

Air Management Regulation III

Control of Sulfur Compound Emissions

City of Philadelphia
Department of Public Health
Air Pollution Control Board

Adopted:

Air Pollution Control Board March 19, 2015

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Preface to Air Management Regulations¹

The purpose of these Air Management Regulations is to provide guidance on how to comply with the Air Management Code. These Regulations set forth procedures and limits aimed at improving air quality in the City of Philadelphia and the Delaware Valley Region.

The atmosphere is a resource to be used by all and abused by none. These Regulations are based on the principle that using the atmosphere for waste disposal or any other purpose that degrades air quality implies a responsibility to use every available means to limit the disposal or use's negative impacts.

To this end, the limits in these Regulations include the disposal limits that are possible using available technology. Degradation or disposal beyond these limits requires proper justification.

If a situation arises where the technology is not yet available to meet these limits, these Regulations provide review mechanisms and procedures for making adjustments for specific needs. This relief should only be applied when it is impossible to meet, by any known equipment, the proposed control limits.

Proper evaluation of these Air Management Regulations can only be made when our air resource is maintained and protected to today's technology limits. When this happens, additional studies should be done to determine if any unacceptable impacts to our air resource still exist and, if so, what actions are needed to achieve and maintain acceptable air quality for the City of Philadelphia and the Delaware Valley Region.

¹ This Preface briefly explains the principle on which the Regulation's limitations are based. It should not be construed as part of the Regulations. The Regulations and the levels in them are definite and should be reviewed to determine the applicable requirements.

Regulation III

Section I. Introduction

- A. In addition to the authority set forth in the introduction to these regulations, this regulation is adopted pursuant to the Air Management Code, Section 3-207, Sale of Fuel Oil, which provides in part as follows:

SECTION 3-207. SALE OF FUEL OIL.

(1) Commercial Fuel Oil

- (a) On and after the effective dates listed therein no fuel merchant shall store, offer for sale, sell, deliver for use or exchange in trade, for use in Philadelphia, and no person shall use commercial fuel oils which contain sulfur in excess of the percentages by weight set forth in the following table:

Grades of Commercial Fuel Oil	SSU Viscosity at 100°F	Percent Sulfur by Weight	
		Effective 04-01-78	Effective 07-01-15
No. 2 and lighter	Less than or equal to 45	0.2%	0.0015% (15 ppm)
No. 4	Greater than 45 but less than 145	0.3%	0.2500% (2500 ppm)
No. 5, No. 6, and heavier	Equal to or greater than 145	0.5%	0.5000% (5000 ppm)

- (b) The provisions of (a) above shall not apply in any case in which it is demonstrated to the Department that sulfur dioxide emissions, caused by the combustion of commercial fuel oils, from any stack or chimney into the outdoor atmosphere, can be controlled to levels that, on and after the effective dates listed herein, do not exceed at any time those quantities of sulfur dioxide, expressed in pounds per one (1) million BTU gross heat input, set forth in the following table:

Grades of Commercial Fuel Oil	SSU Viscosity at 100°F	Permissible SO ₂ Emissions (Pounds of SO ₂ per Million BTU Fuel Gross Heat Input)	
		Effective 04-01-78	Effective 07-01-15
No. 4	Greater than 45 but less than 145	0.30 lb	0.26 lb
No. 5, No. 6, and heavier	Equal to or greater than 145	0.52 lb	0.52lb

(2) Non-Commercial Fuel

- (a) No person shall cause, suffer, allow or permit sulfur dioxide, caused by the combustion of non-commercial fuel or the combustion of non-commercial and commercial fuel mixtures, to be discharged from any stack or chimney into the outdoor atmosphere in excess of the following limits, expressed as ppm by volume adjusted to twelve (12) percent carbon dioxide by volume, or equivalent method approved by the Department:

Annual Average 250 ppm

Maximum Monthly Average 310 ppm

- (b) Where a single manufacturing facility contains multiple stacks or chimneys for discharge of flue gases from burning non-commercial fuels or non-commercial and commercial fuel mixtures, the emissions from any single stack may exceed the SO₂ concentration limits given in (2)(a) provided that it can be satisfactorily demonstrated to the Department that:

- (.1) The emission rate of sulfur dioxide from non-commercial fuel combustion on a total weight basis for the facility will not exceed that allowed by (2)(a); and
 - (.2) The ground level concentrations of sulfur dioxide at any point in the neighborhood, area, or region caused by the combustion of all non-commercial fuel at the facility shall not exceed those concentrations that would result from compliance with (2)(a); and
 - (.3) The concentration of SO₂ emitted from any such stack does not exceed any limit imposed by regulations of the State of Pennsylvania or the U.S. Environmental Protection Agency, and
 - (.4) Compliance with (2)(b) shall not prevent the achievement or maintenance of any national air quality standard for SO₂ established by the Environmental Protection Agency.
- (c) Any person responsible for the discharge of SO₂ caused by the combustion of non-commercial fuel or the combustion of non-commercial and commercial fuel mixtures from any stack or chimney as provided for in (2)(a) and (2)(b) shall submit a detailed report to the Department at least once every month, providing fuel usage and emissions information sufficiently adequate to determine compliance with this Section.

This Regulation controls or prohibits the discharge or escape of sulfur oxides into the atmosphere and controls the sulfur content of fuels burned in the City of Philadelphia. All available measures shall be taken to prevent sulfur oxide emissions to the atmosphere, but in no event shall the measures used be less effective than those in the following Sections.

Section II. Control of Sulfur Compound Emissions

- A. No person shall cause or permit a specific source or process to emit sulfur oxides, calculated as sulfur dioxide (SO₂), in excess of an average 0.4 ppm (volume) for any 5 minute period when measured at ground level.
- B. Except as provided in Section III, no person shall cause or permit a specific source or process to emit sulfur oxides in excess of 0.05 percent by volume. This requirement may not be met by diluting or diffusing exhaust gases.
- C. Compliance with this Regulation shall be determined by standard methods established by the Department which may include, but are not limited to, sampling, analysis, and stoichiometric calculations.

In addition, the Department will establish continuous emission monitoring and minimum data availability requirements for sulfur oxide sources. After the Department provides notice of these requirements, the person responsible for a specific sulfur oxide emission shall install, operate, and maintain an approved continuous emission monitoring system and shall submit monitoring result reports as required by the Department.

Section III. Control of Sulfur in Fuels

- A. No person may store, offer for sale, sell, deliver for use, or trade exchange for use in Philadelphia, and no person may burn any fuels in Philadelphia where the sulfur content exceeds the following:
 - 1. Fuel Oil shall not exceed the content limits of Section 3-207 of the Air Management Code.
 - 2. Coal shall not exceed 0.3 percent by weight.
 - 3. Subject to compliance with Subsection B. below, any person responsible for any existing oil-fired or gas-fired industrial boiler installation containing combustion units with individual rated capacities of less than 250 million BTU per hour gross heat input, originally designed for and capable of burning coal, may petition the Department for approval to convert to coal as an alternate or supplemental fuel. The application must meet the following limitations, in place of the Subsection 2. limitations:

The sulfur oxides emission, calculated as sulfur dioxide (SO₂), shall not exceed a maximum daily average of 0.5 pounds per million BTU gross heat input from any combustion unit at any time.

In this Subsection, the term "industrial boiler installation" means any stationary steam-generating installation, consisting of one or more fuel combustion units, located within a manufacturing or chemical processing facility and operated to supply heat, process steam and/or power to the facility.

- B. At installations where, pursuant to the Subsection A.1. and A.3. provisions above, equipment or methods, including the use of supplemental low-sulfur fuels, are used to reduce emissions from burning fuels with a higher sulfur content than that specified in Subsection A above, the equipment or method must be approved by the Department and the person responsible for the installation shall install, operate, and maintain an approved continuous emission monitoring system, provide adequate fuel-use record-keeping, and submit reports as the Department requires. In addition, the person responsible for the installation shall maintain an alternate fuel supply that complies with the sulfur content limits in Subsection A. above, as determined by the Department to be adequate for standby in case of equipment breakdown or other emergency condition.
- C. When low sulfur fuel delivery is, or is about to be, interrupted because of unavailability, accident, or other emergency conditions, the Department may authorize an alternative fuel supply use, involving the least adverse air quality impact, for no more than 30 days. The Department may authorize longer use periods, of up to 120 days, only after review and recommendation by the Air Pollution Control Board for each extended time period. Factors to be considered shall include: alternate complying fuels availability, sulfur dioxide stack gas removal equipment availability, and the anticipated effect on air quality in the neighborhood, area, and region. The Air Pollution Control Board, after a hearing, shall have the right to adjust, revoke, rescind, and make any changes or modifications to any authorizations if a change in low sulfur fuel availability or other factors discussed in this Subsection occurs.