary for RACT compliance purposes.

**176. Comment:** The proposed rulemaking requires that operators request a schedule extension within 6 months. A longer time frame is needed to provide a detailed plan that accommodates significant project planning and budgeting to implement controls for the many affected units across multiple facilities.

The commentator recommends these specific changes to the proposed rulemaking: 6 months for company to submit a notification that identifies affected equipment; 18 months company submits detailed plan for controls and implementation schedule for all affected equipment; 3 months for DEP to raise questions or approve the plan. (107)

**Response:** The Department disagrees with the commentator that a longer time frame is needed for requesting a “schedule extension.” The case-by-case RACT proposals for the existing RACT requirements set forth in 25 Pa. Code § 129.91 were required to be submitted to the Department by July 15, 1994, 6 months after the effective date of the “RACT I” final rulemaking. See 24 Pa.B. 467 (January 15, 1994). The 6-month time frame set forth in final-form §§ 129.97(k)(1)(i) and (ii) and 129.99(i)(1)(i) and (ii) for the submission of petitions for an alternative compliance date is consistent with existing Department regulations.

Furthermore, the EPA recently established a January 1, 2017, RACT implementation deadline for the 2008 8-hour ozone NAAQS. In the preamble for the “SIP Implementation Requirements Rule,” the EPA states as follows:

The EPA believes that the January 1, 2017, date allows a sufficient amount of time for states to make RACT determinations and for sources to meet RACT requirements on the time-table originally anticipated under the 1990 CAA Amendments, and ensures that RACT measures are required to be in place throughout the last ozone season prior to the Moderate area attainment date of July 20, 2018. See 80 FR 12279 (March 6, 2015).

Nonetheless, the Board’s final-form regulation includes mechanisms for alternative emission limitations, compliance schedules and a petition process for the installation of air cleaning devices and the creation of a final compliance date of up to 3 years, if approved by the Department or a local air pollution control agency. See final-form §§ 129.97(k)(2)(v), 129.99(i)(2)(v) and 129.99(i).

**177. Comment:** In areas of the proposed rulemaking pertaining to schedule and dates for compliance, the compliance date is tied to either a period of time from the effective date of adoption of the proposed rulemaking or a period of time after the source meets the definition of a major NO<sub>x</sub> emitting facility or VOC emitting facility (e.g., see proposed § 129.97(a)(1) and (2)).

The commentator wants to confirm that the compliance schedule would be tied to the date the plant resumes operations (as opposed to being tied to the effective date of the rulemaking), as that will be the time that the plant "meets the definition of a major NO<sub>x</sub> emitting facility." (128)

**Response:** In accordance with 25 Pa. Code § 127.11a(a)(2), the owner or operator is required to submit a reactivation plan to the Department for approval at least 60 days prior to the proposed date of reactivation. The owner or operator may submit an alternative compliance schedule as part of the reactivation plan with a compliance time frame consistent with § 129.99(d)(4)(ii).

**178. Comment:** The provisions of subsections 129.97(a) and 129.97(k), relative to alternative compliance schedules, should allow for an exception to the presumptive RACT limits in situations where a regulated entity submits a timely and complete proposal for an alternative RACT. As written, the rulemaking appears to require compliance with the presumptive RACT limits until such time as the DEP approves an alternative RACT. This creates uncertainty and puts the regulated entity at risk of being in noncompliance even though it applied for an alternative in good faith and on a timely basis. The provisions should be revised to provide a mechanism for a regulated source to secure an extension of those deadlines. (104, 127)

**Response:** The proposed rulemaking set forth a mechanism under § 129.97(k) for an affected owner or operator that cannot meet the applicable RACT requirement or RACT emission limitation without installation of an air cleaning device.

Final-form subparagraph 129.97(k)(2)(iv) has not been changed from proposed to final rulemaking. Proposed subparagraph 129.97(k)(2)(v) specified that the written petition include a proposed final compliance date that is as soon as possible but not later than 3 years after the effective date of adoption of the proposed rulemaking. Subparagraph 129.97(k)(2)(v) has been revised from proposed to final rulemaking to specify that the written petition include a proposed final compliance date that is as soon as possible but not later than 3 years after the approval of the petition. The approved petition shall be incorporated in an applicable Operating Permit or Plan Approval. The affected owner and operator that cannot comply with the presumptive RACT requirement or RACT emission limitation without the installation of an air cleaning device therefore has 6 months to submit the written petition under § 129.97(k)(1) and may request an extension of the compliance date under § 129.97(k)(2)(v) of up to 3 years after the approval date of the petition.

**179. Comment:** An alternative compliance schedule is limited to those instances when installation of a control device is required. Conditions meriting an alternative compliance schedule should also include process changes such as installation of low-NO<sub>x</sub> burners or "other equipment as necessary." (93, 121)

**Response:** The term "air cleaning device" is defined in § 121.1 as follows: "An article, chemical, machine, equipment or other contrivance, the use of which may eliminate, reduce or control the emission of air contaminants into the atmosphere." Air cleaning devices are not limited to add-on control devices. As a result, an alternative compliance schedule is more broadly available than what the commentator suggests.

**180. Comment:** The 1 year compliance schedule detailed at § 129.97 is infeasible for the design, permitting, installation, and optimization of the NO<sub>x</sub> control devices that may be required to demonstrate compliance with the proposed RACT emission limitation for "pre-heater, precalciner" kilns. Based on the necessary actions, and the estimated time needed for their completion, a minimum compliance period of 30 months is necessary and appropriate for inclusion into the proposed RACT rulemaking. (85)

**Response:** The Department believes that the amount of time provided for an affected owner or operator to demonstrate compliance with the proposed RACT emission limitation for a "preheater, precalciner" kiln is adequate. Furthermore, the EPA has established a January 1, 2017, RACT implementation deadline for the 2008 8-hour ozone standard.

The proposed rulemaking set forth a mechanism under § 129.97(k) for an affected owner or operator that cannot meet the applicable RACT requirement or RACT emission limitation without installation of an air cleaning device. Proposed § 129.97(k) provided that the owner and operator could submit a written petition requesting an alternative compliance schedule in accordance with paragraphs 129.97(k)(1) and (2). Proposed § 129.97(k)(2)(iv) specified that the written petition include a proposed interim emission limitation that will be imposed on the affected source until compliance is achieved with the applicable RACT requirement or RACT emission limitation. Final-form § 129.97(k)(2)(iv) has not been changed from proposed.

Proposed § 129.97(k)(2)(v) specified that the written petition include a proposed final compliance date that is as soon as possible but not later than 3 years after the effective date of adoption of the proposed rulemaking. Section 129.97(k)(2)(v) has been revised from proposed to final rulemaking to specify that the written petition must include a proposed final compliance date that is as soon as possible but not later than 3 years after the written approval of the petition. The approved petition shall be incorporated in an applicable Operating Permit or Plan Approval.

The affected owner and operator that cannot comply with the presumptive RACT requirement or RACT emission limitation without the installation of an air cleaning device therefore has 6 months to submit the written petition under § 129.97(k)(1). Affected owners or operators can also request an extension of the compliance date under § 129.97(k)(2)(v) of up to 3 years after the written approval of the petition by the Department or local air pollution control agency. Therefore, the Department does not believe that there is any need to revise the compliance schedule set forth at § 129.97(k) as requested by the commentator.

**181. Comment:** Several commentators feel that the final rulemaking should be revised to establish longer compliance deadlines for sources undergoing case-by-case review, with the implementation schedule that should be submitted with the RACT proposal. A compliance extension should be available if case-by-case has been submitted to DEP in a timely manner but is held up in the review process or denied by DEP. Compliance time frames should run from the receipt of DEP approval. This would be consistent with RACT 1 [ §§ 129.91—129.95]. (102, 104, 107, 109, 110, 114, 115, 118, 120, 121, 122, 126, 130)

**Response:** The Department believes that the amount of time provided for implementation of the alternative RACT requirement or RACT emission limitation is adequate. On March 6, 2015, the

EPA stated that “a January 1, 2017, RACT implementation deadline provides a sufficient amount of time for states to make RACT determinations and for sources to meet the RACT requirements on the time-table originally anticipated under the 1990 Clean Air Act Amendments.” See 80 FR 12282.

The proposed rulemaking set forth a mechanism under § 129.99(i) for an affected owner or operator proposing to comply with an alternative RACT requirement or RACT emission limitation under § 129.99(a), (b) or (c) through the installation of an air cleaning device. Proposed § 129.99(i) provided that the owner and operator could submit a written petition requesting an alternative compliance schedule in accordance with paragraphs 129.99(i)(1) and (2). Proposed § 129.99(i)(2)(v) specified that the written petition include a proposed final compliance date that is as soon as possible but not later than 3 years after the effective date of adoption of the proposed rulemaking. Section 129.99(i)(2)(v) has been revised in the final-form regulation to specify that the written petition include a proposed final compliance date that is as soon as possible but not later than 3 years after the approval of the petition. If the petition is for the replacement of an existing source, the final compliance date will be determined on a case-by-case basis.

The affected owner and operator proposing to comply with an alternative RACT requirement or RACT emission limitation through the installation of an air cleaning device therefore has 6 months to submit the written RACT proposal under § 129.99(d) and then the opportunity to submit a petition with a request for an alternative compliance schedule with an extension of up to 3 years after the approval date of the petition. Proposed § 129.99(l) set forth that approval or denial of the timely and complete petition for an alternative compliance schedule submitted under § 129.99(i) will be effective on the date the letter of approval or denial of the petition is signed by the authorized representative of the Department or appropriate approved local air pollution control agency. No changes to proposed § 129.99(l) have been made in the final-form regulation. This requirement comports with the commentators’ request that compliance time frames run from receipt of Department approval.

**182. Comment:** The commentators request that the Department allow 12 to 18 months from the effective date of the rulemaking to submit a proposed case-by-case RACT and the compliance deadline for an approved alternative RACT should be submitted with the RACT proposal. (121, 122, 127)

**Response:** The Department disagrees with the commentators that applicants should have 12 to 18 months after the effective date of the final rulemaking to submit an alternative RACT proposal. The case-by-case RACT proposals for the existing RACT requirements set forth in § 129.91 were required to be submitted by the affected owners and operators by July 15, 1994, which was 6 months after the effective date of § 129.91. See 24 Pa.B. 467 (January 15, 1994). The 6-month time frame set forth in final-form § 129.99(d)(1) for the submission of alternative RACT proposals is consistent with existing Department regulations.

Furthermore, on March 6, 2015, the EPA stated that “a January 1, 2017, RACT implementation deadline provides a sufficient amount of time for states to make RACT determinations and for sources to meet the RACT requirements on the time-table originally anticipated under the 1990

Clean Air Act Amendments.” See 80 FR 12282. With a January 1, 2017, RACT implementation deadline, the 6-months deadline for the submittal of alternatives to the presumptive RACT requirements and limitations is reasonable.

The Department agrees with the commentators that the compliance deadline for an approved alternative RACT should be submitted with the RACT proposal and included this requirement in proposed § 129.99(d)(4). Section 129.99(i)(2)(v) has been revised in the final-form regulation to specify that the written petition include a proposed final compliance date that is as soon as possible but not later than 3 years after the approval of the petition. If the petition is for the replacement of an existing source, the final compliance date will be determined on a case-by-case basis.

**183. Comment:** The case-by-case RACT proposal submittal date should be 1 year, not 6 months. (121)

**Response:** The Department disagrees with the commentator that applicants should have 1 year after the effective date of the final rulemaking to submit an alternative RACT proposal. The case-by-case RACT proposals for the existing RACT requirements set forth in § 129.91 were required to be submitted by the affected owners and operators by July 15, 1994, which was 6 months after the effective date of § 129.91. See 24 Pa.B. 467 (January 15, 1994). The 6-month time frame set forth in final-form § 129.99(d)(1) for the submission of alternative RACT proposals is consistent with existing Department regulations. RACT must be implemented by January 1, 2017, for the 2008 ozone NAAQS. See 80 FR 12282.

**184. Comment:** Modify § 129.100(e) and (f) to both start as follows: “Beginning with the compliance date specified in § 129.97(a)...” The requested changes would allow source owners or operators subject to one or more presumptive NO<sub>x</sub> RACT limits to eliminate their applicability to those limits by becoming a minor source of NO<sub>x</sub> and/or VOC emissions. (129)

**Response:** The Department agrees. Subsections 129.100(e) and (f) have been revised consistent with the commentator’s recommendation.

- **§ 129.100(d) - § 129.100(i). Recordkeeping**

**185. Comment:** Section 129.100 contains compliance demonstration and recordkeeping requirements for sources subject to part or all of this proposed rulemaking. However, there doesn't seem to be any direction for a source only subject to work practice standards (such as the vague good engineering practices requirement). What is their compliance demonstration method? What records is a site required to keep in order to meet this requirement? (97, 134)

**Response:** Section 127.444 requires sources to operate in a manner consistent with good operating practices. The owners and operators of sources subject to § 129.97 are already subject to § 127.444. The Title V Operating Permit includes the appropriate recordkeeping and reporting requirements to demonstrate compliance with all applicable requirements.

It should be noted that the presumptive RACT requirements included in § 129.93 require the installation, maintenance and operation of the source in accordance with manufacturer's specifications. This requirement has been implemented since 1995. In addition, the owner or operator may opt to determine RACT requirements and emission limitations on a case-by-case basis under § 129.99 in place of the presumptive RACT requirements and emission limitations set forth in § 129.97.

**186. Comment:** Proposed § 129.100(g) requires the owner or operator of a combustion unit with a rated heat input between 20 million Btu/hour and 50 million Btu/hour to record each adjustment conducted under certain procedures in "a permanently-bound log book or other method approved by the Department." This is outdated. DEP should leave it to the operator how best to record the information. Allow for records to be maintained in any reasonable format, including computerized records. (108, 122, 134)

**Response:** The Department agrees with the commentators. Subsection 129.100(b) has been revised in the final-form regulation to specify that the owner or operator of a combustion unit subject to § 129.97(b) shall record each adjustment conducted under the procedures in § 129.97(b). The final rulemaking does not specify how the records shall be maintained or in what format—this approach allows affected owners or operators to use existing recordkeeping requirements and procedures.

**187. Comment:** The commentator feels that carbon monoxide (CO) should not be included in the log book. At a minimum the CO emissions requirement should be removed as CO is not part of the proposed NO<sub>x</sub> and VOC RACT. (111, 112)

**Response:** The Department disagrees. The applicable requirements of paragraphs 129.97(b)(1) and (2) have been clarified in the final-form regulation. The owner and operator of an affected combustion unit which is located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility subject to § 129.96 shall comply with the applicable requirements in paragraph 129.97(b)(1) or paragraph 129.97(b)(2). Paragraph 129.97(b)(1) has been revised in the final rulemaking to remove the reference to the requirements in paragraph (2) and to specify that the applicable requirement for the owner and operator of a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour is a biennial tune-up conducted in accordance with the procedures described in 40 CFR 63.11223. The biennial tune-up performed to comply with paragraph 129.97(b)(1) must include, at a minimum, the inspections set forth in subparagraphs 129.97(b)(1)(i)—(iii). The requirements codified under 40 CFR 63.11223 specify that CO emissions are to be included in the record. In addition, CO emissions are recorded as a surrogate for VOC emissions.

Paragraph 129.97(b)(2) has been revised from proposed to final rulemaking to remove the requirements that applied only to an oil-fired, a gas-fired or a combination oil-fired and gas-fired combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour. Additionally, the reference to the 1983 EPA document has been removed. Final-form paragraph 129.97(b)(2) specifies that the owner or operator of a combustion unit with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up shall conduct a tune-up of the boiler one time in each 5-year

calendar period. The tune-up performed to comply with paragraph 129.97(b)(2) must include, at a minimum, the inspections set forth in subparagraphs 129.97(b)(2)(i)—(iii). The requirements codified under 40 CFR 63.11223 specify that CO emissions are to be included in the record. In addition, CO emissions are recorded as a surrogate for VOC emissions.

**188. Comment:** Cement kilns are subject to a lbs/ton of clinker standard, so the requirement to record fuel use seems misplaced here. (108, 128)

**Response:** The Department disagrees that the requirement for recordkeeping of fuel use is misplaced. The Department requires fuel type and quantity information to review the emissions and emission factors used by the owner or operator to determine emissions.

**189. Comment:** The cement kiln limits apply at all times, including malfunctions, so there is no logical reason why the Department would need malfunction logs to assess compliance with this proposed rulemaking. Malfunction records are already required under Title V boilerplate conditions and need not be repeated here. (108, 128)

**Response:** The presumptive NO<sub>x</sub> RACT emission limitations for Portland cement kilns are applicable at all times, including start-up, shutdown, and malfunction. The Department agrees that malfunction records are already required of Portland cement kilns by Title V permits. Therefore, the requirement to record the date, time and duration of a malfunction set forth in final-form § 129.100(h) imposes no additional recordkeeping requirements on the affected owner or operator to record malfunction information. Please note that proposed § 129.100(i) is revised to final-form § 129.100(h).

**190. Comment:** Remove § 129.100(g)(5). If condition (5) is to remain, please add text to tie it to relevant combustion equipment, e.g. boilers. “Excess oxygen rate” is not a combustion turbine parameter. (111)

**Response:** The parameters set forth under § 129.100(g), including § 129.100(g)(5), are applicable to the owner or operator of a combustion unit subject to § 129.97(b). The term “combustion unit” is defined in § 121.1 as a stationary equipment used to burn fuel primarily for the purpose of producing power or heat by indirect heat transfer. While turbines are combustion sources, they produce power by direct heat transfer and are not combustion units by definition. Therefore, the recordkeeping requirements of § 129.100(g), including the requirement under § 129.100(g)(5) to record the excess oxygen rate, are not applicable to combustion turbines.

**191. Comment:** The rulemaking should require that records described in § 129.100(e)—(i) be maintained for 5 years and be made available to PA DEP or appropriate air pollution control agency upon request. (133)

**Response:** The Department agrees with the commentator. The recordkeeping requirement has been revised from proposed § 129.100(d)(3) to § 129.100(i) in the final-form regulation and is set forth as follows: “The records shall be retained by the owner or operator for 5 years and made available to the Department or appropriate approved local air pollution control agency upon

receipt of a written request from the Department or appropriate approved local air pollution control agency.” Please note that proposed § 129.100(i) is revised to final-form § 129.100(h).

**§ 129.99 Alternative RACT proposal and petition for alternative compliance schedule.**

**192. Comment:** Several commentators support the provisions of the rulemaking preserving case-by-case RACT determinations. (84, 85, 104, 105, 120, 127)

**Response:** The Department thanks the commentators for their support. The Department believes that § 129.99 provides flexibility for the regulated community. However, the Department does not expect that this provision will be used routinely as the owners and operators of most affected sources shall likely meet the presumptive RACT requirements and RACT emission limitations.

**193. Comment:** In subsection 129.99(a), the fact that the owner and operator of a facility may be able to participate in an averaging program should not in and of itself prohibit the facility from proposing an alternative RACT limit and should be amended. (109)

**Response:** The Department agrees. Subsection 129.99(a) has been revised from proposed to final-form regulation to specify that the owner or operator of an air contamination source subject to § 129.97 located at a major facility subject to § 129.96 that cannot meet the applicable presumptive RACT requirement or RACT emission limitation of § 129.97 may propose an alternative RACT requirement or RACT emission limitation in accordance with § 129.99(d). The owner or operator is no longer required to demonstrate that they cannot participate in either a facility-wide or system-wide NO<sub>x</sub> emissions averaging plan under § 129.98 before proposing an alternative RACT requirement or RACT emission limitation under § 129.99(a).

**194. Comment:** The proposed rulemaking should be revised to clarify that the opportunity to rely on a case-by-case analysis does not require the owner and operator of a regulated source to perform a predicate demonstration that the relevant source "cannot" meet the presumptive RACT standard, and (with respect to NO<sub>x</sub> emission sources) cannot satisfy the emissions averaging provisions. Case-by-case RACT analysis necessarily is required to evaluate the technologically "available" control systems for economic feasibility and will include assessment of any control system corresponding to presumptive RACT limitations, but would not establish a different standard for performing a unique feasibility determination for the presumptive standard. The availability of emissions averaging as a compliance alternative is not a required element of a RACT analysis under the Federal Clean Air Act. Therefore the Board should not require any source owner to demonstrate that such emissions averaging is "unavailable" as a prerequisite to a case-by-case analysis. (84, 104, 105, 107, 109, 110, 114, 115, 117, 118, 121, 125, 127, 129, 131)

**Response:** The Department agrees that an owner and operator should not have to demonstrate that they cannot participate in either a facility-wide or system-wide NO<sub>x</sub> emissions averaging plan before submitting a proposal under § 129.99 for an alternative RACT requirement or RACT emission limitation. Subsection 129.99(a) has been revised from proposed to final-form regulation to specify that the owner or operator of an air contamination source subject to § 129.97 located at a major facility subject to § 129.96 that cannot meet the applicable presumptive

RACT requirement or RACT emission limitation of § 129.97 may propose an alternative RACT requirement or RACT emission limitation in accordance with § 129.99(d). The language in proposed § 129.99(a) specifying that the owner or operator shall demonstrate that they cannot participate in either a facility-wide or system-wide NO<sub>x</sub> emissions averaging RACT operating permit modification under § 129.98 is deleted from final-form § 129.99(a).

The Department disagrees that the owner and operator of an affected source would not have to perform a predicate demonstration that the source cannot meet the presumptive RACT requirement or RACT emission limitation before submitting a proposal under § 129.99 for an alternative RACT requirement or RACT emission limitation. The owner or operator of an affected source would have to demonstrate that the affected source cannot comply with the applicable standard in § 129.97 as part of the application for an Operating Permit Modification or a Plan Approval, if otherwise required, submitted for a case-by-case determination under § 129.99(a).

Subsection 129.98(a) has been revised in the final rulemaking to clarify that the owner or operator of a major NO<sub>x</sub> emitting facility subject to § 129.96 that includes at least one source subject to a NO<sub>x</sub> RACT emission limitation in § 129.97 that cannot meet the applicable NO<sub>x</sub> RACT emission limitation may elect to meet the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 by averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average. System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth. The source that cannot meet the applicable NO<sub>x</sub> RACT emission limitation must be part of the emissions averaging plan so that its excess emissions can be averaged with the emissions from sources that are emitting below their limit.

The owner and operator may choose which other sources should be included in the emissions averaging plan to meet the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 on a 30-day rolling average as long as the other sources meet the requirement of § 129.98(c). An owner or operator must demonstrate that the emissions from other sources included in the averaging plan are below the applicable limits in § 129.97 in order to provide the cushion for averaging the excess emissions of the noncomplying source. Further, sources which are included in a system-wide averaging plan must be under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth.

**195. Comment:** An operator of low use, backup equipment that cannot quite meet the presumptive limits should be able to submit for a case-by-case RACT requirement or RACT emission limitation. (121)

**Response:** The Department agrees. Subsection 129.99(a) has been revised in the final-form regulation to specify that the owner or operator of an air contamination source subject to § 129.97 located at a major facility subject to § 129.96 that cannot meet the applicable presumptive RACT requirement or RACT emission limitation of § 129.97 may propose an alternative RACT requirement or RACT emission limitation in accordance with § 129.99(d). The owner or operator is no longer required to demonstrate that they cannot participate in either a facility-wide

or system-wide NO<sub>x</sub> emissions averaging plan under § 129.98 before proposing an alternative RACT requirement or RACT emission limitation under § 129.99(a).

**196. Comment:** Would a boiler rated below 50 million Btu/hour need to establish its potential NO<sub>x</sub> emissions to determine if it's covered under § 129.99(b)? (114)

**Response:** The commentator's understanding is incorrect. A boiler rated below 50 million Btu/hour would be subject to § 129.97(b)(1) or § 129.97(c)(3). Subsection 129.99(b) is only applicable to affected owners and operators of sources that are **not** subject to a presumptive RACT requirement or RACT emission limitation set forth in § 129.97. In other words, it is impossible for a boiler rated below 50 million Btu/hour to be covered under § 129.99(b).

Should the affected owner or operator not be able to comply with the applicable presumptive requirement set forth in § 129.97, the owner or operator may submit a proposal for an alternative NO<sub>x</sub> RACT requirement or RACT emission limitation under § 129.99(a) based on the source's potential to emit NO<sub>x</sub>.

**197. Comment:** Section 129.99(b) allows alternative NO<sub>x</sub> RACT proposals only for sources that are not subject to § 129.97 or §§ 129.201—129.205 (the regulations applicable to boilers, turbines, and engines located in Bucks, Chester, Delaware, Montgomery or Philadelphia County). The set of sources subject to §§ 129.201—129.205 and not § 129.97 is, if not a null set, at the very least a set with very few sources. But if any such sources do exist, they only have to meet the existing limits during the ozone season and in addition may presently purchase CAIR allowances to offset excess emissions. Any such sources should have the options of 1) complying with §§ 129.201—129.205 as presumptive RACT, or submitting an alternative RACT proposal. This subsection should be modified as follows:

(b) The owner or operator of a NO<sub>x</sub> air contamination source with a potential emission rate equal to or greater than 5.0 tons of NO<sub>x</sub> per year that is not subject to § 129.97 [**or §§ 129.201—129.205 (relating to additional NO<sub>x</sub> requirements)**] located at a major NO<sub>x</sub> emitting facility subject to § 129.96 shall propose a NO<sub>x</sub> RACT emission limitation in accordance with subsection (d). **Sources subject to §§ 129.201—129.205 and which do not have presumptive RACT limits in § 129.97 may comply with those limits as presumptive RACT or may submit an alternative RACT proposal in accordance with subsection (d).** (109)

**Response:** The Department disagrees with the commentator's suggested change. The owners and operators of sources subject to §§ 129.201—129.205 for the period from May 1 through September 30 of each year are also subject to the presumptive RACT requirements of § 129.97. Compliance with §§ 129.201—129.205 is not sufficient to comply with RACT since the requirements in §§ 129.201—129.205 apply only during the ozone season. RACT-level control is required year-round to satisfy the Commonwealth's obligations under the APCA, the CAA and regulations issued under the CAA to attain and maintain the ozone NAAQS. The ozone NAAQS are annual standards set by the EPA to protect public health and welfare year-round. Subsection 129.99(b) therefore specifies that the owner or operator of a NO<sub>x</sub> air contamination source with a potential emission rate equal to or greater than 5.0 tons of NO<sub>x</sub> per year that is not subject to § 129.97 or §§ 129.201—129.205 (relating to additional NO<sub>x</sub> requirements) located at a major

NO<sub>x</sub> emitting facility subject to § 129.96 shall propose a NO<sub>x</sub> RACT requirement or RACT emission limitation in accordance with subsection (d).

**198. Comment:** The commentators recommend that the Department further outline the case-by-case process, as well as update and define dollar-per-ton cost thresholds against which case-by-case RACT petitions will be required to rank technology options. DEP provided similar detail in the first RACT implementation program in 1994 and, for example, could include implementation guidance and a reference to the updated EPA cost manual. (84, 105, 121)

**Response:** The Department did not establish a bright-line cost-effectiveness threshold to determine RACT-level control for proposed §§ 129.96—129.100. For the determination of presumptive NO<sub>x</sub> RACT emission limitations, DEP generally used a NO<sub>x</sub> emission cost-effectiveness upper-bound of \$2,800 per ton NO<sub>x</sub> controlled. However, the cost-effectiveness thresholds used for presumptive RACT emission limitations may not be appropriate for case-by-case determinations. Prior to the implementation of the final-form RACT regulation, the Department may prepare additional guidance (e.g. fact sheets, frequently asked questions sheets, etc.) for alternative RACT proposals and petitions for alternative compliance schedule, if necessary.

The procedures for applying for an alternative RACT proposal (case-by-case) and for submitting a petition for alternative compliance schedule are set forth in § 129.99.

**199. Comment:** The proposed rulemaking should not impose the costs of the SIP amendment process on the owners and operators of sources for which the EPA is not setting presumptive RACT requirements. It is not appropriate to require an owner/operator to bear the costs of public hearings and notifications for case-by-case proposals. (102, 110)

**Response:** The Department disagrees. The Department established presumptive RACT requirements and RACT emission limitations in the proposed rulemaking for several different source categories with a large number of emission units. These presumptive RACT requirements and RACT emission limitations are set forth to meet the Commonwealth's obligations under the APCA, the CAA and regulations issued under the CAA to attain and maintain the ozone NAAQS. The ozone NAAQS are annual standards set by the EPA to protect public health and welfare year-round. While the EPA is not directly setting the presumptive RACT requirements and RACT emission limitations set forth in the proposed rulemaking, the final rulemaking provisions will be submitted to the EPA as a revision to the Commonwealth's SIP upon final-form publication in the *Pennsylvania Bulletin*. Upon approval by the EPA as a revision to the Commonwealth's SIP, the presumptive RACT requirements and RACT emission limitations will become Federally-enforceable elements of the SIP. An affected owner and operator of a source that cannot meet the applicable presumptive RACT requirement or RACT emission limitation in § 129.97 may propose an alternative RACT requirement or emission limitation under § 129.99(a) in accordance with § 129.99(d). The affected owner and operator of a source subject to § 129.99(b) or (c) shall propose an alternative RACT requirement or RACT emission limitation in accordance with § 129.99(d). Consistent with the case-by-case process established under §§ 129.91—129.95 and the publication requirement set forth in § 129.91(h), the owner and operator

proposing an alternative RACT proposal under § 129.99 shall bear the costs of public hearings and notifications (including newspaper notices) for case-by-case proposals.

**200. Comment:** Sources just above the proposed ‘de minimis’ levels (2.7 tpy of VOCs/ 5 tpy NO<sub>x</sub>) would be subject to source specific determinations. Recommend the source specific determinations be limited to those sources with potential emissions at or above the levels considered a “significant increase” under the New Source Review (NSR) program. A “significant increase is what triggers similar cost-effectiveness evaluations for BACT and LAER. Another alternative is to limit source specific determinations to those sources where ‘no controls’ was determined to be RACT under §§ 129.91—129.95. (93)

**Response:** The Department disagrees with the commentator’s recommendation. The emission thresholds for significant increase in the NSR program are not appropriate for use as de minimis levels for the determination of RACT-level control. Based on the generic cost analysis performed by the Department, additional emission controls are not cost-effective below the de minimis levels. The Department believes that the de minimis levels included in the final-form regulation are appropriate. The affected owners and operators are not required to implement controls for RACT purposes if the sources have potential to emit below the de minimis levels.

**201. Comment:** The Department should approve, deny or modify the alternative RACT proposal in writing through the issuance of a Plan Approval or an Operating Permit Modification prior to the owner or operator implementing the alternative RACT emission limitation. The proposed rulemaking should be revised to acknowledge that modifications of the alternative RACT proposal will not be made without input from the applicant. (114)

**Response:** Paragraph 129.99(e)(3) allows the Department to deny or modify the alternative RACT proposal submitted by the applicant if the proposal does not comply with the requirements of § 129.99(d) or applicable Federal and state laws and regulations. The proposed alternative RACT determinations are required to undergo a public participation process where the applicant, the EPA and the general public will have an opportunity to comment on the proposal. In addition, the applicant has the right to appeal the final RACT determination.

**202. Comment:** The commentator disagrees with Regulatory Analysis Form (RAF) Section (12). The proposed RACT rulemaking will result in a case-by-case RACT review for compliance schedule for every gas turbine and a case-by-case review for emission level on the vast majority of impacted units. The commentator disagrees with RAF Sections (17) and (18) that there will be a minimization of case-by-case determinations. (111)

**Response:** Subsection 129.97(g)(2)(iii) is revised from proposed to final rulemaking to set forth presumptive RACT emission limitations for simple cycle or regenerative cycle combustion turbines with a rated output equal to or greater than 1,000 bhp and less than 6,000 bhp. This class of turbines will therefore not be required to submit requests for case-by-case alternative RACT determinations. The Regulatory Analysis Form for the final rulemaking will reflect this update. Please note that the requirements set forth under proposed subparagraph 129.97(g)(2)(iii) are revised and provided in subparagraph 129.97(g)(2)(iv) in the final-form regulation.

## Miscellaneous

**203. Comment:** Compliance with CAIR/CSAPR should constitute compliance with RACT. DEP should rely on CAIR/CSAPR to satisfy RACT for EGUs. (125, 131)

**Response:** The Department disagrees that compliance with the Federal Clean Air Interstate Rule (CAIR) or Cross-State Air Pollution Rule (CSAPR) should constitute compliance with RACT and that the Department should rely on CAIR or CSAPR to satisfy RACT for EGUs. In the EPA's comments on the proposed rulemaking, designated ozone nonattainment areas required to implement RACT must achieve RACT-level emission reductions inside the nonattainment area. Moreover, the U.S. Court of Appeals for the D.C. Circuit granted the EPA's request for voluntary vacatur of the presumption that compliance with CAIR or the NO<sub>x</sub> SIP Call automatically constitutes RACT or reasonably available control measures (RACM) for NO<sub>x</sub> emissions from EGUs participating in regional cap-and-trade programs. See *NRDC v. EPA*, No. 09-1198 (D.C. Cir.) (order of August 30, 2013).

In response to the EPA's comment, § 129.98(a) has been revised from proposed to final rulemaking to address the system-wide averaging provisions as follows: "...System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth." This approach should assure that emissions averaging will occur among units in the same ozone nonattainment area and that excess emission reductions from an area outside a given area of more severe nonattainment cannot be used to offset emissions within the area of more severe nonattainment.

**204. Comment:** Preamble section F identifies benefits ("...create economic opportunities for NO<sub>x</sub> and VOC control technology innovators...") of RACT regulations. The intent of RACT is to apply already existing control technology (if necessary) to an already existing source. RACT does not require the development of "new or improved equipment." These are covered under MACT, NSR and NSPS regulations which the commentator's plants are or will be subject to. Therefore, the commentator believes the benefit of the proposed RACT rulemaking is overstated. Accordingly, the commentator requests that the statement be deleted from the Benefits section of the preamble in Section F. (112)

**Response:** The Department disagrees that the benefits of RACT are overstated in the preamble to the proposed rulemaking. As the Department has noted in previous responses, the application of RACT-level control can and does realize reductions in potential and actual emissions from affected sources and provides concomitant public health and welfare benefits. Please see the Response to Comment 9 for a discussion of the amount of emission reductions anticipated by implementing the provisions of §§ 129.96—129.100. Additionally, the Department believes that implementation of the final-form RACT regulation may spur the development of additional control measures creating opportunities for NO<sub>x</sub> and VOC control technology manufacturers. Please also see the Responses to Comments 32 and 42.

**205. Comment:** The failure to apply Maximum Achievable Control Technology (MACT) based limits uniformly, especially to municipal waste combustors, also poses a risk of increased VOC exposure to vulnerable populations that may also fall under the rubric of environmental justice

(EJ) communities which are warranted additional protection under the Federal Executive Order 12898 (1994) for Minority and Low-Income populations. (101)

**Response:** The Department disagrees that the failure to apply MACT-level limitations to subject sources, including municipal waste combustors, will pose a risk of increased VOC exposure to vulnerable populations. The proposed and final rulemakings address the Commonwealth's obligations under the APCA, the CAA and regulations issued under the CAA to establish RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008. The RACT requirements and emission limitations set forth in the proposed rulemaking are applicable to the owners and operators of subject sources of NO<sub>x</sub> or VOC emissions (precursors to ozone formation) in existence on or before July 20, 2012 – the effective date of the EPA's designations and classifications for the 2008 ozone NAAQS. See 77 FR 30088 (May 21, 2012).

The Commonwealth must implement permanent and enforceable control measures to attain and maintain the standards and to ensure violations of the standards do not occur for the next decade. This final-form rulemaking will provide reductions of both potential and actual NO<sub>x</sub> and VOC emissions from major NO<sub>x</sub> and VOC emitting facilities Statewide.

Additionally the owners and operators of many of the facilities that the commentator is concerned about are already subject to MACT. Further, MACT requirements apply to the control of emissions of HAP as required under section 112 of the CAA. Many HAPs are also VOCs, but not all VOCs are HAPs. Oxides of nitrogen are also not HAP. Therefore the owner and operator of an existing major source subject to MACT requirements for the control of HAP emissions may also be subject to RACT requirements for the control of NO<sub>x</sub> and VOC emissions.

The applicable RACT requirement set forth in the proposed rulemaking for municipal waste combustors was compliance with the emission guidelines of 40 CFR Part 60, Subpart Cb, finalized May 10, 2006, or with Subpart Eb, finalized May 10, 2006, as applicable. These emission guidelines range from 180 to 250 ppmvd NO<sub>x</sub> @ 7% oxygen. Out of six existing facilities in this Commonwealth, five are already limited to 180 ppm or less. The Covanta Plymouth (Montgomery County) facility has CEM data (3<sup>rd</sup> quarter 2007) showing emissions above 180 ppm. Emissions were generally between 190 and 200 ppm, with a few data points near 180 (and one below 180).

The units located at the Covanta Plymouth facility are equipped with SNCR. The existing SNCR could be optimized to achieve an emission limit of 180 ppm. Upon reevaluation of the NO<sub>x</sub> emission data from municipal waste combustors, the Department concluded that a NO<sub>x</sub> emission limit of 180 ppmvd @ 7% oxygen was achievable for these units in this Commonwealth. Subsection 129.97(f) is revised from proposed to final rulemaking to specify that the NO<sub>x</sub> limit is 180 ppmvd @ 7% oxygen for municipal waste combustors.

This final rulemaking addresses the reduction of NO<sub>x</sub> and VOC emissions from major NO<sub>x</sub> and VOC facilities. The Federal MACT regulations are not intended to address NO<sub>x</sub> emissions. The owner or operator of an affected source subject to RACT-level control requirements must comply with all applicable requirements, including MACT regulations. However, all of the

applicable VOC requirements could be streamlined in the operating permit to avoid any potential confusion.

**206. Comment:** The proposed RACT standard would allow coal plants to keep the air in some communities cleaner than others, a fact highly likely to continue racial disparity in air pollution. The health of our citizens who have limited incomes or are living in poverty is also especially vulnerable to smog pollution. DEP runs the risk of exposing certain Pennsylvanians, including those living in environmental justice communities, to a disproportionate amount of extra pollution. (70, 71, 72, 79)

**Response:** The Department understands the commentators' concerns regarding environmental justice issues. The system-wide averaging provision set forth in § 129.98(a) has been revised in the final-form regulation to restrict emissions averaging to the same ozone nonattainment area. Section 129.98(a) provides as follows: "System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth." This clarifying revision requested by the EPA should assure that emissions averaging occurs among units under common control in the same ozone nonattainment area.

Further, upon reevaluation of the NO<sub>x</sub> emissions data from the plants equipped with SCR technology, the Department concluded that a NO<sub>x</sub> emission limit of 0.12 lb/MMBtu was achievable with operation of SCR when an inlet temperature of 600°F is reached. Subsection 129.97(g) has been revised from proposed to final rulemaking to add § 129.97(g)(1)(viii), which states that the presumptive emission limitation for a combustion unit with a selective catalytic reduction system operating with an inlet temperature equal to or greater than 600°F is 0.12 lb NO<sub>x</sub>/million Btu heat input. Subparagraph 129.97(g)(1)(viii) further states that compliance with this emission limit is also required when by-passing the selective catalytic reduction system. Therefore, operation of SCR for one facility cannot be used to offset non-operation of SCR from a different facility in an emissions averaging plan.

Additionally, the actual NO<sub>x</sub> emissions from the coal-fired electric generating sector in Pennsylvania for the year 2013 were 119,025 tons, of which 92,728 tons were from coal-fired EGUs that are not scheduled for retirement or for fuel-switching. The expected future NO<sub>x</sub> emissions from these EGUs, based on 2013 production rates and the NO<sub>x</sub> emission limitations set forth in the final rulemaking, are approximately 59,039 tons per year. This is an anticipated reduction of approximately 36% in actual emissions from the coal-fired EGU sector as a result of the final-form NO<sub>x</sub> RACT emission limitations.

$[(92,728 \text{ tons} - 59,039 \text{ tons}) / 92,728 \text{ tons} \times 100 = 36 \%]$

**207. Comment:** A list of scientific articles on topics linking air pollution to impaired cognitive functions in the elderly and autism in children was prepared and submitted by the commentator. The commentator requests that this list be included in the record. (86)

**Response:** The Department thanks the commentator for providing the list. The list is included as part of the comments record posted on the web site of the Independent Regulatory Review Commission at [www.irrc.state.pa.us](http://www.irrc.state.pa.us) under the docket for IRRC # 3052.

**208. Comment:** If it's going to cost an operator money to comply with the updated standard they can submit a "case specific proposal for an alternative emission limitation." If you have less than 3 years left on your current permit, you don't need to do anything. (73, 101)

**Response:** The Department disagrees. The owner or operator of any affected source subject to § 129.96 that cannot meet an applicable presumptive RACT requirement or RACT emission limitation set forth in § 129.97 may elect under § 129.99(a) to propose an alternative limit determined on a case-by-case basis in accordance with the requirements set forth in final-form § 129.99(d), including the deadlines for proposing the alternative limit.

The Department will issue a Plan Approval or Operating Permit Modification, as appropriate. The owner and operator of an affected source subject to § 129.96 that does not comply with the applicable presumptive RACT requirement or RACT emission limitation set forth in § 129.97 and does not elect to propose an alternative limit under § 129.99(a) or to participate in an emissions averaging plan under § 129.98 will be found in violation of the applicable requirements set forth in § 129.97.

It is incorrect to assert that the RACT rulemaking does not impose additional requirements if there are less than 3 years left on the current permit term. The remaining permit term has no impact on an affected owner and operator's obligation to implement and comply with the applicable RACT requirements and RACT emission limitations. The Title V Operating permit must include the appropriate testing, recordkeeping, and reporting requirements to demonstrate compliance with all applicable RACT requirements and RACT emission limitations. These requirements would be incorporated as applicable requirements at the time of permit renewal, if less than 3 years remain in the permit term, as specified under 25 Pa. Code § 127.463(c) (relating to operating permit revisions to incorporate applicable standards). If 3 years or more remain in the permit term, the requirements would be incorporated as applicable requirements in the permit within 18 months of the promulgation of the final rulemaking, as required under § 127.463(b). Most importantly, 25 Pa. Code § 127.463(e) specifies that "[r]egardless of whether a revision is required under this section, the permittee shall meet the applicable standards or regulations promulgated under the Clean Air Act within the time frame required by standards or regulations." Consequently, the RACT final rulemaking will apply to affected owners and operators irrespective of a modification to the Operating Permit.

**209. Comment:** The presumptive RACT limits for EGUs, particularly as they relate to coal-fired boilers, have been the focus of extensive comments by the environmental nongovernmental organizations, who are arguing that SCR should be required on all coal plants at all times. Their seemingly impeccable logic is that 80% of the coal-fired boilers have already installed the SCR equipment and the small additional operating costs of injecting ammonia should gladly be borne by electricity users in order to get lower emissions.

Implementing this well intentioned, but flawed scheme would result in a classic example of unintended consequences. What this argument fails to realize is that the electrical grid in PA does not end at the state line. PJM dispatches electricity in our state from sources throughout the multi-state PJM region based on the cheapest power available to meet demand. Unfortunately

for Pennsylvania, states to the west of us, including Ohio, and West Virginia are not in the Northeast Transport Region and are not automatically subject to the RACT requirements on their coal-fired sources. In addition, many of these mid-western states have less stringent environmental regulations than does Pennsylvania, even before this proposed rulemaking. Consequently, imposing additional costs on PA sources will only export generation to upwind states that have for the most part dirtier generating sources. A short-sighted attempt to impose additional controls on PA sources is likely to result in dirtier electricity and increased pollution coming into the state, not to mention negative economic impacts, including lost jobs, resulting from additional loss of PA generating capacity.

The commentator urges the Department to include a PJM system-wide analysis of the projected impacts of any attempt to impose more restrictions on PA sources that are not shared by our upwind neighbors. This analysis should evaluate the impacts on upwind emissions that impact Pennsylvania as a result of increasingly stringent limits on in-state generation sources with an ultimate goal of demonstrating that any more stringent limit on EGUs in PA will not result in increases in the total atmospheric burden of air pollution from upwind states. (109)

**Response:** The Department appreciates the commentator's suggestion. However, the analysis suggested by the commentator is beyond the scope of this rulemaking. RACT regulations must require emission reductions within the ozone nonattainment area to assure the expeditious attainment and maintenance of the NAAQS as required under Section 172(c)(1) of the CAA (42 U.S.C.A. § 7502(c)(1)). The Department believes that the final-form regulation contains appropriate presumptive RACT requirements and RACT emission limitations to ensure attainment of the 2008 ozone standard, as expeditiously as practicable.

State Implementation Plan revisions to address transported pollution are required under section 110(a)(2)(D) (i) of the Clean Air Act (42 U.S.C.A. § 7410(a)(2)(D)(i)). This provision, commonly referred to as the 'Good Neighbor' provision, requires states to ensure that the SIP contains adequate provisions which prohibit any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will:

- (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or
- (II) interfere with measures required to be included in the applicable implementation plan for any other State ... to prevent significant deterioration of air quality or to protect visibility.

Pennsylvania and many other states have not developed "Good Neighbor" SIP revisions for the 2008 8-hour ozone NAAQS. Consequently, the EPA is expected to issue "failure to submit" findings" and a Federal plan proposal to address transported NO<sub>x</sub> emissions.

**210. Comment:** The commentator requests clarification regarding the jurisdiction of the Philadelphia Air Management Services (AMS) in implementing/enforcing the RACT regulations that are proposed in §§ 129.96—129.100. The commentator recommends that compliance with

proposed §§ 129.96—129.100 satisfy compliance with Philadelphia AMS RACT requirements. (130)

**Response:** Philadelphia Air Management Services (AMS) in the City of Philadelphia's Health Department administers a local air pollution control program approved by the DEP under section 12 of the Air Pollution Control Act (35 P.S. §4012). Air quality regulations enforced by Philadelphia AMS are codified under Title 3 of the Philadelphia Code. Philadelphia AMS may incorporate Department regulations by reference or may enact regulations of its own to satisfy the obligations under the CAA and regulations issued under the CAA. Philadelphia AMS has required the owners and operators of affected sources in its jurisdiction to determine RACT requirements on a case-by-case basis for the 1997 ozone standard. While the EQB's RACT regulations will apply statewide, Philadelphia AMS may establish separate RACT requirements and compliance standards for the owners and operators of affected sources under its jurisdiction.

**211. Comment:** The preamble to the proposed rulemaking states at the end of Section F, "The proposed rulemaking will not increase the paperwork that is already generated during the normal course of business operation." Boeing requests that the agency minimize the paperwork for both the major source and the PA DEP. The submission of a test protocol and test report for Boeing's Nebraska-1 boiler will be extra paperwork 4 years out of five. Also, the limit in lb/MMBtu rather than concentration requires additional calculations and results that must be reported (and possible additional measurements of flow rate). If the internal combustion engines were not all emergency standby engines operating less than 500 hr/yr and, thus, exempt from emission limitations (per § 129.97(c)(6)), the entire stack testing effort that would be required would be an extra effort with substantial reporting. Regardless, the additional RACT 2 requirements will have to be incorporated into the Title V Operating Permit, which will take additional effort on both Boeing's and PA DEP's parts. (132)

**Response:** The Department disagrees. The final rulemaking will not significantly increase paperwork for the owner and operators of affected facilities. For an air contamination source without a CEMS, monitoring and testing in accordance with a Department-approved emissions source test that meets the requirements of Chapter 139, Subchapter A (relating to sampling and testing methods and procedures) is required. The source test shall be conducted one time in each 5-year calendar period. Therefore, there will not be extra paperwork 4 years out of five as a result of the submission of test protocols and reports. The emissions for the boilers are generally expressed in lb/MMBtu, consistent with the Federal regulations. No stack testing is required for emergency standby engines operating less than 500 hours per year or any engine operating with less than 5% capacity factor for the demonstration of compliance with the presumptive RACT requirements.

The owner or operator may take an operational restriction for engines to avoid presumptive RACT emission limitations and associated stack testing requirements. The Title V Operating Permit must include the appropriate testing, recordkeeping, and reporting requirements to demonstrate compliance with all applicable requirements. These requirements would be incorporated as applicable requirements at the time of permit renewal, if less than 3 years remain in the permit term, as specified under § 127.463(c) (relating to operating permit revisions to incorporate applicable standards). If 3 years or more remain in the permit term, the requirements

would be incorporated as applicable requirements in the permit within 18 months of the promulgation of the final-form rulemaking, as required under § 127.463(b).

**212. Comment:** Pennsylvania should require polluting industries to support tree planting. (83)

**Response:** The Department thanks the commenter for the comment. This suggestion is outside the scope of the final rulemaking.

**213. Comment:** Non-coal mining dust should be monitored for plumes leaving the site and recorded for PM-10 and PM<sub>2.5</sub>. (116)

**Response:** This final rulemaking addresses the reduction of NO<sub>x</sub> and VOC emissions from major NO<sub>x</sub> and VOC facilities. Requirements for monitoring particulate matter (PM, including PM-10 and PM<sub>2.5</sub>) emissions are outside the scope of the final rulemaking.

**214. Comment:** Warning systems should be devised so that people can be alerted that a compressor station will vent, which happens every time it is turned on or off and also when the pressure reaches a certain level. Warnings should be given when additional hazards exist, such as heat inversion or a storm is approaching (chemicals can be blown 200 miles). (74)

**Response:** The Department appreciates the comment. However, this comment is outside the scope of the final RACT rulemaking. Nonetheless, the Department will examine the feasibility of establishing warning systems consistent with the commentator's recommendations.

**215. Comment:** Not enough is being done to ensure that the water table is not regularly contaminated by the chemicals being pumped into our ground. (32)

**Response:** This comment is outside the scope of the final RACT rulemaking, which is designed to reduce NO<sub>x</sub> and VOC emissions in ozone nonattainment areas.

**216. Comment:** The commentator has concerns about a lack of SO<sub>2</sub> scrubbers at the Homer City generating station. (87)

**Response:** This final rulemaking addresses the reduction of NO<sub>x</sub> and VOC emissions from major NO<sub>x</sub> and VOC facilities. Sulfur dioxide (SO<sub>2</sub>) emissions are outside the scope of the final rulemaking. However, SO<sub>2</sub> emissions from Unit #3 at the Homer City generating station have been controlled with a flue gas desulfurization system (scrubber) since 2001. In addition, the DEP issued Plan Approval 32-00055H to Homer City on April 2, 2012, for the installation of scrubbers for the control of SO<sub>2</sub> emission from Units #1 and #2. The scrubbers are expected to be operational by the end of 2015.

**217. Comment:** The commentators signed a petition that expressed concern that the proposed rulemaking will not do enough to address pollution at coal-fired power plants.

**Response:** The Department acknowledges receipt of a petition containing 2,246 signatures. The Department also disagrees with the commentators. The final-form regulation will require the owners and operators of any combustion unit equipped with a selective catalytic reduction (SCR) system that is operating with an inlet temperature equal to or greater than 600°F to meet a NO<sub>x</sub> emission limit of 0.12 lb NO<sub>x</sub>/million Btu. Compliance with this emission limit is also required when by-passing the SCR system. The more stringent NO<sub>x</sub> emission limitation for coal-fired units equipped with SCR systems will reduce NO<sub>x</sub> emissions from the electric generating sector to approximately 59,000 tons of actual NO<sub>x</sub> emissions. It is also important to note that NO<sub>x</sub> emissions have declined significantly in Pennsylvania, especially from coal-fired electric generating units—NO<sub>x</sub> emissions decreased from approximately 192,004 tons in 2000 to 119,025 tons of NO<sub>x</sub> emissions in 2013. The final-form regulation will result in further reductions in actual NO<sub>x</sub> emissions from one of the largest sources of NO<sub>x</sub> emissions in the DEP emissions inventory. Please also see the Response to Comment 9.



**ENVIRONMENTAL QUALITY BOARD**  
**[25 PA. CODE CHS. 121 AND 129]**  
**Additional RACT Requirements for Major Sources of NO<sub>x</sub> and VOCs**

The Environmental Quality Board (Board) amends Chapters 121 and 129 (relating to general provisions; and standards for sources) to read as set forth in Annex A. The final-form rulemaking amends Chapter 129 to adopt presumptive reasonably available control technology (RACT) requirements and RACT emission limitations for certain major stationary sources of oxides of nitrogen (NO<sub>x</sub>) and volatile organic compound (VOC) emissions. The final-form rulemaking also provides for a petition process for an alternative compliance schedule, a facility-wide or system-wide NO<sub>x</sub> emissions averaging plan provision, an alternative RACT proposal petition process, and compliance demonstration and recordkeeping requirements.

The final-form rulemaking also amends § 121.1 (relating to definitions) to revise or add terms to support the final-form amendments to Chapter 129.

This order was adopted by the Board at its meeting of November 17, 2015.

*A. Effective Date*

This final-form rulemaking will be effective upon publication in the *Pennsylvania Bulletin*.

This final-form rulemaking will be submitted to the United States Environmental Protection Agency (EPA) for approval as a revision to the Commonwealth's State Implementation Plan (SIP) upon publication.

*B. Contact Persons*

For further information, contact Kirit Dalal, Chief, Division of Air Resource Management, Bureau of Air Quality, 12<sup>th</sup> Floor, Rachel Carson State Office Building, P. O. Box 8468, Harrisburg, PA 17105-8468, (717) 772-3436; or Robert "Bo" Reiley, Assistant Director, Bureau of Regulatory Counsel, 9<sup>th</sup> 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 final-form rulemaking is available on the Department of Environmental Protection's (Department) web site at [www.dep.pa.gov](http://www.dep.pa.gov) (Select "Public Participation Center," then "Environmental Quality Board").

*C. Statutory Authority*

This final-form rulemaking is authorized under section 5(a)(1) of the Air Pollution Control Act (act) (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, and section 5(a)(8) of the act, which grants the Board the authority to adopt rules and regulations designed to implement the provisions of the Clean Air Act (CAA) (42 U.S.C.A. §§ 7401—7671q).

#### *D. Background and Summary*

The EPA is required under section 109 of the CAA (42 U.S.C.A. § 7409) to set National Ambient Air Quality Standards (NAAQS) for six criteria pollutants, of which ground-level ozone is one. The NAAQS are established by the EPA as the maximum concentrations in the ambient atmosphere for specific air contaminants to protect public health and welfare. Ozone is a highly reactive gas which at sufficient concentrations can produce a wide variety of harmful effects. At elevated concentrations, ground-level ozone can adversely affect human health, vegetation, materials, economic values, and personal comfort and well-being. It can cause damage to important food crops, forests, livestock and wildlife. Repeated exposure to ozone pollution may cause a variety of adverse health effects for healthy people and those with existing conditions including difficulty in breathing, chest pains, coughing, nausea, throat irritation and congestion. It can worsen bronchitis, heart disease, emphysema and asthma, and reduce lung capacity. Asthma is a significant and growing threat to children and adults. High levels of ground-level ozone also affect animals in ways similar to humans.

The EPA promulgated primary and secondary NAAQS for photochemical oxidants under section 109 of the CAA at 36 FR 8186 (April 30, 1971). These were set at an hourly average of 0.08 parts per million (ppm) total photochemical oxidants not to be exceeded more than 1 hour per year. The EPA announced a revision to the then-current 1-hour standard at 44 FR 8202 (February 8, 1979). The EPA final rule revised the level of the primary 1-hour ozone standard from 0.08 ppm to 0.12 ppm and set the secondary standard identical to the primary standard. This revised 1-hour standard was subsequently reaffirmed at 58 FR 13008 (March 9, 1993).

Section 110 of the CAA (42 U.S.C.A. § 7410) gives states primary responsibility for achieving the NAAQS. The principal mechanism at the state level for complying with the CAA is the SIP. A SIP includes the regulatory programs, actions and commitments a state will carry out to implement its responsibilities under the CAA. Once approved by the EPA, a SIP is legally enforceable under both Federal and state law.

Section 182 of the CAA (42 U.S.C.A. § 7511a) requires that, for areas that exceed the NAAQS for ozone, states shall develop and implement a program that mandates that certain major stationary sources develop and implement a RACT program. RACT is defined as the lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. See 44 FR 53762 (September 17, 1979).

Under section 182(f)(1) of the CAA and section 184(b)(2) of the CAA (42 U.S.C.A. § 7511c(b)(2)), these RACT requirements are applicable to all sources in this Commonwealth that emit or have a potential to emit greater than 100 tons per year (tpy) of NO<sub>x</sub>. Under sections 182(b)(2) and 184(b)(2) of the CAA, these RACT requirements are applicable to all sources in this Commonwealth that emit or have a potential to emit greater than 50 tpy of VOCs. NO<sub>x</sub> and VOC controls are required Statewide because of the Commonwealth's inclusion in the Northeast Ozone Transport Region. See section 184(a) of the CAA. Additionally, because the five-county Philadelphia area was designated as severe ozone nonattainment for the 1-hour standard, sources of greater than 25 tpy of either pollutant are required to implement RACT under section 182(d)

of the CAA. The Commonwealth's RACT regulations in §§ 129.91—129.95 (relating to stationary sources of NO<sub>x</sub> and VOCs) were implemented for the 1-hour ozone standard. These regulations were effective January 15, 1994.

The EPA concluded that revisions to the current primary standard to provide increased public health protection were appropriate at this time to protect public health with an adequate margin of safety. See 62 FR 38856 (July 18, 1997). Further, the EPA determined that it was appropriate to promulgate primary and secondary ozone standards at a level of 0.08 ppm averaged over 8 hours. See 62 FR 38856. The EPA lowered the 8-hour standard from 0.08 ppm to 0.075 ppm at 73 FR 16436 (March 27, 2008).

The EPA designated 37 counties in this Commonwealth as 8-hour ozone nonattainment areas for the 1997 8-hour ozone NAAQS at 69 FR 23858, 23931 (April 30, 2004). The EPA published final designations and classifications for the 2008 8-hour ozone standards on May 21, 2012, with an effective date of July 20, 2012. See 77 FR 30088 (May 21, 2012). The following nonattainment areas were classified as "marginal" ozone nonattainment areas: Allentown-Bethlehem-Easton (Carbon, Lehigh and Northampton), Lancaster (Lancaster County), Philadelphia-Wilmington-Atlantic City (the Pennsylvania areas include Bucks, Chester, Delaware, Montgomery and Philadelphia counties), Pittsburgh-Beaver Valley (Allegheny, Armstrong, Beaver, Butler, Fayette, Washington and Westmoreland counties) and the Reading area (Berks County); the remainder of the Commonwealth was designated "Unclassifiable/Attainment." See 77 FR 30088, 30142. The Commonwealth must ensure that these areas attain the 2008 ozone standard by July 20, 2015, and that they continue to maintain the standard thereafter. The Department will seek an extension of the July 2015 8-hour ozone NAAQS attainment date for the five-county Philadelphia Area (Bucks, Chester, Delaware, Montgomery and Philadelphia counties) due to several violating monitors in Maryland and New Jersey and for the seven-county Pittsburgh-Beaver Valley Area (Allegheny, Armstrong, Beaver, Butler, Fayette, Washington and Westmoreland counties).

A reevaluation of what measures constitute RACT is a requirement to be fulfilled each time a NAAQS is promulgated or revised, as happened in 1997 and 2008 for ozone. According to the EPA's Final Rule to Implement the 8-Hour Ozone NAAQS, areas classified as "moderate" nonattainment or higher must submit a demonstration, as a revision to the SIP, that their current rules fulfill 8-hour ozone RACT requirements for all Control Techniques Guidelines (CTG) categories and all major, non-CTG sources. See 70 FR 71612 (November 29, 2005).

According to this implementation rule, demonstrations can be made with either a new RACT determination or a certification that previously-required RACT controls represent RACT for the 8-hour ozone NAAQS. The certification should be accompanied by appropriate supporting information, such as consideration of information received during the public comment period. The RACT SIP revision submittal is in addition to the 8-hour ozone attainment demonstration plan for the area, which will also be a revision to the Commonwealth's SIP. The RACT SIP revision was required to be submitted to the EPA by September 15, 2006.

The Commonwealth submitted a SIP revision in September 2006 certifying that RACT determinations made for the 1-hour ozone standard from 1995 to 2006 under §§ 129.91—129.95

were still RACT for the 8-hour standard, including for those sources where a determination was made that “no controls” continued to represent RACT for the 1-hour ozone standard. However, the EPA informally indicated to the Department that based on *NRDC v. EPA*, 571 F.3d 1245 (July 10, 2009), a reanalysis rather than certification is necessary for sources for which the Department previously determined that “no controls” represented RACT for the 1-hour ozone standard.

As a result of the EPA’s decision, the Department conducted a generic RACT analysis of those existing sources for which a RACT determination was previously made under §§ 129.91—129.95 for the 1-hour ozone standard to evaluate whether the RACT determination under §§ 129.91—129.95 would represent RACT-level control for the 8-hour ozone standards or if new or additional add-on control technology would represent RACT-level control for the 8-hour ozone NAAQS. That generic analysis identified existing affected source categories by size and fuel type; identified available feasible NO<sub>x</sub> or VOC control options for each type of existing source; estimated emission reduction potential for each control technology; identified costs for technologies, using appropriate updates; evaluated cost-effectiveness per EPA guidance, for both uncontrolled and controlled sources (combinations of technologies); and projected what type of control technology might be applied to each affected source. The Department evaluated technically feasible emission controls for cost-effectiveness and economic feasibility. Based on this analysis, the Board determined that additional cost-effective controls represent RACT for the 8-hour ozone NAAQS. There are nine source categories that are affected by this final-form rulemaking: combustion units; boilers; process heaters; turbines; engines; municipal solid waste landfills; municipal waste combustors; cement kilns; and other sources that are not regulated elsewhere under Chapter 129.

All together this final-form rulemaking affects the owners and operators of approximately 810 individual sources at 192 major facilities throughout this Commonwealth. Under this final-form rulemaking, the Board anticipates that the total NO<sub>x</sub> emission reductions will be approximately 253,623 tpy. The amount of NO<sub>x</sub> and VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source’s potential to emit before and after the application of RACT-level control.

The Board determines that this final-form rulemaking fulfills the requirements for reevaluation of RACT-level control for the 1997 and 2008 ozone NAAQS and is less resource intensive than imposing case-by-case analysis for affected facilities in the covered categories, as was done under §§ 129.91—129.95. As more fully discussed in Section E of this Order, the Board finalized a suite of compliance options. The owner and operator of an individual affected source may demonstrate compliance for that source in one of three ways: firstly, with the applicable presumptive RACT requirement or emission limitation under § 129.97 (relating to presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule); secondly, either by participating in the emissions averaging plan under § 129.98 (relating to facility-wide or system-wide NO<sub>x</sub> emissions averaging plan general requirements) or by submitting a request for an alternative case-by-case RACT determination under § 129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule).

The Board determines that the requirements under this final-form rulemaking are reasonably necessary to attain and maintain the 8-hour ozone NAAQS.

The Air Quality Technical Advisory Committee (AQTAC) was briefed on the final-form rulemaking and public comments on November 7, 2014. AQTAC recommended that the Order to the final-form rulemaking include the clarifications for the following rulemaking provisions: §§ 129.96(c) and 129.97(c) – applicability to sources emitting less than 1 ton; and § 129.100(a) (relating to compliance demonstration and recordkeeping requirements) – calculations for the 30-day rolling average. Following its discussion on November 7, 2014, AQTAC voted 11-5-0 (yes; no; abstain) to concur with the Department’s recommendation to move the final-form rulemaking forward to the Board for consideration. The draft final-form rulemaking was discussed with the Small Business Compliance Advisory Committee (SBCAC) on January 28, 2015. The SBCAC voted 6-2-0 to concur with the Department’s recommendation to forward the final-form rulemaking to the Board. The final-form rulemaking was discussed with the Citizens Advisory Council (CAC) Policy and Regulatory Oversight Committee on February 20, 2015, and May 12, 2015. The Policy and Regulatory Oversight Committee recommended that the CAC concur with the Department’s recommendation to move the final-form rulemaking forward to the Board. However, the CAC tabled their consideration of the final-form rulemaking at both its March 17 and May 20 meetings. The CAC considered the final-form rulemaking at its September 15, 2015 meeting. The CAC raised several concerns and recommendations that were considered by the Department. The CAC supported the adoption of the regulations and unanimously voted to concur with advancing it to the Board for action.

#### *E. Summary of Final-Form Rulemaking and Changes from Proposed to Final-Form Rulemaking*

##### *§ 121.1. Definitions*

The final-form rulemaking amends § 121.1 by revising the terms “CEMS—continuous emissions monitoring system,” “major NO<sub>x</sub> emitting facility,” “major VOC emitting facility” and “stationary internal combustion engine or stationary reciprocating internal combustion engine” and by adding the terms “process heater,” “refinery gas,” “regenerative cycle combustion turbine,” “simple cycle combustion turbine” and “stationary combustion turbine.”

The final-form rulemaking made clarifying changes to “CEMS—continuous emissions monitoring system” and “stationary internal combustion engine or stationary reciprocating internal combustion engine.”

In addition, under the final-form rulemaking the “major NO<sub>x</sub> emitting facility” and the “major VOC emitting facility” definitions in § 121.1 were revised. The 25 tpy major source NO<sub>x</sub> and VOC thresholds do not apply in Bucks, Chester, Delaware, Montgomery and Philadelphia counties for sources that would be subject to the requirements of §§ 129.96—129.100. For the purposes of this final-form rulemaking the 100-ton per year threshold applies for major NO<sub>x</sub> emitting sources and the 50-ton per year threshold applies for major VOC emitting sources in those counties. However, the existing 25-ton per year major source NO<sub>x</sub> and VOC thresholds continue to apply to RACT sources subject to §§ 129.91—129.95 in those counties.

*§ 129.96. Applicability*

Under subsection (a), the NO<sub>x</sub> requirements of the final-form rulemaking apply Statewide to the owner and operator of a major NO<sub>x</sub> emitting facility and the VOC requirements apply Statewide to the owner and operator of a major VOC emitting facility that were in existence on or before July 20, 2012, for which a requirement or emission limitation, or both, has not been established in §§ 129.51—129.52c, 129.54—129.69, 129.71—129.73, 129.75, 129.77, 129.101—129.107 and 129.301—129.310.

Under subsection (b), the NO<sub>x</sub> requirements of the final-form rulemaking apply Statewide to the owner and operator of a NO<sub>x</sub> emitting facility and the VOC requirements apply Statewide to the owner and operator of a VOC emitting facility when the installation of a new source or a modification at or change in operation of an existing source after July 20, 2012, results in the source or facility meeting the definition of a major NO<sub>x</sub> emitting facility or a major VOC emitting facility and for which a requirement or an emission limitation, or both, has not been established in §§ 129.51—129.52c, 129.54—129.69, 129.71—129.73, 129.75, 129.77, 129.101—129.107 and 129.301—129.310.

Under subsections (a) and (b), the final-form rulemaking was clarified to ensure that it applies Statewide to the owner and operator of a major NO<sub>x</sub> emitting facility or a major VOC emitting facility that was in existence on or before July 20, 2012. That is, the NO<sub>x</sub> requirements apply Statewide to the owner and operator of a major NO<sub>x</sub> emitting facility and the VOC requirements apply Statewide to the owner and operator of a major VOC emitting facility.

Subsection (c) of the final-form rulemaking was added to provide that the requirements do not apply to the owner and operator of a NO<sub>x</sub> air contamination source located at a major NO<sub>x</sub> emitting facility that has the potential to emit less than 1 ton per year (TPY) of NO<sub>x</sub> or of a VOC air contamination source located at a major VOC emitting facility that has the potential to emit less than 1 TPY of VOC. This change addresses one of the concerns raised by AQTAC at its November 7, 2014, meeting.

Subsection (d) of the final-form rulemaking was added to provide that the requirements do not apply to the owner and operator of a facility which is not a major NO<sub>x</sub> emitting facility or a major VOC emitting facility on or before January 1, 2017.

*§ 129.97. Presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule*

Under subsection (a), the owner and operator of a source listed in one or more of subsections (b)—(h) located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility subject to § 129.96 shall comply with the applicable presumptive RACT requirement or RACT emission limitation beginning with the specified compliance date, unless an alternative compliance schedule is submitted and approved under subsections (k)—(m) or § 129.99.

Under subsection (b), the owner and operator of a listed combustion unit that is located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility subject to § 129.96 shall comply

with the applicable presumptive RACT requirement for that source, which includes, among other things, inspection and adjustment requirements.

The applicable requirements of paragraphs (1) and (2) have been clarified in the final-form rulemaking. The owner and operator of an affected combustion unit which is located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility subject to § 129.96 shall comply with the applicable requirements in paragraph (1) or paragraph (2).

Paragraph (1) has been revised from proposed to final-form rulemaking to remove the reference to the requirements in paragraph (2) and to specify that the applicable requirement for the owner and operator of a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour is a biennial tune-up conducted in accordance with the procedures described in 40 CFR 63.11223. The biennial tune-up performed to comply with this paragraph must include, at a minimum, the inspections set forth in subparagraphs (1)(i)—(iii).

Paragraph (2) has been revised from proposed to final-form rulemaking to remove the requirements that applied only to an oil-fired, a gas-fired or a combination oil-fired and gas-fired combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour. Additionally, the reference to the 1983 EPA document has been removed. Paragraph (2) specifies that the owner or operator of a combustion unit with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up shall conduct a tune-up of the boiler one time in each 5-year calendar period. The tune-up performed to comply with this paragraph must include, at a minimum, the inspections set forth in subparagraphs (2)(i)—(iii).

Under subsection (c), the owner and operator of a source listed in this subsection located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility subject to § 129.96 shall comply with the applicable presumptive RACT requirement, which includes, among other things, the operation of the source in accordance with the manufacturer's specifications and good operating practices.

Under subsection (c), the final-form rulemaking revised "good engineering practices" to "good operating practices" and added air contamination sources that have the potential to emit less than 5 tpy of NO<sub>x</sub> or the potential to emit less than 2.7 tpy of VOC to the list of sources for which the owner and operator shall install, maintain and operate in accordance with the manufacturer's specifications and with good operating practices. Additionally, this subsection added language related to the annual capacity factors that must be used for certain units.

Under subsection (d), the owner and operator of a combustion unit or other combustion source located at a major VOC emitting facility subject to § 129.96 shall install, maintain and operate the source in accordance with the manufacturer's specifications and with good operating practices for the control of the VOC emissions from the combustion unit or other combustion source.

Under subsection (d), the final-form rulemaking revised “good engineering practices” to “good operating practices” and clarifying changes were made to the final-form rulemaking to ensure that the owner and operator of an affected VOC facility shall install, maintain and operate the source in accordance with specified requirements.

Under subsection (e), the owner and operator of a municipal solid waste landfill subject to § 129.96 shall comply with the applicable presumptive RACT requirement identified under paragraph (1) or (2).

No changes were made to subsection (e) from proposed to final-form rulemaking.

Under subsection (f), the owner and operator of a municipal waste combustor subject to § 129.96 shall comply with the presumptive RACT requirement of 180 parts per million, volumetric dry (ppmvd) NO<sub>x</sub> at 7 % oxygen.

Under subsection (f), the applicable requirement for a municipal waste combustor was revised from the proposed requirement of the applicable Federal standards to the final-form rulemaking requirement of 180 ppmvd NO<sub>x</sub> at 7% oxygen.

Under subsection (g), except as specified under subsection (c), the owner and operator of a NO<sub>x</sub> air contamination source listed in this subsection located at a major NO<sub>x</sub> emitting facility or of a VOC air contamination source listed in this subsection located at a major VOC emitting facility subject to § 129.96 may not cause, allow or permit NO<sub>x</sub> or VOCs to be emitted from the air contamination source in excess of the applicable presumptive RACT emission limitation under paragraphs (1)—(4).

Under subsection (g), a number of minor clarifications were made related to grammar and the types of fuels used with certain air contamination sources.

In addition to those clarifications a number of substantive changes were made to the RACT limitations under subsection (g) between proposed and final-form rulemaking.

For instance, under subsection (g)(1)(i), the presumptive RACT emission limitation for natural gas-fired combustion units or process heaters with a rated heat input equal to or greater than 50 million Btu/hour was changed from 0.08 to 0.10 lb NO<sub>x</sub>/million Btu heat rate.

Under subsection (g)(1)(vi)(A), the presumptive RACT emission limitation for a circulating fluidized bed combustion unit was changed from 0.20 to 0.16 lb NO<sub>x</sub>/million Btu heat input.

Under subsections (g)(2)(i)(B) and (D), the presumptive RACT emission limitation for certain combustion units when firing fuel oil was changed from 75 to 96 ppmvd NO<sub>x</sub> at 15% oxygen and from 2 to 9 ppmvd VOC (as propane) at 15% oxygen, respectively.

Under subsection (g)(2)(i)(C), the presumptive RACT emission limitation for certain combustion units when firing natural gas or noncommercial gaseous fuel was changed from 2 to 5 ppmvd (as propane) at 15% oxygen.

Under subsection (g)(2)(iv), the rated output for an affected simple cycle or regenerative cycle combustion turbine was increased from equal to or greater than 1,000 bhp to equal to or greater than 6,000 bhp. Furthermore, under subsection (g)(2)(iv)(B), the presumptive RACT emission limitation for these turbines that burn fuel oil was changed from 75 to 96 ppmvd NO<sub>x</sub> at 15% oxygen. It should be further noted that subsection (g)(2)(iv) was proposed as subsection (g)(2)(iii).

Under subsection (g)(3)(i)(B), the presumptive RACT emission limitation for a lean burn stationary internal combustion engine with a rating equal to or greater than 500 bhp that burns natural gas or a noncommercial gaseous fuel, liquid fuel or dual-fuel was revised from 0.4 to 1.0 gram VOC/bhp-hr excluding formaldehyde.

Under subsection (g), the following provisions were added at final-form rulemaking to paragraph (1) – under subparagraph (vii) the presumptive RACT emission limitation for any other type of solid fuel-fired combustion unit with a rated heat input equal to or greater than 50 million Btu/hr, is 0.25 lb NO<sub>x</sub>/million Btu heat input; under subparagraph (viii) the presumptive RACT emission limitation for a coal-fired combustion unit with a selective catalytic reduction (SCR) system operating with an inlet temperature equal to or greater than 600°F is 0.12 lb NO<sub>x</sub>/million Btu heat input and compliance with this limit is also required when by-passing the SCR system; under subparagraph (ix) the presumptive RACT requirement for a coal-fired combustion unit with a selective non-catalytic reduction (SNCR) system is that the SNCR system shall be operated with the injection of reagents including ammonia or other NO<sub>x</sub>-reducing agents, when the temperature at the area of the reagent injection is equal to or greater than 1600°F.

Under subsection (g), the following provisions were added at final-form rulemaking to paragraph (2) – under subparagraph (iii) a presumptive RACT emission limitation is added in the final-form rulemaking for a simple cycle or regenerative cycle combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 6,000 bhp: when firing natural gas or a noncommercial gaseous fuel is 150 ppmvd NO<sub>x</sub> at 15% oxygen; when firing fuel oil is 150 ppmvd NO<sub>x</sub> at 15% oxygen; when firing natural gas or a noncommercial gaseous fuel is 9 ppmvd VOC (as propane) at 15% oxygen; and when firing fuel oil is 9 ppmvd VOC (as propane) at 15% oxygen. Proposed subsection (g)(2)(iii) is revised to subsection (g)(2)(iv).

Under subsection (h), the owner and operator of a Portland cement kiln subject to § 129.96 shall comply with the applicable presumptive RACT emission limitation under paragraphs (1)–(3).

No changes were made to subsection (h) from proposed to final-form rulemaking.

Under subsection (i), among other things, the requirements and emission limitations of this section supersede the requirements and emission limitations of a RACT permit issued to the owner or operator of an air contamination source subject to one or more of subsections (b)–(h) prior to the effective date of adoption of this final-form rulemaking under §§ 129.91–129.95 to control, reduce or minimize NO<sub>x</sub> emissions or VOC emissions, or both, from an air contamination source unless the permit contains more stringent requirements or emission limitations, or both.

Minor clarifying changes were made to subsection (i) from proposed to final-form rulemaking.

Under subsection (j), among other things, the requirements and emission limitations of this section supersede the requirements and emission limitations of §§ 129.201—129.205, 145.111—145.113 and 145.141—145.146 (relating to additional NO<sub>x</sub> requirements; emissions of NO<sub>x</sub> from stationary internal combustion engines; and emissions of NO<sub>x</sub> from cement manufacturing) unless the requirements or emission limitations of §§ 129.201—129.205, §§ 145.111—145.113 or §§ 145.141—145.146 are more stringent.

Minor clarifying changes were made to subsection (j) from proposed to final-form rulemaking.

Under subsection (k), the owner or operator of a major NO<sub>x</sub> emitting facility or a major VOC emitting facility subject to § 129.96 that includes an air contamination source subject to one or more of subsections (b)—(h) that cannot meet the applicable presumptive RACT requirement or RACT emission limitation without installation of an air cleaning device may submit a petition, in writing, requesting an alternative compliance schedule in accordance with paragraphs (1) and (2).

Minor clarifying changes were made to subsection (k) from proposed to final-form rulemaking. Additionally, subsection (k)(2)(v) is revised from proposed to final-form rulemaking to specify that the written petition shall include a proposed final compliance date that is as soon as possible but not later than 3 years after the written approval of the petition by the Department or the appropriate approved local air pollution control agency. Further, the approved petition shall be incorporated in an applicable operating permit or plan approval. The proposed rulemaking had specified under subparagraph (2)(v) that the proposed final compliance date be as soon as possible but not later than the date 3 years after the effective date of adoption of this proposed rulemaking.

Under subsection (l), the Department or appropriate approved local air pollution control agency will review a timely and complete written petition requesting an alternative compliance schedule submitted in accordance with subsection (k) and approve or deny the petition in writing.

No changes were made to subsection (l) from proposed to final-form rulemaking.

Under subsection (m), approval or denial under subsection (l) of the timely and complete petition for an alternative compliance schedule submitted under subsection (k) will be effective on the date the letter of approval or denial of the petition is signed by the authorized representative of the Department or appropriate approved local air pollution control agency.

No changes were made to subsection (m) from proposed to final-form rulemaking.

*§ 129.98. Facility-wide or system-wide NOx emissions averaging plan general requirements*

Under subsection (a), the owner or operator of a major NOx emitting facility subject to § 129.96 that includes at least one air contamination source subject to a NOx RACT emission limitation in § 129.97 that cannot meet the applicable NOx RACT emission limitation may elect to meet that applicable NOx RACT emission limitation in § 129.97 by averaging NOx emissions on either a facility-wide or system-wide basis using a 30-day rolling average. System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth.

Under proposed subsection (a), there was no requirement that system-wide averaging be conducted within the same ozone nonattainment area. The final-form rulemaking requires that system-wide emissions averaging must be among sources under common control of the same owner or operator. The averaging must be conducted within the same ozone nonattainment area in this Commonwealth. The Department interprets this provision to allow emissions averaging in areas designated as unclassifiable/attainment for the ozone NAAQS.

Under subsection (b), the owner or operator of each facility that elects to comply with subsection (a) shall submit a written NOx emissions averaging plan to the Department or appropriate approved local air pollution control agency as part of an application for an operating permit modification or a plan approval, if otherwise required. The application incorporating the requirements of this section shall be submitted by the applicable date in paragraph (1) or (2).

Under subsection (b) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (c), each NOx air contamination source included in the application for an operating permit modification or a plan approval, if otherwise required, for averaging NOx emissions on either a facility-wide or system-wide basis using a 30-day rolling average submitted under subsection (b) must be an air contamination source subject to a NOx RACT emission limitation in § 129.97.

Under subsection (c) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (d), the application for the operating permit modification or the plan approval, if otherwise required, for averaging NOx emissions on either a facility-wide or system-wide basis using a 30-day rolling average submitted under subsection (b) must demonstrate that the aggregate NOx emissions emitted by the air contamination sources included in the facility-wide or system-wide NOx emissions averaging plan using a 30-day rolling average are not greater than the NOx emissions that would be emitted by the group of included sources if each source complied with the applicable NOx RACT emission limitation in § 129.97 on a source-specific basis.

Under subsection (d) the proposed “not greater than 90% of the sum” provision was removed and is not part of the final-form rulemaking.

Under subsection (e), the owner or operator shall calculate the alternative facility-wide or system-wide NOx RACT emissions limitation using a 30-day rolling average for the air contamination sources included in the application for the operating permit modification or plan approval, if otherwise required, submitted under subsection (b) by using the equation in this subsection to sum the emissions for all of the sources included in the NOx emissions averaging plan.

Under subsection (e), the equation used in the NOx emissions averaging plan was modified. Emissions from start-ups, shutdowns, and malfunctions must be included as well as the most stringent numerical emission rate applicable to each air contamination source in the calculations. The more stringent numerical emission rate limit shall include a limit established in the Clean Air Act, Air Pollution Control Act, regulations adopted under the acts, a plan approval, operating permit, consent decree, consent order and agreement, Department order, or the state implementation plan.

Under subsection (f), the application for the operating permit modification or a plan approval, if otherwise required, specified in subsections (b)—(e) may include facility-wide or system-wide NOx emissions averaging using a 30-day rolling average only for NOx emitting sources or NOx emitting facilities that are owned or operated by the applicant.

Under subsection (f) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (g), the application for the operating permit modification or a plan approval, if otherwise required, specified in subsections (b)—(f) must include the information identified under paragraphs (1)—(3).

Under subsection (g) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (h), an air contamination source or facility included in the facility-wide or system-wide NOx emissions averaging plan submitted in accordance with subsections (b)—(g) may be included in only one facility-wide or system-wide NOx emissions averaging plan.

Under subsection (h) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (i), the Department or appropriate approved local air pollution control agency will issue a modification to the operating permit or a plan approval authorizing the NOx emissions averaging plan.

Under subsection (i) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (j), the owner or operator of an air contamination source or facility included in the facility-wide or system-wide NOx emissions averaging plan submitted in accordance with subsections (b)—(h) shall submit the reports and records specified in subsection (g)(3) to the Department or appropriate approved local air pollution control agency on the schedule specified in subsection (g)(3) to demonstrate compliance with § 129.100.

Under subsection (j) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (k), the owner or operator of an air contamination source or facility included in a facility-wide or system-wide NOx emissions averaging plan submitted in accordance with subsections (b)—(h) that achieves emission reductions in accordance with other emission limitations required under the act or the Clean Air Act, or regulations adopted under the act or the Clean Air Act, that are not NOx RACT emission limitations may not substitute those emission reductions for the emission reductions required by the facility-wide or system-wide NOx emissions averaging plan submitted to the Department or appropriate approved local air pollution control agency under subsection (b).

Under subsection (k) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (l), the owner or operator of an air contamination source subject to a NOx RACT emission limitation in § 129.97 that is not included in a facility-wide or system-wide NOx emissions averaging plan submitted under subsection (b) shall operate the source in compliance with the applicable NOx RACT emission limitation in § 129.97.

Under subsection (l) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (m), the owner and operator of the air contamination sources included in a facility-wide or system-wide NOx emissions averaging plan submitted under subsection (b) shall be liable for a violation of an applicable NOx RACT emission limitation at each source included in the NOx emissions averaging plan.

Under subsection (m) only minor clarifying changes were made between proposed and final-form rulemaking.

#### *§ 129.99. Alternative RACT proposal and petition for alternative compliance schedule*

Under subsection (a), the owner or operator of an air contamination source subject to § 129.97 located at a facility subject to § 129.96 that cannot meet the applicable presumptive RACT requirement or RACT emission limitation of § 129.97 may propose an alternative RACT requirement or RACT emission limitation in accordance with subsection (d).

Under subsection (a) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (b), the owner or operator of a NO<sub>x</sub> air contamination source with a potential emission rate equal to or greater than 5.0 tons of NO<sub>x</sub> per year that is not subject to § 129.97 or §§ 129.201—129.205 located at a major NO<sub>x</sub> emitting facility subject to § 129.96 shall propose a NO<sub>x</sub> RACT requirement or RACT emission limitation in accordance with subsection (d).

Under subsection (b) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (c), the owner or operator of a VOC air contamination source with a potential emission rate equal to or greater than 2.7 tons of VOC per year that is not subject to § 129.97 located at a major VOC emitting facility subject to § 129.96 shall propose a VOC RACT requirement or RACT emission limitation in accordance with subsection (d).

Under subsection (c) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (d), the owner or operator proposing an alternative RACT requirement or RACT emission limitation under subsection (a), (b) or (c) shall comply with all of the RACT proposal requirements specified under paragraphs (1)—(7).

Under subsection (d), the deadline for completing the implementation of the RACT requirement or limitation was changed between proposed and final-form rulemaking to not later than January 1, 2017, which is the Federal implementation requirement date for RACT for the 2008 8-hour ozone standard.

Under subsection (e), the Department or appropriate approved local air pollution control agency will review the timely and complete alternative RACT proposal submitted in accordance with subsection (d) as specified in paragraph (1) and approve, deny or modify the alternative RACT proposal as indicated under paragraph (2) or (3).

Under subsection (e) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (f), the proposed alternative RACT requirement or RACT emission limitation and the implementation schedule submitted under subsection (d) will be approved, denied or modified by the Department or appropriate approved local air pollution control agency in accordance with subsection (e) in writing through the issuance of a plan approval or operating permit modification prior to the owner or operator implementing the alternative RACT requirement or RACT emission limitation.

Under subsection (f) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (g), the emission limit and requirements specified in the plan approval or operating permit issued under subsection (f) supersede the emission limit and requirements in the

existing plan approval or operating permit issued to the owner or operator of the source prior to \_\_\_\_\_ (*Editor's Note: The blank refers to the effective date of adoption of this final-form rulemaking.*), on the date specified in the plan approval or operating permit issued by the Department or appropriate approved local air pollution control agency under subsection (f), except to the extent the existing plan approval or operating permit contains more stringent requirements.

Under subsection (g) no changes were made between proposed and final-form rulemaking.

Under subsection (h), the Department will submit each alternative RACT requirement or RACT emission limitation approved under subsection (f) to the EPA for approval as a revision to the SIP. The owner and operator of the facility shall bear the costs of public hearings and notifications required for the SIP submittal.

Under subsection (h) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (i), the owner and operator of a facility proposing to comply with the applicable RACT requirement or RACT emission limitation under subsection (a), (b) or (c) through the installation of an air cleaning device may submit a petition, in writing, requesting an alternative compliance schedule in accordance with paragraphs (1) and (2).

Subsection (i)(2)(v) is revised from proposed to final-form rulemaking to specify that the written petition shall include a proposed final compliance date that is as soon as possible but not later than 3 years after the written approval of the petition. If the petition is for the replacement of an existing source, the final compliance date will be determined on a case-by-case basis. The proposed rulemaking had specified under subsection (i)(2)(v) that the proposed final compliance date be as soon as possible but not later than the date 3 years after the effective date of adoption of this proposed rulemaking.

Under subsection (j), the Department or appropriate approved local air pollution control agency will review the timely and complete written petition requesting an alternative compliance schedule submitted in accordance with subsection (i) and approve or deny the petition in writing.

Under subsection (j) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (k), the emission limit and requirements specified in the plan approval or operating permit issued by the Department or appropriate approved local air pollution control agency under subsection (j) supersede the emission limit and requirements in the existing plan approval or operating permit issued to the owner or operator of the source prior to \_\_\_\_\_, (*Editor's Note: The blank refers to the effective date of adoption of this final-form rulemaking.*) on the date specified in the plan approval or operating permit issued by the Department or appropriate approved local air pollution control agency under subsection (j), except to the extent the existing plan approval or operating permit contains more stringent requirements.

Under subsection (k) no changes were made between proposed and final-form rulemaking.

Under subsection (l), approval or denial under subsection (j) of the timely and complete petition for an alternative compliance schedule submitted under subsection (i) will be effective on the date the letter of approval or denial of the petition is signed by the authorized representative of the Department or appropriate approved local air pollution control agency.

Under subsection (l) no changes were made between proposed and final-form rulemaking.

*§ 129.100. Compliance demonstration and recordkeeping requirements*

Under subsection (a), the owner and operator of an air contamination source subject to a requirement listed in § 129.97 shall demonstrate compliance with the applicable RACT requirement or RACT emission limitation by performing the monitoring or testing procedures under paragraph (1) or (2), except as provided in subsection (c).

Under subsection (a)(1)—(4), the monitoring and testing requirements have been modified from proposed to final-form rulemaking for all affected air contamination sources.

Under subsection (b), except as provided in §§ 129.97(k) and 129.99(i), the owner and operator of an air contamination source subject to subsection (a) shall demonstrate compliance with the applicable RACT requirement or RACT emission limitation in accordance with the procedures in subsection (a) not later than the applicable time frame under paragraph (1) or (2).

Under subsection (b), the compliance demonstration date was changed between proposed and final-form rulemaking to not later than January 1, 2017, which is the Federal implementation requirement date for RACT.

Under subsection (c), an owner or operator of an air contamination source subject to this section and §§ 129.96—129.98 may request a waiver from the requirement to demonstrate compliance with the applicable emission limitation listed in § 129.97 if the requirements under paragraphs (1)—(4) are met.

Under subsection (c) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (d), the owner and operator of an air contamination source subject to this section and §§ 129.96—129.99 shall keep records to demonstrate compliance with §§ 129.96—129.99 as set forth in paragraphs (1) and (2).

Under subsection (d) no changes were made between proposed and final-form rulemaking.

Under subsection (e), beginning with the compliance date specified in § 129.97(a), the owner or operator of an air contamination source claiming that the air contamination source is exempt from the applicable NO<sub>x</sub> emission rate threshold specified in § 129.99(b) and the requirements of § 129.97 based on the air contamination source's potential to emit shall maintain records that

demonstrate to the Department or appropriate approved local air pollution control agency that the air contamination source is not subject to the specified emission rate threshold.

Under subsection (e) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (f), beginning with the compliance date specified in § 129.97(a), the owner or operator of an air contamination source claiming that the air contamination source is exempt from the applicable VOC emission rate threshold specified in § 129.99(c) and the requirements of § 129.97 based on the air contamination source's potential to emit shall maintain records that demonstrate to the Department or appropriate approved local air pollution control agency that the air contamination source is not subject to the specified emission rate threshold.

Under subsection (f) only minor clarifying changes were made between proposed and final-form rulemaking.

Under subsection (g), the owner or operator of a combustion unit subject to § 129.97(b) shall record each adjustment conducted under the procedures in § 129.97(b). This record must contain, at a minimum, the information in paragraphs (1)—(6).

Under subsection (g) only minor clarifying changes were made between proposed and final-form rulemaking.

Proposed subsection (h), providing a requirement for the owner or operator of an oil-fired, gas-fired or combination oil-fired and gas-fired unit subject to § 129.97(b)(2) to maintain records of the type of fuel, is deleted in the final-form rulemaking.

Under subsection (h), the owner or operator of a Portland cement kiln subject to § 129.97(h) shall maintain a daily operating log for each Portland cement kiln. The record for each kiln must include the items in paragraphs (1)—(4).

Under subsection (i), records shall be retained by the owner or operator for 5 years and made available to the Department or appropriate approved local air pollution control agency upon receipt of a written request from the Department or the appropriate approved local air pollution control agency.

Proposed subsection (i) is revised to final-form subsection (h). Final-form subsection (i) is new.

## *F. Summary of Major Comments and Responses*

### *General Comments*

The commentator states that the proposed rulemaking is not RACT. It does not accomplish reasonably available control technology, but maintains a status quo that does not meet the Federal Clean Air Act (CAA) test of reducing air pollution emissions for nitrogen oxides and VOCs (volatile organic chemicals) "... as expeditiously as practicable." The proposed

rulemaking allows higher limit (132,000 tons NO<sub>x</sub>) than what is already emitted. Power plants will be allowed to increase emissions, while the purpose of RACT is to decrease emissions.

The Board disagrees that the proposed rulemaking provisions are not RACT. The evaluation or reevaluation of what constitutes RACT-level control for affected sources is a requirement that must be fulfilled each time the EPA promulgates a new NAAQS as was the case in 1979 for the 1-hour ozone standard and in 1997 for the 8-hour ozone standard; reevaluation of RACT is also required when the EPA revises a NAAQS as was the case in 2008 for the 8-hour ozone standard. The proposed rulemaking addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and 2008. The final-form rulemaking is applicable to certain owners and operators of major sources of NO<sub>x</sub> or VOC emissions (precursors to ozone formation) in existence on or before July 20, 2012 – the effective date of the EPA’s designations and classifications for the 2008 ozone NAAQS. See 77 FR 30088.

The Board agrees that the purpose of RACT is to decrease ozone precursor emissions. However, the amount of emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source’s potential to emit before and after the application of RACT-level control, not on a comparison with a source’s current actual emissions. The proposed and final-form rulemakings establish presumptive RACT requirements and RACT emission limitations for NO<sub>x</sub> or VOCs that are achievable and sustainable during the expected life of the affected unit using technologies that are both technically and economically feasible. Implementation of the final-form rulemaking presumptive RACT requirements and RACT emission limitations will reduce the amount of NO<sub>x</sub> and VOC emissions that the owner and operator of a facility subject to final-form §§ 129.96—129.100 would be legally allowed to emit to the atmosphere.

In response to comments and the EPA’s March 6, 2015, Ozone NAAQS Implementation Rule, the Department conducted additional reviews of historical emissions data for coal-fired EGUs equipped with selective catalytic reduction (SCR) technology. The Department determined that the NO<sub>x</sub> limit specified in § 129.97(g)(1)(viii) should be revised. Subsection 129.97(g)(1)(viii) specifies that any combustion unit equipped with an SCR system that is operating with an inlet temperature equal to or greater than 600°F must meet a NO<sub>x</sub> emission limit of 0.12 lb NO<sub>x</sub>/million Btu. Compliance with this emission limit is also required when by-passing the SCR system. The Department acknowledges that the NO<sub>x</sub> RACT limit in the final-form rulemaking is not the lowest achievable emissions rate for this technology. However, the EPA has indicated in the preamble for the final rule approving a SIP revision for Wisconsin’s NO<sub>x</sub> RACT Rule that:

“RACT limits are not meant to be the lowest achievable emissions rate. The Nitrogen Oxides Supplement to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990 addresses the issue of an acceptable emission limit. See section 4.6 *RACT for Certain Electric Utility Boilers* (57 FR 55626), “The EPA expects States, to the extent practicable, to demonstrate that the variety of emission controls adopted are consistent with the most effective level of combustion modification reasonably available for its individual affected sources.””

See 75 FR 64155, 64157 (October 19, 2010). The Department's reevaluation of the NO<sub>x</sub> RACT limit for coal-fired EGUs, taking into consideration cost-effectiveness and technological feasibility, is consistent with the approach outlined in the preamble of the October 19, 2010, rulemaking approving Wisconsin's RACT SIP revision.

The final-form RACT rulemaking will reduce the amount of pollution that is currently allowed to be emitted through implementation of more stringent limitations. No facility owner or operator will be allowed to increase their emissions. The final-form RACT rulemaking sets forth emission limitations for NO<sub>x</sub> or VOCs that are achievable using technologies that are reasonably available. For example, upon reevaluation of the NO<sub>x</sub> emissions data from coal-fired EGUs equipped with SCR, the Board concluded that a NO<sub>x</sub> emission limit of 0.12 lb/MMBtu heat input is achievable with operation of the SCR when an inlet temperature of 600°F is reached. The Board also concluded that a NO<sub>x</sub> emission limit of 0.16 lb/MMBtu heat input is achievable for circulating fluidized bed (CFB) combustion units. The final-form rulemaking has been amended accordingly.

Potential NO<sub>x</sub> emission reductions beyond current RACT allowable emissions are presented as follows. For 257 boilers, the potential NO<sub>x</sub> reduction is 70,149 tpy or a 28% reduction. For 12 electric generating units equipped with SCR systems, the potential NO<sub>x</sub> reduction is 138,972 tpy or a 75% reduction. For 393 engines, the potential NO<sub>x</sub> reduction is 20,596 tpy or a 44% reduction. For 148 turbines, the potential NO<sub>x</sub> reduction is 23,906 tpy or a 40% reduction. In total for 810 air contamination sources, the potential NO<sub>x</sub> reduction is 253,623 tpy or a 47% reduction.

Reductions in actual NO<sub>x</sub> emissions from coal-fired boilers or electric generating units (EGUs) are also anticipated as a result of the implementation of the final-form RACT requirements and RACT emission limitations. The actual NO<sub>x</sub> emissions from coal-fired EGUs in Pennsylvania for the year 2013 were 119,025 tons. The actual 2013 NO<sub>x</sub> emissions from coal-fired EGUs that are not scheduled for retirement or for fuel-switching were 92,728 tons. The expected NO<sub>x</sub> emissions from coal-fired EGUs that are not scheduled for retirement or fuel-switching, based on 2013 production rates and the NO<sub>x</sub> emission limitations set forth in the final-form rulemaking, are 59,039 tpy. This is an anticipated reduction in actual emissions of approximately 36% [ $\{(92,728 \text{ tons} - 59,039 \text{ tons}) / 92,728 \text{ tons}\} \times 100 = 36 \%$ ] from this sector.

A commentator cautions the Department not to rigidly apply a benchmark as low as \$2,500 per ton to exclude consideration of technically feasible controls. Rather, Pennsylvania needs to consider a broader range of cost effectiveness to see if some level of additional control falls within that range. Based on Wisconsin's analysis, the Department should consider raising its cost-effectiveness "benchmark" like Wisconsin and New York after considering and evaluating thoroughly the states' analysis.

The Board did not establish a bright-line cost effectiveness threshold to determine RACT. The Board initially used minimum cost-effectiveness thresholds of \$1,500 and \$3,000 per ton of NO<sub>x</sub> and VOC controlled, respectively, in 1990 dollars, for the implementation of RACT requirements for the 1979 1-hour ozone NAAQS in §§ 129.91—129.95. These cost-effectiveness thresholds were consistent with thresholds used at that time by other states for

RACT determinations for the 1979 1-hour ozone NAAQS as well. The Board used the U.S. Bureau of Labor Statistics Consumer Price Index to adjust \$1,500 in 1990 dollars to \$2,500 in 2010 dollars. When extrapolated into 2014 dollars, this figure is approximately \$2,750. The Board used a NO<sub>x</sub> emission cost-effectiveness upper-bound of \$2,800 per ton NO<sub>x</sub> controlled.

Even with an additional 25% margin, the upper-bound cost-effectiveness threshold would not be any greater than \$3,500 per ton NO<sub>x</sub> controlled. Similarly for VOC, the upper-bound cost-effectiveness threshold would not be any greater than \$7,000 per ton VOC controlled. Applying these new thresholds does not have an effect on the add-on control technology decisions for the presumptive RACT requirements established in the final-form rulemaking. The RACT limits included in the final-form rulemaking are comparable to emission limits included in other states' RACT regulations.

It should be noted that Wisconsin's SIP-approved RACT regulations in 2010 were based on a NO<sub>x</sub> cost-effectiveness benchmark of \$2,500 per ton controlled.

Commentators believe that the proposed rulemaking will weaken current emissions limits. Regulatory and policy changes will add ozone and other criteria pollutants to some of the most overburdened communities in the Commonwealth.

The Board disagrees because the final-form rulemaking does not weaken existing emissions limits. The final-form RACT rulemaking includes emission limitations for NO<sub>x</sub> or VOCs that are achievable using technologies that are reasonably available.

Following the adoption and implementation of the final-form rulemaking, NO<sub>x</sub> emissions from the electric generating sector in Pennsylvania are expected to be reduced from 119,025 tpy, based on 2013 production rates, to 59,039 tpy. The actual NO<sub>x</sub> emissions from coal-fired EGUs in Pennsylvania for the year 2013 were 119,025 tons. The actual 2013 NO<sub>x</sub> emissions from coal-fired EGUs that are not scheduled for retirement or for fuel-switching were 92,728 tons. The expected NO<sub>x</sub> emissions from coal-fired EGUs that are not scheduled for retirement or fuel-switching, based on 2013 production rates and the NO<sub>x</sub> emission limitations set forth in the final-form rulemaking, are 59,039 tpy.

In addition, the final-form rulemaking specifically provides under § 129.97(i) and (j) that the more stringent limitation or requirement applies to the owner or operator of a facility subject to the regulation.

A commentator represents that for the class of the largest NO<sub>x</sub>-emitting sources, the representations of "Anticipated Effect on Emissions" are overstatements in contrast with the much more common-sense approach of comparing the proposed emission limitation with current actual emissions. The latter comparison demonstrates that the proposed RACT requirements are no substantial improvement with respect to controlling NO<sub>x</sub> emissions from large coal-fired power plants.

The Board disagrees that the representation of "anticipated effect on emissions" should be based on a comparison of the emissions expected as a result of implementation of the presumptive

RACT requirements and RACT emission limitations with current actual emissions. The amount of NO<sub>x</sub> and VOC emission reductions achieved as a result of the application of RACT-level control is determined on the basis of the source's potential to emit before and after the application of RACT-level control. Implementation of the final-form rulemaking presumptive RACT requirements and RACT emission limitations will reduce the amount of ozone precursor emissions that the owner and operator of a facility subject to final-form provisions in §§ 129.96—129.100 would be legally allowed to emit to the atmosphere. Further, the final-form rulemaking revises the NO<sub>x</sub> emission limit for circulating fluidized bed (CFB) combustion units in § 129.97(g)(1)(vi)(A) from 0.20 lb NO<sub>x</sub>/million Btu heat input to 0.16 lb NO<sub>x</sub>/million Btu heat input. The final-form rulemaking also addresses the use of installed SCR or SNCR equipment in § 129.97(g)(1)(viii) and (ix).

The potential NO<sub>x</sub> emission reductions in tons per year beyond current RACT allowable emissions is approximately 253,623 tons from 810 units as follows – for 257 boilers, approximately 70,149 tons; for electric generating units equipped with SCR systems, approximately 138,972 tons; for engines, approximately 20,596 tons; and for turbines, approximately 23,906 tons.

The actual NO<sub>x</sub> emissions from coal-fired EGUs in Pennsylvania for the year 2013 were 119,025 tons. The actual 2013 NO<sub>x</sub> emissions from coal-fired EGUs that are not scheduled for retirement or for fuel-switching were 92,728 tons. The expected NO<sub>x</sub> emissions from coal-fired EGUs that are not scheduled for retirement or fuel-switching, based on 2013 production rates and the NO<sub>x</sub> emission limitations set forth in the final-form rulemaking, are 59,039 tpy. This is an anticipated reduction in actual emissions of approximately 36% from this sector.

Some commentators allege that additional support and analysis is needed in the Regulatory Analysis Form (RAF) and Preamble to justify the proposed regulation.

The Board disagrees that there is insufficient information in either the Preamble or RAF to justify the regulation. Both of these documents are replete with substantive information related to emissions data, cost-effectiveness numbers, public health information, statutory requirements, small business information and other types of analyses to demonstrate that this regulation is legally required, is in the public interest, is economically and technologically feasible and will reduce emissions. The estimates included in the RAF in the proposed rulemaking and the final-form rulemaking are based on the information available to the Department. The presumptive RACT emission limitations were established based on cost-effectiveness of available control technology and are not based on the total number of affected units or number of total units requiring control.

Some commentators believe that the proposed rulemaking significantly underestimates the number of affected units that would require installation of NO<sub>x</sub> or VOC control technology. Approximately 150 units operated by natural gas transmission companies would be affected by the rulemaking; this exceeds the Department's estimate for all affected units statewide. The proposed rulemaking would have significant impact on natural gas transmission company operations, including many requirements to install control technology and associated costs that are significantly under-estimated by Pennsylvania.

The Board finds that the estimates for numbers of affected units included in the RAF in the proposed rulemaking and the final-form rulemaking are based on the information available to the Department. The presumptive RACT emission limitations were established based on cost-effectiveness of available control technology and not based on the total number of affected units or number of total units requiring control.

The Board reevaluated the number of units requiring control as a result of revisions to emission limitations set forth in the final-form rulemaking. The number of turbines requiring control has dropped from 64 to 17 primarily due to the final-form rulemaking setting forth a presumptive RACT emission limitation of 150 ppmvd NO<sub>x</sub> @ 15% oxygen for simple cycle or regenerative cycle turbines equal to or greater than 1,000 bhp and less than 6,000 bhp.

Several commentators say that compliance with the Federal Clean Air Interstate Rule (CAIR) or Cross-State Air Pollution Rule (CSAPR) should constitute compliance with RACT. The Department should rely on CAIR/CSAPR to satisfy RACT for EGUs.

The Board disagrees that compliance with CAIR/CSAPR should constitute compliance with RACT and that the Department should rely on CAIR/CSAPR to satisfy RACT for EGUs. Moreover, the U.S. Court of Appeals for the D.C. Circuit granted the EPA's request for voluntary vacatur of the presumption that compliance with the CAIR or the NO<sub>x</sub> SIP Call automatically constitutes RACT or reasonably available control measures (RACM) for NO<sub>x</sub> emissions from EGUs participating in regional cap-and-trade programs. *NRDC v. EPA*, No. 09-1198 (D.C. Cir.) (order of August 30, 2013). In the EPA's comments on the proposed rulemaking, designated ozone nonattainment areas required to implement RACT must achieve RACT level reductions inside the nonattainment area. In response to the EPA's comment, § 129.98(a) of the final-form rulemaking has been revised to address the system-wide averaging provisions as follows: "...System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth." This approach should assure that emissions averaging will occur among units in the same ozone nonattainment area and that emission reductions from outside a given area of more severe nonattainment cannot be used to offset emissions within the area of more severe nonattainment.

Some commentators believe that the proposed RACT standard would allow coal plants to keep the air in some communities cleaner than others, a fact highly likely to continue racial disparity in air pollution. The health of our citizens who have limited incomes or are living in poverty is also especially vulnerable to smog pollution. The Department runs the risk of exposing certain Pennsylvanians, including those living in environmental justice communities, to a disproportionate amount of extra pollution.

The Board disagrees. The final-form rulemaking reduces the allowable emission rates for certain coal-fired facilities and requires the operation of existing control equipment for other facilities. Pollution from this sector continues to decline. For example, the actual NO<sub>x</sub> emissions from coal-fired EGUs in Pennsylvania for the year 2000 were 192,004 tons; the actual NO<sub>x</sub> emissions from coal-fired EGUs in Pennsylvania for the year 2013 were 119,025 tons. The actual 2013 NO<sub>x</sub> emissions from coal-fired EGUs that are not scheduled for retirement or for fuel-switching

were 92,728 tons. The expected future NOx emissions from coal-fired EGUs that are not scheduled for retirement or fuel-switching, based on 2013 production rates and the NOx emission limitations in the final-form rulemaking, are 59,039 tpy.

*Comments related to § 121.1. Definitions*

Several commentators believe that all definitions should match Federal definitions. The proposed new definition for “stationary source internal combustion engine” opens up application to the entirety of air quality regulations. It appears the Pennsylvania definition has always included portable (not mobile) internal combustion engines. The definition should be same as the EPA’s reciprocating internal combustion engines (RICE) rule (40 CFR 63, Subpart ZZZZ). Add definitions consistent with Federal definitions: “capacity factor” in 40 CFR 72, “combustion turbine” in 40 CFR 60 NSPS, and “stationary internal combustion engine” in NSPS IIII and JJJJ and NESHAPS ZZZZ.

The Board agrees. The final-form rulemaking contains definitions consistent with the Federal regulations. The final-form rulemaking revises the definition of stationary internal combustion engine in § 121.1 to include the term “stationary reciprocating internal combustion engine.” The final-form rulemaking adds definitions for “regenerative cycle combustion turbine,” “simple cycle combustion turbine” and “stationary combustion turbine” to § 121.1. Final-form § 129.97(c)(7)(i) establishes that the “annual capacity factor” for a combustion unit is the ratio of the unit’s heat input (in million Btu or equivalent units of measure) to the unit’s maximum rated heat input (in million Btu or equivalent units of measure) times 8,760 hours during a period of 12 consecutive calendar months. The “annual capacity factor” for an electric generating unit is established in final-form § 129.97(c)(7)(ii) as the ratio of the unit’s actual electric output (expressed in mwe/hr) to the unit’s nameplate capacity (or maximum observed hourly gross load (in mwe/hr) if greater than the nameplate capacity) times 8,760 hours during a period of 12 consecutive calendar months. Final-form § 129.97(c)(7)(iii) establishes that for any other unit, the “annual capacity factor” is the ratio of the unit’s actual operating level to the unit’s potential operating level during a period of 12 consecutive calendar months.

A commentator states that the term “air contamination sources” is broadly defined and becomes problematic when used in § 129.99(b) and (c). Does it apply to each individual piece of equipment or a grouping of equipment?

The Board disagrees. The applicability threshold values of § 129.99(b) and (c) in the final-form rulemaking were determined as generic emission levels below which the application of add-on emission control technology is not economically feasible. The term “air contamination source” is already defined in the act and § 121.1 and needs no further clarification.

*Comments related to § 129.96. Applicability*

A commentator believes that the preamble should clearly indicate that the proposed rulemaking only applies to major sources of NOx and VOCs.

The Board agrees that the NO<sub>x</sub> RACT requirements are applicable to major NO<sub>x</sub> emitting facilities and the VOC RACT requirements are applicable to major VOC emitting facilities. The NO<sub>x</sub> requirements of §§ 129.96—129.100 apply Statewide to the owner and operator of a major NO<sub>x</sub> emitting facility and the VOC requirements of §§ 129.96—129.100 apply Statewide to the owner and operator of a major VOC emitting facility. Section 129.96 was amended in the final-form rulemaking to clarify the applicability.

A commentator states that while a number of existing regulations are referenced in the applicability section, there is no clarifying statement of prior presumptive RACT requirements that were promulgated under §§ 129.91—129.95. It isn't until almost the end of § 129.97 that those regulations are superseded. It may be clearer to address all the applicability pieces under § 129.96 instead of having it split up so much.

The Board disagrees. Sections 129.91—129.95 are not superseded by the final-form rulemaking. The affected owners and operators of major VOC and NO<sub>x</sub> emitting facilities will be subject to both §§ 129.91—129.95 and §§ 129.96—129.100. Subsection 129.97(i) is intended to ensure that an owner or operator complies with the more stringent of the RACT requirements contained in a RACT permit issued under §§ 129.91—129.95 and the presumptive RACT requirements in the final-form rulemaking. Subsections 129.97(i) and (j) specifically provide that the more stringent provisions apply whether that provision is under the final-form rulemaking, some other regulation, or a previously issued permit. These safeguards prevent backsliding from the most stringent applicable requirements.

A commentator's understanding of EPA policy is that those sources that have already installed air pollution control equipment as result of previous RACT are not required to install additional controls absent new information indicating otherwise. *See, e.g.*, 70 Fed. Reg. 71612, 71655 (Nov. 29, 2005); *NRDC v. U.S. EPA*, 571 F.3d 1245, 1253-55 (D.C. Cir. 2008). The Department should amend the proposed § 129.96 to exclude NO<sub>x</sub> and VOC sources that have already undergone RACT review and have resulting NO<sub>x</sub> and/or VOC limits or restrictions, unless new information indicates that a new RACT analysis is justified.

The Board believes that the commentator is referring to *NRDC v. EPA*, 571 F.3d 1245 (D.C. Cir. 2009), decided by the D.C. Circuit Court in 2009, not 2008. The Board disagrees with the commentator's assertion. The evaluation or reevaluation of what constitutes RACT-level control for affected sources is a requirement that must be fulfilled each time the EPA promulgates a new NAAQS as was the case in 1979 for the 1-hour ozone standard and in 1997 for the 8-hour ozone standard or revises a NAAQS as was the case in 2008 for the 8-hour ozone standard. The final-form rulemaking addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008. The final-form rulemaking requirements are applicable to the owners and operators of subject sources in existence on or before July 20, 2012, and to owners and operators of subject sources when the installation of a new source or a modification or change in operation of an existing source after July 20, 2012, results in the source or facility meeting the definition of a major NO<sub>x</sub> emitting facility or a major VOC emitting facility.

The EPA's Phase 2 Rule certification provision allows states to certify that the control measures approved as RACT under the 1-hour ozone standard also satisfy the RACT requirements under

the 8-hour ozone standard absent information indicating it should not be approved. This approach adequately ensures that RACT determinations will take into account advances in technology.

The Department reviewed all available information, including Federal regulations and RACT regulations from various states. This review showed that a new RACT analysis is justified. The Board believes that the presumptive RACT requirements included in the final-form rulemaking are appropriate. Should an affected owner or operator not be able to comply with the presumptive requirement or emission limitation, the owner or operator may propose an alternative NO<sub>x</sub> RACT emission limitation under § 129.99(a) based on the source's potential to emit NO<sub>x</sub> or VOCs.

Several commentators believe that since they are subject to more stringent requirements under other programs (such as Maximum Achievable Control Technology (MACT), National Emission Standards for Hazardous Air Pollutants (NESHAP) and New Source Performance Standards) they should be exempt from the RACT requirements. The Department should exempt emergency generators and other sources with applicable Federally mandated NO<sub>x</sub> and VOC control requirements from RACT requirements. Additional exemptions are needed to accommodate facilities that are already subject to more stringent requirements or have already completed a RACT process.

The Board disagrees. An evaluation or reevaluation of what constitutes RACT for affected sources is required under Section 182 of the CAA for existing major NO<sub>x</sub> emitting or existing major VOC emitting facilities each time a NAAQS is promulgated or revised. The final-form rulemaking addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008. RACT applies to the owners and operators of existing major stationary sources of NO<sub>x</sub> and VOC in ozone nonattainment areas. RACT for covered categories is required statewide and not just in designated ozone nonattainment areas in Pennsylvania because the state is in the Northeast Ozone Transport Region established under Section 184 of the CAA.

Section 182(b)(2) (42 U.S.C.A. § 7511a(b)(2)) requires that the Commonwealth implement RACT for each category of existing VOC sources in the area covered by a Control Techniques Guidelines (CTG) document issued by the Administrator between November 15, 1990, and the date of attainment, as well as for all existing VOC sources in the area covered by any CTG issued before November 15, 1990, and all other major stationary sources of VOCs that are located in the area. Under CAA sections 182(f)(1) and 184(b)(2) (42 U.S.C.A. § 7511a(f)(1) and § 7511c(b)(2)), RACT requirements are applicable to all existing major sources of NO<sub>x</sub> in this Commonwealth.

The MACT and NESHAP requirements apply to the control of emissions of hazardous air pollutants (HAP) from existing or new major sources as required under section 112 of the CAA (42 U.S.C.A. § 7412). Many HAPs are also VOCs, but not all VOCs are HAPs. Oxides of nitrogen are also not HAP. Therefore the owner and operator of an existing major source subject to MACT/NESHAP requirements for the control of HAP emissions may also be subject to RACT requirements for the control of NO<sub>x</sub> and VOC emissions. Therefore, the Board believes

that no additional exemptions are warranted to accommodate the owners and operators of facilities that are already subject to more stringent requirements or have already completed a RACT process.

*Comments related to § 129.97. Presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule*

Some commentators feel that the proposed regulations are less stringent than those that similarly-situated Mid-Atlantic states, including New Jersey, are proposing. The commentators request that the Board explain how the final-form rulemaking will ensure that Pennsylvania is adequately addressing emissions under its jurisdiction so that Pennsylvania is properly meeting its pollution control responsibilities to other states.

The Board disagrees. The Department reviewed and considered RACT regulations from similarly situated Mid-Atlantic states, including New Jersey, during the development of the proposed and final-form rulemakings. Source categories in Pennsylvania are diverse with numerous sources having varying characteristics differing from those of the other Mid-Atlantic states. The Department evaluated these source categories and determined that the presumptive RACT requirements included in the final-form rulemaking are appropriate. In Pennsylvania, all monitored areas are attaining the 1997 and 2008 ozone standards, except the Harrison monitor in Allegheny County. RACT regulations are not intended to address interstate transport issues.

Commentators say § 129.97(c) appears to establish an absolute obligation for relevant sources to be maintained and operated in accordance with both manufacturer's specifications and good engineering practices. However, in many cases, existing sources are components of complex process systems, integrated operations, or are specialized and custom designed, such that the equipment-specific manufacturer's specifications do not exist or are no longer relevant or applicable, and indeed can be inconsistent with "good engineering practice." Even more simply, with respect to older sources, manufacturer's specifications may no longer even be available. Therefore, the regulation should be revised to require operation and maintenance of regulated sources in accordance with good engineering practice, which, in appropriate circumstances, would include operation in accordance with manufacturer's specifications.

The Board notes that the presumptive RACT requirements included in § 129.93 require the installation, maintenance and operation of the source in accordance with manufacturer's specifications. This requirement has been implemented since 1995. In addition, an affected owner or operator that is not able to comply with the applicable presumptive RACT requirements and emission limitations set forth in the final-form rulemaking may opt to determine RACT requirements on a case-by-case basis under § 129.99.

In the final-form rulemaking, the term "good engineering practices" has been replaced with "good operating practices." "Engineering" refers to design, whereas "operating" refers to operation. Since this final-form rulemaking is applicable to the owners and operators of existing operating sources, it is more appropriate to regulate operating practices. In addition, this language is consistent with the permit compliance requirements found in § 127.444 (relating to compliance requirements.)

Some commentators state that in § 129.97(g)(3), there appears to be some disparity between the combustion turbine and the reciprocating engine proposed requirements. The proposed combustion turbine level of 42 ppm on natural gas is approximately four times lower than the RACT level for a lean burn reciprocating engine and approximately two times lower than a rich burn engine. Uncontrolled combustion turbines are close to the proposed RACT levels for reciprocating engines. With reciprocating engines far outnumbering gas turbines in Pennsylvania does it make sense, from an environmental and/or cost impact basis, to have a RACT for combustion turbines, especially small combustion turbines? The RACT compliance cost analyses conducted by the agency is not detailed enough to determine if the RACT emissions level proposed for combustion turbines is cost effective.

The Board disagrees with the comparison of emission rates for engines to turbines. They are different combustion technologies and are considered to be different source types for the purposes of RACT determinations. Therefore, the Board disagrees that presumptive RACT requirements and emission limitations should not be established for turbines. The number of turbines subject to RACT requirements in Pennsylvania justifies the establishment of presumptive RACT emission limitations for turbines in order to minimize case-by-case RACT determinations.

Presumptive RACT emission limitations are implemented for each source category based on reasonably available control technology determinations and associated emissions data. In addition, the owner or operator of any affected source that cannot meet a presumptive RACT emission limitation may propose an alternative limit determined on a case-by-case basis.

One commentator is concerned with the Board's statement in the RAF Question 12, that the proposed regulations are "similar to regulations already adopted by Wisconsin and New York and approved by the EPA." However, the commentator believes that New York has in place significantly more stringent emissions limits than Pennsylvania. The commentator states that the Board should either support or amend its response to RAF Question 12.

The Board believes that its response is adequate. The Department reviewed and considered RACT regulations from various states when evaluating what constitutes reasonably available control technology for the types of sources affected by the final-form rulemaking. Source categories in Pennsylvania are diverse with numerous individual sources having varying characteristics. The Department evaluated these source categories and determined that the presumptive RACT requirements included in the final-form rulemaking are appropriate.

Due to variability in source type, combustion characteristics, unit size, fuel usage, operating conditions, and source age, there are differences between the final-form rulemaking and the New York RACT regulations in terms of emission limits, exceptions, size cutoffs, etc. For example, New York determined that combined-cycle combustion turbines operated after July 1, 2014, should undergo case-by-case analysis due to limited numbers. As New York noted in their Regulatory Impact Statement, "Because of the limited number of sources and the wide range of available control technologies, the [NY] Department was not able to identify a presumptive NOx RACT emission limit for combined cycle combustion turbines." However, due to the large

number of these sources operating in Pennsylvania, the Department was able to determine a presumptive NOx RACT emission limitation for different categories of combined-cycle combustion turbines, including large combustion turbines that will likely be required to use SCR control to meet the applicable NOx RACT emission limitation. The basis for the determination of the presumptive RACT requirements and emission limitations included in the final-form rulemaking is included in the regulatory analysis form and the comment response document.

The determinations of what add-on control technologies are reasonably available to meet the presumptive RACT requirements and emission limitations included in the final-form rulemaking are consistent with the determinations of what add-on control technologies are reasonably available to meet the presumptive RACT requirements in New York. The RACT emission limits included in the final-form rulemaking are comparable to emission limits included in other states' RACT regulations, including New York and Wisconsin.

*Comments related to § 129.97(b) and § 129.97(g)(1). Combustion units*

The commentator believes that the proposed rulemaking requires minimization of NOx and CO emissions which is inconsistent with the boiler MACT rule. The commentator recommends that this provision be modified to mirror the boiler MACT requirements. The commentator also states that a periodic tune-up conducted in accordance with boiler MACT satisfies § 129.99 in the year in which it is conducted.

The Board has revised the final-form rulemaking to require biennial tune-ups for a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour conducted in accordance with 40 CFR 63.11223. 40 CFR 63.11223 requires CO emissions to be included in the record. In addition, CO emissions are recorded as a surrogate for VOC emissions.

The commentator finds that reference to "flame pattern" is not applicable to all combustion sources. The commentator has seen instances where combustion unit language has made its way into a combustion turbine permit rendering an irrelevant and impossible-to-comply-with permit condition.

The Board agrees that the requirements for combustion units referencing "flame pattern" are not applicable to all combustion sources, including turbines. The presumptive RACT requirement for a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour is a biennial tune-up conducted in accordance with the procedures described in 40 CFR 63.11223, which includes inspection and adjustment of the flame pattern. A combustion unit is a stationary equipment used to burn fuel primarily for the purpose of producing power or heat by indirect heat transfer. While turbines are combustion sources, they produce power by direct heat transfer and are not combustion units by definition. Therefore, the tune-up requirement is not applicable to combustion turbines. In addition, this tune-up requirement should not appear as an applicable permit requirement for combustion turbines.

The commentators recommend that the presumptive RACT requirements for coal-fired boilers should be established based on actual emission levels achieved in practice while operating with

post-combustion controls, such as SCR or SNCR systems. The RACT regulations should require the use of SCR or other control device(s) continuously to minimize NO<sub>x</sub> pollution.

The Board disagrees that the presumptive RACT requirements for coal-fired boilers should be established based solely on the lowest actual emission levels achieved in practice by some of the affected units while operating with post-combustion controls. The proposed and final-form RACT rulemakings establish presumptive emission limitations for NO<sub>x</sub> or VOCs that are achievable and sustainable during the expected life of the affected unit using technologies that are both technically and economically feasible. Implementation of the final-form rulemaking presumptive RACT requirements and RACT emission limitations will reduce the amount of ozone precursor emissions that the owner and operator of a facility subject to the final-form provisions in §§ 129.96—129.100 would be legally allowed to emit to the atmosphere.

Design limitations of the existing SCR and SNCR control technology installed on the affected coal-fired boilers dictate the operating parameters that are reasonably achievable. However, based on consideration of comments received during the public comment period and on the evaluation of NO<sub>x</sub> emissions data for coal-fired boilers for a 5-year period, the final-form regulation addresses the use of installed SCR or SNCR equipment in §§ 129.97(g)(1)(viii) and (ix). Further, the NO<sub>x</sub> emission limit for CFB combustion units in § 129.97(g)(1)(vi)(A) is revised from the proposed 0.20 lb NO<sub>x</sub>/million Btu heat input to 0.16 lb NO<sub>x</sub>/million Btu heat input in the final-form rulemaking.

Upon reevaluation of the NO<sub>x</sub> emissions data from the coal-fired EGUs equipped with SCR, the Board concluded that a NO<sub>x</sub> emission limit of 0.12 lb/MMBtu was achievable with operation of SCR when an inlet temperature of 600°F is reached. This limit accounts for the design limitations of the existing SCR systems. In addition, compliance with this emission limit is also required when by-passing the SCR system.

Upon reevaluation of the NO<sub>x</sub> emission data from circulating fluidized bed (CFB) boilers, the Board concluded that a NO<sub>x</sub> emission limit of 0.16 lb/MMBtu was achievable. The 0.16 lb/MMBtu NO<sub>x</sub> emission level must be achieved at all times and, if equipped with SNCR, the SNCR must be in operation with the injection of reagents including ammonia or other NO<sub>x</sub>-reducing agents, when the temperature at the area of the reagent injection is 1600°F or greater.

The Board further believes that continuous operation of existing SCR and SNCR control technology installed on the combustion units subject to final-form §§ 129.97(g)(1)(vi)(A), 129.97(g)(1)(viii) and 129.97(g)(1)(ix) cannot be required, due to changing market conditions and deployment of electric generating capacity. Therefore, due to the design limitations of the SCR and SNCR control technology and the minimum operating temperatures required for efficient operation and optimized NO<sub>x</sub> emission reduction, operation of the existing SCR and SNCR controls below the minimum designed temperature cannot be required in the final-form rulemaking.

A commentator wants the Board to provide the technical analysis that supports the 0.08 lb NO<sub>x</sub>/MMBTU heat input, as that is different from EPA's NSPS which recognizes 0.10 lb NO<sub>x</sub>/MMBTU.

The Board agrees and that analysis is as follows. The Department determined that the average uncontrolled NOx emission rate for natural gas-fired combustion units was 0.2 lb/MMBtu. At an average NOx control efficiency of 50% for low-NOx burners (LNB), the feasible control for natural gas-fired combustion units, the presumptive NOx RACT emission limitation for natural gas-fired combustion units rated at or above 50 MMBtu/hr is 0.1 lb/MMBtu. The Department initially lowered this to 0.08 lb NOx/MMBtu to be consistent with Wisconsin's SIP-approved RACT requirements.

Upon further analysis, the Department could not find sufficient information to support Pennsylvania establishing a presumptive NOx RACT emission limitation of 0.08 lb/MMBtu just to be consistent with Wisconsin's RACT requirements. Therefore, in the final-form rulemaking, the presumptive NOx RACT emission limitation was revised from 0.08 lb NOx/MMBtu to 0.10 lb NOx/MMBtu for a natural gas-fired combustion unit or process heater with a rated heat input equal to or greater than 50 MMBtu/hour. This requirement is now consistent with the requirement in the NSPS (40 CFR Part 50, Subpart Db) and § 129.201.

A commentator believes that due to the larger combustion zone available on natural gas-fired combustion units rated greater than 50 million Btu/hour, the presumptive RACT emission rate of 0.08 lb NOx/MMBtu for such units is not achievable for a unit that was designed to burn coal or fuel oil and has been converted to firing natural gas. For example, the units at the Martins Creek facility were converted from an oil-fired design to allow combustion of natural gas. Stack testing of these units revealed that NOx emission rates cannot approach the standard that may be achievable for units originally designed to combust primarily or exclusively natural gas. Therefore, the commentator believes that case-by-case RACT determinations are appropriate for these sources.

The Board finds that in the final-form rulemaking, the presumptive NOx RACT emission limitation was revised from 0.08 lb NOx/MMBtu to 0.10 lb NOx/MMBtu for a natural gas-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour. This requirement is now consistent with the requirement in the NSPS (Subpart Db) and § 129.201. Should the owner or operator of a combustion unit choose not to comply with the presumptive requirement, the owner or operator may propose an alternative NOx RACT emission limitation based on the potential to emit NOx under § 129.99(a).

A commentator states that even for those few boilers that lack controls superior to the contemplated RACT of low NOx burners, installation and operation of SNCR would achieve reductions of NOx at significantly less than \$2,500 per ton.

The Board disagrees. The Department reviewed all available information, including Federal regulations and RACT regulations from various states. The cost-effectiveness of technically feasible add-on control devices, including SNCR, was calculated in accordance with the OAQPS Cost Manual. The Board believes that the presumptive RACT requirements included in the final-form rulemaking are appropriate.

*Comments related to § 129.97(g)(2). Combustion turbines*

A commentator finds that Pennsylvania's analysis does not indicate whether a meaningful environmental benefit would be derived from VOC reductions. Pennsylvania should provide background documentation to support the basis for the concentration-based turbine standard.

The Board notes that RACT reevaluation is a requirement to be fulfilled each time a NAAQS is promulgated. The final-form rulemaking addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and 2008. However, no specific emission reductions are required under the reevaluation.

The Department found that the typical uncontrolled VOC emission limit for RACT I was 25 ppm @ 15% oxygen, as methane for turbines rated greater than 1,000 bhp and less than 180 MW. This translates into 9 ppm @ 15% oxygen, as propane. The cost of VOC control using an oxidation catalyst was found to be \$21,112 - \$421,095, which is not cost-effective. Therefore, the final-form rulemaking establishes a presumptive RACT VOC emission limitation of 9 ppm @ 15% oxygen, as propane for simple cycle turbines and combined cycle turbines fired on fuel oil rated at greater than 1,000 bhp and less than 180 MW.

Continuous emission monitoring system (CEMS) data indicates that a combined cycle turbine fired on natural gas rated at greater than 1,000 bhp and less than 180 MW can meet a VOC emission limitation of 5 ppm @ 15% oxygen, as propane. Additionally, CEMS data indicates that turbines rated at greater than 180 MW can meet a VOC emission of 2 ppm @ 15% oxygen, as propane. Therefore, these emission limitations were established in the final-form rulemaking.

The technical support document is available with the final-form rulemaking, which includes documentation to support the basis for the VOC RACT emission limitations. VOC reductions of the type contemplated under this final rule will assist in the maintenance of the 8-hour 1997 and 2006 ozone standards. The EPA regulates ground-level ozone as a criteria air pollutant because of its widespread adverse health and environmental effects. Exposure to high concentrations of ground-level ozone is a serious human and animal health and welfare threat, causing respiratory illnesses and decreased lung function, agricultural crop loss, visible foliar injury to sensitive plant species, and damage to forests, ecosystems and infrastructure.

*Comments related to § 129.97(g)(3). Internal combustion engines*

Some commentators believe the language in § 129.97(g)(3) is unclear. The language should clearly state that emergency engines greater than 500 bhp are excluded from the emission limits for stationary internal combustion engines greater than 500 bhp. Sections 129.97(c)(6) and (g)(3) are not compatible. One exempts emergency stand-by engines operating less than 500 hours in a 12-month rolling period, while the other generally includes stationary internal combustion engines. Please add the phrase "Except as provided in § 129.97(c)(6)" to the beginning of (g)(3), so that it reads, "Except as provided in § 129.97(c)(6), a stationary internal combustion engine:"

The Board agrees that the regulatory language as proposed is unclear. The final-form rulemaking has been revised to clarify that the owner or operator of a source that meets the requirements under § 129.97(c) would not be required to also meet the numerical presumptive RACT emission limitations under § 129.97(g) for that source.

*Comments related to § 129.97(h). Portland cement kilns*

One commentator contends that the emissions limitations required of Portland cement kilns would likely require the significant expenditure of funds for the installation of NO<sub>x</sub> air pollution control technologies such as SNCR systems.

The Board disagrees. The presumptive RACT emission limitations included in the final-form rulemaking for Portland cement kilns are consistent with the emission limitations for Portland cement kilns contained in § 145.143. The Department believes that the final-form rulemaking contains appropriate presumptive RACT emission limitations for Portland cement kilns. In addition, several existing Portland cement kilns are equipped with SNCR. Should the owner or operator of a Portland cement kiln choose not to comply with the presumptive requirement, the owner or operator may propose an alternative NO<sub>x</sub> RACT emission limitation based on the potential to emit NO<sub>x</sub> under § 129.99(a).

Several commentators say that a compliance alternative needs to be included for cement kilns in this program, be it CAIR allowances or some other program NO<sub>x</sub> allowances. To ensure that this program does not result in an increase of emissions over what was contemplated in this proposal, any such allowance program requires a two-for-one allowance surrender. Such a provision would provide necessary flexibility to the cement industry and would also provide even greater emission offsets in the event a facility found itself out of compliance with the rule as drafted.

The Board disagrees. RACT reevaluation is a requirement to be fulfilled each time a National Ambient Air Quality Standard (NAAQS) is promulgated. The final-form rulemaking addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and 2008. RACT applies to existing major stationary sources of volatile organic compounds and nitrogen oxides in ozone nonattainment areas. RACT is defined as: “the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.” Therefore, CAIR allowances or some other program NO<sub>x</sub> allowances cannot be used to meet the RACT requirements.

Furthermore, the EPA commented on the proposed rulemaking that designated ozone nonattainment areas required to implement RACT must achieve RACT levels reductions inside the nonattainment area. In response to EPA’s comment, the final-form rulemaking has been revised to address the system-wide averaging provisions as follows: “System-wide emissions averaging must be among sources under common control of the same owner or operator within the same ozone nonattainment area in this Commonwealth. The emissions from sources must be averaged within the same ozone nonattainment area in this Commonwealth.” This approach should assure that emissions averaging will occur among units in the same ozone nonattainment area.

Some commentators find that the proposed rulemaking would impose year-round emission standards that are currently ozone season standards on cement kilns. This imposes additional costs without any public benefits.

The Board disagrees that the final-form rulemaking imposes additional costs without any public benefits. RACT reevaluation is a requirement to be fulfilled each time a NAAQS is promulgated. The final-form rulemaking addresses the RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and 2008. RACT applies to existing major stationary sources of volatile organic compounds and nitrogen oxides in ozone nonattainment areas. RACT is defined as: “the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.” Including §§ 145.141—145.146 into the applicability section of § 129.96 is not appropriate because the requirements included in § 145.143 are applicable only during the ozone season (May 1 through September 30), whereas RACT requirements are applicable on a year-round basis. The emissions reductions resulting from year-round requirements will be beneficial to the public due to lower concentrations of ground-level ozone.

*Comments related to § 129.97(f). Municipal waste combustors*

Commentators note that the proposed NO<sub>x</sub> emissions limits for municipal waste combustors require only that municipal waste combustor operators meet emissions limits established in Federal emissions guidelines. The hazardous air pollutant emissions limits in the Federal guidelines are Maximum Achievable Control Technology-based, and thus may be RACT. Therefore, more stringent limitations should be established as RACT.

The Board finds that the current proposed standards are in compliance with the emission guidelines of 40 CFR Part 60, Subpart Cb, finalized May 10, 2006. These emission guidelines range from 180 to 250 ppmvd NO<sub>x</sub> @ 7% oxygen. Out of six existing facilities, five are already limited to 180 ppm or less. The Covanta Plymouth (Montgomery County) facility has CEM data (3rd quarter 2007) showing emissions above 180 ppm. Emissions were generally between 190 and 200 ppm, with a few data points near 180 (one below 180). The units located at the Covanta Plymouth facility are equipped with SNCR. The existing SNCR could be optimized to achieve an emission limit of 180 ppm. Upon reevaluation of the NO<sub>x</sub> emission data from municipal waste combustors (MWCs), the Board concluded that a NO<sub>x</sub> emission limit of 180 ppmvd @ 7% oxygen was achievable. In § 129.97(f) of the final-form rulemaking, the NO<sub>x</sub> limit is revised to 180 ppmvd @ 7% oxygen for municipal waste combustors.

*Comments related to § 129.98. Facility-wide or system-wide NO<sub>x</sub> emissions averaging plan general requirements*

One commentator believes that the proposed alternative compliance mechanisms must include a rate sufficient to lower system-wide emissions. The 30-day system-wide rolling average rate is set so high that it fails to require reductions at all sources. The rulemaking may have the effect of allowing operators to discontinue the operation of NO<sub>x</sub> control equipment simply by running controls on a different unit. Therefore, the emission rate needed to achieve compliance with system-wide average is not consistent with an appropriate level of post-combustion controls.

The averaging mechanism itself must reflect some level of control. At a minimum, the system-wide rate needs to incorporate a sufficient use of control technologies already installed on the unit(s). A revision of the NO<sub>x</sub> rate ought to take into account unit configuration and control technologies that have already been installed.

The Board disagrees. The final-form rulemaking will not allow the operator to discontinue the operation of NO<sub>x</sub> control equipment, such as SCR or SNCR, by operating controls on a different unit. A 30-day rolling limit addresses problems that are faced by certain owners and operators, including variability in fuel (such as in waste coal combustors), emission spikes during start-up and shutdown of the emission source, and emissions during malfunctions. The 30-day rolling average will require that the owners and operators operate below the allowable standard in order to account for the occasional higher emissions. Design limitations of the existing SCR and SNCR control technology installed on the affected coal-fired boilers dictate the operating parameters that are reasonably achievable.

However, based on consideration of comments received during the public comment period and on the evaluation of NO<sub>x</sub> emissions data for coal-fired boilers for a 5-year period, the final-form regulation addresses the use of installed SCR or SNCR equipment in § 129.97(g)(1)(viii) and § 129.97(g)(1)(ix). Further, the NO<sub>x</sub> emission limit for CFB combustion units in § 129.97(g)(1)(vi)(A) is lowered from the proposed 0.20 lb NO<sub>x</sub>/million Btu heat input to 0.16 lb NO<sub>x</sub>/million Btu heat input in the final-form regulation.

Section 129.97(g) has been revised from proposed to final-form rulemaking to add § 129.97(g)(1)(viii), which states that the presumptive emission limitation for a combustion unit with a selective catalytic reduction system operating with an inlet temperature equal to or greater than 600°F is 0.12 lb NO<sub>x</sub>/million Btu heat input. Section 129.97(g)(1)(viii) further states that compliance with this emission limit is also required when by-passing the selective catalytic reduction system. Therefore, operation of SCR for one facility cannot be used to offset non-operation of SCR from a different facility in an emissions averaging plan.

Many commentators find that utilities should not be allowed to average their NO<sub>x</sub> emissions over their entire fleet of power plants in addition to allowing them to average these emissions over 30 days rather than the 1-hour or 8-hour standards. Peaking units should not be allowed to average their NO<sub>x</sub> emissions over 30 days rather than 24 hours or less.

The Board disagrees. A 30-day rolling averaging period is appropriate to accommodate operation at varying load and operating conditions.

A 30-day rolling limit addresses problems including variability in fuel (such as in waste coal combustors), emission spikes during start-up and shutdown of the emission source, and emissions during malfunctions that are faced by certain owners and operators. Due to these unavoidable circumstances not indicative of normal operation, it would not be appropriate for utilities utilizing NO<sub>x</sub> CEMS to be required to show compliance with the presumptive NO<sub>x</sub> RACT emission limitations over a 1-hour or 8-hour averaging period. The 30-day rolling average will require that the owners and operators operate below the allowable standard in order to account for the occasional higher emissions. A 30-day rolling average has been approved by

EPA to demonstrate compliance with the short-term RACT limitations in SIP revisions submitted by certain states including New York and Wisconsin.

Wisconsin's RACT regulations, which the EPA approved in October 2010, include emission averaging on a 30-day rolling basis for determining compliance. Wisconsin described such a period as short term and noted that this approach would allow averaging of the typical variations in emission levels from a single unit.

The 30-day rolling averages are determined on an operating-day basis by taking the total emissions and dividing by the total heat input during each 30-day period. Therefore, there is no difference for peaking units as compared to other units.

In a recent court decision from the 9<sup>th</sup> Circuit Court of Appeals, the court stated in *Nat'l Parks Conservation Ass'n v. EPA*, No. 12-73710 (9th Cir. 2015) that, "EPA also properly set emissions limits for Corette [a coal-fired power plant] on a 30-day rolling average. The EPA's reasoned disagreement on this topic with PPL Montana's comment reflects its conclusion on a highly scientific question—the variance in emissions calculations that occurs when annualized rates are translated into thirty-day rolling averages—precisely the kind of question justifying deference to EPA's discretion. See *Nat'l Wildlife Fed'n v. U.S. Army Corps of Eng'rs*, 384 F.3d 1163, 1177–78 (9th Cir. 2004)." Similarly, the Department is setting a 30-day rolling average in order to accommodate variances in hourly or daily emission calculations. With these variances accommodated, the Department is able to set emission limitations at a lower level.

In the preamble to the final rule for *Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements* (80 FR 12264; March 6, 2015), the EPA supported the use of area-wide emissions averaging on page 12280. The EPA states, "The EPA's existing policy recognizes that states can meet NO<sub>x</sub> RACT requirements by submitting as part of their NO<sub>x</sub> RACT SIP submittal a demonstration that the weighted average NO<sub>x</sub> emission rate from sources in the nonattainment area subject to RACT achieves RACT-level reductions." The EPA also states, "Consistent with previous guidance, the EPA continues to believe that RACT can be met on average by a group of sources within a nonattainment area rather than at each individual source." The averaging provision included in § 129.98 is consistent with the EPA's final rule.

A number of commentators find that the equation for calculating the 30-day rolling average should reflect what the rule's actual text provides for that the value for the 30-day rolling average is calculated by taking the total mass NO<sub>x</sub> emissions for the sources under the plan (over the 30-day period) and comparing that with the total mass of NO<sub>x</sub> that the sources could have emitted by using the emission rates under the presumptive RACT. In such instances, the actual value of emissions must then be less than or equal to the allowable emissions over the 30-day period. Additionally, the averaging equation should also be generalized to allow operators to use engineering units consistent with the type of equipment or process.

The Board agrees with the commentators' suggestion about the 30-day rolling average equation. The facility-wide NO<sub>x</sub> emission averaging equation set forth under § 129.98(e) has been revised in the final-form rulemaking to reflect a mass-to-mass comparison between actual and allowable

NO<sub>x</sub> emissions. The aggregated actual emissions from sources included in the averaging plan must be no greater than aggregated allowable emissions on a 30-day rolling basis. The allowable emissions are necessarily determined using the actual operation of the emission sources included in the plan. The owner or operator assumes the responsibility to meet the allowable emission limit. Please see the Response to Comment 138 for information about how emission sources are selected for inclusion in an emissions averaging plan proposal submitted under § 129.98.

Subsection 129.98(d) has been revised in the final-form rulemaking to clarify that the application for the Operating Permit Modification or the Plan Approval, if otherwise required, for averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average submitted under § 129.98(b) must demonstrate that the aggregate NO<sub>x</sub> emissions emitted by the air contamination sources included in the facility-wide or system-wide NO<sub>x</sub> emissions averaging plan using a 30-day rolling average are not greater than the NO<sub>x</sub> emissions that would be emitted by the group of included sources if each source complied with the applicable NO<sub>x</sub> RACT emission limitation in § 129.97 on a source-specific basis.

Subsection 129.98(e) has been revised in the final-form rulemaking to incorporate the following changes in the facility-wide or system-wide NO<sub>x</sub> emissions averaging equation: the 0.9 factor is removed and the final-form equation reflects a mass-to-mass comparison between actual and allowable NO<sub>x</sub> emissions. Since the final rulemaking sets forth more stringent requirements and emission limitations for certain affected sources than were proposed, the 0.9 factor is not included in the averaging equation.

*Comments related to § 129.97(a), § 129.97(k), § 129.99(i), § 129.100(b). Compliance demonstration timeline*

Several commentators commented that the timing included in the proposed rulemaking for the implementation of the RACT regulations is not adequate. A one-year compliance schedule for implementing alternative RACT NO<sub>x</sub> limitations is infeasible, grossly inadequate, impractical, and/or unreasonable. The EQB should explain why the timeframes in the regulation are reasonable or provide a request for extension provision in the regulation.

The Board disagrees with the commentators. The final-form rulemaking provides an adequate amount of time for the implementation of the alternative RACT requirement or RACT emission limitation. Moreover, the EPA recently established a January 1, 2017, RACT implementation deadline for the 2008 8-hour ozone NAAQS. In the preamble for the “SIP Implementation Requirements Rule,” the EPA states as follows:

The EPA believes that the January 1, 2017, date allows a sufficient amount of time for states to make RACT determinations and for sources to meet RACT requirements on the time-table originally anticipated under the 1990 CAA Amendments, and ensures that RACT measures are required to be in place throughout the last ozone season prior to the Moderate area attainment date of July 20, 2018. See 80 FR 12279 (March 6, 2015).

The final-form rulemaking provides additional time for compliance if the installation of air cleaning devices or approval of alternative emission limitations or compliance schedules will be necessary for RACT compliance purposes.

Two commentators find that the provisions of §§ 129.97(a) and 129.97(k), relative to alternative compliance schedules, should allow for an exception to the presumptive RACT limits in situations where a regulated entity submits a timely and complete proposal for an alternative RACT. As written, the rules appear to require compliance with the presumptive RACT limits until such time as the Department approves an alternative RACT. This creates uncertainty and puts the regulated entity at risk of being in noncompliance even though it applied for an alternative in good faith and on a timely basis. The provisions should be revised to provide a mechanism for a regulated source to secure an extension of those deadlines.

The Boards disagrees in part and agrees in part. Final-form subparagraph 129.97(k)(2)(iv) has not been changed from proposed to final-form rulemaking. Proposed subparagraph 129.97(k)(2)(v) specified that the written petition include a proposed final compliance date that is as soon as possible but not later than 3 years after the effective date of adoption of the proposed rulemaking. Subparagraph 129.97(k)(2)(v) has been revised from proposed to final-form rulemaking to specify that the written petition include a proposed final compliance date that is as soon as possible but not later than 3 years after the approval of the petition. The approved petition shall be incorporated in an applicable operating permit or plan approval. The affected owner and operator that cannot comply with the presumptive RACT requirement or RACT emission limitation without the installation of an air cleaning device therefore has 6 months to submit the written petition under § 129.97(k)(1) and may request an extension of the compliance date under § 129.97(k)(2)(v) of up to 3 years after the approval date of the petition.

Some commentators want to allow 12 to 18 months from the effective date of the rulemaking to submit a proposed case-by-case RACT, and the compliance deadline for an approved alternative RACT should be submitted with the RACT proposal.

The Board disagrees with the commentators that applicants should have 12 to 18 months after the effective date of the final-form rulemaking to submit an alternative RACT proposal. The case-by-case RACT proposals for the existing RACT requirements set forth in § 129.91 were required to be submitted by the affected owners and operators by July 15, 1994, which was 6 months after the effective date of § 129.91. See 24 Pa.B. 467 (January 15, 1994). The 6-month time frame set forth in final-form § 129.99(d)(1) for the submission of alternative RACT proposals is consistent with existing Department regulations.

Furthermore, on March 6, 2015, the EPA stated that “a January 1, 2017, RACT implementation deadline provides a sufficient amount of time for states to make RACT determinations and for sources to meet the RACT requirements on the time-table originally anticipated under the 1990 Clean Air Act Amendments.” See 80 FR 12282. With a January 1, 2017, RACT implementation deadline, the 6-months deadline for the submittal of alternatives to the presumptive RACT requirements and limitations is reasonable.

The Board agrees with the commentators that the compliance deadline for an approved alternative RACT should be submitted with the RACT proposal and included this requirement in proposed § 129.99(d)(4). Section 129.99(i)(2)(v) has been revised in the final-form rulemaking to specify that the written petition include a proposed final compliance date that is as soon as possible but not later than 3 years after the approval of the petition. If the petition is for the replacement of an existing source, the final compliance date will be determined on a case-by-case basis.

*Comments related to § 129.99. Alternative RACT proposal and petition for alternative compliance schedule*

Several commentators support the provisions of the proposed rulemaking preserving case-by-case.

The Board thanks the commentators for their support. The Board believes that the section dealing with case-by-case provides certain flexibility for the regulated community. However, the Board does not expect that this provision will be used routinely as the owners and operators of most affected sources shall likely meet the presumptive RACT requirements and RACT emission limitations.

The commentators recommend that the Department further outline the case-by-case process, as well as update and define dollar-per-ton cost thresholds against which case-by-case RACT petitions will be required to rank technology options. The Department provided similar detail in the first RACT implementation program in 1994 and, for example, could include implementation guidance and a reference to the updated EPA cost manual.

The Board notes that the Department did not establish a bright-line cost effectiveness threshold to determine RACT. For the determination of presumptive NO<sub>x</sub> RACT emission limitations, the Department generally used a NO<sub>x</sub> emission cost-effectiveness upper bound of \$2,800 per ton NO<sub>x</sub> controlled. However, the cost effectiveness thresholds used for presumptive RACT emission limitations may not be appropriate for case-by-case determinations. Prior to the implementation of the final-form RACT rulemaking requirements, the Department may prepare additional guidance for alternative RACT proposals and petitions for an alternative compliance schedule, if necessary. The case-by-case process itself is outlined under § 129.99.

A commentator says that the Department is to approve, deny or modify the alternative RACT proposal in writing through the issuance of a plan approval or an operating permit modification prior to the owner or operator implementing the alternative RACT emission limitation. The proposed rulemaking should be revised to acknowledge that modifications of the alternative RACT proposal will not be made without input from the applicant.

The Board finds that § 129.99(e)(3) allows the Department to deny or modify the alternative RACT proposal submitted by the applicant if the proposal does not comply with the requirements of § 129.99(d). The proposed alternative RACT determinations are required to undergo a public participation process where the applicant will have an opportunity to comment. In addition, the applicant has the right to appeal the final RACT determination.

*Comments related to § 129.100(a), § 129.100(c). Source testing and monitoring*

A couple of commentators state that many of these provisions do not meet the CAA requirement for a monitored, verifiable, measureable and Federally enforceable emissions control program.

The Board disagrees. The final-form rulemaking contains adequate requirements for monitoring that are measureable and verifiable and will be Federally enforceable upon approval by the EPA as a SIP revision. These requirements are found under § 129.100.

More than a few commentators believe that NO<sub>x</sub> emissions should be monitored by pollution sources and over a 1-hour and 8-hour standard.

The Board disagrees. For sources equipped with CEMS, a 30-day rolling averaging period is appropriate to accommodate operation at varying load and operating conditions. A 30-day rolling limit addresses problems including variability in fuel (such as in waste coal combustors), emission spikes during start-up and shutdown of the emission source, and emissions during malfunctions that are faced by certain owners and operators. Due to these unavoidable circumstances not indicative of normal operation, it would not be appropriate for utilities utilizing NO<sub>x</sub> CEMS to be required to show compliance with the presumptive NO<sub>x</sub> RACT emission limitations over a 1-hour or 8-hour averaging period. The 30-day rolling average will require that the owners and operators operate below the allowable standard in order to account for the occasional higher emissions. A 30-day rolling average has been approved by the EPA to demonstrate compliance with the short-term RACT limitations in SIP revisions submitted by certain states including New York and Wisconsin.

Wisconsin's RACT regulations, which the EPA approved in October 2010, include emission averaging on a 30-day rolling basis for determining compliance. Wisconsin described such a period as short term and noted that this approach would allow averaging of the typical variations in emission levels from a single unit. For sources not equipped with CEMS, compliance with the presumptive NO<sub>x</sub> RACT emission limitations is to be shown with appropriate EPA reference-method source testing. Therefore, the RACT rulemaking contains adequate requirements for monitoring that are measureable and verifiable and will be federally enforceable upon approval by EPA as a SIP revision.

One commentator believes that the waiver related to stack testing compliance demonstration in § 129.100(c) should be available to all sources subject to the proposed rules including those subject to § 129.99, the case-by-case RACT determination.

The Board responds by noting that the owner or operator of any source that is not subject to a presumptive RACT requirement may propose an alternative RACT emission limitation. The alternative RACT proposal may include alternative methods of compliance demonstration, including the use of previously performed source testing. Since this would involve case-by-case approval, there is no need to put any additional requirements in the final-form rulemaking.

Another commentator states that, under § 129.100, compliance for each source subject to RACT limits is to be demonstrated through CEMS or source testing. The Proposed Rule should provide that engines that are EPA certified for the New Source Performance Standards (40 CFR Part 60 Subparts IIII and JJJJ) comply with RACT without resort to CEMS or source testing. The use of an EPA-certified engine should be sufficient to demonstrate compliance with RACT emission limitations.

The Board disagrees. Compliance must be demonstrated in accordance with § 129.100, which requires that compliance for each source subject to RACT limits is to be demonstrated through either CEMS or stack testing. A certification in and of itself cannot show that a source is in compliance with an emission limit. Only a CEMS, stack test or other measuring protocol can assure compliance. In the case of RACT, the Department decided that a CEMS or stack test is the most efficacious way to show compliance.

*Comments related to § 129.100(d)—(i). Recordkeeping*

A couple of commentators note that § 129.100 contains compliance demonstration and recordkeeping requirements for sources subject to part or all of this regulation. However, there doesn't seem to be any direction for a source only subject to work practice standards (such as the vague good engineering practices requirement). What is their compliance demonstration method? What records is a site required to keep in order to meet this requirement?

The Board points out that § 127.444 requires sources to operate in a manner consistent with good operating practices. Sources subject to § 129.97 are already subject to § 127.444. The Title V Operating Permit includes the appropriate recordkeeping and reporting requirements to demonstrate compliance with all applicable requirements.

It should be noted that the presumptive RACT requirements included in § 129.93 require the installation, maintenance and operation of the source in accordance with manufacturer's specifications. This requirement has been implemented since 1995. In addition, the owner or operator may opt to determine RACT requirements on a case-by-case basis in place of presumptive RACT requirements.

The commentator feels that carbon monoxide (CO) should not be included in the log book. At a minimum the CO emissions requirement should be removed as CO is not part of the proposed NO<sub>x</sub> and VOC RACT.

The Board disagrees. The final-form rulemaking has been revised to require biennial tune-ups for a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour conducted in accordance with 40 CFR 63.11223. 40 CFR 63.11223 requires CO emissions to be included in the record. In addition, CO emissions are recorded as a surrogate for VOC emissions.

A commentator states that the cement kiln limits apply at all times, including malfunctions, so there is no logical reason why the Department would need malfunction logs to assess compliance

with this rule. Malfunction records are already required under Title V boilerplate conditions and need not be repeated here.

The Board notes that the presumptive NO<sub>x</sub> RACT emission limitations for Portland cement kilns are applicable at all times, including start-up, shutdown, and malfunction. The Department agrees that malfunction records are already required by Title V permits. Therefore, there are no additional recordkeeping requirements on the owner or operator to record malfunction information due to the final-form rulemaking.

### *Miscellaneous Comments*

A commentator believes that the failure to apply Maximum Achievable Control Technology (MACT) based limits uniformly, especially to municipal waste combustors, also poses a risk of increased VOC exposure to vulnerable populations that may also fall under the rubric of environmental justice communities which are warranted additional protection under the Federal Executive Order 12898 (1994) for Minority and Low-Income populations.

The Board disagrees that the failure to apply MACT-level limitations to subject sources, including municipal waste combustors, will pose a risk of increased VOC exposure to vulnerable populations. The proposed and final-form rulemakings address the Commonwealth's obligations under the APCA, the CAA and regulations issued under the CAA to establish RACT requirements for the 8-hour ozone NAAQS promulgated in 1997 and revised in 2008. The RACT requirements and emission limitations set forth in the proposed rulemaking are applicable to the owners and operators of subject sources of NO<sub>x</sub> or VOC emissions (precursors to ozone formation) in existence on or before July 20, 2012 – the effective date of the EPA's designations and classifications for the 2008 ozone NAAQS. See 77 FR 30088 (May 21, 2012).

The Commonwealth must implement permanent and enforceable control measures to attain and maintain the standards and to ensure violations of the standards do not occur for the next decade. This final-form rulemaking will provide reductions of both potential and actual NO<sub>x</sub> and VOC emissions from major NO<sub>x</sub> and VOC emitting facilities Statewide. Additionally, the owners and operators of many of the facilities that the commentator is concerned about are already subject to MACT.

The commentator requests clarification regarding the jurisdiction of the Philadelphia Air Management Services (AMS) in implementing/enforcing the RACT regulations that are proposed in §§ 129.96—129.100. The commentator recommends that compliance with proposed §§ 129.96—129.100 satisfy compliance with Philadelphia AMS RACT requirements.

Philadelphia Air Management Services (AMS) in the City of Philadelphia's Health Department administers a local air pollution control program approved by the Department under section 12 of the Air Pollution Control Act (35 P.S. §4012). Air quality regulations enforced by Philadelphia AMS are codified under Title 3 of the Philadelphia Code. Philadelphia AMS may incorporate Department regulations by reference or may enact regulations of its own to satisfy the obligations under the CAA and regulations issued under the CAA. Philadelphia AMS has required the owners and operators of affected sources in its jurisdiction to determine RACT

requirements on a case-by-case basis for the 1997 ozone standard. While the Board's RACT regulations will apply statewide, Philadelphia AMS may establish separate RACT requirements and compliance standards for the owners and operators of affected sources under its jurisdiction.

The commentators signed a petition that expressed concern that the proposed rulemaking will not do enough to address pollution at coal-fired power plants.

The Board acknowledges receipt of a petition containing 2,246 signatures. The Board also disagrees with the commentators. The final-form rulemaking will require the owners and operators of any combustion unit equipped with a SCR system that is operating with an inlet temperature equal to or greater than 600°F to meet a NO<sub>x</sub> emission limit of 0.12 lb NO<sub>x</sub>/million Btu. Compliance with this emission limit is also required when by-passing the SCR system. The more stringent NO<sub>x</sub> emission limitation for coal-fired units equipped with SCR systems will reduce NO<sub>x</sub> emissions from the electric generating sector to approximately 59,000 tons of actual NO<sub>x</sub> emissions. It is also important to note that NO<sub>x</sub> emissions have declined significantly in Pennsylvania, especially from coal-fired electric generating units—NO<sub>x</sub> emissions decreased from approximately 192,004 tons in 2000 to 119,025 tons of NO<sub>x</sub> emissions in 2013. The final-form rulemaking will result in further reductions in actual NO<sub>x</sub> emissions from one of the largest sources of NO<sub>x</sub> emissions in the Department emissions inventory.

#### *G. Benefits, Costs and Compliance*

##### *Benefits*

Reduced ambient concentrations of ground-level ozone would reduce the incidences of hospital admissions for respiratory ailments including asthma and improve the quality of life for citizens overall. While 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 high levels of ambient ground-level ozone while engaged in activities that involve physical exertion.

The final-form rulemaking may create economic opportunities for NO<sub>x</sub> and VOC emission control technology innovators, manufacturers and distributors through an increased demand for new or improved equipment. In addition, the owners and operators of regulated facilities may be required to install and operate an emissions monitoring system or equipment necessary for an emissions monitoring method in order to comply with the rulemaking, thereby creating an economic opportunity for the emissions monitoring industry.

##### *Compliance Costs*

Compliance costs will vary for each facility depending on which compliance option is chosen by the owners and operators of a facility. The final-form rulemaking includes a provision for the owner and operator of an affected facility to meet the applicable presumptive NO<sub>x</sub> RACT or VOC RACT emission limitation under § 129.97, which is the option to propose an alternative compliance schedule, if an air cleaning device must be installed. In addition, in the case of a NO<sub>x</sub> limitation, the owners and operators of an affected facility may elect to meet that applicable

NO<sub>x</sub> RACT emission limitation by averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average under § 129.98.

An affected facility owner or operator may also submit a case-specific RACT proposal for an alternative emission limitation to the Department for approval under § 129.99. Under this provision, the owner or operator shall demonstrate to the Department's satisfaction that it is economically or technically infeasible to meet the applicable proposed NO<sub>x</sub> RACT or VOC RACT emission limitation. These provisions may minimize compliance costs to the owner or operator of an affected facility.

The emission limitations established by this final-form rulemaking will not require the submission of applications for amendments to existing operating permits. These requirements will be incorporated as applicable requirements at the time of permit renewal, if less than 3 years remain in the permit term, as specified under § 127.463(c) (relating to operating permit revisions to incorporate applicable standards). If 3 years or more remain in the permit term, the requirements will be incorporated as applicable requirements in the permit within 18 months of the promulgation of the final-form rulemaking, as required under § 127.463(b). Most importantly, § 127.463(e) specifies that “[r]egardless of whether a revision is required under this section, the permittee shall meet the applicable standards or regulations promulgated under the Clean Air Act within the time frame required by standards or regulations.” Consequently, upon promulgation as final-form rulemaking, the requirements will apply to affected owners and operators irrespective of a modification to the Operating Permit.

#### *Compliance Assistance Plan*

The Department will continue to work with the Small Business Assistance Program to aid the facilities less able to handle permitting matters with in-house staff. Through increased preapplication meetings with facilities, industry and the Department both benefit by faster review of permit applications.

#### *Paperwork Requirements*

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

#### *H. Pollution Prevention*

The Pollution Prevention Act of 1990 (42 U.S.C.A. §§ 13101—13109) 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 the owners and operators of facilities that permanently achieve or move beyond compliance. The final RACT requirements allow the Department and approved local air pollution control agencies to maintain or increase

the reductions of NO<sub>x</sub> and VOC emissions from the regulated sources in this Commonwealth, sustain the gains made in healthful air quality and ensure continued protection of the environment and the public health and welfare of the citizens of this Commonwealth.

#### *I. Sunset Review*

This final-form rulemaking will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulations effectively fulfill the goals for which they were intended.

#### *J. Regulatory Review*

Under section 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on April 7, 2014, the Department submitted a copy of the notice of proposed rulemaking, published at 44 Pa.B. 2392 (April 19, 2014), to IRRC and the Chairpersons of the House and Senate Environmental Resources and Energy Committees for review and comment.

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

Under section 5.1(j.2) of the Regulatory Review Act (71 P. S. § 745.5a(j.2)), on DATE, the final-form rulemaking was deemed approved by the House and Senate Committees. Under section 5.1(e) of the Regulatory Review Act, IRRC met on DATE and approved the final-form rulemaking.

#### *K. Findings*

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) This final-form rulemaking does not enlarge the purpose of the proposed rulemaking published at 44 Pa.B. 2392.
- (4) These regulations are necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this Order.
- (5) These regulations are reasonably necessary to attain and maintain the 8-hour ozone NAAQS and to satisfy related CAA requirements.

L. *Order*

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

- (a) The regulations of the Department, 25 Pa. Code Chapters 121 and 129, are amended by adding §§ 129.96—129.100 and by amending § 121.1 to read as set forth in Annex A, with ellipses referring to existing text of the regulations.
- (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 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 SIP.
- (f) This order shall take effect immediately upon publication in the *Pennsylvania Bulletin*.

JOHN QUIGLEY,  
Chairperson



**Final-form Rulemaking**  
**Annex A**  
**TITLE 25. ENVIRONMENTAL PROTECTION**  
**PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
**Subpart C. PROTECTION OF NATURAL RESOURCES**  
**ARTICLE III. AIR RESOURCES**  
**CHAPTER 121. GENERAL PROVISIONS**

**§ 121.1. Definitions.**

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

\* \* \* \* \*

*CEMS—Continuous emissions monitoring system*—**[For purposes of Chapter 127, Subchapter E, all] All** of the equipment that may be required to meet the data acquisition and availability requirements **[of Chapter 127, Subchapter E to] established under the act or Clean Air Act to monitor, measure, calculate,** sample, condition, analyze and provide a **[permanent]** record of emissions **from an affected unit** on a continuous basis.

\* \* \* \* \*

*Major NO<sub>x</sub> emitting facility*—A facility which emits or has the potential to emit NO<sub>x</sub> from the processes located at the site or on contiguous properties under the common control of the same person at a rate greater than one of the following:

(i) Ten TPY in an ozone nonattainment area designated as extreme under section 182(e) and (f) of the Clean Air Act (42 U.S.C.A. § 7511a(e) and (f)).

(ii) Twenty-five TPY in an ozone nonattainment area designated as severe under section 182(d) and (f) of the Clean Air Act.

(iii) Fifty TPY in an area designated as serious under section 182(c) and (f) of the Clean Air Act.

(iv) One hundred TPY in an area included in an ozone transport region established under section 184 of the Clean Air Act (42 U.S.C.A. § 7511c).

(v) Twenty-five TPY and is located in Bucks, Chester, Delaware, Montgomery or Philadelphia County. **THIS THRESHOLD DOES NOT APPLY TO §§ 129.96-129.100 (RELATING TO ADDITIONAL RACT REQUIREMENTS FOR MAJOR SOURCES OF NO<sub>x</sub> AND VOCs).**

*Major VOC emitting facility*—A facility which emits or has the potential to emit VOCs from processes located at the site or on contiguous properties under the common control of the same person at a rate greater than one of the following:

(i) Ten TPY in an ozone nonattainment area designated as extreme under section 182(e) of the Clean Air Act.

(ii) Twenty-five TPY in an ozone nonattainment area designated as severe under section 182(d) of the Clean Air Act.

(iii) Fifty TPY in an area included in an ozone transport region established under section 184 of the Clean Air Act.

(iv) Twenty-five TPY and is located in Bucks, Chester, Delaware, Montgomery or Philadelphia County. **THIS THRESHOLD DOES NOT APPLY TO §§ 129.96-129.100.**

\* \* \* \* \*

*Process*—A method, reaction or operation in which materials are handled or whereby materials undergo physical change—that is, the size, shape, appearance, temperature, state or other physical property of the material is altered—or chemical change—that is, a substance with different chemical composition or properties is formed or created. The term includes all of the equipment, operations and facilities necessary for the completion of the transformation of the materials to produce a physical or chemical change. There may be several processes in series or parallel necessary to the manufacture of a product.

**Process heater—**

**(i) An enclosed device using controlled flame, that is not a boiler, the primary purpose of which is to transfer heat to a process material or to a heat transfer material for use in a process unit.**

**(ii) The term does not include an enclosed device that meets either of the following circumstances:**

**(A) Has the primary purpose of generating steam.**

**(B) In which the material being heated is in direct contact with the products of combustion, including:**

**(I) A furnace.**

**(II) A kiln.**

**(III) An unfired waste heat recovery heater.**

**(IV) A unit used for comfort heat, space heat or food preparation for onsite consumption.**

**(V) An autoclave.**

*Project*—A physical change in or change in the method of operation of an existing facility, including a new emissions unit.

\* \* \* \* \*

*Refinery component*—A piece of equipment which has the potential to leak VOCs when tested in the manner specified in § 129.58 (relating to petroleum refineries—fugitive sources). These sources include, but are not limited to, pump seals, compressor seals, seal oil degassing vents, pipeline valves, pressure relief devices, process drains and open-ended pipes. Excluded from these sources are valves which are not externally regulated.

**REFINERY GAS—GAS PRODUCED AT A REFINERY WHICH PRODUCES PETROLEUM PRODUCTS, INCLUDING GASOLINE, FROM REFINERY UNITS.**

*Refinery unit*—A basic process operation, such as distillation hydrotreating, cracking or reforming of hydrocarbons which is made up of a set of refinery components.

**REGENERATIVE CYCLE COMBUSTION TURBINE—A STATIONARY COMBUSTION TURBINE WHICH RECOVERS HEAT FROM THE COMBUSTION TURBINE EXHAUST GASES TO PREHEAT THE INLET COMBUSTION AIR TO THE COMBUSTION TURBINE.**

*Regulated NSR pollutant*—

- (i) NO<sub>x</sub> or VOCs.
- (ii) A pollutant for which the EPA has promulgated a NAAQS.
- (iii) A pollutant that is a constituent or precursor of a pollutant listed under subparagraph (i) or (ii), if the constituent or precursor pollutant may only be regulated under NSR as part of regulation of the pollutant listed under subparagraph (i) or (ii). Precursors identified by the Administrator of the EPA for purposes of NSR are the following:
  - (A) VOCs and NO<sub>x</sub> are precursors to ozone in all ozone nonattainment areas.
  - (B) SO<sub>2</sub> is a precursor to PM<sub>2.5</sub> in all PM<sub>2.5</sub> nonattainment areas.
  - (C) Nitrogen oxides are presumed to be precursors to PM<sub>2.5</sub> in PM<sub>2.5</sub> nonattainment areas unless the Department demonstrates to the satisfaction of the Administrator of the EPA or the Administrator of the EPA determines that NO<sub>x</sub> emissions from a source in a specific area are not a significant contributor to that area's ambient PM<sub>2.5</sub> concentrations.
- (iv) PM<sub>2.5</sub> and PM-10 emissions, including gaseous emissions from a facility or activity that condense to form particulate matter at ambient temperatures, as specified in § 127.201(g) (relating to general requirements).

\* \* \* \* \*

*Silicone insulation material*—An insulating material applied to exterior metal surfaces of aerospace vehicles for protection from high temperatures caused by atmospheric friction or engine exhaust. These materials differ from ablative coatings in that they are not designed to be purposefully exposed to open flame or extreme heat and charred.

**SIMPLE CYCLE COMBUSTION TURBINE—A STATIONARY COMBUSTION TURBINE WHICH DOES NOT RECOVER HEAT FROM THE COMBUSTION TURBINE EXHAUST GASES TO PREHEAT THE INLET COMBUSTION AIR TO THE COMBUSTION TURBINE, OR WHICH DOES NOT RECOVER HEAT FROM THE COMBUSTION TURBINE EXHAUST GASES FOR PURPOSES OTHER THAN ENHANCING THE PERFORMANCE OF THE COMBUSTION TURBINE ITSELF.**

*Single coat*—One film of coating applied to a metal surface.

\* \* \* \* \*

*Start-up*—For purposes of § § 129.301—129.310, the period of time, after initial construction, shutdown or 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.

**STATIONARY COMBUSTION TURBINE—EQUIPMENT, INCLUDING THE TURBINE, FUEL, AIR, LUBRICATION AND EXHAUST GAS SYSTEMS, CONTROL SYSTEMS (EXCEPT EMISSIONS CONTROL EQUIPMENT), HEAT RECOVERY SYSTEM, AND ANCILLARY COMPONENTS AND SUB-COMPONENTS COMPRISING A SIMPLE CYCLE COMBUSTION TURBINE, A REGENERATIVE OR RECUPERATIVE CYCLE COMBUSTION TURBINE, A COMBINED CYCLE COMBUSTION TURBINE AND A COMBINED HEAT AND POWER COMBUSTION TURBINE-BASED SYSTEM. THE EQUIPMENT IS NOT SELF-PROPELLED OR INTENDED TO BE PROPELLED WHILE PERFORMING ITS FUNCTION. THE EQUIPMENT MAY BE MOUNTED ON A VEHICLE FOR PORTABILITY.**

*Stationary internal combustion engine* **OR STATIONARY RECIPROCATING INTERNAL COMBUSTION ENGINE**—[For purposes of § 129.203 (relating to stationary internal combustion engines), an] **An internal combustion engine [of the reciprocating type that is either attached to a foundation at a facility or is designed to be capable of being carried or moved from one location to another and is not a mobile air contamination source] WHICH USES RECIPROCATING MOTION TO CONVERT HEAT ENERGY INTO MECHANICAL WORK AND WHICH IS NOT MOBILE. THE TERM DOES NOT INCLUDE THE FOLLOWING:**

- (i) A COMBUSTION TURBINE.**
- (ii) A NONROAD ENGINE AS DEFINED AT 40 CFR 1068.30 (EXCLUDING PARAGRAPH (2)(ii) OF THAT DEFINITION).**
- (iii) AN ENGINE USED TO PROPEL A MOTOR VEHICLE, AN AIRCRAFT OR A VEHICLE USED SOLELY FOR COMPETITION.**
- (iv) A PORTABLE TEMPORARY SOURCE SUCH AS AN AIR COMPRESSOR OR GENERATOR.**

\* \* \* \* \*

## CHAPTER 129. STANDARDS FOR SOURCES

### ADDITIONAL RACT REQUIREMENTS FOR MAJOR SOURCES OF NO<sub>x</sub> AND VOCs

(Editor's Note: Sections 129.96—129.100 are new and printed in regular type to enhance readability.)

#### § 129.96. Applicability.

(a) ~~[This]~~ **THE NO<sub>x</sub> REQUIREMENTS OF THIS** section and §§ 129.97—129.100 apply Statewide to the owner and operator of a major NO<sub>x</sub> emitting facility ~~[or]~~ **AND THE VOC REQUIREMENTS OF THIS SECTION AND §§ 129.97–129.100 APPLY STATEWIDE TO THE OWNER AND OPERATOR OF** a major VOC emitting facility~~[, or both,]~~ that ~~[was]~~ **WERE** in existence on or before July 20, 2012, for which a requirement or emission limitation, or both, has not been established in §§ 129.51—129.52c, 129.54—129.69, 129.71—129.73, 129.75, 129.77, 129.101—129.107 and 129.301—129.310.

(b) ~~[This]~~ **THE NO<sub>x</sub> REQUIREMENTS OF THIS** section and §§ 129.97—129.100 apply Statewide to the owner and operator of a NO<sub>x</sub> emitting facility ~~[or]~~ **AND THE VOC REQUIREMENTS OF THIS SECTION AND §§ 129.97–129.100 APPLY STATEWIDE TO THE OWNER AND OPERATOR OF A** VOC emitting facility~~[, or both,]~~ when the installation of a new source or a modification or change in operation of an existing source after July 20, 2012, results in the source or facility meeting the definition of a major NO<sub>x</sub> emitting facility or a major VOC emitting facility and for which a requirement or an emission limitation, or both, has not been established in §§ 129.51—129.52c, 129.54—129.69, 129.71—129.73, 129.75, 129.77, 129.101—129.107 and 129.301—129.310.

**(c) THIS SECTION AND §§ 129.97—129.100 DO NOT APPLY TO THE OWNER AND OPERATOR OF A NO<sub>x</sub> AIR CONTAMINATION SOURCE LOCATED AT A MAJOR NO<sub>x</sub> EMITTING FACILITY THAT HAS THE POTENTIAL TO EMIT LESS THAN 1 TPY OF NO<sub>x</sub> OR A VOC AIR CONTAMINATION SOURCE LOCATED AT A MAJOR VOC EMITTING FACILITY THAT HAS THE POTENTIAL TO EMIT LESS THAN 1 TPY OF VOC.**

**(d) THIS SECTION AND §§ 129.97—129.100 DO NOT APPLY TO THE OWNER AND OPERATOR OF A FACILITY WHICH IS NOT A MAJOR NO<sub>x</sub> EMITTING FACILITY OR A MAJOR VOC EMITTING FACILITY ON OR BEFORE JANUARY 1, 2017.**

#### § 129.97. Presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule.

(a) The owner and operator of a source listed in one or more of subsections (b)—(h) located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility ~~[, or both,]~~ subject to § 129.96 (relating to applicability) shall comply with the applicable presumptive RACT requirement or RACT emission limitation, or both, beginning with the specified compliance date as follows, unless an alternative compliance schedule is submitted and approved under subsections (k)—(m) or § 129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule)~~]~~ :

(1) JANUARY 1, 2017, for a source subject to § 129.96(a).

(2) JANUARY 1, 2017, or 1 year after the date the source meets the definition of a major NO<sub>x</sub> emitting facility or major VOC emitting facility, whichever is later, for a source subject to § 129.96(b).

(b) The owner and operator of a source SPECIFIED in this subsection, WHICH IS located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility [~~or both~~], subject to § 129.96 shall comply with the following:

(1) [~~Except as specified in paragraph (2), the~~] THE presumptive RACT requirement for a combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour, which is the performance of [~~an annual adjustment to or~~] A BIENNIAL tune-up [~~of the combustion process~~] CONDUCTED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN 40 CFR 63.11223. The [~~adjustment~~] BIENNIAL TUNE-UP must include, at a minimum, the following:

(i) Inspection [~~adjustment~~] AND cleaning or replacement of fuel-burning equipment, including the burners and [~~moving parts~~] COMPONENTS, AS necessary, for proper operation as specified by the manufacturer.

(ii) Inspection [~~and adjustment~~] of the flame pattern [~~or characteristics~~] AND ADJUSTMENT OF THE BURNER, AS necessary, TO OPTIMIZE THE FLAME PATTERN IN ORDER to minimize total emissions of NO<sub>x</sub> and, to the extent possible, emissions of CO.

(iii) Inspection and adjustment, AS NECESSARY, of the air-to-fuel ratio control system [~~necessary~~] to ensure proper calibration and operation as specified by the manufacturer.

(2) [~~The presumptive RACT requirement for an oil-fired, gas-fired or combination oil-fired and gas-fired combustion unit with a rated heat input equal to or greater than 20 million Btu/hour and less than 50 million Btu/hour, which is the performance of all adjustments consistent with the EPA document "Combustion Efficiency Optimization Manual for Operators of Oil and Gas-fired Boilers (EPA-340/1-83-023)," September 1983 or as amended.~~] THE OWNER OR OPERATOR OF A COMBUSTION UNIT WITH AN OXYGEN TRIM SYSTEM THAT MAINTAINS AN OPTIMUM AIR-TO-FUEL RATIO THAT WOULD OTHERWISE BE SUBJECT TO A BIENNIAL TUNE-UP SHALL CONDUCT A TUNE-UP OF THE BOILER ONE TIME IN EACH 5-YEAR CALENDAR PERIOD. THE TUNE-UP MUST INCLUDE, AT A MINIMUM, THE FOLLOWING:

(i) INSPECTION AND CLEANING OR REPLACEMENT OF FUEL-BURNING EQUIPMENT, INCLUDING THE BURNERS AND COMPONENTS, AS NECESSARY, FOR PROPER OPERATION AS SPECIFIED BY THE MANUFACTURER.

(ii) INSPECTION OF THE FLAME PATTERN AND ADJUSTMENT OF THE BURNER, AS NECESSARY, TO OPTIMIZE THE FLAME PATTERN IN ORDER TO

**MINIMIZE TOTAL EMISSIONS OF NO<sub>x</sub> AND, TO THE EXTENT POSSIBLE, EMISSIONS OF CO.**

**(iii) INSPECTION AND ADJUSTMENT, AS NECESSARY, OF THE AIR-TO-FUEL RATIO CONTROL SYSTEM TO ENSURE PROPER CALIBRATION AND OPERATION AS SPECIFIED BY THE MANUFACTURER.**

(3) The applicable recordkeeping requirements of § 129.100(d) ~~[or]~~ (e) **OR (f)** (relating to compliance demonstration and recordkeeping requirements).

(c) The owner and operator of a source **SPECIFIED** in this subsection, **WHICH IS** located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility ~~[, or both,]~~ subject to § 129.96 shall ~~[comply with the following presumptive RACT requirement, which is the installation, maintenance and operation of]~~ **INSTALL, MAINTAIN AND OPERATE** the source in accordance with the manufacturer's specifications and **WITH** good ~~[engineering]~~ **OPERATING** practices:

**(1) A NO<sub>x</sub> AIR CONTAMINATION SOURCE THAT HAS THE POTENTIAL TO EMIT LESS THAN 5 TPY OF NO<sub>x</sub>.**

**(2) A VOC AIR CONTAMINATION SOURCE THAT HAS THE POTENTIAL TO EMIT LESS THAN 2.7 TPY OF VOC.**

**(3) A boiler or other combustion source with an individual rated gross heat input less than 20 million Btu/hour.**

~~[(2)]~~**(4)** A combustion turbine with a rated output less than 1,000 bhp.

~~[(3)]~~**(5)** ~~[An]~~ **A STATIONARY** internal combustion engine rated at less than 500 bhp (gross).

~~[(4)]~~**(6)** An incinerator, thermal oxidizer or catalytic oxidizer used primarily for air pollution control.

~~[(5)]~~**(7)** A ~~[unit of]~~ fuel-burning ~~[equipment, a gas turbine or an internal combustion engine]~~ **UNIT** with an annual capacity factor of less than 5%.

**(i) FOR A COMBUSTION UNIT, THE ANNUAL CAPACITY FACTOR IS THE RATIO OF THE UNIT'S HEAT INPUT (IN MILLION BTU OR EQUIVALENT UNITS OF MEASURE) TO THE UNIT'S MAXIMUM RATED HOURLY HEAT INPUT RATE (IN MILLION BTU/HOUR OR EQUIVALENT UNITS OF MEASURE) MULTIPLIED BY 8,760 HOURS DURING A PERIOD OF 12 CONSECUTIVE CALENDAR MONTHS.**

**(ii) FOR AN ELECTRIC GENERATING UNIT, THE ANNUAL CAPACITY FACTOR IS THE RATIO OF THE UNIT'S ACTUAL ELECTRIC OUTPUT (EXPRESSED IN MWE/HR) TO THE UNIT'S NAMEPLATE CAPACITY (OR MAXIMUM OBSERVED HOURLY GROSS LOAD (IN MWE/HR) IF GREATER THAN THE NAMEPLATE CAPACITY) MULTIPLIED BY 8,760 HOURS DURING A PERIOD OF 12 CONSECUTIVE CALENDAR MONTHS.**

**(iii) FOR ANY OTHER UNIT, THE ANNUAL CAPACITY FACTOR IS THE RATIO OF THE UNIT'S ACTUAL OPERATING LEVEL TO THE UNIT'S POTENTIAL OPERATING LEVEL DURING A PERIOD OF 12 CONSECUTIVE CALENDAR MONTHS.**

~~{(6)}~~**(8)** An emergency standby engine operating less than 500 hours in a 12-month rolling period.

(d) ~~[The]~~ **EXCEPT AS SPECIFIED UNDER SUBSECTION (c), THE** owner and operator of a combustion unit or other combustion source located at a major VOC emitting facility subject to § 129.96 shall ~~[comply with the presumptive RACT requirement of]~~ **INSTALL, MAINTAIN AND OPERATE THE SOURCE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND WITH good [engineering] OPERATING** practices for the control of the VOC emissions from the combustion unit or other combustion source.

(e) The owner and operator of a municipal solid waste landfill subject to § 129.96 shall comply with the following applicable presumptive RACT requirement:

(1) For a municipal solid waste landfill constructed on or before May 30, 1991, emission guidelines and compliance times in 40 CFR Part 60, Subpart Cc (relating to emission guidelines and compliance times for municipal solid waste landfills), which are adopted and incorporated by reference in § 122.3 (relating to adoption of standards), and applicable Federal or state plans in 40 CFR Part 62 (relating to approval and promulgation of state plans for designated facilities and pollutants).

(2) For a municipal solid waste landfill constructed after May 30, 1991, new source performance standards in 40 CFR Part 60, Subpart WWW (relating to standards of performance for municipal solid waste landfills), which are adopted and incorporated by reference in § 122.3.

(f) The owner and operator of a municipal waste combustor subject to § 129.96 shall comply with the ~~[following applicable]~~ presumptive RACT requirement~~[:]~~ **OF 180 PPMVD NO<sub>x</sub> @ 7% OXYGEN.**

~~[(1) For a municipal waste combustor constructed on or before September 20, 1994, the emission guidelines and compliance times in 40 CFR Part 60, Subpart Cb (relating to emissions guidelines and compliance times for large municipal waste combustors that are constructed on or before September 20, 1994), which are adopted and incorporated by reference in § 122.3, and applicable Federal or state plans in 40 CFR Part 62.~~

~~[(2) For a municipal waste combustor constructed after September 20, 1994, or for a municipal waste combustor that commenced a modification or reconstruction after June 19, 1996, the new source performance standards in 40 CFR Part 60, Subpart Eb (relating to standards of performance for large municipal waste combustors for which construction is commenced after September 20, 1994 or for which modification or reconstruction is commenced after June 19, 1996), which are adopted and incorporated by reference in § 122.3.]~~

(g) ~~[The]~~ **EXCEPT AS SPECIFIED UNDER SUBSECTION (c), THE** owner and operator of a NO<sub>x</sub> air contamination source **SPECIFIED** in this subsection, **WHICH IS** located at a major NO<sub>x</sub> emitting facility or a VOC air contamination source **SPECIFIED** in this subsection, **WHICH IS** located at a major VOC emitting facility ~~[, or both,]~~ subject to § 129.96 may not cause, allow or permit NO<sub>x</sub> or VOCs ~~[, or both,]~~ to be emitted from the air contamination source ~~[for which the source is major]~~ in excess of the applicable **PRESUMPTIVE** RACT emission limitation:

(1) A combustion unit or process heater:

(i) For a natural gas-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour, ~~[0.08]~~ **0.10** lb NO<sub>x</sub>/million Btu heat input.

(ii) For a distillate oil-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour, 0.12 lb NO<sub>x</sub>/million Btu heat input.

(iii) For a residual oil-fired **OR OTHER LIQUID FUEL-FIRED** combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour, 0.20 lb NO<sub>x</sub>/million Btu heat input.

(iv) For a refinery gas-fired combustion unit or process heater with a rated heat input equal to or greater than 50 million Btu/hour, 0.25 lb NO<sub>x</sub>/million Btu heat input.

(v) For a coal-fired combustion unit with a rated heat input equal to or greater than 50 million Btu/hour and less than 250 million Btu/hour, 0.45 lb NO<sub>x</sub>/million Btu heat input.

(vi) For a coal-fired combustion unit with a rated heat input equal to or greater than 250 million Btu/hour that is:

(A) A circulating fluidized bed combustion unit, ~~[0.20]~~ **0.16** lb NO<sub>x</sub>/million Btu heat input.

(B) A tangentially fired combustion unit, 0.35 lb NO<sub>x</sub>/million Btu heat input.

(C) ~~[Another]~~ **ANY OTHER TYPE OF COAL-FIRED** combustion unit, 0.40 lb NO<sub>x</sub>/million Btu heat input.

**(vii) FOR ANY OTHER TYPE OF SOLID FUEL-FIRED COMBUSTION UNIT WITH A RATED HEAT INPUT EQUAL TO OR GREATER THAN 50 MILLION BTU/HOUR, 0.25 LB NO<sub>x</sub>/MILLION BTU HEAT INPUT.**

**(viii) FOR A COAL-FIRED COMBUSTION UNIT WITH A SELECTIVE CATALYTIC REDUCTION SYSTEM OPERATING WITH AN INLET TEMPERATURE EQUAL TO OR GREATER THAN 600°F, 0.12 LB NO<sub>x</sub>/MILLION BTU HEAT INPUT. COMPLIANCE WITH THIS EMISSION LIMIT IS ALSO REQUIRED WHEN BY-PASSING THE SELECTIVE CATALYTIC REDUCTION SYSTEM.**

**(ix) FOR A COAL-FIRED COMBUSTION UNIT WITH A SELECTIVE NON-CATALYTIC REDUCTION SYSTEM, THE SELECTIVE NON-CATALYTIC REDUCTION SYSTEM SHALL BE OPERATED WITH THE INJECTION OF REAGENTS INCLUDING AMMONIA OR OTHER NO<sub>x</sub>-REDUCING AGENTS, WHEN THE TEMPERATURE AT THE AREA OF THE REAGENT INJECTION IS EQUAL TO OR GREATER THAN 1600°F.**

(2) A combustion turbine:

(i) For a combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 1,000 bhp and less than 180 MW when firing:

(A) Natural gas or a noncommercial gaseous fuel, 42 ppmvd NO<sub>x</sub> @ 15% oxygen.

(B) Fuel oil, ~~75~~ 96 ppmvd NO<sub>x</sub> @ 15% oxygen.

(C) Natural gas or a noncommercial gaseous fuel, ~~2~~ 5 ppmvd VOC (as propane) @ 15% oxygen.

(D) Fuel oil, ~~2~~ 9 ppmvd VOC (as propane) @ 15% oxygen.

(ii) For a combined cycle or combined heat and power combustion turbine with a rated output equal to or greater than 180 MW when firing:

(A) Natural gas or a noncommercial gaseous fuel, 4 ppmvd NO<sub>x</sub> @ 15% oxygen.

(B) Fuel oil, 8 ppmvd NO<sub>x</sub> @ 15% oxygen.

(C) Natural gas or a noncommercial gaseous fuel, 2 ppmvd VOC (as propane) @ 15% oxygen.

(D) Fuel oil, 2 ppmvd VOC (as propane) @ 15% oxygen.

**(iii) FOR A SIMPLE CYCLE OR REGENERATIVE CYCLE COMBUSTION TURBINE WITH A RATED OUTPUT EQUAL TO OR GREATER THAN 1,000 BHP AND LESS THAN 6,000 BHP WHEN FIRING:**

**(A) NATURAL GAS OR A NONCOMMERCIAL GASEOUS FUEL, 150 PPMVD NO<sub>x</sub> @ 15% OXYGEN.**

**(B) FUEL OIL, 150 PPMVD NO<sub>x</sub> @ 15% OXYGEN.**

**(C) NATURAL GAS OR A NONCOMMERCIAL GASEOUS FUEL, 9 PPMVD VOC (AS PROPANE) @ 15% OXYGEN.**

**(D) FUEL OIL, 9 PPMVD VOC (AS PROPANE) @ 15% OXYGEN.**

~~(iii)~~ (iv) For a simple cycle or regenerative cycle combustion turbine with a rated output equal to or greater than ~~1,000~~ 6,000 bhp when firing:

(A) Natural gas or a noncommercial gaseous fuel, 42 ppmvd NO<sub>x</sub> @ 15% oxygen.

(B) Fuel oil, ~~75~~ 96 ppmvd NO<sub>x</sub> @ 15% oxygen.

(C) Natural gas or a noncommercial gaseous fuel, 9 ppmvd VOC (as propane) @ 15% oxygen.

(D) Fuel oil, 9 ppmvd VOC (as propane) @ 15% oxygen.

(3) A stationary internal combustion engine:

(i) For a lean burn stationary internal combustion engine with a rating equal to or greater than 500 bhp fired with:

(A) Natural gas OR A NONCOMMERCIAL GASEOUS FUEL, 3.0 grams NO<sub>x</sub>/bhp-hr.

(B) Natural gas OR A NONCOMMERCIAL GASEOUS FUEL, liquid fuel or dual-fuel, ~~0.4~~ 1.0 gram VOC/bhp-hr EXCLUDING FORMALDEHYDE.

(ii) For a stationary internal combustion engine with a rating equal to or greater than 500 bhp fired with liquid fuel or dual-fuel, 8.0 grams NO<sub>x</sub>/bhp-hr.

(iii) For a rich burn stationary internal combustion engine with a rating equal to or greater than 500 bhp fired with:

(A) Natural gas OR A NONCOMMERCIAL GASEOUS FUEL, 2.0 grams NO<sub>x</sub>/bhp-hr.

(B) Natural gas OR A NONCOMMERCIAL GASEOUS FUEL, 1.0 gram VOC/bhp-hr.

(4) A unit firing multiple fuels [simultaneously]:

(i) The applicable RACT multiple fuel emission limit shall be determined on a total heat input fuel weighted basis using the following equation:

$$E_{HI\text{weighted}} = \frac{\sum_{i=1}^n E_i H_i}{\sum_{i=1}^n H_i}$$

Where:

$E_{HI\text{weighted}}$  = The heat input fuel weighted multiple fuel emission rate or emission limitation for the compliance period, expressed in units of measure consistent with the units of measure for the emission limitation.

$E_i$  = The emission rate or emission limit for fuel  $i$  during the compliance period, expressed in units of measure consistent with the units of measure for the emission limitation.

$HI_i$  = The total heat input for fuel  $i$  during the compliance period.

$n$  = The number of different fuels used during the compliance period.

(ii) A fuel representing less than 1% of the unit's annual fuel consumption on a heat input basis is excluded when determining the applicable RACT multiple fuel emission limit calculated in accordance with subparagraph (i).

(iii) The determination in subparagraph (i) does not apply to a stationary internal combustion engine that is subject to the RACT emission limits in paragraph (3).

(h) The owner and operator of a Portland cement kiln subject to § 129.96 shall comply with the following applicable presumptive RACT emission limitation:

(1) 3.88 pounds of  $NO_x$  per ton of clinker produced for a long wet-process cement kiln as defined in § 145.142 (relating to definitions).

(2) 3.44 pounds of  $NO_x$  per ton of clinker produced for a long dry-process cement kiln as defined in § 145.142.

(3) 2.36 pounds of  $NO_x$  per ton of clinker produced for:

(i) A preheater cement kiln as defined in § 145.142.

(ii) A precalciner cement kiln as defined in § 145.142.

(i) The requirements and emission limitations of this section supersede the requirements and emission limitations of a RACT permit issued to the owner or operator of an air contamination source subject to one or more of subsections (b)—(h) prior to \_\_\_\_\_, (*Editor's Note:* The blank refers to the effective date of adoption of this final-form rulemaking.) under §§ 129.91—129.95 (relating to stationary sources of  $NO_x$  and VOCs) to control, reduce or minimize  $NO_x$  emissions or VOC emissions, or both, from the air contamination source **[except to the extent the RACT] UNLESS THE** permit contains more stringent requirements or emission limitations, or both.

(j) The requirements and emission limitations of this section **[do not]** supersede the requirements and emission limitations of §§ 129.201—129.205, 145.111—145.113 and 145.141—145.146 (relating to additional  $NO_x$  requirements; emissions of  $NO_x$  from stationary internal combustion engines; and emissions of  $NO_x$  from cement manufacturing) **[except to the extent this section contains more stringent] UNLESS THE** requirements or emission limitations **[, or both, for the owner or operator of a major  $NO_x$  emitting facility subject to § 129.96 to control, reduce or minimize  $NO_x$  emissions from an air contamination source subject to] OF §§ 129.201—129.205, §§ 145.111—145.113 or §§ 145.141—145.146 ARE MORE STRINGENT.**

(k) The owner or operator of a major NO<sub>x</sub> emitting facility or a major VOC emitting facility [~~is~~ **or both,**] subject to § 129.96 that includes an air contamination source subject to one or more of subsections (b)—(h) that cannot meet the applicable **PRESUMPTIVE** RACT requirement or RACT emission limitation without installation of an air cleaning device may submit a petition, in writing, requesting an alternative compliance schedule in accordance with the following:

(1) The written petition shall be submitted to the Department or appropriate approved local air pollution control agency as soon as possible but not later than:

(i) \_\_\_\_\_, (*Editor's Note: The blank refers to the date 6 months after the effective date of adoption of this final-form rulemaking.*) for a source subject to § 129.96(a).

(ii) \_\_\_\_\_, (*Editor's Note: The blank refers to the date 6 months after the effective date of adoption of this final-form rulemaking.*) or 6 months after the date that the source meets the definition of a major NO<sub>x</sub> emitting facility, whichever is later, for a source subject to § 129.96(b).

(2) The written petition must include:

(i) A description, including make, model and location, of each affected source subject to a RACT requirement or a RACT emission limitation in one or more of subsections (b)—(h).

(ii) A description of the proposed air cleaning device to be installed.

(iii) A schedule containing proposed interim dates for completing each phase of the required work to install the air cleaning device described in subparagraph (ii).

(iv) A proposed interim emission limitation that will be imposed on the affected source until compliance is achieved with the applicable RACT requirement or RACT emission limitation.

(v) A proposed final compliance date that is as soon as possible but not later than ~~\_\_\_\_\_~~ (*Editor's Note: The blank refers to the date 3 years after the effective date of adoption of this proposed rulemaking.*) 3 YEARS AFTER THE WRITTEN APPROVAL OF THE PETITION BY THE DEPARTMENT OR THE APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY. THE APPROVED PETITION SHALL BE INCORPORATED IN AN APPLICABLE OPERATING PERMIT OR PLAN APPROVAL.

(l) The Department or appropriate approved local air pollution control agency will review the timely and complete written petition requesting an alternative compliance schedule submitted in accordance with subsection (k) and approve or deny the petition in writing.

(m) Approval or denial under subsection (l) of the timely and complete petition for an alternative compliance schedule submitted under subsection (k) will be effective on the date the letter of approval or denial of the petition is signed by the authorized representative of the Department or appropriate approved local air pollution control agency.

§ 129.98. Facility-wide or system-wide NO<sub>x</sub> emissions averaging [~~RACT operating permit modification~~] PLAN general requirements.

(a) The owner or operator of a major NO<sub>x</sub> emitting facility subject to § 129.96 (relating to applicability) that includes [~~an~~] AT LEAST ONE air contamination source subject to a [~~NO<sub>x</sub> RACT requirement or~~] NO<sub>x</sub> RACT emission limitation in § 129.97 (relating to presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule) that cannot meet the applicable [~~NO<sub>x</sub> RACT requirement or~~] NO<sub>x</sub> RACT emission limitation may elect to meet the applicable [~~NO<sub>x</sub> RACT requirement or~~] NO<sub>x</sub> RACT emission limitation in § 129.97 by averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average. System-wide emissions averaging must be among sources under common control of the same owner or operator WITHIN THE SAME OZONE NONATTAINMENT AREA in this Commonwealth.

(b) The owner or operator of each facility that elects to comply with subsection (a) shall submit A WRITTEN NO<sub>x</sub> EMISSIONS AVERAGING PLAN TO THE DEPARTMENT OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY AS PART OF AN APPLICATION FOR an operating permit modification OR A PLAN APPROVAL, IF OTHERWISE REQUIRED [~~that incorporates~~]. THE APPLICATION INCORPORATING the requirements of this section [~~for averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average to the Department or appropriate approved local air pollution control agency~~] SHALL BE SUBMITTED by the applicable date as follows:

(1) \_\_\_\_\_, (*Editor's Note:* The blank refers to the date 6 months after the effective date of adoption of this final-form rulemaking.) for a source subject to § 129.96(a).

(2) \_\_\_\_\_, (*Editor's Note:* The blank refers to the date 6 months after the effective date of adoption of this final-form rulemaking.) or 6 months after the date that the source meets the definition of a major NO<sub>x</sub> emitting facility, whichever is later, for a source subject to § 129.96(b).

(c) Each NO<sub>x</sub> [~~emitting~~] AIR CONTAMINATION source included in the APPLICATION FOR AN operating permit modification OR A PLAN APPROVAL, IF OTHERWISE REQUIRED, for averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average submitted under subsection (b) must be an air contamination source subject to a NO<sub>x</sub> RACT emission limitation in § 129.97.

(d) The APPLICATION FOR THE operating permit modification OR THE PLAN APPROVAL, IF OTHERWISE REQUIRED, for averaging NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average submitted under subsection (b) must demonstrate that the aggregate NO<sub>x</sub> emissions emitted by the air contamination sources included in the facility-wide or system-wide NO<sub>x</sub> emissions averaging [~~RACT operating permit modification~~] PLAN using a 30-day rolling average are not greater than [~~90% of the sum of~~] the NO<sub>x</sub> emissions that would be emitted by the group of included sources if each source complied with the applicable [~~NO<sub>x</sub> RACT requirement or~~] NO<sub>x</sub> RACT emission limitation in § 129.97 on a source-specific basis.

(e) The owner or operator shall calculate the alternative facility-wide or system-wide NO<sub>x</sub> RACT emissions limitation using a 30-day rolling average for the air contamination sources included in the APPLICATION FOR THE operating permit modification OR PLAN APPROVAL, IF OTHERWISE REQUIRED, submitted under subsection (b) by using the following equation to sum the emissions for all of the sources included in the operating permit modification NO<sub>x</sub> EMISSIONS AVERAGING PLAN:

$$\left[ \sum_{i=1}^n n R_{i\text{actual}} * H_i \right] \leq \left[ \sum_{i=1}^n n R_{i\text{allowable}} * H_i \right] * 0.9$$

$$\left[ \sum_{i=1}^n E_{i\text{actual}} \right] \leq \left[ \sum_{i=1}^n E_{i\text{allowable}} \right]$$

[where] WHERE:

[R<sub>iactual</sub> = The daily actual NO<sub>x</sub> emission rate for air contamination source i, lb/mmbtu, using a 30-day rolling average.]

[R<sub>iallowable</sub> = The applicable NO<sub>x</sub> emission rate limitation for air contamination source i, lb/mmbtu, specified in § 129.97.]

[H<sub>i</sub> = The daily actual heat input for air contamination source i, lb/mmbtu, using a 30-day rolling average.]

E<sub>iactual</sub> = THE ACTUAL NO<sub>x</sub> MASS EMISSIONS, INCLUDING EMISSIONS DURING START-UPS, SHUTDOWNS AND MALFUNCTIONS, FOR AIR CONTAMINATION SOURCE i ON A 30-DAY ROLLING BASIS.

E<sub>iallowable</sub> = THE ALLOWABLE NO<sub>x</sub> MASS EMISSIONS COMPUTED USING THE ALLOWABLE EMISSION RATE LIMITATIONS FOR AIR CONTAMINATION SOURCE i ON A 30-DAY ROLLING BASIS SPECIFIED IN § 129.97. IF AN AIR CONTAMINATION SOURCE INCLUDED IN AN AVERAGING PLAN IS SUBJECT TO A NUMERICAL EMISSION RATE LIMIT THAT IS MORE STRINGENT THAN THE APPLICABLE ALLOWABLE EMISSION RATE LIMITATION SET FORTH IN § 129.97, THEN THE NUMERICAL EMISSION RATE LIMIT SHALL BE USED FOR THE CALCULATION OF THE ALLOWABLE NO<sub>x</sub> MASS EMISSIONS.

n = The number of air contamination sources included in the operating permit modification NO<sub>x</sub> EMISSIONS AVERAGING PLAN.

[0.9 = The 90% limit specified under subsection (d).]

(f) The APPLICATION FOR THE operating permit modification OR A PLAN APPROVAL, IF OTHERWISE REQUIRED, specified in subsections (b)—(e) may include facility-wide or system-wide averaging NO<sub>x</sub> emissions AVERAGING using a 30-day rolling average only for NO<sub>x</sub> emitting sources or NO<sub>x</sub> emitting facilities that are owned or operated [~~or~~ both,] by the applicant.

(g) The APPLICATION FOR THE operating permit modification OR A PLAN APPROVAL, IF OTHERWISE REQUIRED, specified in subsections (b)—(f) must include the following information:

(1) Identification of each air contamination source included in the NO<sub>x</sub> emissions averaging [~~RACT operating permit modification~~] PLAN.

(2) Each air contamination source's applicable emission limitation in § 129.97.

(3) Methods for demonstrating compliance and recordkeeping and reporting requirements in accordance with § 129.100 (relating to compliance demonstration and recordkeeping requirements) for each source included in the NO<sub>x</sub> emissions averaging [~~RACT operating permit modification~~] PLAN submitted under subsection (b).

(h) An air contamination source or facility [~~or both~~] included in the facility-wide or system-wide NO<sub>x</sub> emissions averaging [~~RACT operating permit modification~~] PLAN submitted in accordance with subsections (b)—(g) may be included in only one facility-wide or system-wide NO<sub>x</sub> emissions averaging [~~RACT proposal~~] PLAN.

(i) The Department or appropriate approved local air pollution control agency will issue a modification to the operating permit OR A PLAN APPROVAL AUTHORIZING THE NO<sub>x</sub> EMISSIONS AVERAGING PLAN.

(j) The owner or operator of an air contamination source or facility [~~or both~~] included in the facility-wide or system-wide NO<sub>x</sub> emissions averaging [~~RACT operating permit modification~~] PLAN submitted in accordance with subsections (b)—(h) shall submit the reports and records specified in subsection (g)(3) to the Department or appropriate approved local air pollution control agency on the schedule specified in subsection (g)(3) to demonstrate compliance with § 129.100.

(k) The owner or operator of an air contamination source or facility [~~or both~~] included in a facility-wide or system-wide NO<sub>x</sub> emissions averaging [~~RACT operating permit modification~~] PLAN submitted in accordance with subsections (b)—(h) that achieves emission reductions in accordance with other emission limitations required under the act or the Clean Air Act, or regulations adopted under the act or the Clean Air Act, that are not NO<sub>x</sub> RACT emission limitations may not substitute those emission reductions for the emission reductions required by the facility-wide or system-wide NO<sub>x</sub> emissions averaging [~~RACT operating permit modification~~] PLAN submitted to the Department or appropriate approved local air pollution control agency under subsection (b).

(l) The owner or operator of an air contamination source subject to a NO<sub>x</sub> RACT emission limitation in § 129.97 that is not included in a facility-wide or system-wide NO<sub>x</sub> emissions averaging [~~RACT operating permit modification~~] PLAN submitted under subsection (b) shall operate the source in compliance with the applicable NO<sub>x</sub> RACT emission limitation in § 129.97.

(m) The owner and operator of [~~an~~] THE air contamination [~~source~~] SOURCES included in a facility-wide or system-wide NO<sub>x</sub> emissions averaging [~~RACT operating permit modification~~] PLAN

PLAN submitted under subsection (b) shall be liable for a violation of ~~[the operating permit modification or this section at that]~~ AN APPLICABLE NO<sub>x</sub> RACT EMISSION LIMITATION AT EACH source ~~[or other source]~~ INCLUDED in the ~~[operating permit modification]~~ NO<sub>x</sub> EMISSIONS AVERAGING PLAN.

**§ 129.99. Alternative RACT proposal and petition for alternative compliance schedule.**

(a) The owner or operator of an air contamination source subject to § 129.97 (relating to presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule) located at a major NO<sub>x</sub> emitting facility or major VOC emitting facility [~~5~~ or both,] subject to § 129.96 (relating to applicability) that cannot meet the applicable presumptive RACT requirement or RACT emission limitation of § 129.97 ~~[or participate in either a facility wide or system wide NO<sub>x</sub> emissions averaging RACT operating permit modification under § 129.98 (relating to facility wide or system wide NO<sub>x</sub> emissions averaging RACT operating permit modification general requirements)]~~ may propose an alternative ~~[NO<sub>x</sub> RACT emission limitation or VOC]~~ RACT REQUIREMENT OR RACT emission limitation [~~5~~ or both,] in accordance with subsection (d).

(b) The owner or operator of a NO<sub>x</sub> air contamination source with a potential emission rate equal to or greater than 5.0 tons of NO<sub>x</sub> per year that is not subject to § 129.97 or §§ 129.201—129.205 (relating to additional NO<sub>x</sub> requirements) located at a major NO<sub>x</sub> emitting facility subject to § 129.96 shall propose a NO<sub>x</sub> RACT REQUIREMENT OR RACT emission limitation in accordance with subsection (d).

(c) The owner or operator of a VOC air contamination source with a potential emission rate equal to or greater than 2.7 tons of VOC per year that is not subject to § 129.97 located at a major VOC emitting facility subject to § 129.96 shall propose a VOC RACT REQUIREMENT OR RACT emission limitation in accordance with subsection (d).

(d) The owner or operator proposing an alternative RACT REQUIREMENT OR RACT emission limitation under subsection (a), (b) or (c) shall:

(1) Submit a written RACT proposal in accordance with the procedures in § 129.92(a)(1)—(5), (7)—(10) and (b) (relating to RACT proposal requirements) to the Department or appropriate approved local air pollution control agency as soon as possible but not later than:

(i) \_\_\_\_\_, (*Editor's Note:* The blank refers to the date 6 months after the effective date of adoption of this final-form rulemaking.) for a source subject to § 129.96(a).

(ii) \_\_\_\_\_, (*Editor's Note:* The blank refers to the date 6 months after the effective date of adoption of this final-form rulemaking.) or 6 months after the date that the source meets the definition of a major NO<sub>x</sub> emitting facility or major VOC emitting facility [~~5~~ or both,] whichever is later, for a source subject to § 129.96(b).

(2) Be in receipt of an approval issued by the Department or appropriate approved local air pollution control agency in writing through a plan approval or operating permit modification for a RACT proposal submitted under paragraph (1)(ii) prior to the installation, modification or change in the operation of the existing air contamination source that will result in the source or

facility meeting the definition of a major NO<sub>x</sub> emitting facility or major VOC emitting facility [~~or both~~].

(3) Include in the RACT proposal the proposed alternative NO<sub>x</sub> RACT REQUIREMENT OR RACT emission limitation or VOC RACT REQUIREMENT OR RACT emission limitation developed in accordance with the procedures in § 129.92(a)(1)—(5) and (b).

(4) Include in the RACT proposal a schedule for completing implementation of the RACT REQUIREMENT OR RACT emission limitation as soon as possible but not later than:

(i) JANUARY 1, 2017, for a source subject to § 129.96(a).

(ii) JANUARY 1, 2017, or 1 year after the date that the source meets the definition of a major NO<sub>x</sub> emitting facility or major VOC emitting facility [~~or both~~], whichever is later, for a source subject to § 129.96(b).

(5) Include interim dates in the schedule required under paragraph (4) for the:

(i) Issuance of purchase orders.

(ii) Start and completion of process, technology and control technology changes.

(iii) Completion of compliance testing.

(6) Include in the RACT proposal methods for demonstrating compliance and recordkeeping and reporting requirements in accordance with § 129.100 (relating to compliance demonstration and recordkeeping requirements) for each air contamination source included in the RACT proposal.

(7) Demonstrate to the satisfaction of the Department or the appropriate approved local air pollution control agency that the proposed REQUIREMENT OR RACT emission limitation is RACT for the air contamination source.

(e) The Department or appropriate approved local air pollution control agency will:

(1) Review the timely and complete alternative RACT proposal submitted in accordance with subsection (d).

(2) Approve the alternative RACT proposal submitted under subsection (d), in writing, if the Department or appropriate approved local air pollution control agency is satisfied that the alternative RACT proposal complies with the requirements of subsection (d) and that the proposed alternative REQUIREMENT OR RACT emission limitation is RACT for the air contamination source.

(3) Deny or modify the alternative RACT proposal submitted under subsection (d), in writing, if the proposal does not comply with the requirements of subsection (d).

(f) The proposed alternative RACT **REQUIREMENT OR RACT** emission limitation and the implementation schedule submitted under subsection (d) will be approved, denied or modified by the Department or appropriate approved local air pollution control agency in accordance with subsection (e) in writing through the issuance of a plan approval or operating permit modification prior to the owner or operator implementing the alternative RACT **REQUIREMENT OR RACT** emission limitation.

(g) The emission limit and requirements specified in the plan approval or operating permit issued by the Department or appropriate approved local air pollution control agency under subsection (f) supersede the emission limit and requirements in the existing plan approval or operating permit issued to the owner or operator of the source prior to \_\_\_\_\_, (*Editor's Note:* The blank refers to the effective date of adoption of this final-form rulemaking.) on the date specified in the plan approval or operating permit issued by the Department or appropriate approved local air pollution control agency under subsection (f), except to the extent the existing plan approval or operating permit contains more stringent requirements.

(h) The Department will submit each alternative RACT **REQUIREMENT OR RACT** emission limitation approved under subsection (f) to the Administrator of the EPA for approval as a revision to the SIP. The owner and operator of the facility shall bear the costs of public hearings and **[notification] NOTIFICATIONS (INCLUDING NEWSPAPER NOTICES)** required for **[EPA] THE SIP [approval] SUBMITTAL.**

(i) The owner and operator of a facility proposing to comply with the applicable RACT **REQUIREMENT OR RACT** emission limitation under subsection (a), (b) or (c) through the installation of an air cleaning device may submit a petition, in writing, requesting an alternative compliance schedule in accordance with the following:

(1) The written petition requesting an alternative compliance schedule shall be submitted to the Department or appropriate approved local air pollution control agency as soon as possible but not later than:

(i) \_\_\_\_\_, (*Editor's Note:* The blank refers to the date 6 months after the effective date of adoption of this final-form rulemaking.) for a source subject to § 129.96(a).

(ii) \_\_\_\_\_, (*Editor's Note:* The blank refers to the date 6 months after the effective date of adoption of this final-form rulemaking.) or 6 months after the date that the source meets the definition of a major NO<sub>x</sub> emitting facility, whichever is later, for a source subject to § 129.96(b).

(2) The written petition must include:

(i) A description, including make, model and location, of each air contamination source subject to a RACT requirement or RACT emission limitation in one or more of subsections (a)—(c).

(ii) A description of the proposed air cleaning device to be installed.

(iii) A schedule containing proposed interim dates for completing each phase of the required work to install the air cleaning device described in subparagraph (ii).

(iv) A proposed interim emission limitation that will be imposed on the affected air contamination source until compliance is achieved with the applicable RACT requirement or RACT emission limitation.

(v) A proposed final compliance date that is as soon as possible but not later than [\_\_\_\_\_] **(Editor's Note: The blank refers to the date 3 years after the effective date of adoption of this proposed rulemaking.) 3 YEARS AFTER THE APPROVAL OF THE PETITION BY THE DEPARTMENT OR THE APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY. IF THE PETITION IS FOR THE REPLACEMENT OF AN EXISTING SOURCE, THE FINAL COMPLIANCE DATE WILL BE DETERMINED ON A CASE-BY-CASE BASIS. THE APPROVED PETITION SHALL BE INCORPORATED IN AN APPLICABLE OPERATING PERMIT OR PLAN APPROVAL.**

(j) The Department or appropriate approved local air pollution control agency will review the timely and complete written petition requesting an alternative compliance schedule submitted in accordance with subsection ~~(h)~~ (i) and approve or deny the petition in writing.

(k) The emission limit and requirements specified in the plan approval or operating permit issued by the Department or appropriate approved local air pollution control agency under subsection (j) supersede the emission limit and requirements in the existing plan approval or operating permit issued to the owner or operator of the source prior to \_\_\_\_\_, (Editor's Note: The blank refers to the effective date of adoption of this final-form rulemaking.) on the date specified in the plan approval or operating permit issued by the Department or appropriate approved local air pollution control agency under subsection (j), except to the extent the existing plan approval or operating permit contains more stringent requirements.

(l) Approval or denial under subsection (j) of the timely and complete petition for an alternative compliance schedule submitted under subsection (i) will be effective on the date the letter of approval or denial of the petition is signed by the authorized representative of the Department or appropriate approved local air pollution control agency.

#### **§ 129.100. Compliance demonstration and recordkeeping requirements.**

(a) Except as provided in subsection (c), the owner and operator of an air contamination source subject to a NO<sub>x</sub> **REQUIREMENT OR RACT** emission limitation or VOC **REQUIREMENT OR RACT** emission limitation, or both, listed in § 129.97 (relating to presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule) shall demonstrate compliance with the applicable RACT requirement or RACT emission limitation by performing the following monitoring or testing procedures:

(1) For an air contamination source with a CEMS, monitoring and testing in accordance with the requirements of Chapter 139, Subchapter C (relating to requirements for source monitoring for stationary sources) using a 30-day rolling average, **EXCEPT MUNICIPAL WASTE COMBUSTORS.**

(i) A 30-DAY ROLLING AVERAGE EMISSION RATE FOR AN AIR CONTAMINATION SOURCE THAT IS A COMBUSTION UNIT SHALL BE EXPRESSED IN POUNDS PER MILLION BTU AND CALCULATED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

(A) SUM THE TOTAL POUNDS OF POLLUTANT EMITTED FROM THE COMBUSTION UNIT FOR THE CURRENT OPERATING DAY AND THE PREVIOUS 29 OPERATING DAYS.

(B) SUM THE TOTAL HEAT INPUT TO THE COMBUSTION UNIT IN MILLION BTU FOR THE CURRENT OPERATING DAY AND THE PREVIOUS 29 OPERATING DAYS.

(C) DIVIDE THE TOTAL NUMBER OF POUNDS OF POLLUTANT EMITTED BY THE COMBUSTION UNIT FOR THE 30 OPERATING DAYS BY THE TOTAL HEAT INPUT TO THE COMBUSTION UNIT FOR THE 30 OPERATING DAYS.

(ii) A 30-DAY ROLLING AVERAGE EMISSION RATE FOR EACH APPLICABLE RACT EMISSION LIMITATION SHALL BE CALCULATED FOR AN AFFECTED AIR CONTAMINATION SOURCE FOR EACH CONSECUTIVE OPERATING DAY.

(iii) EACH 30-DAY ROLLING AVERAGE EMISSION RATE FOR AN AFFECTED AIR CONTAMINATION SOURCE SHALL INCLUDE THE EMISSIONS THAT OCCUR DURING THE ENTIRE OPERATING DAY, INCLUDING EMISSIONS FROM START-UPS, SHUTDOWNS AND MALFUNCTIONS.

(2) FOR A PORTLAND CEMENT KILN WITH A CEMS, MONITORING OF CLINKER PRODUCTION RATES IN ACCORDANCE WITH 40 CFR 63.1350(d).

(3) FOR A MUNICIPAL WASTE COMBUSTOR WITH A CEMS, MONITORING AND TESTING IN ACCORDANCE WITH THE REQUIREMENTS IN CHAPTER 139, SUBCHAPTER C, USING A DAILY AVERAGE.

(4) For an air contamination source without a CEMS, monitoring and testing in accordance with a Department-approved emissions source test that meets the requirements of Chapter 139, Subchapter A (relating to sampling and testing methods and procedures). **THE SOURCE TEST SHALL BE CONDUCTED ONE TIME IN EACH 5-YEAR CALENDAR PERIOD.**

(b) ~~[The]~~ EXCEPT AS PROVIDED IN §§ 129.97(k) AND 129.99(i), THE owner and operator of an air contamination source subject to subsection (a) shall demonstrate compliance with the applicable RACT requirement or RACT emission limitation in accordance with the procedures in subsection (a) not later than:

(1) JANUARY 1, 2017, for a source subject to § 129.96(a) (relating to applicability).

(2) **JANUARY 1, 2017**, or 1 year after the date that the source meets the definition of a major NO<sub>x</sub> emitting facility or major VOC emitting facility, **[or both]** whichever is later, for a source subject to § 129.96(b).

(c) An owner or operator of an air contamination source subject to this section, §§ 129.96 and 129.97 and § 129.98 (relating to facility-wide or system-wide NO<sub>x</sub> emissions averaging **[RACT operating permit modification] PLAN** general requirements) may request a waiver from the requirement to demonstrate compliance with the applicable emission limitation listed in § 129.97 if the following requirements are met:

(1) The request for a waiver is submitted, in writing, to the Department not later than:

(i) \_\_\_\_\_, (*Editor's Note:* The blank refers to the date 6 months after the effective date of adoption of this final-form rulemaking.) for a source subject to § 129.96(a).

(ii) \_\_\_\_\_, (*Editor's Note:* The blank refers to the date 6 months after the effective date of adoption of this final-form rulemaking.) or 6 months after the date that the source meets the definition of a major NO<sub>x</sub> emitting facility or major VOC emitting facility, **[or both]** whichever is later, for a source subject to § 129.96(b).

(2) The request for a waiver demonstrates that a Department-approved emissions source test was performed in accordance with the requirements of Chapter 139, Subchapter A, on or after:

(i) \_\_\_\_\_, (*Editor's Note:* The blank refers to the date within 12 months prior to the effective date of adoption of this final-form rulemaking.) for a source subject to § 129.96(a).

(ii) \_\_\_\_\_, (*Editor's Note:* The blank refers to the date within 12 months prior to the effective date of adoption of this final-form rulemaking.) or within 12 months prior to the date that the source meets the definition of a major NO<sub>x</sub> emitting facility or major VOC emitting facility, **[or both]** whichever is later, for a source subject to § 129.96(b).

(3) The request for a waiver demonstrates to the satisfaction of the Department that the test results show that the source's rate of emissions is in compliance with the source's applicable NO<sub>x</sub> emission limitation or VOC emission limitation **[or both]**.

(4) The Department approves, in writing, the request for a waiver.

(d) The owner and operator of an air contamination source subject to this section, §§ 129.96—129.98 and § 129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule) shall keep records to demonstrate compliance with §§ 129.96—129.99 in the following manner:

(1) The records shall include sufficient data and calculations to demonstrate that the requirements of §§ 129.96—129.99 are met.

(2) Data or information required to determine compliance shall be recorded and maintained in a time frame consistent with the averaging period of the requirement.

~~[(3) The records shall be retained for 5 years and made available to the Department or appropriate approved local air pollution control agency upon written request.]~~

(e) ~~[The] BEGINNING WITH THE COMPLIANCE DATE SPECIFIED IN § 129.97(a), THE~~ owner or operator of an air contamination source claiming that the air contamination source is exempt from the applicable NO<sub>x</sub> emission rate threshold specified in § 129.99(b) and the requirements of § 129.97 based on the air contamination source's potential to emit shall maintain records that demonstrate to the Department or appropriate approved local air pollution control agency that the air contamination source is not subject to the specified emission rate threshold.

(f) ~~[The] BEGINNING WITH THE COMPLIANCE DATE SPECIFIED IN § 129.97(a), THE~~ owner or operator of an air contamination source claiming that the air contamination source is exempt from the applicable VOC emission rate threshold specified in § 129.99(c) and the requirements of § 129.97 based on the air contamination source's potential to emit shall maintain records that demonstrate to the Department or appropriate approved local air pollution control agency that the air contamination source is not subject to the specified emission rate threshold.

(g) The owner or operator of a combustion unit subject to § 129.97(b)~~[(1)]~~ shall record each adjustment conducted under the procedures in § 129.97(b)~~[(1)]~~ ~~[in a permanently bound log book or other method approved by the Department or appropriate approved local air pollution control agency].~~ This ~~[log book] RECORD~~ must contain, at a minimum:

- (1) The date of the tuning procedure.
- (2) The name of the service company and the technician performing the procedure.
- (3) The final operating rate or load.
- (4) The final NO<sub>x</sub> and CO emission rates.
- (5) The final excess oxygen rate.
- (6) Other information required by the applicable operating permit.

~~[(h) The owner or operator of an oil-fired, gas-fired or combination oil-fired and gas-fired unit subject to § 129.97(b)(2) shall maintain records including a certification from the fuel supplier of the type of fuel. For each shipment of residual oil, the record must include:~~

~~—(1) A certification of the nitrogen content of the fuel.~~

~~—(2) Identification of the sampling method and sampling protocol used to determine the nitrogen content of the fuel.]~~

~~[(i)] (h)~~ The owner or operator of a Portland cement kiln subject to § 129.97(h) shall maintain a daily operating log for each Portland cement kiln. The record for each kiln must include:

- (1) The total hours of operation.
- (2) The type and quantity of fuel used.
- (3) The quantity of clinker produced.
- (4) The date, time and duration of a start-up, shutdown or malfunction of a Portland cement kiln or emissions monitoring system.

**(i) THE RECORDS SHALL BE RETAINED BY THE OWNER OR OPERATOR FOR 5 YEARS AND MADE AVAILABLE TO THE DEPARTMENT OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY UPON RECEIPT OF A WRITTEN REQUEST FROM THE DEPARTMENT OR APPROPRIATE APPROVED LOCAL AIR POLLUTION CONTROL AGENCY.**



# Citizens Advisory Council

to the Department of Environmental Protection  
P.O. Box 8459 § Rachel Carson State Office Building  
Harrisburg, PA 17105-8459 • 717-787-4527 • Fax 717-787-2878

September 21, 2015

*Allegheny County*  
Cynthia Carrow  
John J. Walliser, Esq.

*Bedford County*  
William C. Fink, Chair

*Chester County*  
Donald S. Welsh, Vice-Chair

*Crawford County*  
Burt A. Waite

*Cumberland County*  
Walter N. Heine  
James Welty  
R. Timothy Weston, Esq.

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John Over, Jr.

*Greene County*  
Terry L. Dayton

*Lancaster County*  
James Sandoe

*Lebanon County*  
John Hines

*Philadelphia County*  
Joi C. Spraggins

*Tioga County*  
Thaddeus K. Stevens

*Washington County*  
Mark Caskey

The Honorable John Quigley  
Secretary  
PA Department of Environmental Protection  
Rachel Carson State Office Building  
Harrisburg, PA 17105-2063

Dear Secretary Quigley:

Pursuant to the requirements of Section 7.6 of the Air Pollution Control Act, on September 15, 2015, staff from the Department of Environmental Protection (Department) provided a presentation to members of the Citizens Advisory Council (CAC) on the draft final rulemaking "Additional RACT Requirements for Major Sources of NO<sub>x</sub> and VOC emissions". The rulemaking amends 25 Pa Code Chapters 121 and 129 to adopt presumptive RACT requirements and RACT emission limitations for certain major stationary sources of NO<sub>x</sub> and VOC emissions. The CAC understands the adoption and implementation of RACT regulations in Pennsylvania is federally required and that DEP will submit the rulemaking, upon its final-form publication, to the Environmental Protection Agency (EPA) for approval as a revision to the Commonwealth's State Implementation Plan (SIP).

At the CAC's September 15, 2015, meeting, Council unanimously voted to concur with advancing the above referenced draft final regulations to the Environmental Quality Board for action. The CAC in general supports the adoption of the proposed RACT II regulations as an appropriate step forward in relation to the control of ozone precursor (nitrogen oxide and volatile organic compound) emissions, subject to the following concerns and recommendations:

1. The CAC has serious reservations concerning the precedent being set in the regulations of defining sources of RACT analysis (in this case, coal fired electric generation plants) based upon whether those sources have or have not already installed particular emission control technology (e.g., selective catalytic reduction technology for NO<sub>x</sub> control). The CAC believes it would be preferable in instances where it may not be feasible or cost-effective for particular facilities to meet presumptive RACT limits applied to all other sources in the same general category that such facilities proceed through case-by-case analysis as otherwise provided in the RACT rules, whereby such analysis is subject to public scrutiny and potential review by the Environmental Hearing Board.
2. The CAC believes the definition of  $E_{i,allowable}$  in Section 129.98(e) of the draft final rulemaking is vague and warrants amendment. The term as it is currently defined references that an allowable NO<sub>x</sub> mass emissions rate may be computed by using the more stringent applicable allowable emission rate limitation imposed



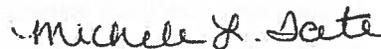
on an air contamination source. However, no specifications are included in the definition to clarify what applicable emission rate limitations can be used in the calculation. In order to define the term with more specificity, the CAC recommends the definition of  $E_{i_{allowable}}$  be modified to clarify that the more stringent numerical emission rate to be used in calculating the alternative facility-wide or system-wide NOx RACT emissions limitation shall be based on the emissions limit established in regulation, an existing permit, a consent decree or a Department order.

3. The CAC recommends that the Department seek further clarification from EPA in order to amend Section 129.98(a) of the rulemaking to permit averaging across ozone non-attainment areas under circumstances where sources within the more serious non-attainment area undertakes over-control (meeting more stringent limitations), to be averaged with sources in less serious non-attainment areas. This would promote NOx and VOC emission reductions closer to the areas where those reductions would provide the most benefit in terms of ozone reduction.

The CAC appreciates the Department's cooperation in providing detailed information on this rulemaking to Council, including the presentation it provided to the CAC on September 15, 2015.

If you have any questions regarding Council's action on the above-referenced regulation, please contact me at 717.787.8171 or by email at [mtate@pa.gov](mailto:mtate@pa.gov).

Sincerely,



Michele L. Tate  
Executive Director  
Citizens Advisory Council

cc: Joyce Epps, Director, DEP, Bureau of Air Quality  
Patrick McDonnell, Director, DEP Policy Office

# Small Business Compliance Advisory Committee

to the Pennsylvania Department of Environmental Protection

PO Box 8468

Harrisburg, PA 17105-8468

January 28, 2015

Honorable John Quigley  
Acting Secretary  
Department of Environmental Protection  
Rachel Carson State Office Building  
P.O. Box 2063  
Harrisburg, PA 17105-2063

Re: Final Rulemaking Amendments for Additional Requirements for Major Sources of NO<sub>x</sub> and VOCs

Dear Acting Secretary Quigley:

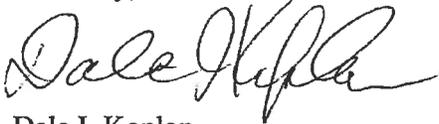
On January 28, 2015, the Small Business Compliance Advisory Committee (Committee) heard a presentation about the final rulemaking to amend 25 *Pa. Code* Chapters 121 and 129 (relating to general provisions; and standards for sources) to add additional requirements for major sources of nitrogen oxide (NO<sub>x</sub>) and volatile organic compound (VOC) emissions. The final rulemaking amends § 121.1 (relating to definitions) to add or revise terms and definitions and adds five sections to Chapter 129 to establish presumptive reasonably available control technology (RACT) requirements and RACT emission limitations for certain major stationary air contamination sources of NO<sub>x</sub> and VOC emissions, including combustion units, boilers, process heaters, turbines, engines, municipal solid waste landfills, municipal waste combustors, cement kilns, and other sources that are not regulated elsewhere in 25 *Pa. Code* Chapter 129. The final rulemaking also adds requirements for an averaging program and for case-by-case evaluations for sources that cannot meet the presumptive RACT requirements and RACT emission limitations.

During the discussion about the final rulemaking after the presentation, the Committee expressed deep concerns about the impact of this final rulemaking on small businesses and asked questions about how many small businesses may be impacted by the requirements. The Department indicated that there are about 20 small business-sized facilities directly impacted by the requirements, but the presentation mentioned that there are 810 air pollution units that will be impacted by the requirements. The Department's analysis of how many facilities directly impacted by the final rulemaking are classified as small business was not available during the meeting.

The Committee is also concerned about the adverse impact of the final rulemaking requirements on the owners and operators of small businesses that supply the facilities that are directly impacted by the requirements, as well as the adverse impact of the requirements on jobs directly and in the supply chain. There are many more regulations for air pollution and climate change coming down the pike and the cumulative adverse impact of all of these requirements on small businesses is significant.

With these concerns in mind, the Committee voted 6-2-0 (Y/N/Abstain) to concur with the Department's recommendation to present the final rulemaking amendments to the Environmental Quality Board for consideration for adoption as a final-form regulation.

Sincerely,



Dale I. Kaplan  
Chair

cc: Joyce Epps, Director, PA DEP BAQ  
Susan Hoyle, PA DEP BAQ  
Susan Foster, PA DEP BAQ

# Air Quality Technical Advisory Committee

to the Pennsylvania Department of Environmental Protection

PO Box 8468

Harrisburg, PA 17105-8468

November 7, 2014

Honorable Dana K. Aunkst  
Acting Secretary  
Department of Environmental Protection  
Rachel Carson State Office Building  
P.O. Box 2063  
Harrisburg, PA 17105-2063

Re: Final-form rulemaking amendments for Additional Requirements for Major Sources of NO<sub>x</sub> and VOCs

Dear Acting Secretary Aunkst:

On November 7, 2014, the Air Quality Technical Advisory Committee (Committee) discussed the final rulemaking to amend *25 Pa. Code* Chapters 121 and 129 (relating to general provisions; and standards for sources) to add additional requirements for major sources of nitrogen oxide (NO<sub>x</sub>) and volatile organic compound (VOC) emissions. The final rulemaking amends § 121.1 (relating to definitions) to add or revise terms and definitions and adds five sections to Chapter 129 to establish presumptive reasonably available control technology (RACT) requirements and RACT emission limitations for certain major stationary air contamination sources of NO<sub>x</sub> and VOC emissions, including combustion units, boilers, process heaters, turbines, engines, municipal solid waste landfills, municipal waste combustors, cement kilns, and other sources that are not regulated elsewhere in *25 Pa. Code* Chapter 129. The final rulemaking also adds requirements for an averaging program and for case-by-case evaluations for sources that cannot meet the presumptive RACT requirements and RACT emission limitations.

The Committee recommends that the preamble to the final rulemaking include the clarifications requested at the November 7, 2014, meeting for the following rulemaking provisions:

- § 129.96(c) and § 129.97(c) – applicability to sources emitting less than 1 ton.
- § 129.100(a) – calculations for the 30-day rolling average.

The Committee voted 11-5-0 (yes; no; abstain) to concur with the Department's recommendation to present the final-form rulemaking amendments to the Environmental Quality Board for consideration.

Sincerely,



Patrick K. O'Neill Esq.  
Chair

cc: Joyce Epps, Director, PA DEP BAQ  
Susan Hoyle, PA DEP BAQ

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January 14, 2016

David Sumner  
Executive Director  
Independent Regulatory Review Commission  
333 Market Street, 14th Floor  
Harrisburg, PA 17120

Re: Final Rulemaking: Additional RACT Requirements for Major Sources of NO<sub>x</sub> and VOCs  
(#7-485)

Dear Mr. Sumner:

Pursuant to Section 5.1(a) of the Regulatory Review Act, please find enclosed the Additional RACT Requirements for Major Sources of NO<sub>x</sub> and VOCs final rulemaking for review and comment by the Independent Regulatory Review Commission (IRRC). The Environmental Quality Board (EQB) adopted the final rulemaking at its November 17, 2015 meeting.

The enclosed final rulemaking amends 25 *Pa. Code* Chapters 121 and 129 to establish presumptive Reasonably Available Control Technology (RACT) requirements and emission limitations for the owners and operators of certain major stationary sources of NO<sub>x</sub> and VOC emissions. The source categories include combustion units, boilers, process heaters, turbines, engines, municipal solid waste landfills, municipal waste combustors, cement kilns and other NO<sub>x</sub> and VOC emission sources not regulated by RACT requirements elsewhere in Chapter 129. The final rulemaking also includes provisions establishing a petition process for approval of an alternative compliance schedule by the Department or approved local air pollution control programs in Allegheny and Philadelphia Counties, a facility-wide or system-wide NO<sub>x</sub> emissions averaging plan provision, an alternative RACT proposal petition process, and compliance demonstration and recordkeeping requirements.

The final-form regulation amends § 121.1 by revising the existing terms “CEMS—continuous emissions monitoring system,” “major NO<sub>x</sub> emitting facility,” “major VOC emitting facility” and “stationary internal combustion engine or stationary reciprocating internal combustion engine.” The final rulemaking also adds new terms including “process heater,” “refinery gas,” “regenerative cycle combustion turbine,” “simple cycle combustion turbine” and “stationary combustion turbine.”

This final-form regulation is reasonably necessary to attain and maintain the 8-hour National Ambient Air Quality Standards for ozone and to satisfy related Clean Air Act requirements. The final-form rulemaking, once published as a final-form regulation in the *Pennsylvania Bulletin*, will be submitted to the EPA as a revision to the State Implementation Plan.



The proposed rulemaking was adopted by the EQB at its November 19, 2013 meeting and was published in the *Pennsylvania Bulletin* on April 19, 2014, with a 73-day public comment period (44 Pa.B. 2392). Three public hearings were held by the Board on May 27, 28, and 29, 2014 in Pittsburgh, Norristown, and Harrisburg, PA, respectively. The public comment period closed on June 30, 2014. The EQB received comments from 134 commentators, including government entities, the electric generating and other industry sectors, environmental organizations, other states (including Delaware, Connecticut, Maryland, and New Jersey), the EPA and the Independent Regulatory Review Commission. Comments were addressed and modifications made to the rulemaking as described below.

Section 129.96 (relating to applicability) establishes RACT applicability requirements for certain owners and operators of major NO<sub>x</sub> emitting or major VOC emitting facilities. Section 129.96 clarifies that the final-form regulation does not apply to the owner and operator of a NO<sub>x</sub> air contamination source at a major NO<sub>x</sub> emitting facility or a VOC air contamination source at a major VOC emitting facility that has the potential to emit less than one ton per year (TPY) of NO<sub>x</sub> or VOC emissions. Section 129.96 has also been revised from proposed to final rulemaking to exempt the owner and operator of a facility which is not a major NO<sub>x</sub> or VOC emitting facility on or before January 1, 2017.

Section 129.97 (relating to presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule) requires the owners and operators of affected major NO<sub>x</sub> or VOC emitting facilities to comply with the applicable presumptive RACT requirement or emission limitation, beginning with the applicable compliance date. Section 129.97 also creates a mechanism for requesting an alternative compliance schedule. Changes were made from proposed to final rulemaking to clarify that the owner or operator of a NO<sub>x</sub> emitting air contamination source that has the potential to emit less than 5 TPY of NO<sub>x</sub> or a VOC emitting air contamination source that has the potential to emit less than 2.7 TPY of VOC shall install, operate and maintain the source in accordance with manufacturer's specifications and good operating practices. Section 129.97 has also been revised to establish emission limitations and operating parameters for coal-fired combustion units equipped with selective catalytic reduction system controls and selective non-catalytic reduction system controls. The final-form regulation also explains what the annual capacity factor is for specific types of sources.

Section 129.98 (relating to facility-wide or system-wide NO<sub>x</sub> emissions averaging plan general requirements) establishes an alternative mechanism to authorize the averaging of NO<sub>x</sub> emissions on either a facility-wide or system-wide basis using a 30-day rolling average when the owner and operator of a major NO<sub>x</sub> emitting facility subject to § 129.96 that includes at least one air contamination source subject to a NO<sub>x</sub> RACT emission limitation in § 129.97 is unable to meet the applicable NO<sub>x</sub> RACT emission limitation specified in § 129.97. In response to EPA comments, system-wide averaging of NO<sub>x</sub> emissions is restricted to sources under common control in this Commonwealth that are located in the same ozone nonattainment area. The averaging equation in subsection (e) has been revised in the final-form regulation to clarify that if an air contamination source included in an emissions averaging plan is subject to a numerical emission rate limit that is more stringent than the applicable allowable emission rate limitation set forth in § 129.97, then the more stringent numerical emission rate limit must be used for the calculation of the allowable NO<sub>x</sub> mass emissions. Minor clarifying changes were also made



from proposed to final rulemaking to specify that the NO<sub>x</sub> emissions averaging plan must be incorporated in an Operating Permit or Plan Approval issued by the Department or an approved local air pollution control agency.

Section 129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule) allows an affected owner and operator of an air contamination source located at any major NO<sub>x</sub> emitting facility or major VOC emitting facility subject to § 129.96 that is unable to meet the provisions listed in § 129.97 to submit a written petition to the Department or approved local air pollution control program for an alternative NO<sub>x</sub> or VOC emission limitation. If the installation of an add-on air pollution control device is necessary to demonstrate compliance with the applicable RACT requirement or emission limitation, compliance is required no later than three years after the approval of the petition. Other minor clarifying changes were made to this section from proposed to final rulemaking.

Section 129.100 (relating to compliance demonstration and recordkeeping requirements) establishes recordkeeping requirements. The final-form regulation clarifies monitoring and testing procedures for an air contamination source. Procedures for calculating the “30-Day Rolling Average Emission Rate” for a combustion unit are also prescribed in § 129.100(a)(1) of the final rulemaking. The applicable monitoring and source testing requirements for Portland cement kilns and municipal waste combustors were also clarified in the final rulemaking.

Sections 129.96—129.100 of the final-form RACT regulation apply statewide to the owner and operator of a major NO<sub>x</sub> emitting facility or a major VOC emitting facility that was in existence in this Commonwealth on or before July 20, 2012. The final rulemaking also applies when the installation of a new source, a modification at or a change in operation of an existing source after July 20, 2012, results in the facility meeting the definition of either a major NO<sub>x</sub> emitting facility or a major VOC emitting facility. In those cases where an owner or operator of a major NO<sub>x</sub> emitting facility is not able to comply with the specified presumptive NO<sub>x</sub> RACT requirements or emission limitations, the owner or operator may submit a request to the Department or approved local air pollution control agency to meet emission limitations by facility-wide or system-wide emissions averaging. An owner and operator subject to § 129.96 that is unable to meet the presumptive RACT requirements or emission limitations in § 129.97 may submit a request to the State or approved local agency for an alternative case-specific emission limitation. The final rulemaking is expected to have a minimal negative impact on the owners and operators of small businesses. The flexibility afforded all businesses (including small businesses) in the final rulemaking ensures minimal negative effect on their operations.

On November 7, 2014, the Air Quality Technical Advisory Committee (AQTAC) was briefed on the draft final-form regulation and public comments submitted to the Board on the proposed RACT rulemaking. AQTAC voted 11-5-0 (yes; no; abstain) to concur with DEP’s recommendation to move the final rulemaking forward to the EQB for consideration. The draft final-form regulation was discussed with the Small Business Compliance Advisory Committee (SBCAC) on January 28, 2015. The SBCAC voted 6-2-0 to concur with DEP’s recommendation to forward the final rulemaking to the EQB. The draft final-form regulation was discussed with the Citizens Advisory Council (CAC) Policy and Regulatory Oversight Committee on February 20, 2015, and May 12, 2015. The Policy and Regulatory Oversight Committee recommended



that the CAC concur with DEP's recommendation to move the final rulemaking forward to the EQB. However, the CAC tabled their consideration of the draft final-form regulation at both its March 17 and May 20 meetings. The CAC considered the final-form rulemaking at its September 15, 2015 meeting, raising several concerns and recommendations that were considered by the Department. The CAC supported the adoption of the regulations and unanimously voted to concur with advancing it forward for EQB consideration.

The Department will provide assistance as necessary to facilitate IRRC's review of the enclosed final-form rulemaking under Section 5.1(e) of the Regulatory Review Act.

Please contact me by e-mail at [ledinger@pa.gov](mailto:ledinger@pa.gov) or by telephone at 717.783.8727 if you have any questions or need additional information.

Sincerely,

A handwritten signature in blue ink that reads "Laura F. Edinger". The signature is fluid and cursive, with a long horizontal flourish at the end.

Laura Edinger  
Regulatory Coordinator

Enclosures





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

I.D. NUMBER: 7- **485**

SUBJECT: **Additional RACT Requirements for Major Sources of NOx and VOCs**

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

2016 JUN 14 PM 2:31

RECEIVED  
IRRC

**FILING OF REGULATION**

**DATE**

**SIGNATURE**

**DESIGNATION**

1/14/16 *John Maher*

Majority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY  
*Representative John Maher*

1/14/16 *Craig Vitali*

Minority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY,  
*Representative Craig Vitali*

1/14/16 *Gene Yaw*

Majority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY  
*Senator Gene Yaw*

1/14/16 *John Yudichak*

Minority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY  
*Senator John Yudichak*

1/14/16 *David Sumner*

INDEPENDENT REGULATORY REVIEW COMMISSION  
*David Sumner*

\_\_\_\_\_

ATTORNEY GENERAL (for Final Omitted only)

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LEGISLATIVE REFERENCE BUREAU (for Proposed only)

TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO  
 THE REGULATORY REVIEW ACT

AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 SUBJECT: Additional Fact Requirements for Major Sources of SO<sub>2</sub> and VOCs  
 I.D. NUMBER: 1-482

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 Titled Regulation  
 a With Revisions  
 b Without Revisions

LEGISLATIVE REFERENCE BUREAU (for Proposed only)	ATTORNEY GENERAL (for Final Omitted only)	INDEPENDENT REGULATORY REVIEW COMMISSION	MINORITY Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY	MAJORITY Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY	MINORITY Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY	MAJORITY Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY	DATE	SIGNATURE
		David Swaine	Senator Tom Pacheco	Senator Craig Shaw	Representative Craig V. Hill	Representative John Marzari	1/1/82	[Signature]
							1/4/82	[Signature]
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							1/4/82	[Signature]
							1/1/82	[Signature]

IRVING  
 1/1/82

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