RULES AND REGULATIONS

Title 25—ENVIRONMENTAL PROTECTION

ENVIRONMENTAL QUALITY BOARD

[25 PA. CODE CHS. 121, 123 AND 139]

Commercial Fuel Oil Sulfur Limits for Combustion Units

The Environmental Quality Board (Board) amends Chapters 121, 123 and 139 (relating to general provisions; standards for contaminants; and sampling and testing) to read as set forth in Annex A. This final-form rulemaking lowers the allowable sulfur content limits of commercial fuel oils used in oil-burning combustion units in this Commonwealth and replaces the existing geographic area-specific sulfur content limits for commercial fuel oils with a Statewide sulfur limit.

This order was adopted by the Board at its meeting of October 16, 2012.

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 Pennsylvania State Implementation Plan (SIP) upon publication.

B. *Contact Persons*

For further information, contact Dean Van Orden, Assistant Director, Bureau of Air Quality, 12th Floor, Rachel Carson State Office Building, P. O. Box 8468, Harrisburg, PA 17105-8468, (717) 787-9702; or Kristen Furlan, Assistant Director, Bureau of Regulatory Counsel, 9th Floor, Rachel Carson State Office Building, P. O. Box 8464, Harrisburg, PA 17105-8464, (717) 787-7060. Persons with a disability may use the Pennsylvania AT&T Relay Service, (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This final-form rulemaking is available through the Department of Environmental Protection's (Department) web site at www.depweb.state.pa.us.

C. *Statutory Authority*

This action is being taken under the authority of section 5(a)(1) of the Air Pollution Control Act (APCA) (35 P. S. § 4005(a)(1)), which grants to the Board the authority to adopt regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth, and section (5)(a)(8) of the APCA, which grants the Board the authority to adopt rules and regulations designed to implement the Clean Air Act (CAA) (42 U.S.C.A. §§ 7401—7671q).

D. *Background and Summary*

Combustion of sulfur-containing commercial fuel oils releases sulfur dioxide (SO_2) emissions, which contribute to the formation of regional haze and fine particulate matter ($PM_{2.5}$), both of which are serious public welfare and human health threats. Regional haze is visibility impairment that is produced by a multitude of sources and activities that emit fine particles and their precursors and which are located across a broad geographic area. Fine particles have a diameter smaller than 2.5 micrometers ($PM_{2.5}$). Particles affect visibility through the scattering and absorption of light and $PM_{2.5}$—particles similar in size to the wavelength of light—are most efficient, per unit of mass, at reducing visibility. Regional haze affects urban and rural areas, including National parks, forests and wilderness areas (Federal Class I areas).

SO_2 is the most significant pollutant involved in the formation of regional haze. SO_2 emissions oxidize in the atmosphere to form sulfate particles. Visibility impairment, including regional haze, in rural areas of eastern North America is mostly due to sulfate particles according to the 2006 Contribution Assessment prepared by the Mid-Atlantic/Northeast Visibility Union (MANE-VU). *Contributions to Regional Haze in the Northeast and Mid-Atlantic United States*, MANE-VU Contribution Assessment, August 2006, p. 2—4.

In 1977, Congress added section 169A of the CAA (42 U.S.C.A. § 7491), regarding visibility protection for Federal Class I areas, to set a National goal of the "prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution." See section 169A(a)(1) of the CAA. In 1990, Congress added section 169B of the CAA (42 U.S.C.A. § 7492), regarding visibility, to authorize further research and regular assessments of the progress made so far toward the National visibility goals.

The National Academy of Sciences concluded in 1993 that the average visual range in the eastern United States has been reduced to approximately 30 kilometers or 1/5 of the visual range that would exist under natural conditions. (Committee on Haze in National Parks and Wilderness Areas, National Research Council, National Academy of Sciences, *Protecting Visibility in National Parks and Wilderness Areas*, Washington, D.C., 1993.)

The EPA published its initial regulations setting forth states' requirements to reduce regional haze at 64 FR 35714 (July 1, 1999). The regulations aimed to achieve the National visibility goal set by the CAA by 2064. The EPA published final regional haze regulations at 70 FR 39104 (July 6, 2005) and later amended them. The regulations are codified in 40 CFR Part 51, Subpart P (relating to protection of visibility). The EPA's regulations require all states, even those that do not contain a Federal Class I area, to submit a revision to their SIP containing emission reduction strategies to improve visibility in Class I areas that their emissions affect.

The EPA regulations require states to demonstrate reasonable progress toward meeting the National goal of a return to natural visibility conditions by 2064. States with Class I areas must establish reasonable progress goals, expressed in deciviews, for visibility improvement at each Class I area. (The lower the deciview value, the better the perception of visibility.) The first set of reasonable progress goals shall be met through measures in each state's long-term strategy covering the period from the present until 2018. A long-term strategy includes enforceable emissions limitations, compliance schedules and other measures as necessary to achieve the reasonable progress goals.

States are required to evaluate progress toward reasonable progress goals every 5 years to assure that emissions controls are on track with emissions reduction forecasts in the SIP. The first progress report is due 5 years from the submittal of the initial implementation plan. If

emissions controls are not on track to meet SIP forecasts, then a state would need to take action to assure emissions controls by 2018 would be consistent with the SIP or to revise the SIP to be consistent with the revised emissions forecast.

The Commonwealth is a member of the MANE-VU, established in 2000 as the regional planning organization to help the northeast states plan for their Regional Haze SIP submittals. The MANE-VU states are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and the District of Columbia. Native American tribes in the region, the EPA, the United States Fish and Wildlife Service and the United States Forest Service are also members.

Although this Commonwealth does not have a mandatory Class I Federal area, emissions from this Commonwealth are considered to impact the seven mandatory Class I Federal areas in the MANE-VU region. In addition, the emissions from this Commonwealth are considered to impact the Dolly Sods Wilderness Area in West Virginia and Shenandoah National Park in Virginia.

MANE-VU evaluated several large source categories for their contribution to the MANE-VU SO_2 emission inventory, including electric generating units (EGU), residential and commercial oil heat burners and furnaces, and industrial/commercial/institutional (ICI) boilers. The Northeast States for Coordinated Air Use Management (NESCAUM) performed this evaluation for MANE-VU in 2005 using 2002 data, which was the most current information available at the time of the study. While EGUs are by far the largest source of SO_2 emissions in the MANE-VU region at 71%, SO_2 emissions from the burning of sulfur-containing commercial fuel oil in residential and commercial combustion units, combined and in ICI boilers, each contribute about 7% to the MANE-VU SO_2 emission inventory, for a total of 14%. In this Commonwealth, commercial fuel oil combustion in residential and commercial combustion units contributes between 2% and 3% of SO_2 emissions in the MANE-VU region, depending on the season. The NESCAUM evaluation indicates that the anticipated annual SO_2 emission reduction benefits in this Commonwealth would be approximately 25,000 tons when the final-form low-sulfur content limits for commercial fuel oils are fully implemented.

MANE-VU identified the reduction of sulfur limits in commercial fuel oils used in residential and commercial combustion units as a cost effective strategy for reducing regional haze and adopted a statement in which member states agreed to pursue this strategy. The Department evaluated the NESCAUM studies and MANE-VU recommendations and determined that the recommended low-sulfur content limits for commercial fuel oil were appropriate measures to be pursued in this Commonwealth as part of the regional strategy to improve visibility. Lowering the sulfur content in commercial fuel oil sold for and used in combustion units in this Commonwealth would contribute to the MANE-VU goals of improving visibility in the region's mandatory Class I Federal areas. Actions taken as part of the Commonwealth's obligations for reducing haze on a regional level would also improve visibility in this Commonwealth's recreational and urban areas.

The existence of $PM_{2.5}$ in the atmosphere not only produces regional haze but also has significant adverse health effects. Epidemiological studies have shown a significant correlation between elevated $PM_{2.5}$ levels and premature mortality. Other important health effects associated with $PM_{2.5}$ exposure include aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions, emergency room visits, absences from school or work and restricted activity days), lung disease, decreased lung function, asthma attacks and certain cardiovascular problems. Individuals particularly sensitive to $PM_{2.5}$ exposure include older adults, people with heart and lung disease and children.

The EPA set health-based (primary) and welfare-based (secondary) $PM_{2.5}$ annual National Ambient Air Quality Standards (NAAQS) at a level of 15 micrograms per cubic meter (µg/m3). See 62 FR 38652 (July 18, 1997). The 24-hour NAAQS was subsequently revised in October 2006 to a concentration of 35 µg/m3. See 71 FR 61144 (October 17, 2006). The EPA designated the following counties or portions thereof as being in nonattainment of either the annual or the 24-hour $PM_{2.5}$ standard, or both: Allegheny (Liberty-Clairton); Allegheny (remainder); Armstrong; Berks; Beaver; Bucks; Butler; Cambria; Chester; Cumberland; Dauphin; Delaware; Greene (partial); Indiana (partial); Lancaster; Lawrence (partial); Lebanon; Lehigh; Montgomery; Northampton; Philadelphia; Washington; Westmoreland; and York. All areas except the Liberty-Clairton area are measuring air quality that meets both existing $PM_{2.5}$ standards, but to be designated as attainment, the EPA must approve a plan that demonstrates the area can maintain the standard through 2025.

On June 29, 2012, the EPA found that the existing annual $PM_{2.5}$ standard is not protective of public health and proposed a more protective primary standard to be set between 12-13 $\mu g/m^3$. See 77 FR 38890 (June 29, 2012). The EPA further proposed a new more protective secondary standard for visibility of either 28 or 30 deciviews (a measure of visibility impairment); the Pittsburgh-Beaver Valley area was one of the few that the EPA projected would need additional reductions by 2020 to meet this proposed standard.

The EPA finalized the $PM_{2.5}$ rulemaking on December 14, 2012, strengthening the annual primary standard, reduced to 12.0 $\mu g/m^3$ effective March 18, 2013, and retaining the existing 24-hour $PM_{2.5}$ standard at a level of 35 $\mu g/m^3$. The EPA further retained the existing secondary standards for $PM_{2.5}$ to address PM-related effects such as visibility impairment. The EPA stated that it was relying on the existing secondary 24-hour $PM_{2.5}$ standard to protect against visibility impairment and was not finalizing the separate proposed standard to protect visibility the EPA proposed in June 2012. See 78 FR 3086 (January 15, 2013).

SO_2 emissions also contribute to the formation of acid rain. Both acid rain and $PM_{2.5}$ contribute to agricultural crop and vegetation damage and degradation of the Chesapeake Bay. Combustion of low sulfur-content commercial fuel oil will contribute to reducing the incidences of these adverse effects in this Commonwealth.

There are several important cobenefits of this final-form rulemaking, including reducing SO_2 emissions that could lead to violations of the 1-hour SO_2 standard as well as reducing $PM_{2.5}$ and nitrogen oxides (NO_x) emissions. Emissions of NO_x, which contribute to a number of public health and environmental problems in the northeast, including unhealthy levels of $PM_{2.5}$ and ground-level ozone, are another product of combustion and will also decrease with the use of low sulfur-content commercial fuel oil due to furnace and boiler efficiency improvements.

Emissions of carbon dioxide (CO_2), a greenhouse gas, should also decrease due to improved furnace and boiler combustion efficiency.

Ozone is a serious human and animal health and welfare threat, causing or contributing to respiratory illnesses and decreased lung function, agricultural crop loss, visible foliar injury to sensitive plant species and damage to forests, ecosystems and infrastructure. In March 2008, the EPA lowered the ozone NAAQS from 0.080 parts per million (ppm) to 0.075 ppm averaged over 8 hours to provide even greater protection for children, other at-risk populations and the environment against the array of ozone-induced adverse health and welfare effects. See 73 FR 16436 (March 27, 2008). In April 2012, the EPA designated five areas in this Commonwealth as nonattainment for the 2008 ozone NAAQS. These areas include Allegheny, Armstrong, Berks, Beaver, Bucks, Butler, Carbon, Chester, Delaware, Fayette, Lancaster, Lehigh, Montgomery, Northampton, Philadelphia, Washington and Westmoreland Counties.

This final-form rulemaking is designed to lower the allowable sulfur content limits of commercial fuel oils used in oil-burning combustion units in this Commonwealth and to replace the existing area-specific sulfur content limits for commercial fuel oils with a Statewide sulfur limit. The final-form rulemaking will reduce the levels of sulfur in commercial fuel oils used in residential and commercial oil heat burners and furnaces, and in ICI boilers. Section 123.22 (relating to combustion units) regulates Nos. 2, 4, 5 and 6 commercial fuel oils. No. 2 and lighter commercial fuel oil is generally used for residential and commercial heating. Nos. 4, 5 and 6 and heavier commercial fuel oils are used in ICI boilers.

The final-form rulemaking applies to the owner or operator of refineries, pipelines, terminals, retail outlet fuel storage facilities and ultimate consumers, including commercial and industrial facilities, facilities with a unit burning regulated fuel oil to produce electricity and domestic home heaters. The requirements focus on persons or entities that "offer for sale, deliver for use, exchange in trade or permit the use of commercial fuel oil." These are the suppliers and operations selling to the ultimate consumer. Recordkeeping or reporting is not required of the ultimate consumer receiving commercial fuel oil for use at a private residence or an apartment or condominium building that houses private residents; they only need to buy and use compliant commercial fuel oil.

In response to comments received during the official public comment period on the proposed rulemaking and following the Department's review of other related information, the Department prepared a draft final-form rulemaking for public comment. The draft final-form rulemaking contained significant changes in several areas and the Department believed that, while not legally required, further discussion and an additional comment period would serve the public interest. An Advance Notice of Final Rulemaking (ANFR) was published at 42 Pa.B. 3596 (June 23, 2012). The most significant changes made in the draft final-form rulemaking include the following: (1) an increase in the sulfur limit for No. 2 and lighter commercial fuel oil from 15 ppm to 500 ppm; (2) a postponement of the compliance date for revised sulfur limits from May 1, 2012, to July 1, 2016; (3) changes in the temporary suspension provision to remove EPA concurrence and to remove the maximum allowable sulfur content of 500 ppm for a temporary increase; (4) changes in the sampling and testing requirements to require sampling, testing and calculating of sulfur content by a transferor only if records are not otherwise provided with the shipment; and (5) a change to allow sulfur content to be recorded as either ppm by weight or weight percent and to clarify that the actual sulfur content (not the regulated maximum allowable sulfur content) must be in the record.

There are additional significant changes to the final-form rulemaking, including the following changes to the temporary suspension provisions: (1) a requirement that the requestor identify the nonair basin county or counties, or the air basin, for which a temporary suspension or increase is requested; (2) a requirement that the Department may not grant a temporary suspension or increase unless the Department determines that the circumstances leading to the insufficiency are due to events that could not have been reasonably foreseen or prevented and that are not due to lack of prudent planning on the part of the transferor of the commercial fuel oil into or within the specified nonair basin area or air basin; and (3) a 60-day limit of the term of a temporary suspension or increase. Other changes are described as follows.

The Department worked with the Air Quality Technical Advisory Committee (AQTAC) in the development of this final-form rulemaking. The Department discussed the ANFR with AQTAC at the June 14, 2012, meeting. At the September 12, 2012, meeting, AQTAC concurred with the Department's recommendation to advance the regulation to the Board for consideration as a final-form rulemaking.

The Department also conferred with the Citizens Advisory Council Air Committee concerning the final-form rulemaking on August 29, 2012, and with the Small Business Compliance Advisory Committee on July 25, 2012.

E. *Summary of Final-Form Rulemaking and Changes from Proposed to Final-Form Rulemaking*

The final-form rulemaking adds a definition to § 121.1 (relating to definitions) for one new term and amends the definitions of eight existing terms to provide clarity and support the amendments to Chapter 123. The final-form rulemaking adds "ultimate consumer" because this term is used elsewhere in the final-form rulemaking. The final-form rulemaking amends definitions of "commercial fuel oil" and "noncommercial fuel" to synchronize them. The Board changed "fuel oil-burning equipment," used in the definition of "commercial fuel oil" in the proposed rulemaking, to "combustion unit" in the final-form rulemaking.

The final-form rulemaking expands the definition of "carrier" so that it applies when commercial fuel oil is carried. The final-form rulemaking amends the definition of "distributor" so that it applies when commercial fuel oil is distributed and to broaden the list of transferees. The final-form rulemaking similarly expands the definitions of "retail outlet" and "terminal." The final-form rulemaking provides more specificity to the definitions of "transferee" and "transferor" by listing examples of persons and entities included in the definition. In a change from the proposed rulemaking, the final-form rulemaking specifies that certain portions of the definitions of "distributor," "transferee" and "transferor" are applicable for purposes of § 123.22 so as not to cause confusion in other Department regulations that use the same term in a different context.

The definition of "ASTM," which appeared in § 121.1 in the proposed and draft final-form rulemakings has not been adopted. This information that had been in the proposed and draft final-form definition now appears in final-form § 139.4 (relating to references).

The final-form rulemaking amends and adds two subsections to § 123.22. Subsection (a) applies to nonair basin areas. Air basins are defined geographically in § 121.1. The amendments to subsection (a) make minor editorial revisions to the general provision in paragraph (1). In a change from the proposed rulemaking, the final-form rulemaking expresses the sulfur limits as maximum allowable sulfur content. In another change from the proposed rulemaking, the final-form rulemaking expresses the new maximum allowable sulfur contents both in ppm by weight and percentage by weight. Another change from the proposed rulemaking is that the final-form rulemaking reduces the maximum allowable sulfur content for commercial fuel oil in paragraph (2)(i) to 500 ppm for No. 2 and lighter commercial fuel oils. This is consistent with the level in the draft final-form rulemaking made public in the ANFR, which was an increase from the proposed level of 15 ppm. Consistent with the proposed rulemaking, the final-form rulemaking reduces the maximum allowable sulfur content of commercial fuel oil in paragraph (2)(i) to 2,500 ppm or 0.25% sulfur content by weight for No. 4 commercial fuel oil and 5,000 ppm or 0.5% sulfur content by weight for Nos. 5 and 6 and heavier commercial fuel oils. In the proposed rulemaking, the new limits would have taken effect May 1, 2012. In the final-form rulemaking, the compliance date is July 1, 2016. The final-form rulemaking reinstates the existing percent sulfur limits that would have been removed by the proposed rulemaking, now expressed as maximum allowable % sulfur by weight, through June 30, 2016. On and after July 1, 2016, a person is not authorized to offer for sale, deliver for use, exchange in trade or permit the use of a noncomplying commercial fuel oil in a nonair basin.

Amendments to § 123.22(a)(2) contain two exceptions. The first exception allows commercial fuel oil that is stored in this Commonwealth by the ultimate consumer prior to July 1, 2016, which met the applicable maximum sulfur content identified for the commercial fuel oil through June 30, 2016, to be used by the ultimate consumer in this Commonwealth after that date. The main difference from the proposed rulemaking is the cut-off date.

The second exception authorizes the Department to temporarily suspend or increase the applicable maximum allowable sulfur content for a commercial fuel oil if the Department determines that an insufficient quantity of compliant commercial fuel oil is reasonably available in a nonair basin area. Changes from proposed to final-form rulemaking add additional criteria for granting a suspension, limit the term of a suspension to 60 days and delete the condition that the Department obtain the written concurrence of the EPA Administrator. The changes from proposed to final-form rulemaking include the addition of a requirement to specify in the application the nonair basin county or counties or the air basin for which a suspension or increase is requested. The Department may not grant a temporary suspension or increase unless the Department determines that an insufficient quantity of compliant commercial fuel oil is reasonably available in the specified nonair basin area. As a change from proposed to final-form rulemaking, the amendments also state that the Department may not grant a temporary suspension or increase unless the Department determines that the circumstances leading to the insufficiency are due to events that could not have been reasonably foreseen or prevented and that are not due to lack of prudent planning on the part of the transferor of the commercial fuel oil into or within the specified nonair basin area. The final-form rulemaking clarifies that the transferor may not distribute the noncompliant commercial fuel oil into or within the specified nonair basin area unless and until the Department approves the request in writing.

The final-form rulemaking amends the equivalency provision in § 123.22(a)(3) to provide greater clarity. The equivalency provision requires an equivalent amount of emission reductions when equipment or a process is used to reduce sulfur emissions from the burning of a fuel with a higher sulfur content than that specified in § 123.22(a)(2).

The final-form rulemaking makes similar amendments to the remaining four subsections of § 123.22. Subsection (b) applies to the following air basins: Erie; Harrisburg; York; Lancaster; and Scranton, Wilkes-Barre. Subsection (c) applies to the following air basins: Allentown, Bethlehem, Easton; Reading; Upper Beaver Valley; and Johnstown. Subsection (d) applies to the Allegheny County, Lower Beaver Valley and Monongahela Valley air basins. Subsection (e) applies to the Southeast Pennsylvania air basin. Each of these air basins is defined in § 121.1. In subsection (d), the final-form rulemaking adds maximum allowable sulfur content limits because no limits pre-existed this final-form rulemaking, as well as the equivalency provision.

The final-form rulemaking adds § 123.22(f) to establish sampling and testing requirements for refinery and terminal owners and operators to ensure compliance with the maximum allowable sulfur content for commercial fuel oil. In a change from the proposed rulemaking, the final-form rulemaking clarifies that the sulfur content to be determined by a refinery owner or operator for purposes of compliance is the actual sulfur content of the commercial fuel oil. A refinery owner or operator who produces commercial fuel oil intended for use or used in this Commonwealth on or after July 1, 2016, shall sample, test and calculate the actual sulfur content of each batch of the commercial fuel oil. A person other than the ultimate consumer that accepts a shipment of commercial fuel oil from a refinery or other transferor on or after July 1, 2016, shall sample, test and calculate the actual sulfur content of the commercial fuel oil if the shipment lacks the required record that enables the transferee to determine if the sulfur content of the shipment meets the applicable maximum allowable sulfur content. This requirement replaces the requirement in the proposed rulemaking for the terminal owner or operator to develop and implement written procedures, including procedures for commercial fuel oil sampling and testing.

The final-form rulemaking adds § 123.22(g) to establish recordkeeping and reporting requirements applicable to transferors and transferees in the manufacture and distribution chain for commercial fuel oil from the refinery owner or operator to the ultimate consumer. This subsection requires each transferor to provide each transferee with an electronic or paper record containing specified information each time the physical custody of, or title to, a shipment of commercial fuel oil changes hands. Additional clarity is provided, as compared to the proposed rulemaking, in the requirements for identifying the sulfur content of a shipment, including addition of the opportunity to use a product code in specified circumstances. The final-form rulemaking allows identification of the sulfur content to be identified by maximum sulfur content rather than by limit or weight percent on a per gallon basis. A refinery owner or operator shall maintain the

records of actual sulfur content developed under § 123.22(f)(2). Persons subject to § 123.22 shall maintain the records for at least 2 years. In a change from the proposed rulemaking, the final-form rulemaking adds that records shall be maintained for a longer period if required under other applicable recordkeeping requirements. Records shall be provided to the Department upon request. Private residence ultimate consumers are not required to maintain records nor are ultimate consumers who are owners of apartment or condominium buildings housing private residents if the transfer or use of the commercial fuel oil occurs for use at the building. Other ultimate consumers are required to maintain the record provided to them in the transfer of the commercial fuel oil.

The final-form rulemaking amends § 139.4 to update six of the applicable sulfur method references, add two new sulfur method references and provide the address to which a request for a temporary suspension or increase shall be sent.

The final-form rulemaking amends § 139.16 (relating to sulfur in fuel oil) to add cross references to the two new sulfur method references in § 139.4.

This final-form rulemaking is an important part of the Commonwealth's efforts to meet the reasonable progress goals for reducing regional haze established by the Commonwealth in consultation with the member states of MANE-VU. The final-form rulemaking, upon publication in the *Pennsylvania Bulletin*, will be submitted to the EPA as a revision to the SIP.

F. *Summary of Major Comments and Responses*

Major Comments and Responses on the Proposed Rulemaking

The Board approved publication of the proposed rulemaking at its meeting of July 13, 2010. The proposed rulemaking was published at 40 Pa.B. 5456 (September 25, 2010). Three public hearings were held on October 26, 27 and 28, 2010, in Harrisburg, Cranberry Township (Butler County) and Norristown, respectively. The public comment period closed on November 29, 2010.

Public comments were received from 16 commentators. The Independent Regulatory Review Commission (IRRC) also provided comments.

General Support for Proposed Sulfur Content Levels and Compliance Dates

Various commentators supported the proposed rulemaking. A commentator stated that the proposed rulemaking was urgently needed to meet present and upcoming NAAQS throughout this Commonwealth and to achieve regional haze goals. A commentator noted that New York and New Jersey have already adopted rules with the goal of limiting sulfur in commercial fuel oil to 15 ppm. A commentator suggested that the sulfur content in home heating oil could be lowered in a thoughtful, flexible manner that helps improve the environment and limits economic impacts. The Department thanks the commentators for their support. The Department agrees that the emission reductions from this final-form rulemaking will be useful in meeting the long-term strategy of the Commonwealth's regional haze SIP, as cobenefits of the rulemaking, and both current and anticipated more stringent NAAQS.

Several commentators supported the May 2012 compliance date. The Department thanks the commentators for their support; however, there were significant concerns expressed by commentators about the proposed sulfur content limits and implementation dates. The Department revised the compliance date to July 1, 2016, for reducing the allowable sulfur content in commercial fuel oil to allow time for refiners to add desulfurization capacity. In addition, the Department revised the sulfur content level in No. 2 fuel oil, which is most of the commercial fuel oil sold in this Commonwealth, to 500 ppm.

One commentator noted that the Commonwealth's existing sulfur limits for commercial fuel oil have been in force for over 30 years. Over that time, technology has advanced greatly as has the understanding of the health impacts from exposure to particulate matter (PM) and ozone. The Department agrees that the emerging technology and health impacts are both good reasons for establishing more stringent sulfur standards for fuel oil.

Several commentators expressed support of the rulemaking due to its benefits to human health and the environment. They variously expressed concerns regarding SO_2, NO_x, $PM_{2.5}$, mercury and CO_2 emissions, ozone formation, acid rain formation and regional haze from oil burning combustion units. One commentator supported the proposed rulemaking because the measures represent extremely cost effective SO_2 control measures and are appropriate as part of a comprehensive strategy for this Commonwealth. The Department agrees that the final-form rulemaking is cost effective and will reduce pollutant emissions. The final-form rulemaking is being adopted to reduce sulfur emissions that contribute to the formation of regional haze. There are several important cobenefits of this final-form rulemaking, including reducing SO_2 that could lead to violations of the 1-hour SO_2 standard as well as reducing $PM_{2.5}$ and NO_x emissions. Emissions of NO_x, which contribute to a number of public health and environmental problems in the northeast, including unhealthy levels of $PM_{2.5}$ and ground-level ozone, are another product of combustion and will also decrease with the use of low-sulfur content commercial fuel oil due to furnace and boiler efficiency improvements. Emissions of CO_2, a greenhouse gas, should also decrease due to improved furnace and boiler combustion efficiency. SO_2 emissions also contribute to the formation of acid rain. Both acid rain and $PM_{2.5}$ contribute to agricultural crop and vegetation damage and degradation of the Chesapeake Bay. Combustion of low-sulfur content commercial fuel oil will contribute to reducing the incidences of these adverse effects in this Commonwealth. The Department disagrees that heating oil burners emit mercury.

General Opposition, Concerns and Suggestions for Revised Sulfur Content Levels and Implementation Dates for No. 2 Fuel Oil

Many commentators expressed concern or opposition to the proposed rulemaking. They expressed support for the removal of sulfur from fuel oil, but expressed concerns that the levels were unnecessarily stringent, that there was not time for industry to comply or that they had concern about price spikes or fuel supply. As an alternative to the 15 ppm standard, some commentators noted that a 500 ppm standard in No. 2 fuel oil would represent an 80—90% sulfur reduction from the Commonwealth's current standard of 0.3%.

Referencing these comments, IRRC requested an explanation of why the compliance date of May 1, 2012, was reasonable and the effect on the supply and price of the fuels in the regulations, as well as other fuels derived from the same source. IRRC also recommended review of the 15 ppm sulfur content standard for No. 2 oil and

requested an explanation of how the limit in the final-form regulation recognizes the efficient operation of refineries while addressing the need to protect the environment.

The Department revised the compliance date in the final-form rulemaking to July 1, 2016, for reducing the allowable sulfur content in commercial fuel oil in light of the concerns expressed by these commentators. Given the longer lead-time for implementation, price spikes and market disruptions are not expected to be an issue. Written comments received on the proposed rulemaking and the Hart Consulting report referenced in comments entitled "Ultra Low Sulfur Heating Oil Assessment" indicate that supply disruption and price spikes can be avoided if refiners are provided a 4-year lead-time to plan and install additional desulfurization equipment to remove sulfur from the remaining part of the fuel stream. As for the sulfur level, 500 ppm sulfur provides both sulfur reduction and flexibility to the transportation and refinery segments. A 500 ppm sulfur content limit for No. 2 fuel oil is expected to reduce SO_2 emissions by approximately 21,000 tons per year compared to approximately 25,000 tons per year for a reduction to 15 ppm.

A number of commentators expressed concern that the proposed implementation date of May 1, 2012, was infeasible because industry typically needs a 4-year lead-time to accomplish budgeting, engineering, permitting and construction for the start-up of hydro-desulfurization equipment. Several commentators stated that many refiners did not build hydrotreating capacity to make 100% of their diesel fuel stream 15 ppm sulfur content fuel, also known as ultra-low sulfur diesel. They said that refiners based their plans on the Federal on-road fuel standards which had phase-in dates as late as 2014. The commentators explained that the current hydrotreating equipment in place at refineries does not have adequate capacity to also treat heating oil volumes and that adding hydrotreating capacity to make ultra-low sulfur diesel is capital intensive and requires 4 to 5 years of permits, engineering, construction and planning. The Department agreed and revised the compliance date accordingly.

One commentator stated that the proposed rulemaking was misguided and not based on sound science. The Department responds that the Commonwealth is required to make progress toward achieving natural background visibility conditions at Federal Class I areas under section 169A of the CAA and corresponding EPA regulations in 40 CFR Part 51, Subpart P. Reduction of allowable sulfur content of fuel oil has been identified as a reasonable strategy by the MANE-VU, of which the Commonwealth is a member. The Department indicated in its Regional Haze SIP revision that the Commonwealth would pursue adoption of reduced sulfur content in commercial fuel oil and other emission management strategies, as appropriate and necessary, as part of its long-term strategy to meet the reasonable progress goals contained in the SIPs of states with Class I areas that may be affected by emissions from this Commonwealth. MANE-VU modeling identified SO_2 as the primary source of visibility impairment in the region. MANE-VU performed a cost-benefit analysis for lowered sulfur limits and determined that the benefits exceed the costs. In addition, reducing SO_2 levels will assist the Commonwealth in meeting current and anticipated NAAQS for $PM_{2.5}$ and SO_2.

One commentator stated that visibility SIP requirements cannot be used as a basis to adopt a rule effective in 2012. The commentator stated that there are no Class I areas in this Commonwealth and asserted that the Commonwealth does not have an obligation to show "reasonable further progress" toward attaining visibility standards in other states. The commentator stated that even if it did, the first milestone is not required until 2018. The Department disagrees with these comments, except to agree that there is not a Class I area in this Commonwealth for regional haze purposes. The CAA requires the Commonwealth to make progress towards achieving natural background visibility conditions in those Federally designated Class I areas which are or may be affected by emissions from this Commonwealth. Visibility modeling was performed by the MANE-VU using two models that were either developed or supported by the EPA and evaluated for performance in this application. Similar modeling was performed by the Visibility Improvement—State and Tribal Association of the Southeast. The modeling indicated that emissions from this Commonwealth have the potential to contribute to visibility impairment in several Class I areas in other states. Reduction of allowable sulfur content of fuel oil was identified as a reasonable strategy by the MANE-VU, of which the Commonwealth is a member. The Department indicated in its Regional Haze SIP that it would pursue adoption of sulfur content reduction and other emission management strategies, as appropriate and necessary, as part of its long-term strategy to meet the reasonable progress goals contained in the SIPs of states with Class I areas that may be affected by emissions from this Commonwealth. The Department agrees that the first milestone is 2018. The compliance date for the final-form rulemaking has been changed to 2016.

The same commentator stated that the proposed rulemaking would have minimal benefits on even those Class I areas closest to this Commonwealth. The commentator stated that SO_2 emissions from heating oil are approximately 2—3% of the regional SO_2 emissions based on a 2002 inventory and that since 2002 distillate and residual fuel oil demand have fallen sharply in this Commonwealth by 25% and 33%, respectively. Heating oil is a wintertime fuel and, according to the commentator, reductions have little effect outside of this Commonwealth in the winter when local emissions trapped by inversions cause most of the visibility impairment. Additionally, the commentator stated the rate of transformation of SO_2 to sulfate is slower in the winter and the cost effectiveness of the sulfur reduction appears to be based on reductions of SO_2 not $PM_{2.5}$. The commentator felt that because the $PM_{2.5}$ NAAQS and regional haze rule are both based on control of $PM_{2.5}$, this was not an accurate representation since not all SO_2 is converted to $PM_{2.5}$ sulfate particles, particularly in the winter. The commentator stated that there is not a basis to impose hundreds of millions of dollars in higher costs on distillate and residual fuel oil consumers in this Commonwealth to benefit wilderness areas far from this Commonwealth.

The Department responds that the final-form rulemaking applies not only to home heating oil, which is used primarily (but not exclusively) in the winter, but also to numerous other types and uses of fuel oil. Distillate and residual fuels are burned at all times of the year for purposes including electric generation (especially to meet peak electric demand on very hot summer days) and other commercial and industrial applications.

Furthermore, the MANE-VU and NESCAUM studies of visibility impairment do not conclude that localized emissions are the only contributor to the visibility impairment found in urban and rural areas in this Commonwealth and the MANE-VU Class I areas. In fact, these studies

and others conclude that the regional transport of emissions plays a predominant role in the air pollutant levels. Specifically, according to the Executive Summary of the MANE-VU report "Contributions to Regional Haze in the Northeast and Mid-Atlantic United States," "Summertime visibility is almost exclusively driven by the presence or absence of regional sulfate, whereas wintertime visibility depends on a combination of regional and local influences coupled with local meteorological conditions (inversions) that can lead to concentrated build-up of emissions from local sources." According to the MANE-VU report, an "effective emissions management approach would rely heavily on broad-based regional SO_2 control efforts in the eastern United States." This final-form rulemaking will reduce emissions that have an impact both locally and regionally and could be classified as a broad-based regional SO_2 control effort.

The MANE-VU studies show that the predominant air pollutant in the Class 1 areas, regardless of season, is sulfate. Sulfate forms from the sulfur in fuels combining with oxygen during combustion to form SO_2 gas. While the transformation rate of gaseous SO_2 to sulfate aerosol particles does diminish in winter, its transformation rate is not zero. Moreover, the days of worst visibility impairment do not always occur in the summer months. The VIEWS web site (http://capita.wustl.edu/CAPITA/CapitaReports/PMFineAn/PMTopics_PPT/PM25Formation.ppt) lists the transformation rate of SO_2 to sulfate on a typical July day as 0.8% per hour. The transformation rate of SO_2 to sulfate on a typical January day is 0.2% per hour, or 25% of what the transformation rate would be on a typical July day. Depending on the quantity and location of the SO_2 released in this Commonwealth, this transformation could and does have a localized effect upon air quality in this Commonwealth, even in winter.

The same commentator stated that the Department has not shown that this rulemaking is needed to meet the $PM_{2.5}$ NAAQS. Area sources, which include, but are not limited to, heating oil use, are a tiny fraction of SO_2 emissions in this Commonwealth. The commentator stated that most SO_2 emissions are from large point sources, so it is not rational to claim that a regulation targeted at heating oil is needed to achieve compliance with the $PM_{2.5}$ NAAQS. The Department responds that it has cited reductions in $PM_{2.5}$ concentrations as an ancillary benefit of this regulation. $PM_{2.5}$ concentrations have both a regional and local component. Regional reductions of SO_2 will help to reduce the regional component of $PM_{2.5}$ concentrations and, therefore, will help nonattainment areas achieve compliance. On June 29, 2012, the EPA proposed to conclude that the existing annual $PM_{2.5}$ standard is not protective of public health and therefore proposed a more protective primary standard to be set between 12-13 $\mu g/m^3$. See 77 FR 38890. The EPA further proposed a new more protective secondary standard for visibility of either 28 or 30 deciviews (a measure of visibility impairment); the Pittsburgh-Beaver Valley area was one of the few that the EPA projected would need additional reductions by 2020 to meet this proposed standard.

The EPA finalized the $PM_{2.5}$ rulemaking on December 14, 2012, strengthening the annual primary standard, reduced to 12.0 $\mu g/m^3$ effective March 18, 2013, and retaining the existing 24-hour $PM_{2.5}$ standard at a level of 35 $\mu g/m^3$. The EPA further retained the existing secondary standards for $PM_{2.5}$ to address PM-related effects such as visibility impairment. The EPA stated that it was relying on the existing secondary 24-hour $PM_{2.5}$ standard to protect against visibility impairment and was not finalizing the separate proposed standard to protect visibility the EPA proposed in June 2012. See 78 FR 3086.

The same commentator stated that the impact of the increased demand for ultra-low sulfur diesel must be considered coupled with refinery closures that have also reduced supplies of distillate to this region. It stated that refineries Nationwide are experiencing record or near record losses and many are hanging on by a thread. The commentator thought that the proposed rulemaking would be particularly challenging to smaller refineries like Port Reading, American and United which cannot afford major capital investments in the current regulatory climate. The Department recognizes these concerns, particularly in regard to the smaller refineries. The final-form rulemaking does not increase the demand for ultra-low sulfur diesel. Since the comment period closed on November 29, 2010, there have been a number of significant changes in Eastern refineries, including the purchase and repurposing of the former Sunoco Marcus Hook refinery, the purchase of the former Sunoco Philadelphia refinery and the purchase of the Conoco-Phillips refinery. There are many reasons in addition to regulations for the closures of smaller, less profitable refineries and the affordability of major capital investments. The factors include decreasing gasoline use due to economic conditions and consumer habits and preferences as well as the inability of some Eastern refineries to process a wide range of crude oil types.

The same commentator stated that the rulemaking could not be justified as needed in the SIP for the substantial areas of this Commonwealth that are in attainment of the 1997 and 2006 PM NAAQS and that reductions are not needed Statewide because areas that contribute to nonattainment would already be included in the nonattainment area. The commentator stated that the Department did not include the measure in the Pittsburgh-Beaver Valley attainment plan. The Department responds that it has cited reductions in $PM_{2.5}$ concentrations as an ancillary benefit of this regulation. The Department did not include the measure in the Pittsburgh-Beaver Valley attainment plan because a state can only include measures in attainment plans that have already been adopted.

One commentator asked that the regulation not be included in the SIP because it may be difficult to amend if the fuel standard proves to be too problematic for the marketplace. The Department disagrees that the regulation should not be included in the SIP. This strategy was included as a measure the Department would pursue as part of the Commonwealth's long-term strategy in its regional haze SIP revision which was submitted to the EPA on December 20, 2010, and granted limited approval on June 13, 2012. See 77 FR 41279 (July 13, 2012). The low sulfur fuel strategy was also included in the contingency measure section of the SIP revision for the Pennsylvania portion of the Philadelphia-Wilmington, PA-NJ-DE $PM_{2.5}$ nonattainment area as a regulation in development and anticipated to be adopted. Because this strategy is an important component of the Commonwealth's plan for clean air, the Department will be submitting this rulemaking to the EPA upon final-form publication for inclusion in the Commonwealth's SIP. The final-form rulemaking includes the ability for the Department to grant a temporary suspension upon request if there is an insufficient quantity of compliant fuel available in an air basin or non-air basin areas.

One commentator stated that a 15 ppm sulfur content standard for No. 2 fuel oil would exceed Federal require-

ments and that a cost benefit analysis is needed. The Department disagrees that there are Federal sulfur requirements for No. 2 fuel oil that is not used for transportation purposes. As for a cost-benefit analysis, MANE-VU performed a cost-benefit analysis for sulfur reductions in fuel and determined that the benefits exceeded the costs. The report used by the MANE-VU, "Low Sulfur Heating Oil in the Northeast States, An Overview of Benefits, Costs and Implementation Issues," found that a decrease in No. 2 fuel oil from a sulfur content of 2,500 ppm to 500 ppm would produce a net savings because a slightly higher fuel oil cost would be more than offset by reduced furnace maintenance costs and higher efficiency.

IRRC commented that the proposed regulation would have direct and indirect effects on a broad range of citizens, businesses and industry. IRRC noted that several comments were received in support of the regulation, even from those who may have opposed portions of it. IRRC recognized that the proposed rulemaking would involve the availability of fuel, the price of fuel, significant economic investment and approval of temporary suspensions by the EPA that may affect the economic interests of all of this Commonwealth. Therefore, IRRC recommended the Board seek the advice of the General Assembly on whether the regulation represents a policy decision of a substantial nature that it requires legislative review. The Department responds that this rulemaking is authorized under the APCA. The proposed rulemaking was, and this final-form rulemaking will be, reviewed by the General Assembly according to the procedures in the Regulatory Review Act (71 P. S. §§ 745.1—745.12). In reviewing the proposed rulemaking, the House and Senate Environmental Resources and Energy Committees had the opportunity to object. The House and Senate Committees did not do so. The Department has taken the specific concerns of House and Senate Committee members into account in developing the final-form rulemaking.

Regional Consistency

Several commentators supported an approach consistent with New Jersey's regulation with a 500 ppm sulfur content limit for No. 2 fuel oil in 2014 and a second step reduction to 15 ppm sulfur by 2016, saying this would provide for regional fuel delivery consistency and security while reducing sulfur emissions from these products. Another commentator noted that the New Jersey rulemaking cited the Hart Consulting study "Ultra Low Sulfur Heating Oil Assessment" that concluded the time needed for refineries to install desulfurization capacity was 4 years. The Department considered the two-step approach taken by New Jersey but concluded that this Commonwealth has a different profile of users and producers. The sulfur content limit for No. 2 fuel oil in the final-form rulemaking is consistent with the first phase of implementation in New Jersey, namely 500 ppm. However, factors such as consideration of the need to install additional desulfurization capacity in western refineries in this Commonwealth make regional consistency a less important consideration than timing and cost-effectiveness in the choice of 500 ppm rather than 15 ppm. The Department revised the compliance date to July 1, 2016, to allow time for refiners to add desulfurization capacity.

Two commentators noted that the timing of the Commonwealth proposed requirement for 15 ppm sulfur content for No. 2 fuel oil coincides with New York's recently enacted law. New York is the largest consumer of No. 2 fuel oil, consuming approximately 1.4 billion gallons annually. This Commonwealth is the third largest consumer of No. 2 fuel oil, consuming approximately 891 million gallons annually. According to the commentators, this means that by 2012 approximately 2 billion gallons of No. 2 fuel oil will have to be replaced with ultra-low sulfur diesel. In 2009, the two states combined consumed approximately 3.7 billion gallons of ultra-low sulfur diesel, meaning the amount of ultra-low sulfur diesel supplied to the Central Atlantic region will have to rise by over 50% by 2012. Another commentator noted that the Commonwealth's proposed rulemaking was similar to action recently taken by New York, Connecticut and Maine. The commentator suggested that the Commonwealth require No. 2 fuel oil to meet the 15 ppm sulfur standard in 2012 similar to New York's compliance schedule to allow refiners and the supply network a clearly defined goal in the two largest oilheat fuel markets in the country. The Department responds that it revised the sulfur levels and compliance date. The accelerated time frame in New York is not appropriate for the Commonwealth. The Department revised the compliance date to July 1, 2016, for reducing the allowable sulfur content in commercial fuel oil to allow time for refiners to add desulfurization capacity. In addition, the Department revised the sulfur content level in No. 2 fuel oil, which is most of the commercial fuel oil sold in this Commonwealth, to 500 pm.

Furnace Efficiency

Two commentators wrote that the highest efficiency condensing boiler/furnace systems can be fired by either natural gas or heating oil. They did not find equipment manufacturers' specifications that require the use of ultra-low sulfur heating oil or demonstration of the emissions benefits of condensing boiler/furnace systems. The Department agrees that either natural gas or heating oil can be used in high efficiency systems and that it appears that the use of ultra-low sulfur heating oil is not explicitly required.

Price and Cost

Several commentators expressed concern that the proposed 15 ppm sulfur limit for No. 2 fuel oil would impose unnecessary costs on heating oil users. One commentator retained Hart Consulting to study the impact of lowering the heating oil specification by 2012 and provided a copy of the report "Ultra Low Sulfur Heating Oil Assessment." The report concluded that production of 15 ppm sulfur content No. 2 fuel oil would cost more than high sulfur No. 2 fuel oil, with 20¢ to 30¢ per gallon premiums to be expected in the short run and higher premiums and fuel shortages during cold weather. The Department agrees that the cost of fuel would be higher. However, with the final-form rulemaking limit at 500 ppm, the costs will be offset by reduced furnace maintenance costs. Consumers in this Commonwealth should save money in the operation of existing furnaces due to improved furnace and boiler efficiency by reducing fouling rates of furnace and boiler heat exchangers and other components, leading to an overall savings from reduced sulfur content. In addition, a 500 ppm sulfur content fuel oil may lead to new, more cost-effective designs and more widespread use of high efficiency condensing boilers or furnaces, reducing pollution and increasing fuel efficiency. One trade group noted that sulfur in fuel oil was the "real obstacle for equipment design" (www.biodieselmagazine.com/article.jsp?article_id=3937&q=&page=2). The 2008 Northeast Heating Oil Assessment estimates that there would be a 6.3¢ to 6.8¢ per gallon incremental production cost for 500 ppm vs. 2,500 ppm sulfur content home heating oil (No. 2 commercial fuel oil), including capital costs. Note that this is a cost to the producers; prices to the ultimate

consumer will be influenced by additional factors. Furthermore, this is a cost assuming all producers would incur some costs to install additional desulfurization, so this may be an overestimate for this Commonwealth. Assuming that the entire cost of producing 500 ppm fuel oil is passed on to the consumer, the increased cost to the residential customer would be about $29 per year. However, since furnace and boiler maintenance costs for consumers would be lower due to less fouling of their combustion units, NESCAUM reported a median annual savings of $29 per household on furnace vacuuming by using 500 ppm sulfur content commercial fuel oil. This is probably an underestimate because furnace maintenance costs have likely increased since 2005 due to inflation.

A commentator suggested that a 500 ppm sulfur content standard for No. 2 fuel oil would be less likely to result in price spikes because there are more additional sources of supply. The commentator stated that approximately 26 additional countries can provide supply at a 500 ppm sulfur content standard, which can reduce long term costs and supply disruption risks. A 500 ppm sulfur content standard would also allow use of 400 ppm sulfur kerosene as a blendstock to enhance No. 2 fuel oil supplies. The Department agrees and revised the sulfur content standard to 500 ppm.

Costs for Transportation Fuel

Several commentators expressed concern that the proposed rulemaking could have unintended negative consequences for highway diesel fuel users by creating market competition between highway fuel and home heating oil. This competition could have a sharp price impact for on-road diesel fuel, create seasonal price spikes for home heating oil and create year-round supply problems harming both home heating oil consumers and operators of diesel vehicles. Commentators offered price increase estimates. A commentator expressed concern that a 15 ppm sulfur content standard for No. 2 fuel oil would result in the need for additional refiner processing of higher sulfur distillate fuels and would increase the demand for a limited supply of ultra-low sulfur diesel, resulting in a higher price for on-road diesel fuel. This could create a competitive disadvantage for trucking companies based in this Commonwealth.

Referencing these comments, IRRC suggested the Board provide an analysis of the impact of the regulation on both the fuels directly included in the regulation and other fuels derived from the same sources, including an analysis of the supply and demand for the fuels and the effect of the regulation on the availability and price of these fuels. IRRC cited comments that expressed concern that homeowners relying on home heating fuel oil could be impacted by the price and availability of fuel, concern about overall fuel supply disruption and concern about timing and sulfur limits translating into a higher price for on-road diesel fuel and price spikes for home heating fuel oil.

The Department responds that the final-form rulemaking does not require the same sulfur content in home heating oil as is required by the EPA for highway fuel. Because more sulfur will be allowed in heating oil in this Commonwealth than in transportation fuels, off-specification transportation fuel can be used as home heating oil, thus easing supply concerns in both markets. Home heating oil and diesel fuel competed in the same market for many years. It was only with the implementation in 1993 of the first Federal sulfur content standards for highway diesel fuel to 500 ppm that separate markets for low sulfur diesel, meeting a 500 ppm sulfur content standard, and distillate heating oil at higher sulfur limits were created. Requirements for 15 ppm diesel fuel have further separated these markets. Some commentators recommended that a distinct market for heating oil continue to exist in this Commonwealth so that demand for 15 ppm transportation fuel does not adversely affect supply and price of heating oil. The Department agrees. Having separate markets does not necessarily mean large differences in price or a large reduction in the price of home heating oil, even though currently there are less stringent sulfur content standards and, thereby, fewer costs associated with removing sulfur from home heating oil. With the revisions in the final-form rulemaking, the Department does not expect that future competition in the marketplace between the users of home heating oil and the users of ultra-low sulfur distillate fuel as on or off-road diesel fuel will result in higher prices for either groups of consumers or adversely impact supply or demand for heating oil.

One commentator wrote that establishing the same 15 ppm sulfur content standard for heating oil as diesel fuel would result in dramatic operating cost reductions for distribution companies, many of which are small businesses. The Department responds that because refineries and terminals are already handling multiple grades of distillate, the benefit of minimizing the number of tanks due to consistent sulfur content limits in distillate fuels is not significant.

A commentator wrote that a 15 ppm sulfur content standard for No. 2 fuel oil would preserve or create jobs in this Commonwealth because it would enhance and modernize the product to keep the oilheat distribution industry, which employs approximately 7,000 people, competitive in the future. The Department responds that while the final-form rulemaking does not require 15 ppm sulfur content in heating oil, the Department understands that because of requirements in other states, some suppliers in this Commonwealth may choose to purchase this fuel to reduce operating costs or offer a cleaner product to its customers. Fuel at 15 ppm sulfur would obviously be compliant fuel in this Commonwealth. This would be a business decision on the part of each distribution company.

Credit Banking and Trading

Several commentators suggested consideration of an averaging, banking and trading program to provide flexibility to refineries for the 15 ppm No. 2 fuel oil sulfur limit in the proposed rulemaking. The Department responds that the limits and compliance date have changed in the final-form rulemaking. In addition, banking, averaging and trading programs are more difficult to administer than the regulatory approach that the Department has chosen, in which all refiners shall meet a 500 ppm sulfur in fuel level by July 1, 2016. A banking, averaging and trading program would require administrative oversight and costs to the Department and the regulated community, extensive involvement of financial planners and investors, an annual "true-up" of the bank and trading program, and a verification program, through an enforceable fuel sampling program, to guarantee that the SO_2 credits traded are the result of real reductions in air pollution. This verification program could be burdensome, as it would need to ascertain compliance and the number of "credits" generated.

Heating Oil Supply

One commentator noted that during peak heating oil season, a portion of the supply is provided by imports

from areas that do not have diesel desulfurization requirements similar to the United States and Canada. The Department understands the commentator's concerns. Although the final-form rulemaking does not adopt fuel content limits equivalent to transportation fuel (ultra-low sulfur diesel), there is a trend in the market toward lower sulfur levels. The Hart Consulting study states "Imports have played a decreasing role in the NY/NJ market coinciding with reductions in the high sulfur off-road distillate market. Peak seasonal winter supplies from imports have declined significantly" (p. 11). Most countries are now undergoing the shift to ultra-low sulfur diesel in their transportation sectors. For example, Russia has just finished its changeover to 10 ppm ultra-low sulfur diesel transportation fuel in 2009 in accordance with Euro Directive 29V, the European Union's emission regulations for new heavy-duty diesel engines, and may soon be able to provide ultra-low sulfur diesel fuel to the world market. Other European and Asian countries are also completing this shift to ultra-low sulfur diesel and the world market for this product is expected to return to balance in the near future. (See http://www.dieselnet.com/standards/eu/fuel.php.)

The same commentator noted that demand for low sulfur diesel will likely increase in 2015 when ocean-going vessels in United States ports will be required to use 1,000 ppm sulfur fuel. The Department agrees. The EPA, through the International Maritime Organization, a specialized agency of the United Nations, finalized plans on March 26, 2010, that would subject ships within a 200 nautical mile buffer zone around the United States and Canadian coastlines to stricter air pollution regulations. As part of this effort, the EPA will require ships to use fuel oil meeting a lower sulfur content standard of 1,000 ppm by January 2015 within the 200 nautical mile zone. The ships now use fuel with as much as 40,000 ppm sulfur. The EPA standard for ships would provide a place for the refiners to market off-specification fuel after the 500 ppm sulfur content standard is in effect.

Two commentators stated that ultra-low sulfur diesel demand is expected to rebound as the United States and European economies recover and strengthen. One commentator noted that demand for low sulfur distillates has been rising quickly in rapidly growing countries such as China and India and in some new markets, such as Chile, that have recently begun using ultra-low sulfur diesel for transportation fuel. The result has been a surge in exports of distillate and rising ultra-low sulfur diesel prices as the market becomes tighter. Diesel has risen 30¢ per gallon since November 2009 versus 26¢ per gallon for gasoline and about 20¢ per gallon for crude oil prices. The Department agrees that ultra-low sulfur diesel demand is likely to rebound when the global economy recovers and strengthens. The final-form rulemaking does not require heating oil to meet ultra-low sulfur diesel limits.

Pipeline Interface

Several commentators suggested that a 500 ppm sulfur content standard for No. 2 fuel oil would allow flexibility to handle jet fuel/ultra-low sulfur diesel pipeline interfaces after 500 ppm diesel is phased out in 2014. Colonial Pipeline Company's system generates an estimated 6 million barrels of jet fuel/ultra-low sulfur diesel interface per year. A 15 ppm sulfur content limit in No. 2 fuel oil would eliminate the flexibility for blending the interface into No. 2 fuel oil. This would create inefficiencies in the system resulting in the interface having to be returned to a refinery for reprocessing. One of these commentators stated that pipeline interfaces between higher sulfur products like jet fuel or kerosene and ultra-low sulfur diesel would no longer be able to be marketed as a high value fuel and would have to be downgraded to much lower value fuel. One of the commentators stressed the need for justification of the 15 ppm sulfur content standard for No. 2 fuel oil and recommended a 500 ppm sulfur standard to allow handling of jet fuel/ultra-low sulfur diesel pipeline interface. Another commentator suggested that a sulfur limit phased in over several years similar to the New Jersey rule would allow pipeline systems and distribution terminals to adjust their facilities and operations to ensure the most efficient operations. The Department acknowledges these concerns and revised the sulfur content limit to 500 ppm, which should significantly reduce reprocessing and downgrading of fuel oil. Furthermore, not all outlets for off-specification fuel would be foreclosed. The EPA will require ships to use fuel oil meeting a 1,000 ppm sulfur content limit by January 2015 within the 200 nautical mile zone. Ships now use fuel with as much as 40,000 ppm sulfur.

Emission Reductions and Energy Savings

One commentator stated that the estimated emission reduction of 29,000 tons of SO_2 per year from the proposed rulemaking was a substantial decrease in local emissions. Another commentator noted that this estimated emission reduction was not significant when compared to SO_2 emissions of 780,000 metric tons from power plants in this Commonwealth in 2008. A third commentator believed the benefits of the proposed rulemaking were overstated and did not justify its adoption at this time. The Department responds that the allowable sulfur content limits in the final-form rulemaking are now estimated to reduce emissions by 25,000 tons of SO_2. The Department evaluated this rulemaking as part of the regional haze strategy and determined that this reduction is necessary and appropriate.

One commentator believed it would be better to obtain SO_2 emissions reductions from coal-fired EGUs before requiring a 15 ppm sulfur content limit for No. 2 fuel oil. The Department notes that reductions from coal-fired EGUs are being made; additional reductions are expected as a result of Federal regulatory requirements such as the Mercury and Air Toxics Standards, the 2010 1-hour standards for SO_2 and nitrogen dioxide, and programs addressing interstate transport in the eastern United States to reduce $PM_{2.5}$ and ozone concentrations. The final-form rulemaking has considered the overall reduction of SO_2 from various sources needed to meet the Commonwealth's regional haze obligations and no longer contains requirements for 15 ppm sulfur content.

A commentator wrote that the EPA's proposed area source National Emission Standards for Hazardous Air Pollutants (NESHAP) rule imposes low PM and carbon monoxide standards on new oil-fired boilers. If finalized, this rule would eliminate potential energy savings in oil-fired boilers from use of lower sulfur fuels. The Department disagrees. The NESHAP rule does not affect residential furnaces, which constitute a large use of commercial fuel oil in this Commonwealth. Therefore, additional energy savings from increased efficiency from use of lower sulfur fuels in these furnaces will be realized.

A commentator stated that a standard lower than 500 ppm sulfur for No. 2 fuel oil would have unintended negative environmental consequences and would probably raise greenhouse gas emissions and will not increase boiler efficiency. The commentator stated that the

desulfurization process is energy intensive and will emit greenhouse gas in a larger amount than would be offset by the theoretical increased boiler efficiency. The Department responds that the final-form rulemaking does not require a standard lower than 500 ppm.

Residual Fuel Oil

Several commentators opposed the sulfur limits for residual fuel oils. Two commentators stated that the proposed 0.5% sulfur content standard for No. 5 and No. 6 residual fuel oil is too stringent. They wrote that sulfur removal from residual fuels is technologically difficult, very costly and usually economically prohibitive. The proposed standard would potentially lead to export of these fuels instead of treatment to remove sulfur. They said that alternatively refiners could upgrade the residual oil to lighter distillates. The Department disagrees that the 0.5% or 5,000 ppm sulfur content standard is too stringent. Refiners are currently providing residual fuel oil with a 5,000 ppm sulfur content for sale in the Southeast Pennsylvania air basin, as well as several counties in New Jersey (and 3,000 ppm in some New Jersey counties). The MANE-VU states chose the 5,000 ppm residual oil standard as a goal for a regionally consistent level to reasonably reduce SO_2 emissions from this fuel. New Jersey, Vermont, Maine and Massachusetts have already adopted a 5,000 ppm maximum sulfur content. A market for off-specification residual oil, above a 5,000 ppm sulfur content standard, exists in the marine vessel market. Marine vessels located in the ocean and away from the United States and Canadian coast will still be able to be use residual fuel oil with a sulfur content greater than 5,000 ppm. According to the U.S. Energy Information Administration (EIA) State Energy Data System, in 2010 almost half of all residual oil is used for vessel bunker purposes (residual oil by its nature and by EPA regulation cannot be used in on-road vehicles or most off-road uses). Furthermore, existing provisions regarding emissions of SO_2 from installations where equipment or processes are used to reduce the emissions from burning fuels with a higher sulfur content than specified in the final-form rulemaking allow higher sulfur content in commercial fuel oil as long as the emissions do not exceed those that would result from the use of commercial fuel oil that meets the applicable maximum allowable sulfur content of this final-form rulemaking. The use of residual oil has declined Nationally due to a variety of factors; given the relatively small amount of residual oil in use in this Commonwealth for nontransportation purposes, it is unlikely that demand could not be met.

Another commentator opposed the proposed 0.5% sulfur content standard for No. 5 and No. 6 residual fuel oil, writing that there is a very limited supply of residual fuels Nationally and a refiner will not make capital investments or use higher cost low sulfur crudes to produce lower sulfur residual fuel oils because each gallon of residual fuel oil is worth less than the crude oil from which it is refined. The commentator stated that the requirement is unsustainable economically and environmentally, and will place users of this fuel in this Commonwealth at a severe competitive disadvantage and that the size of this market in this Commonwealth means that any reduction in sulfur content has a miniscule impact. The Department agrees that most of the emission reduction in the final-form rulemaking comes from lowering sulfur content in No. 2 rather than from reducing sulfur in residual fuel oils. However, the emission reductions will nonetheless be helpful for reducing regional haze and achieving the other cobenefits of the final-form rulemaking. Because of the small size of the market in this Commonwealth and the number of states that have adopted (or are anticipated to adopt) the MANE-VU limits for residual fuel oil, the Department believes that regional consistency is an important consideration for this fuel. Therefore, the residual fuel content limits in the final-form rulemaking have not changed from those in the proposed rulemaking.

One refinery commentator stated that its No. 6 fuel oil production currently meets or exceeds the proposed 0.5% sulfur content standard and could be used as a blend stock by others to satisfy the proposed No. 4 and No. 5 oil sulfur standards. The Department thanks the commentator for its support of the sulfur content requirements for No. 4 and No. 5 fuel oil.

Another refinery commentator expressed concern because it does not have hydrotreating capacity to treat Nos. 4, 5 and 6 commercial fuel oil. The Department acknowledges the concern and notes that the Department revised the compliance date for reducing the allowable sulfur content in commercial fuel oil to allow time for refiners to add hydrotreating capacity.

IRRC commented that two refinery commentators stated that sulfur removal from heavy fuel oils is technologically difficult, very costly and usually economically cost prohibitive. IRRC noted that these commentators stated that the market reality of the limit to 0.5% sulfur for these fuels is that these refiners will export the fuels rather than make the investments required to meet the 0.5% limit. IRRC stated that it was concerned that the regulation may disrupt the supply of these fuels in this Commonwealth. IRRC recommended that the Board review the 0.5% sulfur content standard for No. 5, No. 6 and heavier oils and explain why the limits in the final-form rulemaking are needed, reasonable and cost-effective. IRRC requested the same evaluation of, and explanation regarding, the 0.25% limit for No. 4 fuel oil.

The Department responds that it determined that the 0.25% content standard for No. 4 fuel oil and the 0.5% sulfur content standard for No. 5, No. 6 and heavier oils are needed, reasonable and cost effective for a number of reasons. As explained in responses to comments under General Opposition, the Commonwealth is required under the CAA to make progress toward achieving natural background visibility conditions at Federal Class I areas. See section 169A of the CAA and 40 CFR Part 51, Subpart P. Reduction of allowable sulfur content of fuel oil has been identified as a reasonable strategy by the MANE-VU, of which the Commonwealth is a member. The Department indicated in its Regional Haze SIP revision that the Commonwealth would pursue adoption of reduced sulfur content in commercial fuel oil and other emission management strategies, as appropriate and necessary, as part of its long-term strategy to meet the reasonable progress goals contained in the SIPs of states with Class I areas that may be affected by emissions from this Commonwealth. MANE-VU modeling identified SO_2 as the primary source of visibility impairment in the region. The MANE-VU performed a cost-benefit analysis for lowered sulfur limits and determined that the benefits exceed the costs. In addition, reducing SO_2 levels will assist the Commonwealth in meeting current and anticipated NAAQS for fine particulate matter ($PM_{2.5}$) and SO_2.

These sulfur content limits are consistent with the levels the Department agreed to pursue, as necessary and appropriate, in the Commonwealth's Regional Haze SIP. Refiners are currently providing residual fuel oil meeting the 0.5% sulfur content for sale in the inner zone of

Philadelphia as well as in several counties in New Jersey, as this (or an even lower standard) has been the existing sulfur in fuel standard for those counties. See § 123.22(e)(2) and N.J.A.C. § 7:27-9.2 (relating to sulfur content standards). The MANE-VU states chose to pursue the 0.25% content standard for No. 4 fuel oil and the 0.5% sulfur content standard for No. 5, No. 6 and heavier oils as a regionally consistent level to reasonably reduce SO_2 emissions. The Department revised the compliance date for reducing the allowable SO_2 content in commercial fuel oil to allow time for refiners to add desulfurization capacity. Other options exist to reduce the sulfur content of residual fuel oil, including reprocessing the fuel oil to remove more sulfur and blending lower sulfur fuel oil with higher sulfur fuel oil to meet the 0.25% and 0.5% standards.

Sell-Through Provisions

Several commentators thanked the Department for clarifying that the ultimate consumer is able to use fuel oil purchased prior to the compliance date of the final-form rulemaking. The Department thanks the commentators for their comments.

Temporary Suspension Mechanism

One commentator supported the exemptions provided in the proposed rulemaking as these appropriately recognize extenuating circumstances which could affect the production or availability, or both, of compliant fuel oil. The Department agrees and is retaining the provision, with revisions, to ensure that residents of this Commonwealth using heating oil are not without the capacity to heat their homes, offices and places of employment in the winter.

Several commentators expressed concerns with the waiver provision. In addition, IRRC requested explanation of how the temporary suspension mechanism would be effective in addressing a shortage of compliant fuel. IRRC stated that the proposed rulemaking was not clear regarding the process to be followed, when the EPA would complete its review, content required by the EPA to grant the request or whether the EPA was required to entertain the request. IRRC questioned how an excessive price for compliant fuel would be considered in the determination of whether compliant fuel is "available" and whether the Department has alternatives if the EPA refuses to entertain or denies the request. IRRC requested an explanation of how the temporary suspension mechanism is feasible, reasonable and in the best interest of the Commonwealth.

The Department is retaining the temporary suspension provision, with revisions, to ensure that residents of this Commonwealth using heating oil are not without the capacity to heat their homes, offices and places of employment in the winter. The granting of any temporary suspension has a high threshold of proof and will be used sparingly. The Department has had operational experience in the multiple factors that must be taken into account in exercising enforcement discretion for fuel requirements in the gasoline program in Chapter 126, Subchapter C (relating to gasoline volatility requirements). In that program, price is not considered to be a direct factor in determining availability; excessive prices, however, can be symptomatic of a significant fuel shortage.

The Department agrees that the temporary suspension provisions needed to be more specific. The final-form rulemaking adds additional criteria for granting a temporary suspension and a 60-day time limit. The additional criteria parallel criteria in the CAA regarding EPA waivers for certain motor vehicle fuel requirements (see section 211(c)(4)(C)(ii) and (iii) of the CAA (42 U.S.C.A. § 7545(c)(4)(C)(ii) and (iii))) to ensure that the suspension is not used to address the lack of prudent planning on the part of fuel suppliers. Additional provisions could hamstring the decision making process since, in the Department's experience with motor vehicle gasoline, each situation will likely differ. The 60-day time limit was chosen to be roughly equivalent to a typical homeowner's frequency of refilling a heating oil tank. A 60-day suspension would allow a homeowner to refill a tank with noncompliant fuel. The final-form rulemaking requires the Department to limit a suspension or increase in maximum allowable sulfur content to the shortest duration in which adequate supplies of compliant fuel oil can be made available. The Department removed language requiring EPA approval from the final-form rulemaking. For all of these reasons, the temporary suspension provision is feasible, reasonable and in the best interest of the Commonwealth.

Sampling and Testing Requirements

Two commentators stated that retesting in the terminal is an unnecessary burden and should not be required because refineries shall test and certify that their products meet applicable specifications prior to leaving the refinery and pipelines maintain the integrity of the product while transporting the product to terminals. Similarly, IRRC requested an explanation of why the sampling and testing requirements are needed and would not result in excessive or repetitive sampling and testing of fuels. The Department responds that it revised the sampling and testing requirements to eliminate excessive or repetitive sampling and testing provisions. Sampling and testing will be necessary only if the shipment lacks records regarding sulfur fuel content.

One commentator stated that the proposed § 123.22(f)(2) would require "a refinery owner or operator who produces fuel oil intended for use or used in the Commonwealth . . . to sample, test and calculate the sulfur content of each batch of commercial fuel oil." The commentator stated that the Commonwealth cannot require sampling and testing for out-of-State parties. The Department disagrees. The final-form rulemaking regulates only a refinery owner or operator selling or transferring product in or into this Commonwealth for use in this Commonwealth. If the refiner wants to ship its product to this Commonwealth, then it is subject to these requirements. The regulated consumers in this Commonwealth require accountability of the sulfur content by means of the sampling and testing requirements in subsection (f) and the recordkeeping and reporting requirements in subsection (g). Given the revision to the sampling and testing provisions in the final-form rulemaking, customers in this Commonwealth are unlikely to accept shipment without documentation of sampling and testing because they would have to conduct their own sampling and testing.

A commentator supported the Department's addition of sampling, recordkeeping and reporting requirements as the provisions would enhance the Department's ability to determine that only compliant fuels are being used and give the Department the ability to track batches of fuel oil from refinery production to end usage. The Department agrees that both current industry practices and the final-form rulemaking provide the Department with the ability to track fuel batches.

The commentator believed that the recordkeeping requirements are practical because requirements are not imposed on residential end users. The Department agrees.

Major Comments and Responses on the ANFR

As previously noted, an ANFR was published at 42 Pa.B. 3596. The comment period closed on July 23, 2012. The draft final-form rulemaking contained significant changes in several areas and the Department believed that, while not legally required, further discussion and an additional comment period would serve the public interest. The most significant changes made in the draft final-form rulemaking included the following: (1) an increase in the sulfur limit for No. 2 and lighter commercial fuel oil from 15 ppm to 500 ppm; (2) a postponement of the compliance date for revised sulfur limits from May 1, 2012, to July 1, 2016; (3) changes in the temporary suspension provision to remove EPA concurrence and to remove the maximum allowable sulfur content of 500 ppm for a temporary increase; (4) changes in the sampling and testing requirements to require sampling, testing and calculating of sulfur content by a transferor only if records are not otherwise provided with the shipment; and (5) a change to allow sulfur content to be recorded as either ppm by weight or weight percent and to clarify that the actual sulfur content (not the regulated maximum allowable sulfur content) must be in the record.

Eight commentators submitted comments on the ANFR: three corporations (a wholesale electricity generator, a refinery owner and operator, a pipeline and terminal company); three industry trade associations; an environmental organization; and an environmental consulting company.

Several industry commentators felt the draft final-form rulemaking provided cost-effective environmental benefits and sufficient lead time for companies to make changes to refining and distribution operations.

The Pennsylvania Petroleum Marketers and Convenience Store Association (PPMCSA) supported a more aggressive schedule for reducing sulfur in heating oil and recommended that the Department adopt 15 ppm effective as early as practicable, at the very least no later than the New Jersey schedule (July 1, 2016). The PPMCSA stated that use of ultra-low sulfur heating oil results in improvements in the environment. While the Department agrees that the use of 15 ppm would provide a small additional environmental benefit, the benefit is not cost-effective at this time. Most of the benefit in the change in sulfur levels comes from reducing sulfur from existing levels (2,000 to 2,500 ppm) to 500 ppm.

The Clean Air Council (CAC) urged the adoption of a standard more protective of public health. The commentator explained that heating oil burners emit PM, NO_x, SO_2, mercury and CO_2 have a major impact on public health, ozone formation, $PM_{2.5}$, regional haze and acid precipitation, and that the change from 15 ppm to 500 ppm results in nearly a 20% increase in SO_2 emissions. The commentator stated this has real and measurable impacts on human health, including a change from the estimated 85 lives saved in this Commonwealth to 77 lives saved and an additional $7.4 million in avoided medical costs in 2018. Health and welfare co-benefits include reductions in NO_x, CO_2, ozone, $PM_{2.5}$ and acid rain. The Department agrees that heating oil emits these pollutants and is reducing sulfur in commercial fuel oil primarily to reduce regional haze. SO_2 and NO_x are significant contributors to regional haze, and their reduction also has health cobenefits. For environmental benefit, see the preceding response.

The PPMCSA and CAC stated that the use of ultra-low sulfur heating oil (15 ppm) results in cleaner, more efficient combustion processes in oilheating equipment, resulting in cost savings to consumers. While the Department agrees that cleaner combustion results in cost savings to consumers, most of the benefit results from the reduction from existing levels to 500 ppm. Furthermore, the use of advanced efficiency furnaces does not require the use of 15 ppm fuel.

These two commentators also stated that having on-road, off-road and heating oil at the same sulfur level would result in significant operational efficiencies through storage in the same containers and thus cost savings for marketers who distribute these products. The Department agrees there would be some efficiency in storage and transportation but, as indicated by comments on the original proposal, mandating fuel sulfur levels at 15 ppm also carries the risk of higher prices for both heating oil and transportation fuels.

The PPMCSA commented that announcements indicating continued operation of two refineries in Southeast Pennsylvania and previously announced capacity enhancements of the Colonial Pipeline signal a stable source of ultra-low sulfur fuel for the region. The Department agrees that the potential for stable fuel supply has improved in the last few months. However, one refinery has shut down and will be repurposed. It is still uncertain whether the types of fuels to be supplied into the market from the other refineries will change.

The CAC commented that the concerns of refineries are overstated because the small increase in refining costs will be able to be absorbed by the consumer through savings in other areas and, with adequate notice, there will be enough supply to meet the demand. There will be costs to reducing sulfur from existing levels to 500 ppm, but only a small additional cost to reduce sulfur further to 15 ppm. The commentator felt that the concern with all Northeast states moving to a 15 ppm standard, namely that there will not be enough supply, was overstated. The Department disagrees with the characterizations on cost and supply. The commentator appears to be confusing the incremental cost difference to the consumer with the cost incurred by an individual owner or operator of a refinery to install sufficient desulfurization to meet the 15 ppm level. Desulfurization capacity is very expensive and is not cost-effective for the additional environmental benefit. The supply aspect is answered in the preceding response.

The CAC commented that refineries commented during the proposed rulemaking that given adequate time (to 2018) a 15 ppm standard would be a more feasible standard. The commentator supported the stepped approach used in several other states (500 ppm in 2014 and 15 ppm in 2018) as reasonable and as being similar to the incremental stepped approach in transportation fuels. The commentator suggested a compliance date for 500 ppm sulfur of 2014 and a 15 ppm sulfur limit, to provide refiners with 4 years notice from when they reasonably should have been on notice of a change in the sulfur standard, noting that New York successfully transitioned to 15 ppm in a 2-year time frame. The Department has not adopted the suggested phased-in schedule since allowing refiners the time to develop adequate desulfurization capacity is important to ensuring supplies of commercial fuel oil in this Commonwealth. New York's transition to

15 ppm in 2012 creates additional demand for 15 ppm fuel and New Jersey will add to that demand in 2014.

Two industry commentators suggested that the Department revise the definitions of "ultimate consumer" and "retail outlet" by deleting "a combustion unit" and substituting "fuel oil-burning equipment" so that these definitions would be consistent with the definition of "commercial fuel oil." The Department agreed that the terms should be consistent and changed "fuel oil-burning equipment" to "combustion unit" in the definition of "commercial fuel oil."

These commentators requested that language be added to the definition of "ultimate consumer" to ensure that facilities with the same owner or operator that engage in the non-resale transfer of commercial fuel oil are included in the definition. The Department does not agree that the additional language is necessary because the definition in the final-form rulemaking already includes these non-resale transfers.

Phillips 66 commented that the sulfur levels for No. 5 and No. 6 fuel oils (residual oils) are too stringent and could result in significant loss of supply. The company stated that sulfur removal from these heavier fuels is technologically difficult, very costly and usually economically prohibitive. The company explained that dilution is not a viable solution because blending may lead to not meeting other parameters and dilution with lighter, more valuable product is unlikely to be undertaken by refiners. Phillips 66 explained that dilution would yield more product than is needed by the market so there would be no outlets except export. The company suggested a fuel sulfur level for Nos. 5 and 6 of 1.0% and leaving the existing standard for the Southeast Pennsylvania air basin (0.5%) in place.

The Department respectfully disagrees. As the commentator points out, refiners are currently providing residual fuel oil with a 5,000 ppm sulfur content for sale in the Southeast Pennsylvania air basin, as well as several counties in New Jersey (and 3,000 ppm in some New Jersey counties). The MANE-VU states chose the 5,000 ppm residual oil standard for a regionally consistent goal level to reasonably reduce SO_2 emissions from this fuel. New Jersey, Vermont, Maine and Massachusetts have already adopted a 5,000 ppm maximum sulfur content. A market for off-specification residual oil above a 5,000 ppm sulfur content standard exists in the marine vessel market. According to the EIA State Energy Data System, in 2010 almost half of all residual oil was used for transportation purposes (residual oil by its nature and by EPA regulation cannot be used in on-road vehicles or most off-road uses, but can be used in large marine vessels). Furthermore, fuels with a higher sulfur content than those specified in the final-form rulemaking can be used in combustion units if control equipment or processes ensure that the existing SO_2 limits in pounds of SO_2 per million Btu of heat input over a 1-hour period are not exceeded.

The CAC commented that establishing a suspension policy for the rare times that compliant commercial fuel oil is legitimately unavailable is a reasonable and prudent measure. The Department agrees, as ensuring that customers have enough fuel for home heating is essential.

The CAC also commented that the specific requirements of the suspension policy have not been codified, which could leave it open for abuse from commercial fuel oil refiners. The two major flaws are as follows: 1) it is not clear under what limited circumstances the Department can grant a suspension; and 2) it does not include a time limit for how long a suspension can last. In particular, the provision could allow a suspension of the limits due to poor planning or refusal of the refiners to make enough compliant fuel. The Department agrees that the temporary suspension provisions should be made more specific. The final-form rulemaking adds additional criteria for granting a temporary suspension and a time limit.

The CAC suggested that the Department adopt the language of section 211(c) of the CAA that sets a suspension limit of 20 days. The Department included language similar to section 211(c) of the CAA as it relates to planning, but has included a 60-day limit rather than 20 days, as many heating oil customers fill their tanks about every 2 months during the heating season.

Various industry commentators commented that the proposed amendments are not consistent with current industry practice and should be modified. They stated that current practices for testing, transporting and documenting heating oil are sufficient to ensure product delivered and sold in this Commonwealth will meet standards. They said it is impractical and unworkable to require each heating oil custody or title transfer to identify the actual sulfur content on the product transfer document because of the fungibility of the product, and that many transfers within a company or to a bulk distributor often do not test for the exact sulfur level. They called the requirement for specifying actual sulfur content for each sale or transfer impractical. They recommended that recordkeeping and reporting requirements be amended to specify that the requirement could be met by properly classifying the fuel by sulfur content as being below 15 ppm, between 15 and 500 ppm and over 500 ppm. They suggested that the practical implication of compliance with the regulation would significantly complicate distribution and slow the system. One of the commentators stated that companies should be able to maintain compliance with the regulation through the current practice of ensuring that a distillate fuel of less than 500 ppm sulfur does not come into contact in a tank or pipeline with another batch exceeding the 500 ppm sulfur standard. That commentator suggested the state allow the use of product codes to convey required transfer document information, as the EPA does. The commentator stated that fuels are commonly bought and sold per pipeline specifications or "codes," which are widely used throughout the industry. The commentator provided specific revisions to the draft final-form rulemaking to: restore the proposed language requiring refiners to sample, test and calculate the sulfur content of each batch of fuel; add requirements for testing if records are missing; confine the information to a determination of meeting the 500 ppm level rather than the specific sulfur level; and enable product transfer documents not to specify actual sulfur level.

In response to these comments, the Department revised the sampling and testing requirements to eliminate duplicate testing and to mirror current practices for ensuring product sold in this Commonwealth will be compliant, while ensuring that the Department can adequately enforce compliance and that the ultimate consumer knows that the fuel is compliant. The Department removed the requirement to record the actual sulfur content and instead only requires the information reflect the maximum sulfur level of the commercial oil fuel shipment. The Department has also allowed the use of product codes, under similar conditions as those described by the EPA for gasoline and diesel fuel in transfers from refiners up to the point that the fuel transfers to a truck

carrier. See 40 CFR 80.77, 80.106 and 80.590 (relating to product transfer documentation; product transfer documents; and what are the product transfer document requirements for motor vehicle diesel fuel, NRLM diesel fuel, heating oil, ECA marine fuel, and other distillates).

All4, an environmental consulting company, suggested that § 123.46(a)(1)(i) (relating to monitoring requirements) be amended to remove the requirement for continuous opacity monitoring systems (COMS) if natural gas, liquid fossil fuel or a combination thereof is used. The commentator stated that this revision is similar to a Federal requirement in 40 CFR 60.45(b)(1) (relating to emissions and fuel monitoring). The commentator stated that the cost of a COMS is overly burdensome for minimal environmental benefit, especially for natural gas fired sources that may only combust low sulfur fuel oil as a backup or as secondary fuel. The Department has not made this change. For fuel oil, opacity is much more a function of combustion characteristics. Simply limiting fuel sulfur content for oil-fired units does not, in itself, negate the need to continuously monitor opacity. Section § 123.46(a)(1)(ii) does not require COMS for oil-fired combustion units if the units can meet particulate and opacity requirements without particulate control and have not had an opacity violation in the previous 5 years. For a new source, if the units do not have PM control, COMS do not have to be installed unless and until they have an opacity violation. In addition, § 123.46(c) provides the unit with a possible full exemption from the COMS requirement.

G. *Benefits, Costs and Compliance*

Benefits

Implementation of the final-form rulemaking will benefit the health and welfare of the approximately 12 million residents and numerous animals, crops, vegetation and natural areas in this Commonwealth by reducing the ambient levels of SO_2, resulting in reductions in regional haze and $PM_{2.5}$. There are also important cobenefits of this final-form rulemaking. Emissions of NO_x, which contribute to unhealthy levels of $PM_{2.5}$ and ground-level ozone, will also decrease with the use of low-sulfur content commercial fuel oil due to furnace and boiler efficiency improvements. Emissions of CO_2, a greenhouse gas, should also decrease due to improved furnace and boiler combustion efficiency. SO_2 emissions also contribute to the formation of acid rain. Both acid rain and $PM_{2.5}$ contribute to agricultural crop and vegetation damage and degradation of the Chesapeake Bay. Combustion of low-sulfur content commercial fuel oil will contribute to reducing the incidences of these adverse effects in this Commonwealth.

Commercial fuel oil users benefit too. According to the EIA State Energy Profiles, approximately 26% of the households in this Commonwealth use No. 2 commercial fuel oil for space heat. Low-sulfur content commercial fuel oil has the potential to improve furnace and boiler combustion efficiency by reducing fouling rates of furnace and boiler heat exchangers and other components. Reduced boiler and furnace fouling rates translate directly into lower vacuum-cleaning costs for fuel oil companies and homeowners by extending the service intervals. For example, according to a NESCAUM study, using a median hourly service cost of $72.50 per hour for vacuum-cleaning a furnace and changing No. 2 commercial fuel oil from a sulfur content of 2,500 ppm to 500 ppm would save $29,000 a year per 1,000 homes, or $29 annually per home in the United States. (See NESCAUM report "Low Sulfur Heating Oil in the Northeast States: An Overview of Benefits, Costs and Implementation Issues," December 2005, p. 3-2 and 3-3.) Further, the availability of low-sulfur content commercial fuel oil will enable the introduction of highly efficient advanced technology condensing furnaces. A lower sulfur content commercial fuel oil will also increase the number of clean fuel types available to consumers.

The commercial fuel oil industry also benefits. A requirement for lower sulfur content No. 2 commercial fuel oil benefits distributors of commercial fuel oil by increasing their ability to compete with natural gas, a cleaner fuel than today's No. 2 commercial fuel oil.

Compliance Costs

The final-form rulemaking will affect the owners and operators of refineries, distributors and carriers of commercial fuel oils; owners and operators of commercial fuel oil terminals; ICI boiler owners and operators; and individuals who use commercial fuel oils in this Commonwealth.

There are four refineries in this Commonwealth owned by four companies. The products of the refineries will be affected by the final-form rulemaking. Owners and operators of refineries outside this Commonwealth will be indirectly affected if they supply distributors that sell commercial fuel oil in this Commonwealth. The Department believes that this sophisticated industry has the technical capacity for implementing the program because sulfur limits have been established in motor fuels for 30 years.

There are 92 fuel oil terminal operations operated by 38 different companies and 737 distributors of petroleum products in this Commonwealth. Not all of these operations handle commercial fuel oil. Major distributors in this Commonwealth also operate terminals. While the size of distributor operations ranges from large to small, members of the petroleum distribution industry as a whole have been regulated for many years. Existing systems to track the quantity and composition of fuel are of long standing for purposes of compliance with both environmental and tax regulations.

End-users of commercial fuel oil range from large industrial users to homeowners. There are approximately 1.32 million households in this Commonwealth that may use commercial fuel oil for residential heating (5.08 million households × 26% of households). The EIA State Energy Profile estimates that 26% of homes in this Commonwealth use commercial fuel oil for space heat.

Fuel combustion at many ICI sources is already regulated by the Department under its permit program; these sources will be required to comply with the final-form rulemaking, which retains (with modification) the equivalency provisions of the existing regulation as an alternative compliance mechanism. The equivalency provisions allow the use of equipment or a process to control emissions to the same level as would result from the use of a compliant commercial fuel oil. This choice would most likely only occur if the cost of control were less than the cost of the purchase of compliant commercial fuel oil.

In a 2008 report entitled "Northeast Heating Oil Assessment," the National Oilheat Research Alliance (NORA) estimated that there would be a 6.3¢ to 6.8¢ per gallon incremental production cost for 500 ppm versus 2,500 ppm sulfur content home heating oil (No. 2 commercial fuel oil), including capital costs. These are costs to the producers; prices to the ultimate consumer will be influenced by factors in addition to the cost of reducing the sulfur content in the fuel oil.

Furnace and boiler maintenance costs for consumers should be lower due to less fouling of their combustion

units. According to NORA, although low-sulfur content commercial fuel oil may cost a few cents per gallon more, savings on maintenance costs will help defray that impact. Decreased fouling improves efficiency of the combustion unit, which results in lower fuel usage.

Compliance Assistance Plan

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

Paperwork Requirements

The final-form rulemaking requires that, beginning with the refinery owner or operator who sells or transfers commercial fuel oil and ending with the ultimate consumer, each time the physical custody of or title to a shipment of commercial fuel oil changes hands the transferor shall provide the transferee with an electronic or paper record of the transaction. Each affected person shall keep the records in electronic or paper format for 2 years, except those ultimate consumers located at a private residence. Recordkeeping or reporting is not required of ultimate consumers at private residences or apartment complexes and condominiums; they only need to buy and use compliant commercial fuel oil. The Department conferred with the industry on normal industry practices and took those practices into account in crafting the paperwork requirements.

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 facilities that permanently achieve or move beyond compliance.

This final-form rulemaking reduces emissions of SO_2 and NO_x air pollutants by requiring a lower amount of sulfur in commercial fuel oil used in this Commonwealth, thereby reducing regional haze and ambient levels of $PM_{2.5}$ in this Commonwealth and throughout the northeast. This final-form rulemaking does not require add-on controls, although existing provisions allow the use of noncompliant fuel if the emissions are equivalent to those obtained with compliant commercial fuel oil.

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 September 13, 2010, the Department submitted a copy of the notice of proposed rulemaking, published at 40 Pa.B. 5456, 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 November 30, 2012, 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 December 13, 2012, 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, 1 Pa. Code §§ 7.1 and 7.2.

(2) At least a 60-day public comment period was provided as required by law and the comments were considered.

(3) This final-form rulemaking does not enlarge the purpose of the proposed rulemaking published at 40 Pa.B. 5456.

(4) These regulations are necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this preamble.

(5) These regulations are necessary and appropriate to implement provisions of the CAA.

L. *Order*

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

(a) The regulations of the Department, 25 Pa. Code Chapters 121, 123 and 139, are amended by amending §§ 121.1, 123.22, 139.4 and 139.16 to read as set forth in Annex A, with ellipses referring to the 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*.

MICHAEL L. KRANCER,
Chairperson

(*Editor's Note*: For the text of the order of the Independent Regulatory Review Commission relating to this document, see 42 Pa.B. 7877 (December 29, 2012).)

Fiscal Note: Fiscal Note 7-462 remains valid for the final adoption of the subject regulations.

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:

* * * * *

Carrier—A distributor who does not take title to or otherwise have ownership of the commercial fuel oil or gasoline, and does not alter either the quality or quantity of the commercial fuel oil or gasoline.

* * * * *

Commercial fuel oil—A fuel oil specifically produced, manufactured for sale and intended for use in a combustion unit. A mixture of commercial fuel oil with noncommercial fuel when greater than 50% of the heat content is derived from the commercial fuel oil portion is considered a commercial fuel oil.

* * * * *

Distributor—

(i) A person who transports, stores or causes the transportation or storage of gasoline at any point between a refinery, blending facility or terminal and a retail outlet or wholesale purchaser-consumer's facility.

(ii) For purposes of § 123.22 (relating to combustion units), a person who transports, stores or causes the transportation or storage of commercial fuel oil at any point between a refinery, blending facility or terminal and a retail outlet, wholesale purchaser-consumer's facility or ultimate consumer.

(iii) The term includes a refinery, a blending facility or a terminal.

* * * * *

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 a noncommercial fuel and a commercial fuel oil when at least 50% of the heat content is derived from the noncommercial fuel portion is considered a noncommercial fuel.

* * * * *

Retail outlet—An establishment at which commercial fuel oil or gasoline is sold or offered for sale to the ultimate consumer for use in a combustion unit or motor vehicle, respectively.

* * * * *

Terminal—

(i) A facility which is capable of receiving commercial fuel oil or gasoline in bulk, that is, by pipeline, barge, ship or other transport, and at which commercial fuel oil or gasoline is sold or transferred into trucks for transportation to retail outlets, wholesale purchaser-consumer's facilities or ultimate consumers.

(ii) The term includes bulk gasoline terminals and bulk gasoline plants.

(iii) For purposes of Chapter 126, Subchapter A (relating to oxygenate content), the terminal does not have to be physically located in the control area.

* * * * *

Transferee—

(i) A person who is the recipient of a sale or transfer.

(ii) For purposes of § 123.22, the term includes the following:

(A) Terminal owner or operator.

(B) Carrier.

(C) Distributor.

(D) Retail outlet owner or operator.

(E) Ultimate consumer.

Transfer efficiency—The ratio of the amount of coating solids deposited onto the surface of a coated part to the amount of coating solids used expressed as a percentage.

Transferor—

(i) A person who initiates a sale or transfer.

(ii) For purposes of § 123.22, the term includes the following:

(A) Refinery owner or operator.

(B) Terminal owner or operator.

(C) Carrier.

(D) Distributor.

(E) Retail outlet owner or operator.

* * * * *

Type II chemical milling maskant—A coating that is applied directly to aluminum aerospace vehicles and components to protect surface areas when chemically milling the aerospace vehicle or component with a Type II etchant.

Ultimate consumer—With respect to a commercial fuel oil transfer or purchase, the last person, facility owner or operator or entity who in good faith receives the commercial fuel oil for the purpose of using it in a combustion unit or for purposes other than resale.

Ultimate purchaser—With respect to any new motor vehicle or new motor vehicle engine, the first person who in good faith purchases a new motor vehicle or new motor vehicle engine for purposes other than resale.

* * * * *

CHAPTER 123. STANDARDS FOR CONTAMINANTS

SULFUR COMPOUND EMISSIONS

§ 123.22. Combustion units.

(a) *Nonair basin areas.* Combustion units in nonair basin areas must conform with the following:

(1) *General provision.* A person may not permit the emission into the outdoor atmosphere of sulfur oxides, expressed as SO_2, from a combustion unit in excess of the rate of 4 pounds per million Btu of heat input over a 1-hour period, except as provided in paragraph (4).

(2) *Commercial fuel oil.*

(i) Except as specified in subparagraphs (ii) and (iii), a person may not offer for sale, deliver for use, exchange in trade or permit the use of commercial fuel oil in nonair basin areas if the commercial fuel oil contains sulfur in excess of the applicable maximum allowable sulfur content set forth in the following tables:

Grades Commercial Fuel Oil	*Maximum Allowable % Sulfur by Weight through June 30, 2016*
No. 2 and Lighter (viscosity less than or equal to 5.820cSt)	0.5
No. 4, No. 5, No. 6 and heavier (viscosity greater than 5.82cSt)	2.8

Maximum Allowable Sulfur Content Beginning July 1, 2016, Expressed as Parts per Million (ppm) by Weight or Percentage by Weight

Grades Commercial Fuel Oil (Consistent with ASTM D396)		
No. 2 and lighter oil	500 ppm	(0.05%)
No. 4 oil	2,500 ppm	(0.25%)
No. 5, No. 6 and heavier oil	5,000 ppm	(0.5%)

(ii) Commercial fuel oil that was stored in this Commonwealth by the ultimate consumer prior to July 1, 2016, which met the applicable maximum allowable sulfur content for commercial fuel oil through June 30, 2016, in subparagraph (i) at the time it was stored, may be used by the ultimate consumer in this Commonwealth on and after July 1, 2016.

(iii) Beginning July 1, 2016, the Department may temporarily suspend or increase the applicable maximum allowable sulfur content for a commercial fuel oil set forth in subparagraph (i) if the following occur:

(A) The Department receives a written request at the address specified in subsection (h) for a suspension or increase on the basis that compliant commercial fuel oil is not reasonably available in a nonair basin area. The request must include the following:

(I) The nonair basin county or counties for which the suspension or increase is requested.

(II) The reason compliant commercial fuel oil is not reasonably available.

(III) The duration of time for which the suspension or increase is requested and the justification for the requested duration.

(B) The Department determines that an insufficient quantity of compliant commercial fuel oil is reasonably available in the nonair basin area and that the circumstances leading to the insufficiency are due to events that could not have been reasonably foreseen or prevented and are not due to lack of prudent planning on the part of the transferor of the commercial fuel oil into or within the specified nonair basin area.

(C) The Department approves the request, in writing, prior to the transferor distributing the noncompliant commercial fuel oil into or within the specified nonair basin area.

(iv) The Department will limit a suspension or increase in the applicable maximum allowable sulfur content granted under subparagraph (iii) to the shortest duration in which adequate supplies of compliant commercial fuel oil can be made reasonably available, but in no case longer than 60 days from the date the Department grants the suspension or increase.

(3) *Equivalency provision.* Paragraph (2) does not apply to a person who uses equipment or a process, or to the owner or operator of an installation where equipment or a process is used, to reduce the sulfur emissions from the burning of a fuel with a higher sulfur content than that specified in paragraph (2). The emissions may not exceed those which would result from the use of commercial fuel oil that meets the applicable maximum allowable sulfur content specified in paragraph (2).

(4) *Solid fossil fuel fired combustion units.* Solid fossil fuel fired combustion units shall conform with the following:

(i) This paragraph applies to solid fossil fuel fired combustion units with a rated capacity greater than or equal to 250 million Btus of heat input per hour.

(ii) The owner of a solid fossil fuel fired combustion unit with a rated capacity of less than 250 million Btu heat input per hour may petition the Department for application of the limitations in this paragraph in lieu of the limitations in paragraph (1). Upon demonstration of installation of continuous monitoring equipment which complies with Chapter 139 (relating to sampling and testing) the Department will grant the petition.

(iii) No person subject to this paragraph may permit the emission into the outdoor atmosphere of sulfur oxides, expressed as SO_2 from a combustion unit in excess of the rates set forth in the following table:

	Allowable Pounds SO_2 per 10^6 Btu Heat Input
Thirty-day running average not to be exceeded at any time	3.7
Daily average not to be exceeded more than 2 days in any running 30-day period	4.0
Daily average maximum not to be exceeded at any time	4.8

(iv) A combustion unit which does not meet the requirements of § 123.25 (relating to monitoring requirements) for installation and operation of continuous SO_2 emission monitoring equipment shall be subject to the provisions of paragraph (1).

(b) *Erie; Harrisburg; York; Lancaster; and Scranton, Wilkes-Barre air basins.* Combustion units in these subject air basins must conform with the following:

(1) *General provision.* A person may not permit the emission into the outdoor atmosphere of sulfur oxides, expressed as SO_2, from a combustion unit in excess of the rate of 4 pounds per million Btu of heat input over a 1-hour period, except as provided in paragraph (4).

(2) *Commercial fuel oil.*

(i) Except as specified in subparagraphs (ii) and (iii), a person may not offer for sale, deliver for use, exchange in trade or permit the use of commercial fuel oil in the subject air basins if the commercial fuel oil contains sulfur in excess of the applicable maximum allowable sulfur content set forth in the following tables:

Grades Commercial Fuel Oil	*Maximum Allowable % Sulfur by Weight through June 30, 2016*
No. 2 and Lighter (viscosity less than or equal to 5.820cSt)	0.3
No. 4, No. 5, No. 6 and heavier (viscosity greater than 5.82cSt)	2.8

Maximum Allowable Sulfur Content Beginning July 1, 2016, Expressed as Parts per Million (ppm) by Weight or Percentage by Weight

Grades Commercial Fuel Oil (Consistent with ASTM D396)		
No. 2 and lighter oil	500 ppm	(0.05%)
No. 4 oil	2,500 ppm	(0.25%)
No. 5, No. 6 and heavier oil	5,000 ppm	(0.5%)

(ii) Commercial fuel oil that was stored in this Commonwealth by the ultimate consumer prior to July 1, 2016, which met the applicable maximum allowable sulfur content for commercial fuel oil through June 30, 2016, in subparagraph (i) at the time it was stored, may be used by the ultimate consumer in this Commonwealth on and after July 1, 2016.

(iii) Beginning July 1, 2016, the Department may temporarily suspend or increase the applicable maximum allowable sulfur content for a commercial fuel oil set forth in subparagraph (i) if the following occur:

(A) The Department receives a written request at the address specified in subsection (h) for a suspension or increase on the basis that compliant commercial fuel oil is not reasonably available in a subject air basin. The request must include the following:

(I) The subject air basin for which the suspension or increase is requested.

(II) The reason compliant commercial fuel oil is not reasonably available.

(III) The duration of time for which the suspension or increase is requested and the justification for the requested duration.

(B) The Department determines that an insufficient quantity of compliant commercial fuel oil is reasonably available in the air basin and that the circumstances leading to the insufficiency are due to events that could not have been reasonably foreseen or prevented and are not due to lack of prudent planning on the part of the transferor of the commercial fuel oil into or within the air basin.

(C) The Department approves the request, in writing, prior to the transferor distributing the noncompliant commercial fuel oil into or within the air basin.

(iv) The Department will limit a suspension or increase in the applicable maximum allowable sulfur content granted under subparagraph (iii) to the shortest duration in which adequate supplies of compliant commercial fuel oil can be made reasonably available, but in no case longer than 60 days from the date the Department grants the suspension or increase.

(3) *Equivalency provision.* Paragraph (2) does not apply to a person who uses equipment or a process, or to the owner or operator of an installation where equipment or a process is used, to reduce the sulfur emissions from the burning of a fuel with a higher sulfur content than that specified in paragraph (2). The emissions may not exceed those which would result from the use of commercial fuel oil that meets the applicable maximum allowable sulfur content specified in paragraph (2).

(4) *Solid fossil fuel fired combustion units.* Solid fossil fuel fired combustion units shall conform with the following:

(i) This paragraph applies to solid fossil fuel fired combustion units with a rated capacity greater than or equal to 250 million Btus of heat input per hour and to a solid fossil fuel fired combustion unit upon petition to and acceptance by the Department.

(ii) The owner of any solid fossil fuel fired combustion unit with a rated capacity of less than 250 million Btu heat input per hour may petition the Department for application of the limitations in this paragraph in lieu of the limitations in paragraph (1). Upon demonstration of installation of continuous monitoring equipment which complies with Chapter 139, the Department will grant the petition.

(iii) No person may permit the emission into the outdoor atmosphere of sulfur oxides, expressed as SO_2, from a combustion unit, at any time, in excess of the rates set forth in the following table:

	Allowable Pounds SO_2 per 10^6 Btu Heat Input
Thirty-day running average not to be exceeded at any time	3.7
Daily average not to be exceeded more than 2 days in any running 30-day period	4.0
Daily average maximum not to be exceeded at any time	4.8

(iv) A combustion unit which does not meet the requirements of § 123.25 for installation and operation of continuous SO_2 emission monitoring equipment is subject to the provisions of paragraph (1).

(c) *Allentown, Bethlehem, Easton; Reading; Upper Beaver Valley; and Johnstown air basins.* Combustion units in these subject air basins must conform with the following:

(1) *General provision.* A person may not permit the emission into the outdoor atmosphere of sulfur oxides, expressed as SO_2, from a combustion unit in excess of the rate of 3 pounds per million Btu of heat input over a 1-hour period, except as provided in paragraph (4).

(2) *Commercial fuel oil.*

(i) Except as specified in subparagraphs (ii) and (iii), a person may not offer for sale, deliver for use, exchange in trade or permit the use of commercial fuel oil in the subject air basins if the commercial fuel oil contains sulfur in excess of the applicable maximum allowable sulfur content set forth in the following tables:

Grades Commercial Fuel Oil	*Maximum Allowable % Sulfur by Weight through June 30, 2016*
No. 2 and Lighter (viscosity less than or equal to 5.82cSt)	0.3
No. 4, No. 5, No. 6 and heavier (viscosity greater than 5.82cSt)	2.0

Maximum Allowable Sulfur Content Beginning July 1, 2016, Expressed as Parts per Million (ppm) by Weight or Percentage by Weight

Grades Commercial Fuel Oil (Consistent with ASTM D396)		
No. 2 and lighter oil	500 ppm	(0.05%)
No. 4 oil	2,500 ppm	(0.25%)
No. 5, No. 6 and heavier oil	5,000 ppm	(0.5%)

(ii) Commercial fuel oil that was stored in this Commonwealth by the ultimate consumer prior to July 1, 2016, which met the applicable maximum allowable sulfur content for commercial fuel oil through June 30, 2016, in subparagraph (i) at the time it was stored, may be used by the ultimate consumer in this Commonwealth on and after July 1, 2016.

(iii) Beginning July 1, 2016, the Department may temporarily suspend or increase the applicable maximum allowable sulfur content for a commercial fuel oil set forth in subparagraph (i) if the following occur:

(A) The Department receives a written request at the address specified in subsection (h) for a suspension or increase on the basis that compliant commercial fuel oil is not reasonably available in a subject air basin. The request must include the following:

(I) The subject air basin for which the suspension or increase is requested.

(II) The reason compliant commercial fuel oil is not reasonably available.

(III) The duration of time for which the suspension or increase is requested and the justification for the requested duration.

(B) The Department determines that an insufficient quantity of compliant commercial fuel oil is reasonably available in the air basin and that the circumstances leading to the insufficiency are due to events that could not have been reasonably foreseen or prevented and are not due to lack of prudent planning on the part of the transferor of the commercial fuel oil into or within the air basin.

(C) The Department approves the request, in writing, prior to the transferor distributing the noncompliant commercial fuel oil into or within the air basin.

(iv) The Department will limit a suspension or increase in the applicable maximum allowable sulfur content granted under subparagraph (iii) to the shortest duration in which adequate supplies of compliant commercial fuel oil can be made reasonably available, but in no case longer than 60 days from the date the Department grants the suspension or increase.

(3) *Equivalency provision.* Paragraph (2) does not apply to a person who uses equipment or a process, or to the owner or operator of an installation where equipment or a process is used, to reduce the sulfur emissions from the burning of a fuel with a higher sulfur content than that specified in paragraph (2). The emissions may not exceed those which would result from the use of commercial fuel oil that meets the applicable maximum allowable sulfur content specified in paragraph (2).

(4) *Solid fossil fuel fired combustion units.* Solid fuel fired combustion units shall conform with the following:

(i) This paragraph applies to all solid fossil fuel fired combustion units with a rated capacity greater than or equal to 250 million Btus of heat input per hour and to any solid fossil fuel fired combustion unit upon petition to and acceptance by the Department.

(ii) The owner of a solid fossil fuel fired combustion unit with a rated capacity of less than 250 million Btu heat input per hour may petition the Department for application of the limitations in this paragraph in lieu of the limitations in paragraph (1). Upon demonstration of installation of continuous monitoring equipment which complies with Chapter 139 the Department will grant such petition.

(iii) No person may permit the emission into the outdoor atmosphere of sulfur oxides, expressed as SO_2, from any combustion unit in excess of the rates set forth in the following table:

	Allowable Pounds SO_2 per 10^6 Btu Heat Input
Thirty-day running average not to be exceeded at any time	2.8
Daily average not to be exceeded more than 2 days in any running 30-day period	3.0
Daily average maximum not to be exceeded at any time	3.6

(iv) A combustion unit not meeting the requirements of § 123.25 (relating to monitoring requirements) for installation and operation of continuous SO_2 emission monitoring equipment is subject to the provisions of paragraph (1).

(d) *Allegheny County; Lower Beaver Valley; and Monongahela Valley air basins.* Combustion units in these subject air basins must conform with the following:

(1) *General provision.* A person may not permit the emission into the outdoor atmosphere of sulfur oxides, expressed as SO_2, from a combustion unit in excess of one or more of the following:

(i) The rate of 1 pound per million Btu of heat input, when the heat input to the combustion unit in millions of Btus per hour is greater than 2.5 but less than 50.

(ii) The rate determined by the following formula: $A = 1.7E^{-0.14}$, where: A = Allowable emissions in pounds per million Btu of heat input, and E = Heat input to the combustion unit in millions of Btus per hours when E is equal to or greater than 50 but less than 2,000.

(iii) The rate of 0.6 pounds per million Btu of heat input when the heat input to the combustion unit in millions of Btus per hour is equal to or greater than 2,000.

(2) *Commercial fuel oil.*

(i) Except as specified in subparagraphs (ii) and (iii), a person may not offer for sale, deliver for use, exchange in trade or permit the use of commercial fuel oil in the subject air basins on or after July 1, 2016, if the commercial fuel oil contains sulfur in excess of the applicable maximum allowable sulfur content set forth in the following table:

Maximum Allowable Sulfur Content Beginning July 1, 2016, Expressed as Parts per Million (ppm) by Weight or Percentage by Weight

Grades Commercial Fuel Oil (Consistent with ASTM D396)		
No. 2 and lighter oil	500 ppm	(0.05%)
No. 4 oil	2,500 ppm	(0.25%)
No. 5, No. 6 and heavier oil	5,000 ppm	(0.5%)

(ii) Commercial fuel oil that was stored in this Commonwealth by the ultimate consumer prior to July 1, 2016, which met the applicable maximum allowable sulfur content at the time it was stored, may be used by the ultimate consumer in this Commonwealth on and after July 1, 2016.

(iii) Beginning July 1, 2016, the Department may temporarily suspend or increase the applicable maximum allowable sulfur content for a commercial fuel oil set forth in subparagraph (i) if the following occur:

(A) The Department receives a written request at the address specified in subsection (h) for a suspension or increase on the basis that compliant commercial fuel oil is not reasonably available in a subject air basin. The request must include the following:

(I) The subject air basin for which the suspension or increase is requested.

(II) The reason compliant commercial fuel oil is not reasonably available.

(III) The duration of time for which the suspension or increase is requested and the justification for the requested duration.

(B) The Department determines that an insufficient quantity of compliant commercial fuel oil is reasonably available in the air basin and that the circumstances leading to the insufficiency are due to events that could not have been reasonably foreseen or prevented and are not due to lack of prudent planning on the part of the transferor of the commercial fuel oil into or within the air basin.

(C) The Department approves the request, in writing, prior to the transferor distributing the noncompliant commercial fuel oil into or within the air basin.

(iv) The Department will limit a suspension or increase in the applicable maximum allowable sulfur content granted under subparagraph (iii) to the shortest duration in which adequate supplies of compliant commercial fuel oil can be made reasonably available, but in no case longer than 60 days from the date the Department grants the suspension or increase.

(3) *Equivalency provision.* Paragraph (2) does not apply to a person who uses equipment or a process, or to the owner or operator of an installation where equipment or a process is used, to reduce the sulfur emissions from the burning of a fuel with a higher sulfur content than that specified in paragraph (2). The emissions may not exceed those which would result from the use of commercial fuel oil that meets the applicable maximum allowable sulfur content specified in paragraph (2).

(e) *Southeast Pennsylvania air basin.* Combustion units in the Southeast Pennsylvania air basin must conform with the following:

(1) *General provision.* A person may not permit the emission into the outdoor atmosphere of sulfur oxides, expressed as SO_2, from a combustion unit except as provided in paragraph (3) or (5), in excess of the applicable rate in pounds per million Btu of heat input specified in the following table:

Rated Capacity of Units in 10^6 Btus per hour	*Inner Zone*	*Outer Zone*
Less than 250	1.0	1.2
Greater than or equal to 250	0.6	1.2

(2) *Commercial fuel oil.*

(i) Except as specified in subparagraphs (ii) and (iii), a person may not offer for sale, deliver for use, exchange in trade or permit the use of commercial fuel oil in a combustion unit in the Southeast Pennsylvania air basin if the commercial fuel oil contains sulfur in excess of the applicable maximum allowable sulfur content set forth in the following tables:

	Maximum Allowable % Sulfur by Weight through June 30, 2016	
Grades of Commercial Fuel Oil	*Inner Zone*	*Outer Zone*
No. 2 and lighter (viscosity less than or equal to 5.82cSt)	0.2	0.3
No. 4, No. 5, No. 6 and Heavier (viscosity greater than 5.82cSt)	0.5	1.0

Maximum Allowable Sulfur Content Beginning July 1, 2016, Expressed as Parts per Million (ppm) by Weight or Percentage by Weight

Grades Commercial Fuel Oil (consistent with ASTM D396)		
No. 2 and lighter oil	500 ppm	(0.05%)
No. 4 oil	2,500 ppm	(0.25%)
No. 5, No. 6 and heavier oil	5,000 ppm	(0.5%)

(ii) Commercial fuel oil that was stored in this Commonwealth by the ultimate consumer prior to July 1, 2016, which met the applicable maximum allowable sulfur content for commercial fuel oil through June 30, 2016, in subparagraph (i) at the time it was stored, may be used by the ultimate consumer in this Commonwealth on and after July 1, 2016.

(iii) Beginning July 1, 2016, the Department may temporarily suspend or increase the applicable maximum allowable sulfur content for a commercial fuel oil set forth in subparagraph (i) if the following occur:

(A) The Department receives a written request at the address specified in subsection (h) for a suspension or increase on the basis that compliant commercial fuel oil is not reasonably available in the subject air basin. The request must include both of the following:

(I) The reason compliant commercial fuel oil is not reasonably available.

(II) The duration of time for which the suspension or increase is requested and the justification for the requested duration.

(B) The Department determines that an insufficient quantity of compliant commercial fuel oil is reasonably available in the air basin and that the circumstances leading to the insufficiency are due to events that could not have been reasonably foreseen or prevented and are not due to lack of prudent planning on the part of the transferor of the commercial fuel oil into or within the air basin.

(C) The Department approves the request, in writing, prior to the transferor distributing the noncompliant commercial fuel oil into or within the air basin.

(iv) The Department will limit a suspension or increase in the applicable maximum allowable sulfur content granted under subparagraph (iii) to the shortest duration in which adequate supplies of compliant commercial fuel oil can be made reasonably available, but in no case longer than 60 days from the date the Department grants the suspension or increase.

(3) *Noncommercial fuels.* A person may not permit the emission into the outdoor atmosphere of sulfur oxides, expressed as SO_2, from a combustion unit using a noncommercial fuel, in excess of the rate of 0.6 pound per million Btu of heat input in the inner zone or 1.2 pounds per million Btu of heat input in the outer zone.

(4) *Equivalency provision.* Paragraph (2) does not apply to a person who uses equipment or a process, or to the owner or operator of an installation where equipment or a process is used, to reduce the sulfur emissions from the burning of a fuel with a higher sulfur content than that specified in paragraph (2). The emissions may not exceed those which would result from the use of commercial fuel oil that meets the applicable maximum allowable sulfur content specified in paragraph (2).

(5) *Solid fossil fuel fired combustion units.* Solid fossil fuel fired combustion units shall conform with the following:

(i) This paragraph applies to all solid fossil fuel fired combustion units with a rated capacity greater than or equal to 250 million Btus of heat input per hour and to any solid fossil fuel fired combustion unit upon petition to and acceptance by the Department.

(ii) The owner of any solid fossil fuel fired combustion unit with a rated capacity of less than 250 million Btu heat input per hour may petition the Department for application of the limitations in this paragraph in lieu of the limitations in paragraph (1). Upon demonstration of installation of continuous monitoring equipment which complies with Chapter 139, the Department will grant the petition.

(iii) No person may permit the emission into the outdoor atmosphere of sulfur oxides, expressed as SO_2, from any combustion unit in excess of the applicable rate in pounds per million Btu of heat input specified in the following table:

	Rated Capacity of Unit in 10 Btus per Hour	
	Less than 250	*Greater than or equal to 250*
Thirty-day running average not to be exceeded at any time		
Inner Zone	0.75	0.45
Outer Zone	0.90	0.90
Daily average not to be exceeded more than 2 days in any running 30-day period		
Inner Zone	1.00	0.60
Outer Zone	1.20	1.20
Daily average maximum not to be exceeded at any time		
Inner Zone	1.20	0.72
Outer Zone	1.44	1.44

(iv) A combustion unit not meeting the requirements of § 123.25 for installation and operation of continuous SO_2 emission monitoring equipment are subject to the provisions of paragraph (1).

(f) *Sampling and testing.*

(1) For the purpose of determining compliance with the requirements of this section, the actual sulfur content of commercial fuel oil shall be determined by one of the following:

(i) In accordance with the sample collection, test methods and procedures specified under § 139.16 (relating to sulfur in fuel oil).

(ii) Other methods developed or approved by the Department or the Administrator of the EPA, or both.

(2) Beginning July 1, 2016, A refinery owner or operator who produces commercial fuel oil intended for use or used in this Commonwealth is required to sample, test and calculate the actual sulfur content of each batch of the commercial fuel oil as specified in paragraph (1).

(3) Beginning July 1, 2016, and prior to offering for sale, delivering for use, exchanging in trade or permitting the use of commercial fuel oil in this Commonwealth, a person other than the ultimate consumer that accepts a shipment of commercial fuel oil from a refinery or other transferor, shall sample, test and calculate the actual sulfur content of the commercial fuel oil in accordance with paragraph (1) if the shipment lacks the record required under subsection (g)(1) that enables the transferee to determine if the sulfur content of the shipment of commercial fuel oil meets the applicable maximum allowable sulfur content.

(g) *Recordkeeping and reporting.*

(1) Beginning with the refinery owner or operator who sells or transfers commercial fuel oil into or within this Commonwealth for use in this Commonwealth and ending with the ultimate consumer, each time the physical custody of, or title to, a shipment of commercial fuel oil changes hands on or after July 1, 2016, the transferor shall provide to the transferee an electronic or paper record described in this paragraph. This record must legibly and conspicuously contain the following information:

(i) The date of the sale or transfer.

(ii) The name and address of the transferor.

(iii) The name and address of the transferee.

(iv) The volume of commercial fuel oil being sold or transferred.

(v) The identification of the sulfur content of the shipment of commercial fuel oil, determined using the sampling and testing methods specified in subsection (f)(1), expressed as one of the following statements:

(A) For a shipment of No. 2 and lighter commercial fuel oil, "The sulfur content of this shipment is 500 ppm or below."

(B) For a shipment of No. 4 commercial fuel oil, "The sulfur content of this shipment is 2,500 ppm or below."

(C) For a shipment of No. 5, No. 6 and heavier commercial fuel oil, "The sulfur content of this shipment is 5,000 ppm or below."

(vi) The location of the commercial fuel oil at the time of transfer.

(vii) Except for a transfer to a truck carrier, an owner or operator of a retail outlet or an ultimate consumer, the transferor may substitute the information required under subparagraphs (i)—(vi) with the use of a product code if the following are met:

(A) The product code includes the information required under subparagraphs (i)—(vi).

(B) The product code is standardized throughout the distribution system in which it is used.

(C) Each downstream party is given sufficient information to know the full meaning of the product code.

(2) The refinery owner or operator shall do both of the following:

(i) Maintain, in electronic or paper format, the records developed under subsection (f)(2) to determine the actual sulfur content of each batch of the commercial fuel oil.

(ii) Provide electronic or written copies of the records developed under subsection (f)(2) of the actual sulfur content of each batch of the commercial fuel oil to the Department upon request.

(3) The terminal owner or operator shall do both of the following:

(i) Maintain, in electronic or paper format, the applicable records developed under subsection (f)(3) or (g)(1), or both, to establish the maximum sulfur content of the shipment of commercial fuel oil.

(ii) Provide electronic or written copies of the records establishing the maximum sulfur content of the shipment of commercial fuel oil to the Department upon request.

(4) A person subject to this section shall do both of the following:

(i) Maintain the applicable records required under paragraphs (1)—(3) in electronic or paper format for 2 years unless a longer period is required under § 127.511(b)(2) (relating to monitoring and related recordkeeping and reporting requirements).

(ii) Provide an electronic or written copy of the applicable record to the Department upon request.

(5) The ultimate consumer shall maintain in electronic or paper format the record containing the information listed in paragraph (1), except in either of the following situations:

(i) The transfer or use of the commercial fuel oil occurs at a private residence.

(ii) The ultimate consumer is an owner of an apartment or condominium building housing private residents and the transfer or use of the commercial fuel oil occurs for use at the building.

(h) *Written request.* The written request for suspension of or increase in the sulfur content limit on the basis that compliant commercial fuel oil is not reasonably available shall be addressed to the Department of Environmental Protection, Bureau of Air Quality, Chief of the Division of Compliance and Enforcement, P. O. Box 8468, Harrisburg, Pennsylvania 17105-8468.

CHAPTER 139. SAMPLING AND TESTING

Subchapter A. SAMPLING AND TESTING METHODS AND PROCEDURES

GENERAL

§ 139.4. References.

(a) The references referred to in this chapter are as follows:

(1) Standards of Performance for New Stationary Sources, 40 CFR Chapter I, Part 60, Appendix A, Current Edition, Superintendent of Documents, Washington, D.C. 20402-9328.

(2) National Emission Standards for Hazardous Air Pollutants, 40 CFR, Chapter I, Part 61, Appendix B, Current Edition, Superintendent of Documents, Washington, D.C. 20402-9328.

(3) Requirements for Preparation, Adoption, and Submittal of Implementation Plans, 40 CFR, Chapter I, Part 51, Appendix M, Current Edition, Superintendent of Documents, Washington, D.C. 20402-9328.

(4) Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities, 40 CFR, Chapter I, Part 266, Appendix IX, Current Edition, Superintendent of Documents, Washington, D.C. 20402-9328.

(5) Source Testing Manual, Commonwealth of Pennsylvania, Department of Environmental Protection, Bureau of Air Quality, Post Office Box 8468, Harrisburg, Pennsylvania 17105-8468, including future revisions as noted in § 139.5(b) (relating to revisions to the source testing manual and continuous source monitoring manual).

(6) *Recommended Standard Method for Continuing Dust Fall Survey (APM-1, Revision 1)*, PR-2 Air Pollution Measurement Commission, J. Air Assoc., 16:372 (1966).

(7) *Air Pollution Measurements of the National Air Sampling Network: Analyses of Suspended Particulates 1957-1961*, Public Health Service Pub. No. 978, Washington, D.C., 1962.

(8) Interbranch Chemical Advisory Committee, *Selected Methods for the Measurement of Air Pollutants*, PHS Pub. No. 999-AP-11, Cincinnati, Ohio, 1965, page I-1.

(9) *Standard Method of Test for Inorganic Fluoride in the Atmosphere*, ASTM Standards on Methods of Atmospheric Sampling and Analyses, Philadelphia, Pennsylvania, 1962, page 67.

(10) ASTM D 4057, *Practice for Manual Sampling of Petroleum and Petroleum Products*, including updates and revisions.

(11) ASTM D 445, *Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)*, including updates and revisions.

(12) ASTM D 1266, *Test Methods for Sulfur in Petroleum Products: Lamp Method*, including updates and revisions.

(13) ASTM D 129, *Test Methods for Sulfur in Petroleum Products: General Bomb Method*, including updates and revisions.

(14) ASTM D 1552, *Test Methods for Sulfur in Petroleum Products: High-Temperature Method*, including updates and revisions.

(15) ASTM D 2622, *Test Methods for Sulfur in Petroleum Products by X-Ray Spectrometry*, including updates and revisions.

(16) *Standard Methods for the Examination of Water and Wastewater,* 14th Ed., *Organic Carbon (total), Combustion-Infrared Method*, American Public Health Association, Washington, D.C.

(17) Jacobs, M. B. et al., *Ultramicrodetermination of Sulfides in Air*, Anal. Chem., 29:1949 (1957).

(18) "Sampling procedures for fuel volatility," 40 CFR Part 80, Appendix D (relating to sampling procedures for fuel volatility).

(19) "Tests for Determining Reid Vapor Pressure (RVP) of Gasoline and Gasoline-Oxygenate Blends," 40 CFR Part 80, Appendix E (relating to test for determining Reid vapor pressure (RVP) of gasoline and gasoline-oxygenate blends).

(20) ASTM D 4294, *Test Method for Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry*, including updates and revisions.

(21) ASTM D 4177, *Practice for Automatic Sampling of Petroleum and Petroleum Products*, including updates and revisions.

(b) References to ASTM in this chapter pertain to test methods developed by ASTM International, 100 Barr Harbor Drive, P. O. Box C700, West Conshohocken, PA 19428-2959, www.astm.org.

STATIONARY SOURCES

§ 139.16. Sulfur in fuel oil.

The following apply to tests for the analysis of commercial fuel oil:

(1) The fuel oil sample for chemical analysis shall be collected in a manner that provides a representative sample. Upon the request of a Department official, the person responsible for the operation of the source shall collect the sample employing the procedures and equipment specified in § 139.4(10) or (21) (relating to references).

(2) Test methods and procedures for the determination of viscosity shall be that specified in § 139.4(11). The viscosity shall be determined at 100°F.

(3) Tests methods and procedures for the determination of sulfur shall be those specified in § 139.4(12)—(15) and (20).

(4) Results shall be reported in accordance with the units specified in § 123.22 (relating to combustion units).

[Pa.B. Doc. No. 13-227. Filed for public inspection February 8, 2013, 9:00 a.m.]

DELAWARE RIVER BASIN COMMISSION

[25 PA. CODE CH. 901]

Amendments to the Water Code and Comprehensive Plan to Implement a Revised Water Audit Approach to Identify and Control Water Loss

Summary:

By Resolution No. 2009-01 on March 11, 2009, the Delaware River Basin Commission (DRBC or Commission) approved amendments to its Water Code and Comprehensive Plan to implement a requirement for water purveyors to follow an updated water audit approach to identify and control water loss in the Delaware River Basin.

Effective Date:

Upon publication in the *Pennsylvania Bulletin*. The rule was incorporated by reference into the *Code of Federal Regulations* effective November 20, 2009 (74 FR 60154).

Applicability Date:

The amendments to the Comprehensive Plan and Article 2 of the Water Code finalized by the Commission on March 11, 2009 phase in a program requiring water purveyors to perform a water audit and report their findings in accordance with a new audit structure established by the American Water Works Association (AWWW) and the International Water Association (IWA). Effective January 1, 2012, the owners of water supply systems serving the public with sources or service areas located in the Delaware River Basin must implement an annual calendar year water audit program conforming to the IWA/AWWA Water Audit Methodology and corresponding AWWA guidance. Effective January 1, 2013, reported "non-revenue water" must be computed in accordance with the new methodology and guidance. During the period between the effective date of the rule, November 20, 2009, and December 31, 2011 water purveyors were encouraged to implement the new methodology and guidance on a voluntary basis.

Supplemental Information:

The DRBC is a federal-interstate regional agency charged with managing the water resources of the Delaware River Basin without regard to political boundaries. Its members are the governors of the four basin states—Delaware, New Jersey, New York, and Pennsylvania—and the North Atlantic Division Commander of the U.S. Army Corps of Engineers, representing the federal government.

An estimated 150 million gallons of treated and pressurized water is physically lost from public water supply distribution systems in the Delaware River Basin per day and current methods to account for, track and reduce this loss are inadequate. Water suppliers are experiencing real water losses due to physical infrastructure failures and apparent losses resulting from inaccurate meter readings and erroneous billing practices. As demand for water increases, it is essential to ensure that water supplies and the infrastructure delivering water are dependable and efficiently move water from source to customer.

The purpose of the proposed amendments is to phase in a program requiring water purveyors to perform water audits and report their findings in accordance with a new audit structure established by the AWWA and the IWA. These new methods are widely regarded as superior to the existing approach, which entails tracking "unaccounted for water," which is no longer considered best practice.

The new water audit methodology provides a rational approach that will facilitate more consistent tracking and reporting than the existing approach allows. It will help water managers and regulators, including the Commission, state agencies, and utility managers, target their efforts to improve water supply efficiency, thereby reducing water withdrawals. Improving water accountability will contribute to achieving objective 1.3.C of the Water Resources Plan for the Delaware River Basin, which calls for ensuring maximum feasible efficiency of water use across all sectors.

The Commission's Water Management Advisory Committee (WMAC), which has taken primary responsibility for reviewing the proposed audit methodology and developing these amendments, is composed of representatives from a wide range of public and private sector organizations. Six water purveyors from the Delaware River Basin were identified to participate in the nationwide pilot study. The comments and feedback provided to AWWA led to improvements in the software. The software was approved by the AWWA Water Loss Control Committee and is available on the AWWA website, at no charge to all users.

The WMAC and its subcommittee determined that the IWA/AWWA water audit methodology represents an improvement to the Commission's current practices and can lead to multiple benefits for water utilities and other stakeholders. It is anticipated that adoption of the IWA/AWWA approach will:

- Improve upon the traditional approach for identifying "unaccounted for water," which lacks standardized terminology and a clearly defined water audit structure.

• Provide a rational water audit structure to help identify water losses and improve water supply system efficiency.

• Provide meaningful performance indicators to help identify systems with the greatest losses. These indicators allow water utility managers to make reliable comparisons of performance and to identify best practices to control water loss in an economical way.

• Identify ways to improve water supply efficiency and thereby reduce water withdrawals that have no beneficial end use.

• Help to target efforts to reduce the estimated 150 million gallons per day that is physically lost from public water supply distribution systems in the Delaware River Basin.

• Enhance utility revenues by enabling utility managers to recover the significant revenue that is otherwise lost due to apparent losses such as theft of service, unbilled connections, meter discrepancies and data errors.

• Help utility managers and regulators identify real losses (such as leakage) that waste treated and pressurized water and increase operating costs. Significant real losses indicate opportunities for improved asset management that can reduce the vulnerability of utilities to disruptive water main breaks, other service disruptions and water quality upsets.

Because the water audit approach is relatively new in a regulatory context, the amendments called for phased implementation. Information was gathered from within the Delaware River Basin and nationwide to assist in the establishment of performance indicators for water loss, which ultimately will replace the "unaccounted for water" targets. The amendments require water purveyors to perform an annual water audit conforming to the IWA/AWWA methodology and require changes in the way data pertaining to water loss is collected by the state agencies and shared with DRBC.

Notice of the proposed amendments appeared in the *Pennsylvania Bulletin* (38 Pa. B. 4373) on August 9, 2009, as well as in the *Federal Register* (73 FR 44945) on August 1, 2008, the *Delaware Register of Regulations* (12 DE Reg. 275-278 (09/01/2008)) on September 1, 2008, the *New Jersey Register* (40 N.J.R. 4499) on August 4, 2008, and the *New York State Register* (p. 2) on August 20, 2008. A public hearing was held on September 25, 2008 and written comments were accepted through October 3, 2008. The Commission received one written submission and no oral testimony on the proposed changes. The Commission made minor revisions to the proposed amendments on its own initiative for clarification. A comment and response document setting forth the Commission's responses and revisions in detail was approved by the Commission simultaneously with adoption of the final rule.

The final form of the rule differs from the proposed rule in the following respects: For purposes of clarity, a definition of "non-revenue water" consistent with the AWWA definition was added to Section 2.1.6.A. of the rule. The definition of "unaccounted-for-water" in the same section was amended to include a definition of "unaccounted-for water percent." This change was made because the computation must return a percentage value so that it can be measured against the performance target of less than 15% unaccounted-for water.

The Commission also added language to establish that until January 1, 2012, DRBC's regulatory standards for leak detection and repair (i.e., measurement and control of unaccounted-for-water), set forth in Section 2.1.6 of the Water Code, remained in force. System operators who voluntarily submitted audits in a form consistent with the new methodology prior to January 1, 2012, were advised in the Commission's comment and response document that non-revenue water volume expressed as a percentage of input volume will be treated as the equivalent of unaccounted-for-water, the measure applicable under the existing rule. The comment and response document explains that once the Water Audit method is introduced through the Delaware River Basin and a body of data is available for analysis, a more meaningful measure of system performance will be established.

DRBC Resolution No. 2009-01 and a copy of the comment and response document are available on the Commission's web site, at http://drbc.net. Resolution 2009-1 incorporates Article 2 of the Water Code, showing the amendments as proposed in August 2008, as finally approved by the Commission on March 11, 2009 and incorporated by reference into the *Code of Federal Regulations* effective November 20, 2009.

Rule Text:

DRBC Resolution No. 2009-01 amends the Comprehensive Plan and Article 2 of the *Water Code* as set forth below. Additions appear in **bold face type**. Deletions appear in **[bold face type within brackets]**. Changes not included in the proposed rulemaking appear in **bold face type with underscore**, except that restored text (existing rule text originally proposed to be deleted) appears in normal type with underscore. *Italics denote editor's notes*.

2.1.2 New and Existing Users (Resolution Nos. 76-17 and 92-2).

C. Owners of water supply systems serving the public (purveyors) seeking approval under Section 3.8 of the Compact for a new or an expanded water withdrawal shall include as part of the application a water conservation plan. The plan shall describe the various programs adopted by the purveyor to achieve maximum feasible efficiency in the use of water.

1. The water conservation plan shall, at a minimum, describe the implementation of the following programs as required by the Commission:

a. Source metering (Resolution No. 86-12);

* * * * *

e. An ongoing water auditing program in accordance with section 2.1.8.

* * * * *

2.1.6 Leak detection and repair (Resolution No. 87-6 Revised).

A. Owners of water supply systems serving the public (purveyors) in the Delaware River Basin that distribute water supplies in excess of an average of 100,000 gallons per day (gpd) during any 30-day period shall develop and undertake a systematic program to monitor and control leakage within their water supply system. Such a program shall at a minimum include: periodic surveys to monitor leakage, enumerate **non-revenue water (or in instances where AWWA methodology as set forth in Section 2.1.8 below has not yet been adopted, enumerate** unaccounted-for water**)**, and determine the current status of system infrastructure; recommendations to monitor and control leakage; and a schedule for the implementation of such recommendations. Each purvey-

or's program shall be subject to review and approval by the designated agency in the state where the system is located.

"Non-revenue water" is defined by AWWA as the sum of unbilled authorized consumption, apparent losses and real losses. "Non-revenue water percent" is defined as non-revenue water divided by the amount of water entering the distribution system times 100 percent.

"Unaccounted-for water" is defined as the **amount of water entering the distribution system minus the amount of water delivered through service meters. [difference between the "metered ratio" and 100 percent. The metered ratio is the amount of water delivered through service meters] "Unaccounted-for water percent" is defined as unaccounted-for water** divided by the amount of water entering the distribution system **times 100 percent**.

The designated state agencies are: Delaware Department of Natural Resources and Environmental Control; New Jersey Department of Environmental Protection; New York Department of Health, and Pennsylvania Department of Environmental Protection.

B. **Each purveyor shall strive to minimize system leakage to levels as guided by IWA/AWWA Water Audit Methodology (AWWA Water Loss Control Committee (WLCC) Water Audit Software) and corresponding AWWA guidance.**

[Each purveyor that distributes in excess of one million gallons per day (mgd) shall submit its initial program to monitor and control leakage to the appropriate designated agency, within two years and each purveyor that distributes between 100,000 gpd and 1 mgd shall submit its initial program to monitor and control leakage to the appropriate designated agency within five years of the effective date of this regulation or at such earlier date as shall be fixed by the designated state agency. Each] After a purveyor has submitted to the appropriate designated agency its initial program to monitor and control leakage, the purveyor shall prepare and submit a revised and updated program **[to monitor and control leakage] every** three years thereafter or at such **greater frequency** [earlier date] as **[may]** [shall] be required by the designated state agency. The designated state agency may require more frequent program submission from purveyors with unaccounted-for **or non-revenue** water that is in excess of 15 percent.

C. Any project approvals hereafter granted pursuant to Section 3.8 of the DRBC Compact or any renewal of a project approval shall be subject to the provisions of this regulation.

[D. To avoid duplication of effort and to insure proper enforcement of this regulation, the Executive Director shall enter into administrative agreements with each of the designated agencies . . .]

* * * * *

2.1.8 Water Auditing (Resolution No. 2009-1).

A. Policy Statement. It shall be the policy of the Commission to establish [encourage owners of water supply systems serving the public to implement] a standardized water audit methodology for owners of water supply systems serving the public to ensure accountability in the management of water resources.

B. Voluntary Water Audit. [For the period beginning EFFECTIVE DATE and ending] Through December 31, 2011, owners of water supply systems serving the public[,] with sources or service areas located in the Delaware River Basin[,] are encouraged to implement an annual calendar year water audit program conforming to the IWA/AWWA Water Audit Methodology (AWWA Water Loss Control Committee (WLCC) Water Audit Software) and corresponding AWWA guidance.

C. Mandatory Water Audit. Effective January 1, 2012, the owners of each water supply system serving the public[,] with sources or service areas located in the Delaware River Basin[,] shall implement an annual calendar year water audit program conforming to IWA/AWWA Water Audit Methodology (AWWA Water Loss Control Committee (WLCC) Water Audit Software) and corresponding AWWA guidance.

D. Mandatory Reporting. Effective January 1, 2013, "Non-revenue water" reported under section 2.50.3. (Reporting Requirements), subsection B.1.b.ii. of this *Water Code* shall be computed in accordance with IWA/AWWA Water Audit Methodology (AWWA Water Loss Control Committee (WLCC) Water Audit Software) and corresponding AWWA guidance.

2.50.3 Reporting Requirements (Resolutions Nos. 2001-8 **and 2009-1**)

Existing subsection 2.50.3 A. (Year 2000 Reporting Requirements) in its entirety is deleted.

A[B]. Annual Reporting Requirements **[for Subsequent Years]**

1. Water Supply Systems Serving the Public. **[Commencing with reporting year 2001, t] T**he owner(s) of each water supply system serving the public and subject to requirements under subsection 2.50.1, subsection 2.50.2, and the Ground water Protected Area for Southeastern Pennsylvania**[,]** shall report the following data on an annual basis to the designated agency. **[Changes to any other information required under Section A above shall also be reported. All information required under Section A above shall be completed for new withdrawals for the first year of operation.]**

a. Source Data

* * * * *

b. Service Area Data. The following data shall be reported separately for each county served.

i. Service Area Name(s)

ii. Total Annual Water Use by Category (MG)**. [( ]** All usage shall be reported according to the following categories**: [ )]**

—Residential metered (including apartment complexes)

—Commercial metered

—Institutional metered

—Industrial metered

—Bulk Sales

—Other metered (Specify)

— Non-revenue water, including unbilled authorized consumption, apparent losses, and real losses computed in accordance with Section 2.1.8 D. of this *Water Code*

— Unaccounted for **water** (defined as the amount of water entering the distribution system minus the amount of water delivered through service meters)**

— Total

2. Other Withdrawals. **[Commencing with reporting year 2001, e] E**ach person, firm, corporation or other entity, except water supply systems serving the public**[,]** subject to requirements under subsection 2.50.2 and the Ground Water Protected Area Regulations for Southeastern Pennsylvania**[,]** shall report the following data on an annual basis to the designated agency. . . . .

B[C]. To avoid duplication of effort and to insure proper enforcement of this regulation, the Executive Director is hereby authorized to enter into administrative agreements with the following designated agencies: . . . .

* * * * *

PAMELA M. BUSH,
Secretary

Fiscal Note: Fiscal Note 68-52 remains valid for the final adoption of the subject regulation.

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION

PART V. DELAWARE RIVER BASIN COMMISSION

CHAPTER 901. GENERAL PROVISIONS

§ 901.2. Comprehensive Plan and water quality.

The Comprehensive Plan regulations as set forth in 18 CFR Part 401, Subpart A (2013) and the Water Code and Water Quality Standards as set forth in 18 CFR Part 410 (2013) are hereby incorporated by reference and made a part of this title.

[Pa.B. Doc. No. 13-228. Filed for public inspection February 8, 2013, 9:00 a.m.]

Title 55—PUBLIC WELFARE

DEPARTMENT OF PUBLIC WELFARE

[55 PA. CODE CH. 52]

Corrective Amendment to 55 Pa. Code § 52.20

The Department of Public Welfare has discovered a discrepancy between the agency text of 55 Pa. Code § 52.20 (relating to provisional hiring) as deposited with the Legislative Reference Bureau and the official text as published at 42 Pa.B. 2730, 2739 (May 19, 2012) and as currently appearing in the *Pennsylvania Code*. The word "not" was erroneously included in subsection (a)(6).

Therefore, under 45 Pa.C.S. § 901: The Department of Public Welfare has deposited with the Legislative Reference Bureau a corrective amendment to 55 Pa. Code § 52.20. The corrective amendment to 55 Pa. Code § 52.20 is effective May 19, 2012, the effective date of adoption of the final-form rulemaking amending this section.

The correct version of 55 Pa. Code § 52.20 appears in Annex A.

Annex A

TITLE 55. PUBLIC WELFARE

PART I. DEPARTMENT OF PUBLIC WELFARE

Subpart E. HOME AND COMMUNITY-BASED SERVICES

CHAPTER 52. LONG-TERM LIVING HOME AND COMMUNITY-BASED SERVICES

Subchapter B. PROVIDER QUALIFICATIONS AND PARTICIPATION

§ 52.20. Provisional hiring.

(a) A provider may hire a person for employment on a provisional basis, pending receipt of a criminal history check, provided that the following are met:

(1) The provider is in the process of obtaining a criminal history check as required under § 52.19 (relating to criminal history checks).

(2) A provider may not hire a person provisionally if the provider has knowledge that the person would be disqualified for employment under 18 Pa.C.S. § 4911 (relating to tampering with public records or information).

(3) A provisionally-hired employee shall swear or affirm in writing that he is not disqualified from employment under this chapter.

(4) A provider shall monitor the provisionally-hired person awaiting a criminal history check through random, direct observation and participant feedback. The results of monitoring must be documented in the person's employment file.

(5) The period of provisional hire may not exceed 30 days for a person who has been a resident of this Commonwealth for at least 2 years.

(6) The period of provisional hire may not exceed 90 days for a person who has been a resident of this Commonwealth for less than 2 years.

(b) If the information obtained from the criminal history check reveals that the person is disqualified from employment under § 52.19, the provider shall terminate the provisionally-hired person immediately.

(c) When subsection (a) conflicts with Chapters 2380 and 2390 (relating to adult training facilities; and vocational facilities), 6 Pa. Code Chapter 11 (relating to older adult daily living centers) or 28 Pa. Code Chapters 601 and 611 (relating to home health care agencies; and home care agencies and home care registries), subsection (a) is not applicable.

[Pa.B. Doc. No. 13-229. Filed for public inspection February 8, 2013, 9:00 a.m.]