

Air Management Regulation IV

Governing Air Pollution Control Measures During High Air Pollution Episodes

City of Philadelphia
Department of Public Health
Air Pollution Control Board

Approved By:

Air Pollution Control Board July 18, 1972
Board of Health July 18, 1972
Department of Department July 21, 1972
Department of Records August 20, 1972

Regulation IV

Section I. Definitions

- A. In addition to definitions provided in the Air Management Code, the following definitions apply to this Regulation:

COH Units - This is an abbreviated form for co-efficient of haze and is a measurement derived from the transmittance of light through a paper tape, and normalized to 1000 linear feet of air. The Co-efficient of Haze is derived from transmission by the formula: $COH = \log_{10} \left(\frac{1}{T} \right)$

Oxidants - This is a major class of chemical compounds which will act as an indicator of photochemical smog. Ozone and peroxyacyl nitrates are the principal identifiable oxidants in the air.

Photo-Reactive Organic Material - Any organic materials which react with oxygen, excited oxygen, ozone and/or other free radicals generated by the action of sunlight on components in the atmosphere giving rise to secondary contaminants and reaction intermediates in the atmosphere which can cause detrimental effects.

Section II. Declaration of Conditions

The Health Commissioner or his designated representative shall declare the existence of an Air Pollution Stage I, Stage II, and/or an Air Pollution Emergency in all or any part of the City under the following condition.

- A. "Forecast" exists when an atmospheric stagnation advisory is issued by the National Weather Service. This initiates an internal watch by the Department.
- B. Stage I - When a 36-hour stagnation forecast is received from the National Weather Service and one or more of the following Air Pollutant levels exist at any air quality monitoring station in Philadelphia:
1. Sulfur Dioxide in excess of 0.3 ppm in a six hour moving average, or
 2. Particulate in excess of 4.0 COH units in a six hour moving average, or
 3. Product of Sulfur Dioxide and Particulate twenty-four hour moving average in excess of 0.3 ppm-COH, or
 4. Nitrogen Dioxide in excess of 0.2 ppm in a twenty-four hour moving average.
- C. Stage II - When one or more of the following air pollutant levels exist at any air monitoring station in Philadelphia:
1. Sulfur Dioxide in excess of 0.5 ppm in a six hour moving average, or
 2. Particulate in excess of 6.0 COH units in a six hour moving average, or
 3. Product of Sulfur Dioxide and Particulate twenty-four hour moving average in excess of 0.9 ppm-COH, or
 4. Carbon Monoxide in excess of 30 ppm in an eight hour moving average, or
 5. Total Oxidants in excess of 0.25 ppm in a four hour moving average, or
 6. Nitrogen Dioxide in excess of 0.3 ppm in a 24 hour moving average.
- D. Emergency - When one or more of the following air pollutant levels exist at any air monitoring station in Philadelphia:
1. Sulfur Dioxide equal to or exceeding 0.6 ppm in a twenty four hour moving average, or

2. Particulate equal to or exceeding 7.0 COH units in a twenty-four hour moving average, or
 3. Product of Sulfur Dioxide and Particulate twenty-four hour moving average equal to or exceeding 1.4 ppm-COH, or
 4. Carbon Monoxide equal to or exceeding 40 ppm in an eight hour moving average, or
 5. Total Oxidants equal to or exceeding 0.35 ppm in a four hour moving average, or
 6. Nitrogen Dioxide equal to or exceeding 0.4 ppm in a twenty-four hour moving average.
- E. A localized or general Stage I, Stage II, or Emergency condition may be called by the Health Commissioner or designated representative regardless of the levels set forth above, when in his opinion, a threat to public health from air pollution exists. This regulation may be implemented when the above stated levels are reached at any representative air quality monitoring station outside of Philadelphia, but within the Philadelphia area air quality region as designated by the Environmental Protection Agency.

Section III. Termination Of Conditions

Termination of any stage of an air pollution episode shall occur when all the criteria no longer exist for that stage and shall not likely reoccur. At that time, the next lower status shall be in effect.

Section IV. Alert And Notification System By The Health Commissioner And The Emergency Coordinator

- A. The Department shall maintain daily contact with the National Weather Service to ascertain the development of meteorological conditions. During periods of unfavorable meteorological conditions contact will be made at least once each 12 hours. During such periods, the Department shall periodically contact surrounding jurisdictions to coordinate regional response to the high air pollution levels. When the Commissioner of Health, or his designated representative, declares any of the high air pollution conditions enumerated in Section II, he shall also notify the Emergency Coordinator of the City of Philadelphia. The Emergency Coordinator or his designated representative shall forthwith proceed to take actions necessary to implement the requirements of this Regulation until the declared episode has been terminated by the Commissioner of Health, or his designated representative.
- B. When the Commissioner of Health, or his designated representative, declares any of the high air pollution conditions enumerated in Section II, he shall also notify the Emergency Coordinator of the City of Philadelphia. The Emergency Coordinator or his designated representative shall forthwith proceed to take actions necessary to implement the requirements of this Regulation until the declared episode has been terminated by the Commissioner of Health, or his designated representative.
- C. During Air Pollution Stage I, Stage II and Air Pollution Emergency, the Emergency Coordinator or his designated representative will release to the news media the levels of pollutants in the City, the episode condition reached, and any other information or any orders required to effect a reduction in emissions and protect public health.
- D. Establishments with emission reduction plans will be notified of the existence of high air pollution conditions through the mass media, properly identified telephone calls, or contact with the Emergency Coordinator or his designated representative.

Section V. Advance Preparation For High Air Pollution Episodes

- A. Emission reduction plans are required for each business or other establishment which emits 100 tons of pollutants per year or more, or is designated a major source or a major user of electricity by the Department. Those businesses or other establishments which are not required to submit plans

- shall develop an internal procedure to meet the objectives and requirements set forth in Tables I, II, and III. Such plans shall specify measures which will be taken to reduce air contaminant emissions during episode conditions. These plans shall be submitted in writing to the Department for approval within 60 days of the written notification by the Department. Plans shall specify separate and increasingly stringent actions for reducing each type of air pollution emission for Stage I, Stage II and Emergency in accordance with the minimum requirements set forth in Tables I, II and III. The Department shall be supplied with sufficient information to determine the emission reduction that will be attained for each pollutant during each condition. The plans shall also designate an individual and at least two alternates responsible for the execution of the plans and any other actions or orders issued under this Regulation. During high air pollution episodes and upon notification as stated in Section IV, D., plans approved by the Department are formal orders to be executed at once to protect public health.
- B. The Department shall develop and issue a contingency plan for the implementation of this Regulation. This plan will include the programs developed by companies as described under A. of this section. The contingency plan will also list activities including specific companies, establishments and types of businesses which may continue with little or no restriction during episodes.
 - C. Upon written notice by the Department, any person owning or conducting any operation which results in the emission of air contaminants shall perform tests to determine the rate of operation and other conditions which will result in minimum air contaminant emission to the atmosphere. A copy of the test results shall be submitted to the Department and will be used as a guide in the evaluation of emission reduction plans for Stage II or Emergency Conditions.
 - D. The Commissioner of Health may appoint such committees he deems necessary to advise and assist the Department in developing the contingency plan for high air pollution episodes. Such committees may include, but not be limited to, a technical industry committee, a medical care committee, a community coordination committee, a transportation committee, and a solid waste committee. A representative of the Department shall serve as a member of each committee. Meetings of a committee shall be held at the call of the chairman of the committee or the Commissioner of Health, or his designated representative.

Section VI. Actions And Restrictions

When the Health Commissioner or his designated representative declares any of the high air pollution conditions in Section II, the following actions and any other actions ordered by the Emergency Coordinator or his designated representative shall be taken by those responsible, including businesses and other persons having emission reduction plans, those without plans, the general public, and the City, State and Federal Governments.

- A. High Sulfur Dioxide Levels
 - 1. During Stage I Conditions:
 - a. Business and other establishments with emission reduction plans for sulfur dioxide shall invoke them for Stage I, and
 - b. Manufacturers and other businesses without plans shall reduce sulfur dioxide emissions by curtailing sulfur dioxide producing operations including process steam and heat load demands, and the use of electrical power, and
 - c. Business, other establishments and the general public shall reduce electrical power consumption by limiting the use of electric ovens, toasters, irons, dishwashers, air conditioners, lights, signs, and other electrical devices.
 - 2. During Stage II Conditions:
 - a. All persons shall continue those actions for Stage I, high sulfur dioxide concentrations, and in addition,

- b. Businesses and other establishments with emission reduction plans for sulfur dioxide or curtailment of electrical power shall invoke them for Stage II, and
 - c. Manufacturers and other businesses without plans will reduce sulfur dioxide emissions by curtailing sulfur dioxide producing operations including process steam and heat load demands, and the use of electrical power by assuming reasonable economic hardship, and
 - d. Businesses and other establishments without plans and the general public shall reduce the temperature in their buildings and homes to 70° F if oil or coal heating is used, or increase the temperature to 80° F if air conditioning is used, and
 - e. Sensitive persons shall minimize exposure to the outside atmosphere.
3. During Emergency Conditions:
- a. All persons shall continue those actions for Stage II, high sulfur dioxide concentrations, and in addition
 - b. Businesses and other establishments with emission reduction plans for sulfur dioxide shall invoke them for the Emergency Condition, and
 - c. Businesses and other establishments including but not limited to those listed in Table IV shall immediately discontinue operation, and send personnel home until the Emergency Condition is over. Heat or air conditioning in these establishments shall be reduced to a minimum, sufficient only to protect buildings and equipment. Exceptions are listed for exemption in the contingency plan, and
 - d. The general public shall reduce the temperature in their homes to 65°F if coal or oil heat is used, and
 - e. Use of electric ovens, toasters, irons, dishwashers, air conditioners, lights, and other electrical devices shall be restricted to essential needs, and
 - f. All persons shall minimize their exposure to the outside atmosphere.

B. High Particulate Levels

1. During Stage I Conditions:
- a. Businesses and other establishments with emission reduction plans for particulate matter shall invoke them for Stage I, and
 - b. Manufacturers and other businesses without plans shall reduce particulate emissions by curtailing particulate producing operations including process steam and heat load demands, and the use of electrical power, and
 - c. Businesses and other establishments without plans will limit lancing and soot blowing of boilers and the operation of incinerators to between the hours of 12:00 Noon and 4:00 P.M.
2. During Stage II Conditions:
- a. All persons shall continue those actions for Stage I, high particulate matter concentrations, and in addition
 - b. Businesses and other establishments with emission reduction plans for particulate matter shall invoke them for Stage II, and
 - c. Manufacturers and other businesses without plans will reduce particulate emissions by curtailing particulate producing operations including process steam and heat load demands, and the use of electrical power by assuming reasonable economic hardships, and

- d. Businesses and the general public shall reduce the temperature in their buildings and homes to 70°F if they use oil or coal heat, or increase the temperature to 80°F if air conditioning is used, and
 - e. Businesses and other establishments without plans shall limit lancing or soot blowing of boilers to between the hours of 12:00 Noon and 4:00 P.M. and
 - f. Incinerators burning less than 10,000 lb./hr. of waste shall cease operations, and
 - g. The use of electrical devices shall be limited, and
 - h. Sensitive individuals will minimize exposure to the outside atmosphere.
3. During Emergency Conditions:
- a. All persons shall continue those actions for Stage II, high particulate matter concentrations, and in addition
 - b. Businesses and other establishments with emission reduction plans for particulate matter, shall invoke them for Emergency Condition, and
 - c. The Department shall invoke the traffic control plan for the Emergency Condition, and
 - d. Business and other establishments including but not limited to those listed in Table IV shall immediately discontinue operation, and send personnel home until the Emergency Condition is over. Heat or air conditioning in these establishments shall be reduced to a minimum sufficient only to protect buildings and equipment. Exceptions are listed for exemption in the contingency plan, and
 - e. The general public shall reduce the temperature in their homes to 65°F if coal or oil heat is used, and
 - f. Use of electric ovens, toasters, irons, dishwashers, air conditioners, lights, and other electrical devices shall be restricted to essential needs only, and
 - g. Incinerators shall cease operation, and
 - h. All persons shall limit use of motor vehicles to emergency needs only. Exceptions are listed for exemption in the contingency plan, and
 - i. All persons shall minimize exposure to the outside atmosphere.

C. High Sulfur Dioxide - Particulate Product Levels

- 1. During Stage I Conditions:
 - a. All actions included in Section VI., A.1, and B.1.
- 2. During Stage II Conditions:
 - a. All actions included in Section VI., A.2, and B.2.
- 3. During Emergency Conditions:
 - a. All actions included in Section VI., A.3, and B.3.

D. High Carbon Monoxide Levels

- 1. During Stage I Conditions:
 - (Reserved for Future Use)
- 2. During Stage II Conditions:
 - a. (Reserved for Future Use)
 - b. Businesses and other establishments with emission reduction plans for carbon monoxide matter shall invoke them for Stage II, and

- c. The Department shall invoke the traffic control plan for Stage II, and
- d. All persons shall limit use of motor vehicles by increasing the use of public transportation and car pools and the elimination of unnecessary operation, and
- e. Information shall be given to the public as to which roads or areas of the City are to be particularly avoided, and
- f. Individuals predisposed toward cardiac conditions shall minimize exposure to the outside atmosphere and avoid exercise.

3. During Emergency Conditions:

- a. All persons shall continue those actions for Stage II high carbon monoxide concentrations, and in addition
- b. Businesses and other establishments with emission reduction plans for carbon monoxide shall invoke them for the Emergency Condition, and
- c. Businesses and other establishments shall discontinue operation and send personnel home until the Emergency Condition is over. Exceptions are listed for exemption in the contingency plan, and
- d. The Department shall invoke the traffic control plan for the Emergency Condition, and
- e. All persons shall limit use of motor vehicles to emergency needs only. Exceptions are listed for exemption in contingency plan, and
- f. All persons will minimize exposure to the outside atmosphere and avoid exercise.

E. High Nitrogen Dioxide Levels

1. During Stage I Conditions:

- a. Businesses and other establishments with emission reduction plans for nitrogen dioxide shall invoke them for Stage I, and
- b. Manufacturers and other businesses without plans will reduce nitrogen dioxide emissions by curtailing nitrogen dioxide producing operations including process steam and heat load demands and the use of electrical power, and
- c. Businesses and other establishments without plans and the general public will reduce electric power consumption by limiting the use of electric ovens, toasters, irons, dishwashers, air conditioners, lights, signs, and other electrical devices, and
- d. All persons will limit use of motor vehicles to essential needs only.

2. During Stage II Conditions:

- a. All persons shall continue those actions for Stage I, high nitrogen oxide concentrations, and in addition
- b. The Department shall invoke the traffic control plan for Stage II, and
- c. Businesses and other establishments with emission reduction plans for nitrogen dioxide shall invoke them for Stage II, and
- d. Manufacturers and other businesses without plans will reduce nitrogen dioxide emissions by curtailing nitrogen dioxide producing operations including process steam and heat load demands, and the use of electrical power by assuming a reasonable economic hardship, and
- e. Businesses and other establishments without plans and the general public shall reduce the temperature in their buildings and homes to 70°F, if heating or increase the temperature to 80°F, if air conditioning, and

- f. All persons shall limit use of motor vehicles by increasing the use of public transportation and car pools and the elimination of unnecessary operation. Information shall be given to the public as to which roads or areas of the City are to be particularly avoided, and
 - g. Sensitive individuals shall minimize exposure to the outside atmosphere.
3. During Emergency Conditions:
- a. All persons shall continue those actions for Stage II high nitrogen oxide concentrations, and in addition
 - b. The Department shall invoke traffic control plans for the Emergency Condition, and
 - c. Businesses and other establishments with emission reduction plans for nitrogen dioxide shall invoke them for the Emergency Condition, and
 - d. Businesses and other establishments including but not limited to those listed in Table IV shall immediately discontinue operation, and send personnel home until the Emergency Condition is over. Heat or air conditioning in these establishments shall be reduced to a minimum sufficient only to protect buildings and equipment. Exceptions are listed for exemption in the contingency plan, and
 - e. The general public shall reduce the temperature in their homes to 65°F if heating, and
 - f. All persons shall limit use of motor vehicles to emergency needs only. Exceptions are listed for exemption in the contingency plan, and
 - g. The use of electric ovens, toasters, irons, dishwashers, air conditioners, lights, signs, and other electrical devices shall be restricted to essential needs only, and
 - h. All persons will minimize exposure to the outside atmosphere.

F. High Oxidant Levels

- 1. During Stage I Conditions:
(Reserved for Future Use)
- 2. During Stage II Conditions:
 - a. (Reserved for Future Use)
 - b. Businesses and other establishments with emission reduction plans for photochemically reactive organic materials shall invoke them for Stage II, and
 - c. Section VI.E.2. shall be invoked, and
 - d. The Department shall invoke traffic control plan for Stage II, and
 - e. Gasoline sales and the unnecessary filling of storage tanks with reactive organic materials shall be prohibited between 6:00 A.M. and 12:00 Noon, and
 - f. All persons shall limit use of motor vehicles by increasing the use of public transportation and car pools and the elimination of unnecessary operation. Information shall be given to the public as to which roads and areas of the City are to be particularly avoided, and
 - g. Sensitive individuals will minimize exposure to the outside atmosphere.
- 3. During Emergency Conditions:
 - a. All persons shall continue those actions for Stage II high oxidant
 - b. Businesses and other establishments with emission reduction plans for photochemically reactive organic materials shall invoke them for the Emergency Condition, and

- c. Businesses and other establishments shall discontinue operation and send personnel home until the Emergency Condition is over. Exceptions are listed for exemption on the contingency plan, and
- d. Section VI.E.3., shall be invoked, and
- e. The Department shall invoke the traffic control plan for the Emergency Condition, and
- f. All persons shall limit use of motor vehicles to emergency needs only. Exceptions are listed for exemption in the contingency plan, and
- g. All persons will minimize exposure to the outside atmosphere.

Section VII. Severability

The provisions of this Regulation are severable and if any provision, sentence, clause, section or part thereof shall be held illegal, invalid, unconstitutional or inapplicable to any person or circumstance, such illegality, invalidity, unconstitutionality, or inapplicability shall not affect or impair any of the remaining provisions, sentences, clauses, section or part of the ordinance or their application to him or to other persons and circumstances. It is hereby declared to be the legislative intent that these Regulations would have been adopted if such illegal, invalid or unconstitutional provision, sentence, clause or part had not been included therein, and if the person or circumstances to which the ordinance or any part thereof is inapplicable had not specifically been exempted therefrom.

Section VIII. Effective Date

This Regulation shall become effective upon adoption.

Table I

Minimum Abatement Strategies For Emission Reduction Plans Stage I Condition

Stage I Condition	1. Oil or Coal-fired electric power generating facilities.	<ul style="list-style-type: none"> a. Maximum utilization of mid-day (12 Noon to 4 P.M.) atmosphere turbulence for boiler lancing and soot blowing. b. Substantial reduction of fuel burning by diverting electric power generation to facilities outside of the area.
	2. Oil or Coal-fired process steam generating facilities	<ul style="list-style-type: none"> a. Maximum utilization of mid-day (12 Noon to 4 P.M.) atmospheric turbulence for boiler lancing and soot blowing. b. Substantial reduction of steam load demands consistent with continuing plant operations. c. Maximum reduction of the use of electrical devices.
	3. Manufacturing industries of the following classifications: Primary Metals Petroleum Refining Chemical Mineral Processing Paper and Allied Products Grain	<ul style="list-style-type: none"> a. Substantial reduction of air pollutant emissions from manufacturing operations by curtailing, postponing, or deferring productions and all operations. b. Maximum reduction by deferring the operation of trade waste disposal operations which emit solid particles, gas vapors or malodorous substances. c. Maximum reduction of heat load demands for processing. d. Maximum utilization of mid-day (12 Noon to 4 P.M.) atmospheric turbulence for boiler lancing or soot blowing. e. Maximum reduction of the use of electrical devices.

Table II

Minimum Abatement Strategies For Emission Reduction Plans Stage II Condition

Stage II Condition	1. Oil or Coal-fired electric power generating facilities.	<ul style="list-style-type: none"> a. Maximum utilization of mid-day (12 Noon to 4 P.M.) atmospheric turbulence for boiler lancing and soot blowing. b. Maximum reduction of fuel burning by diverting electric power generation to facilities outside of the area.
	2. Oil or Coal-fired process steam generating facilities.	<ul style="list-style-type: none"> a. Maximum utilization of mid-day (12 Noon to 4 P.M.) atmospheric turbulence for boiler lancing and soot blowing. b. Substantial reduction of steam load demands consistent with continuing plant operations. c. Maximum reduction of the use of electrical devices.
	3. Manufacturing industries of the following classifications: Petroleum Refining Chemical Primary Metals Glass Paper and Allied Products	<ul style="list-style-type: none"> a. Maximum reduction of air pollutant emissions from manufacturing operations by, if necessary, assuming reasonable economic hardships by postponing production and allied operation. b. Maximum reduction by deferring the operation of trade waste disposal operations which emit solid particles, gases, vapors, or malodorous substances. c. Maximum reduction of heat load demands for processing. d. Maximum utilization of mid-day (12 Noon to 4 P.M.) atmospheric turbulence for boiler lancing or soot blowing. e. Maximum reduction of the use of electrical devices by assuming reasonable economic hardship

Table III

Minimum Abatement Strategies For Emission Reduction Plans Emergency Condition

Emergency Condition	1. Oil or Coal-fired electric power generating facilities.	a. Maximum utilization of mid-day (12 Noon to 4 P.M.) atmospheric turbulence for boiler lancing or soot blowing. b. Maximum reduction of fuel burning by diverting electric power generation to facilities outside of Emergency area.
	2. Oil or Coal-fired process steam generating facilities.	a. Maximum reduction of fuel burning by reducing heat and steam demands to absolute necessities consistent with preventing equipment damage. b. Maximum utilization of mid-day (12 Noon to 4 P.M.) atmosphere turbulence for boiler lancing and soot blowing. c. Maximum reduction of the use of electrical devices without causing physical injury to persons.
	3. Manufacturing industries of the following classifications: Petroleum Refining Chemical Primary Metals Glass Paper and Allied Products	a. Elimination of air pollutant emissions from manufacturing operations by ceasing, curtailing, postponing or deferring production and allied operations to the extent possible without causing physical injury to persons. b. Elimination of air pollutant emissions from trade waste disposal processes which emit solid particles, gases, vapors or malodorous substances. c. Maximum reduction of heat load demands for processing. d. Maximum utilization of mid-day (12 Noon to 4 P.M.) atmospheric turbulence for boiler lancing or soot blowing. e. Maximum reduction of the use of electrical devices.

Table IV

Emergency Business and Establishment List

1. All construction work except that which must proceed to avoid imminent physical harm to persons.
2. All manufacturing establishments.
3. All wholesale trade establishments, i.e., places of business primarily engaged in selling merchandise to retailers, or industrial, commercial, institutional or professional users, or to other wholesalers, or acting as agents in buying merchandise for or selling merchandise to such persons or companies, except those engaged in the distribution of drugs, surgical supplies and food.
4. All offices of local, county and State government including authorities, joint meetings, and other public bodies excepting such agencies which are vital for public safety and welfare and the enforcement of the provisions of this Regulation.
5. All retail trade establishments except pharmacies, surgical supply distributors, and stores primarily engaged in the sale of food.
6. Banks, credit agencies, securities and commodities brokers, dealers, exchanges and services, offices of insurance carriers, agents and brokers, real estate offices.
7. Wholesale and retail laundries, laundry services and cleaning and dyeing establishments, photographic studios, beauty shops, barber shops.
8. Advertising offices, consumer credit reporting, adjustment, and collection agencies, duplicating, addressing, blueprinting, photocopying, mailing, mailing list and stenographic services, equipment rental services, commercial testing laboratories.
9. Automobile repair and service garages.
10. Establishments rendering amusement and recreational services including motion picture theaters.
11. Elementary and secondary schools, colleges, universities, professional schools, junior colleges, vocational schools, and public and private libraries.