

R71-23

PROPOSED AIR REGULATIONS  
AND DISCUSSIONS PART 2  
NOVEMBER 5, 1971



William L. Blaser, Director • Richard B. Ogilvie, Governor

November 5, 1971

Mr. David P. Currie  
Chairman, Illinois Pollution  
Control Board  
189 West Madison Street  
Chicago, Illinois 60602

Dear Mr. Currie:

Attached herewith please find ten copies of Part 2, Standards and Limitations, of the regulations for the Implementation Plan. These are proposed jointly by the Environmental Protection Agency and the Institute for Environmental Quality.

Part 2 is proposed pursuant to the requirements of the Clean Air Act as amended (Public Law 91-604) and is therefore in conjunction with Parts 1 and 3 submitted to you on October 1, 1971, intended to form the regulatory structure of an integrated plan for implementation, maintenance, and enforcement of the National Ambient Air Quality Standards adopted as of April 19, 1971 (42 C.F.R. 410).

In preparing this proposal for part 2 of the air pollution control regulations, the Agency has benefited significantly from the consultation and cooperation of numerous other organizations. The Institute for Environmental Quality has supported research at five Illinois universities to assess the economic and technical feasibility of emission control strategies. Both the Institute and the Federal EPA have funded studies at Argonne National Laboratory designed to translate emission control strategies into air quality forecasts. Local air pollution control agencies have contributed valuable emission and air quality data to enable the Agency and its consultants to assess the extent of pollution problems. Taken as a whole, these contributions have enabled the Agency to develop the proposed multi-pollutant control strategy which will achieve primary and secondary National Ambient Air Quality Standards by control techniques that are technically feasible and economically reasonable. Furthermore, these strategies have been designed with sufficient stringency, within the limits of reasonably available control alternatives, to accommodate the anticipated growth in major metropolitan regions of the State and the associated increases in potential emissions of air pollutants.

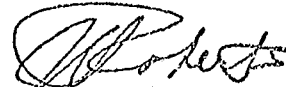
A controversial element in the proposed regulations is the essential ban on the use of coal in residential and commercial buildings in urban areas. Researchers at Argonne and at the Mitre Corporation have consistently emphasized that major reductions in the emissions of particulate matter and sulfur dioxide from such sources are essential to the attainment of the National and State Ambient Air Quality Standards in Chicago and other urban areas.

Therefore, during the hearings before the Pollution Control Board in early 1971 on the Chicago Implementation Plan, the Board and its consultants proposed such stringent controls. Fuel availability, originally a pivotal issue, is no longer considered a serious problem. However, the observation that conversions and possibly higher fuel costs may be translated into higher rents, often for those segments of the urban population which can least afford such rent increases, remains valid. The Agency urges the Federal Congress, the State Legislature, and the Chicago City Council to consider assistance in the form of direct subsidies, loan guarantees, or tax incentives to relieve the possible burden that these necessary fuel conversions may have upon the home owner and apartment renter. Furthermore, the Agency welcomes any proposals which can demonstrate that the National Air Quality Standards can be achieved, and maintained (with consideration for regional growth) by alternate means. Personnel from the Region V office of the Federal EPA have expressed a willingness to evaluate on short notice such alternate plans as to their adequacy in terms of the provisions of the Clean Air Act. In this regard, the Agency urges that any such plans be submitted in writing to both the Board and the Agency within two weeks of the publication of this proposal.

It will be noted that alternate proposals are presented for sulfur dioxide and oxides of nitrogen. The sulfur dioxide proposals give alternative emission standards on a state-wide basis, on the one hand, and on a differential basis which distinguishes between metropolitan and non-metropolitan areas, on the other. Similarly, one proposal for oxides of nitrogen proposes a single state-wide standard, while the second proposal distinguishes between the Chicago Metropolitan Air Quality Control Region and the rest of the State. The reason for alternate proposals is that while air quality modeling supports geographic distinctions, such an approach may be seen to raise significant constitutional questions of equal protection of the laws. In any event, the policy choices which are involved are felt most properly left to the Pollution Control Board, with the aid of explanation of their implications from the Agency and the public.

This proposal is accompanied by a general discussion of its rationale. The Agency and its consultants will present detailed technical briefs of public hearings. We anticipate that the Agency presentation in support of its proposal for Part 2 will require three days of testimony. We will be prepared to repeat this testimony to the public at two, or possibly three, locations in the State.

Respectfully submitted,



John J. Roberts

Manager, Division of Air Pollution Control



William L. Blaser

PART 2

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PART 2 - STANDARDS AND LIMITATIONS

Rule 201 . . . . . Definitions

Actual Heat Input: The quantity of heat supplied by the combustion of fuel.

Architectural Coating: Any coating used for residential or commercial buildings or their appurtenances, or for industrial buildings.

British Thermal Unit: The quantity of heat required to raise one pound of water from 59°F to 60°F (abbreviated btu).

Commercial Incineration Establishments: Any incinerator which is used for the purpose of incinerating for profit.

Cone Roof Tank: A tank with a fixed roof which does not move due to change in volume, pressure or temperature of the stored material.

Effluent Water Separator: Any tank, box, sump, or other apparatus in which any compound floating on or entrained or contained in water entering such tank, box, sump, or other apparatus is physically separated and removed from such water prior to out-fall, drainage, or recovery of such water.

Emission Rate: Total quantity of any air contaminant discharged into the open atmosphere in any one-hour period.

Excess Air: That air supplied in addition to the theoretical quantity necessary for complete combustion of all fuel and/or combustible waste material.

Floating Roof Tank: A tank with a roof which moves vertically upon change in volume, pressure or temperature of the stored material.

Fuel Combustion Emission Source: An emission source that burns fuel to produce heat.

Fugitive Air Contaminant: Any air contaminant emitted from any source other than through a stack.

Gas-borne Material: Any material entrained in a gaseous stream.

Gas-tight Connection: A coupling or sleeve which when connected to a receptacle

Incinerator: Combustion apparatus in which refuse is burned.

Institutional Emission Source: Any emission source used exclusively for hospital, penitentiary, school, sanatorium, correction home, or any Federal, State or local government installation.

Loading: The transfer of material.

Major Metropolitan Area (MMA): Any county or group of counties which is defined by Table A.

Municipal Incinerators: Any incinerator owned or operated by a unit of local government, which burns refuse collected from more than one location.

Odor Unit: One cubic foot of air at the odor threshold.

One Hundred Per Cent Acid: Pure acid.

Opacity: A state which renders material partially or wholly impervious to rays of light and causes obstruction of an observer's view. For the purposes of these regulations, the following equivalence between opacity and Ringelmann shall be employed:

<u>Opacity Percent</u>	<u>Ringelmann</u>
20	1
30	1.5
40	2
60	3
80	4
100	5

Open Burning: The combustion of any matter in such a way that the products of the combustion are emitted to the open air without originating in or passing through equipment for which a permit could be issued under Section 9(b) of the Act.

Organic Material: Any chemical compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates, and ammonium carbonate.

Organic Solvent: Organic materials, including diluents and thinners, which are liquids at standard conditions and which are used as solvers, viscosity reducers, or cleaning agents.

Organic Vapors: Gaseous phase of an organic solvent or a mixture of organic solvents present in the ambient air.

Particulate Matter: Any solid or liquid material, other than uncombined water, which exists in finely divided form.

Person: Any individual, corporation, partnership, firm association, trust, estate, public or private institution, group, agency, political subdivision of this State, any other State or political subdivision of this State, any other State or political subdivision or agency thereof or any legal successor, representative, agent, or agency of the foregoing.

Photochemically Reactive Solvent: Any organic solvent with an aggregate of more than 20 per cent of its total volume composed of the chemical compounds classified below or which exceeds any of the following individual percentage composition limitations, referred to the total volume of solvent:

- (1) A combination of hydrocarbons, alcohols, aldehydes, esters, ethers or ketones having an olefinic or cyclo-olefinic type of unsaturation: 5 per cent;
- (2) A combination of aromatic compounds with eight or more carbon atoms to the molecule, ketones having branched hydrocarbon structures, or toluene: 20 percent. Whenever any photochemically reactive solvent or any constituent or any organic solvent may be classified from its chemical structure into more than one of the above groups of organic compounds, it shall be considered as a member of the most reactive chemical group, that is, that group having the least allowable per cent of the total volume of solvents.



PPM (Vol)-(Parts Per Million) (Volume): A volume/volume ratio which expresses the volumetric concentration of a gaseous air contaminant in a million unit volumes of gas, such as the number of micro liters of sulfur dioxide per million micro liters or liter of air would be expressed in ppm (vol).

Pressure Tank: Tanks in which fluids are stored at a pressure greater than atmospheric pressure.

Process: Any action, operation, or treatment and the equipment used in connection therewith, and all methods or forms of manufacturing or processing that may emit any air contaminant.

Process Weight Rate: The weight of all materials except liquid and gaseous fuels and combustion air, introduced into any process per hour. For a cyclical or batch operation, the process weight rate shall be determined by dividing the total process weight by number of hours of operation excluding any time during which the equipment is idle. For continuous processes, the process weight shall be determined by dividing the total process weight by the number of hours in one complete operation, excluding any time during which the equipment is idle.

Qualified Smoke Reader: A smoke observer who has completed an Agency-approved smoke-reading course. The observer must be able to assign different smoke plumes, with an error not to exceed 15 per cent on any one reading and an average error not to exceed 7.5 per cent on all 25 readings using a Ringelmann Chart as defined herein. The smoke generator used to train the observers shall be equipped with a calibrated smoke indicator or light transmission meter located in the source stack of the smoke generator to determine the actual Ringelmann number or opacity of the emissions. All smoke observers shall pass this test once every twelve months in order to be a Qualified Smoke Reader.

Rated Heat Input: The name plate capacity of a fuel combustion emission source.

Refuse: Any discarded matter; or any matter which is to be reduced in volume, or otherwise changed in chemical or physical properties, in order to facilitate its discard, removal or disposal.

Ringelmann Chart: The chart published and described in the Bureau of Mines, U.S. Department of Interior, Information Circular 8333 (Revision of IC7718) May, 1967, or Plibrico Smoke Chart (Ringelmann Type) copyright 1952, Plibrico Jointless Firebrick Co., Chicago, Illinois.

Smoke: A flue or conduit by which air contaminants are emitted into the ambient air.

Standard Conditions: A gas temperature of 70 degrees Fahrenheit and a gas pressure of 14.7 pounds per square inch absolute (psia).

Standard Cubic Foot (SCF): The standard cubic foot is a measure of the volume of one cubic foot of gas at standard conditions.

Stationary Emission Source: An emission source which is not selfpropelled.

Strong Nitric Acid Manufacturing Plant: Any acid producing facility manufacturing nitric acid with a concentration equal to or greater than 70 per cent by weight.

Submerged Fill Pipe: Any fill pipe the discharge opening of which is entirely submerged when the liquid level is 6 inches above the bottom of the tank; or when applied to a tank which is loaded from the side, shall mean any fill pipe the discharge of which is entirely submerged when the liquid level is 18 inches or two times the fill pipe diameter, whichever is greater, above the bottom of the tank.

Sulfuric Acid Mist: Sulfur acid mist as measured according to the method specified in Rule 204(f) (2).

Theoretical Air: The exact amount of air required to supply the required oxygen for complete combustion of a given quantity of a specific fuel or waste.

Uncombined Water: Any water droplets or water vapor condensate that do not contain any other solid or liquid particulate matter either as the nucleus of the water droplets or attached to the water droplets.

Volatile Organic Solvent: Any compound containing carbon and hydrogen alone or in combination with any other element which has a vapor pressure of 2.5 pounds per square inch absolute or greater at 70°F.

Weak Nitric Acid Manufacturing Plant: Any acid manufacturing facility manufacturing nitric acid with a concentration of less than 70 per cent by weight.

T A B L E A

MAJOR METROPOLITAN AREAS IN ILLINOIS (MMAs)

<u>MMA</u>	<u>Counties Included in MMA</u>
1) Champaign - Urbana	Champaign
2) Chicago	Cook, Lake, Will, DuPage, McHenry, Kane, Grundy, Kendall and Kankakee
3) Decatur	Macon
4) Peoria	Peoria and Tazewell
5) Rockford	Winnebago
6) Rock Island-Moline	Rock Island
7) Springfield	Sangamon
8) St. Louis (in Illinois)	Madison and St. Clair
9) Bloomington-Normal	McLean

Rule 202 . . . . Visual Emission Standards and Limitations

(a) Visual Emission Standards for all Emission Sources

(1) Ringelmann Standard.

- A. Except as further provided in Rule 202(a) (1) (B) of this Part 2, no person shall cause or allow the emission of smoke or other particulate matter into the ambient air, other than uncombined water, the appearance, density or shade of which is darker than No. 1.5 of the Ringelmann Chart.
- B. No person shall cause or allow the emission of smoke or other particulate matter into the ambient air, other than uncombined water, of an appearance, density or shade of which is darker than No. 3 of the Ringelmann Chart for a period or periods aggregating not more than 6 minutes in any 60 minute period and not more than four times in any twenty-four hour period.

(2) Opacity Standard.

- A. Except as further provided in Rule 202(a) (2)B of this Part 2, no person shall cause or allow the emission of smoke or other particulate matter into the ambient air, other than uncombined water of an opacity greater than 30 per cent.
- B. No person shall cause or allow the emission of smoke or other particulate matter into the ambient air, other than uncombined water, of an opacity of greater than 60 per cent for a period or periods aggregating not more than 6 minutes in any 60 minute period and not more than four times in any twenty-four hour period.

(b) Determination of Violations of Rules 202(a)

Violations of Rules 202 (a) shall be determined by a Qualified Smoke Reader.

(c) Compliance Dates.

- (1) Every owner or operator of a new emission source or of new air pollution control equipment shall comply with standards and limitations of Rule 202 on the effective date of Part 2 of this Chapter 3.
- (2) Every owner or operator of an existing emission source or of existing air pollution control equipment shall comply with the standards and limitations of Rule 202 on or before December 31, 1973.

Rule 203 . . . . Particulate Emission Standards and Limitations

(a) Particulate Emission Standards and Limitations for all New Process Emission Sources - No person shall cause or allow the emission of particulate matter in any one hour period from any new process emission source to exceed the allowable emission rates specified in Table 2.1 and in Figure 2.1.

T A B L E 2.1

STANDARDS FOR ALL NEW PROCESS EMISSION SOURCES

Process Weight Rate Pounds Per Hour	Process Weight Rate Tons Per Hour	Allowable Emission Rate Pounds Per Hour
100	0.05	0.55
200	0.10	0.77
400	0.20	1.10
600	0.30	1.35
800	0.40	1.58
1,000	0.50	1.75
1,500	0.75	2.40
2,000	1.00	2.60
4,000	2.00	3.70
6,000	3.00	4.60
8,000	4.00	5.35
10,000	5.00	6.00
20,000	10.00	8.70
30,000	15.00	10.80
40,000	20.00	12.50
50,000	25.00	14.00
60,000	30.00	15.60

Process Weight Rate Pounds Per Hour	Process Weight Rate Tons Per Hour	Allowable Emission Rate Pounds Per Hour
70,000	35.00	17.00
80,000	40.00	18.20
90,000	45.00	19.20
100,000	50.00	20.50
200,000	100.00	29.50
300,000	150.00	37.00
400,000	200.00	43.00
500,000	250.00	48.50
600,000	300.00	53.00
700,000	350.00	58.00
800,000	400.00	62.00
900,000	450.00	66.00
1,000,000	500.00	70.00
Greater than 1,000,000	Greater than 500	70.00

Interpolated and extrapolated (up to process weight rates of 500 tons per hour) values of the data in Table 2.1 shall be determined by using the equation:

$$E = 2.54 (P)^{0.534}$$

where: E = allowable emission rate in pounds per hour;

and P = process weight rate in tons per hour.



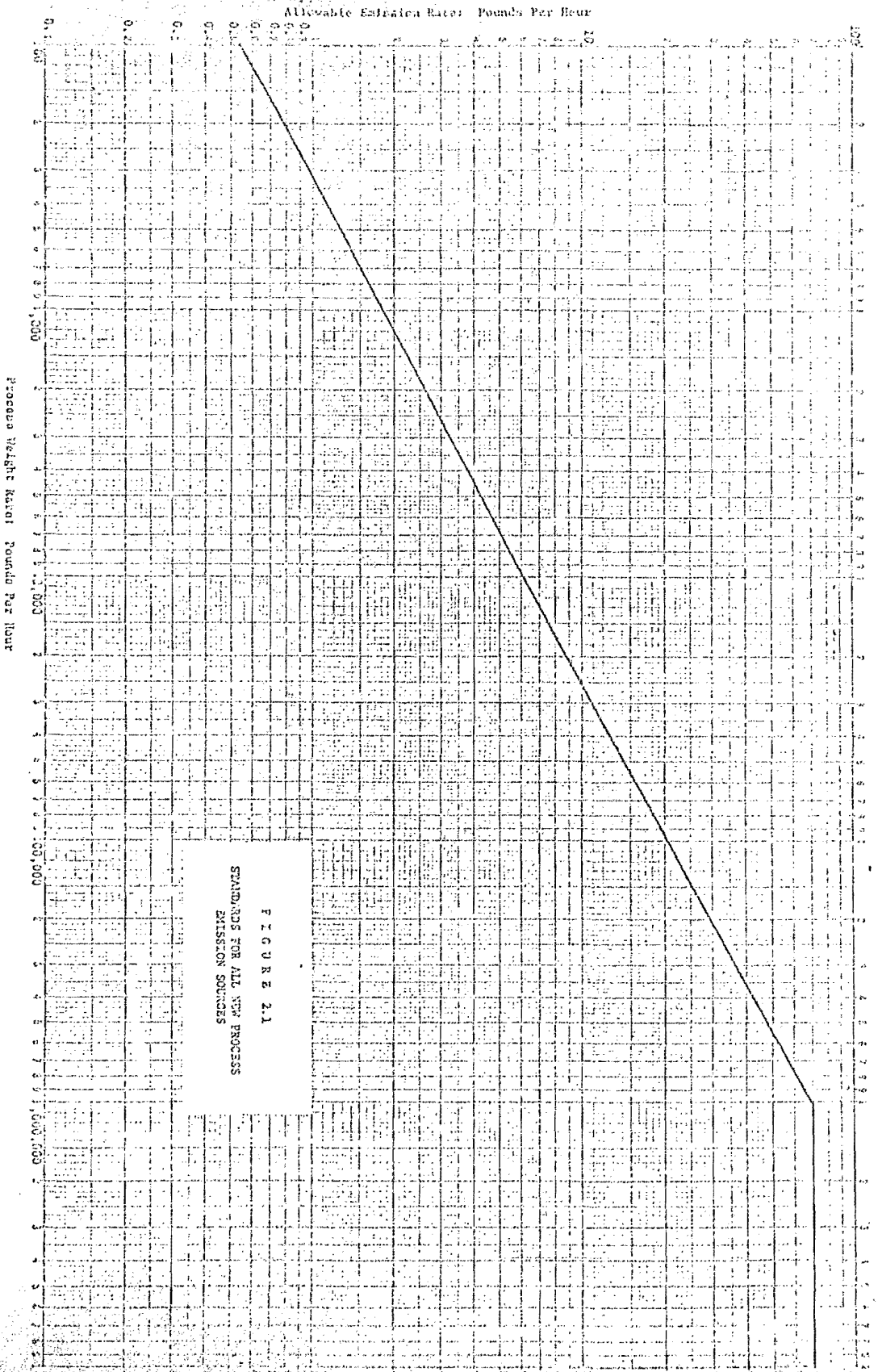


FIGURE 2.1  
 STANDARDS FOR ALL NEW PROCESS  
 EMISSION SOURCES

(b) Particulate Standards for All Existing Process Emission Sources -  
 No person shall cause or allow the emission of particulate matter  
 in any one hour period from any existing process emission source  
 to exceed the allowable emission rates specified in Table 2.2 and  
 in Figure 2.2.

T A B L E 2.2  
 STANDARDS FOR ALL EXISTING PROCESS EMISSION SOURCES

Process Weight Rate Pounds Per Hour	Process Weight Rate Tons Per Hour	Allowable Emission Rate Pounds Per Hour
100	0.05	0.551
200	0.10	0.877
400	0.20	1.400
600	0.30	1.830
800	0.40	2.220
1,000	0.50	2.580
1,500	0.75	3.380
2,000	1.00	4.100
4,000	2.00	6.520
6,000	3.00	8.560
8,000	4.00	10.400
10,000	5.00	12.000
20,000	10.00	19.200
30,000	15.00	25.200
40,000	20.00	30.500
50,000	25.00	35.400
60,000	30.00	40.000
70,000	35.00	41.300
80,000	40.00	42.500

Process Weight Rate Pounds Per Hour	Process Weight Rate Tons Per Hour	Allowable Emission Rate Pounds Per Hour
90,000	45.00	43.600
100,000	50.00	44.600
200,000	100.00	51.200
300,000	150.00	55.400
400,000	200.00	58.600
500,000	250.00	61.000
600,000	300.00	63.100
700,000	350.00	64.900
800,000	400.00	66.200
900,000	450.00	67.700
1,000,000	500.00	69.000
1,100,000	550.00	70.000
Greater than 1,100,000	Greater than 550.00	70.000

Interpolated and extrapolated values of the data in Table 2.2 for process weight rates up to 30 tons per hour shall be determined by using the equation:

$$E = 4.10 (P)^{0.67}$$

and interpolated values of the data for process weight rates in excess of 30 tons per hour and less than 550 tons per hour shall be determined by using the equation:

$$E = [55.0 (P)^{0.11}] - 40.0$$

where:

E = allowable emission rate in pounds per hour,

and P = process weight rate in tons per hour.

Process Weight Ratio Pounds Per Hour

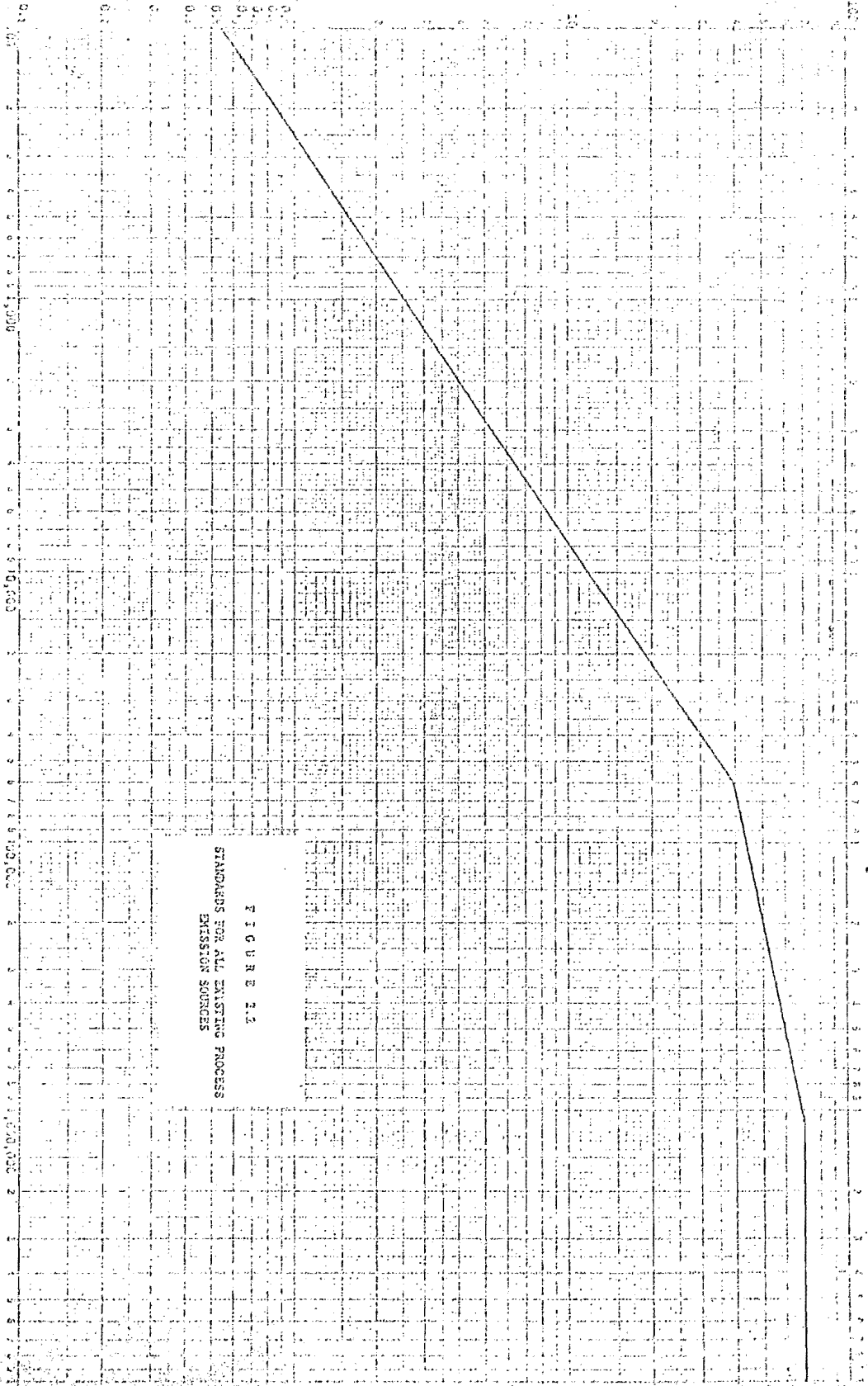


FIGURE 23  
STANDARDS FOR ALL EXISTING PROCESS  
EMISSION SOURCES

- (c) Compliance by Existing Process Emission Sources - Any existing process emission source that is not in compliance with Rule 203 (b) of this Part 2 as of the effective date of this Chapter shall comply with Rule 203 (a) of this Part 2.
- (d) Combination of Process Emission Sources
- (1) Notwithstanding any other provisions of Rules 203(a) and 203(b) of this Part 2, no person shall cause or allow the emission rate of any existing process emission source in combination with the total emission rate from all other similar new or existing process emission sources at a plant or premises to exceed the allowable emission rate determined by Rule 203(b).
  - (2) Notwithstanding any other provisions of Rules 203(a) and 203(b) of this Part 2, no person shall cause or allow the emission rate of any new process emission source in combination with the total emission rate from all other similar new process emission sources at a plant or premises to exceed the allowable emission rate determined by Rule 203(a).
- (e) Exceptions to Rules 203(a) and 203(b).
- (1) Catalyst Regenerators of Fluidized Catalytic Converters.  
Notwithstanding any other provisions of this Part 2, no person shall cause or allow the emission rate from catalyst regenerators of fluidized catalytic converters to exceed 100 pounds per hour. Such emission sources shall comply with the equation specified for process sources in Rule 203(b) when the emission rate exceeds 70 pounds per hour.
  - (2) Main Windbox of any Sinter Process.  
Notwithstanding any other provisions of this Part 2, no person shall cause or allow the particulate emissions from the main windbox of any sinter process to exceed 1.2 times the allowable

emission rate specified by Rule 202(a).

(3) Rule 203(a) and Rule 203(b) shall not apply to the following industries:

- A. Grinding
- B. Woodworking
- C. Sandblasting

(f) Particulate Emission Standards and Limitations for Incinerators.

(1) No person shall cause or allow emissions from:

- (A) commercial incinerator establishments,
- (B) municipal incinerators, and
- (C) industrial incinerators,

to exceed 0.05 grains per standard cubic foot of effluent gasses corrected to 12 per cent carbon dioxide.

(2) No person shall cause or allow emissions from all other new incinerators to exceed 0.1 grains per standard cubic foot of effluent gasses corrected to 12 per cent carbon dioxide.

(3) No person shall cause or allow emissions from all other existing incinerators to exceed 0.2 grains per standard cubic foot of effluent gasses corrected to 12 per cent carbon dioxide.

(g) Stack Design - for all new incinerators burning more than 1,000 pounds of refuse per hour and for all new process emission sources.

(1) All such new emission sources shall employ one or more stacks which are at least 2.5 times the height of the tallest building within a radius of 500 feet including the building on which the stack is located.

(2) No person shall cause or allow the emission of particulate matter from any such new emission source employing a single stack to exceed the amount determined by the following equation and by Figure 2.3:

$$E = 2.9 \times 10^{-4} U_s H_s^2$$

where:

E = maximum allowable particulate emission rate  
in pounds per hour;

H<sub>s</sub> = height of stack in feet above grade;

U<sub>s</sub> = average exit velocity of stack gases in  
feet per second.

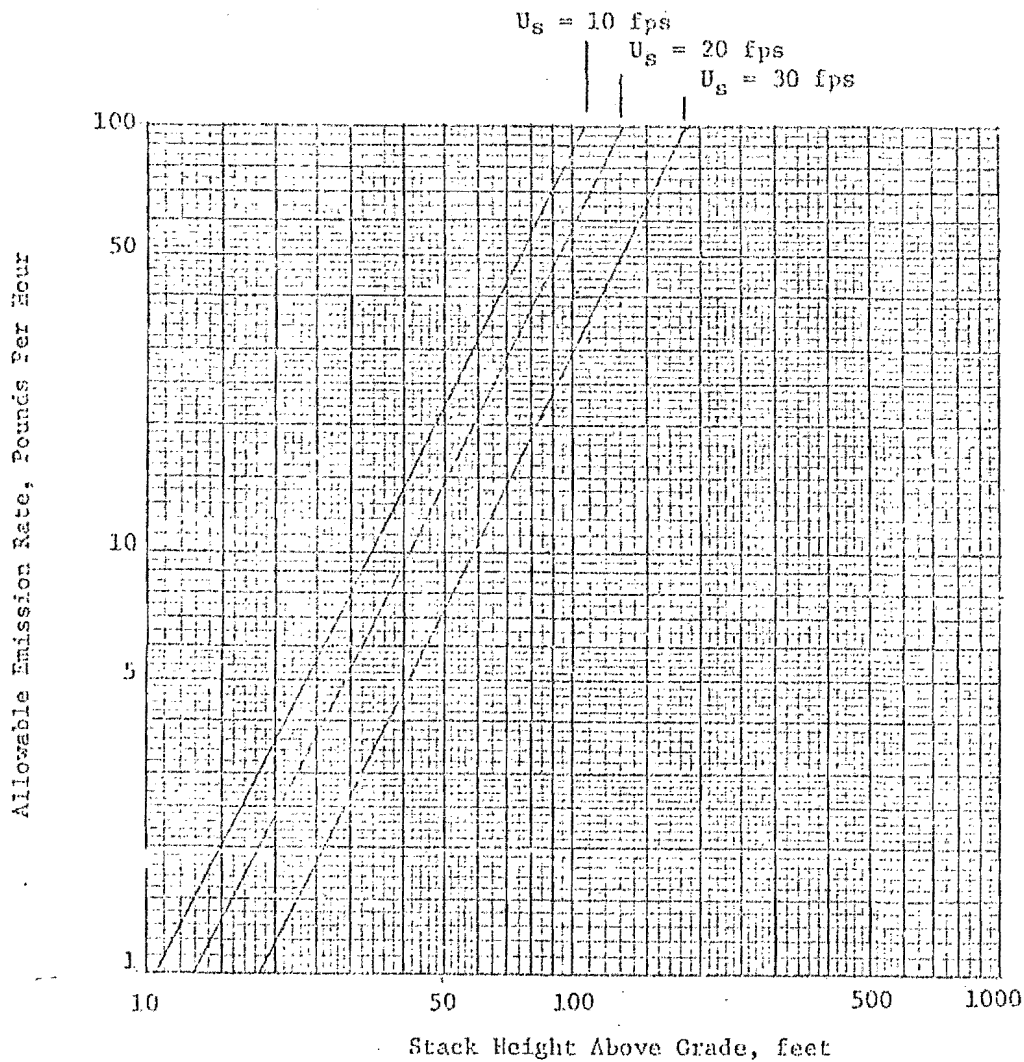


FIGURE 2.3 SINGLE-STACK DESIGN REQUIREMENTS FOR ALL NEW INCLINATORS BURNING MORE THAN 1,000 POUNDS OF REFUSE PER HOUR AND ALL NEW PROCESS EMISSION SOURCES



- (3) No person shall cause or allow the emission of particulate matter from any such new emission source employing more than one stack to exceed the value determined by the following equation:

$$E = 2.9 \times 10^{-6} (P_1 U_1 H_1^2 + P_2 U_2 H_2^2 + \dots + P_n U_n H_n^2)$$

where:

$E$  = maximum allowable particulate emission in pounds per hour from all stacks;

$H_i$ ,  $i = 1, 2, \dots, n$  = height of stack  $i$  in feet above grade;

$U_i$ ,  $i = 1, 2, \dots, n$  = average exit velocity of stack gases in feet per second from stack  $i$ ;

$P_i$ ,  $i = 1, 2, \dots, n$  = percentage of total emissions  $E$  emitted through stack  $i$ .

(Note  $P_1 + P_2 + \dots + P_n = 100$ )

(h) Particulate Emission Standards for Fuel Combustion Emission Sources

(1) Emission Sources Using Solid Fuel Exclusively

(A) No person shall cause or allow the emission of particulate matter to exceed 0.1 pounds of particulate matter per million btu of actual heat input from existing fuel combustion emission sources, and from new fuel combustion emission sources with rated heat inputs of less than 250 million btu per hour.

(B) No person shall cause or allow the emission of particulate matter to exceed 0.05 pounds of particulate matter per million btu of actual heat input from new fuel combustion emission sources with rated heat inputs equal to or greater than 250 million btu per hour.

(2) Emission Sources Using Liquid Fuel Exclusively - No person shall cause or allow the emission of particulate matter to exceed 0.025 pounds of particulate matter per million btu of actual heat input from fuel combustion emission sources with rated heat inputs equal to or greater than 250 million btu per hour.

(3) Emission Sources Using more than One Type of Fuel - The allowable emission rate for a fuel combustion emission source, when at any one time more than one type of fuel is utilized, shall be determined by the following equation:

$$E = S_S H_S + 0.025 H_L$$

where:

$E$  = allowable particulate emission rate in pounds per hour;

$S_S$  = solid fuel particulate emission standard - 0.1 pounds per million btu from Rule 203(h) (1) (A), or 0.05 pounds per

million btu from Rule 203 (h) (1) (B),

whichever is applicable;

$H_s$  = actual heat input from solid fuel in  
million btu per hour;

and

$H_l$  = actual heat input from liquid fuel in  
million btu per hour.

(i) Fugitive Air Contaminants

- (1) No person shall cause or allow the emission of fugitive air contaminants from any process, or from any material handling, or storage activity, that is visible by an observer looking generally perpendicular to the ground at a point beyond the property line of the emission source.
- (2) No person shall cause or allow the emission of fugitive air contaminants from any process, or from any material handling or storage activity, in such a manner that the presence of such fugitive air contaminants as particulate matter shown to be larger than forty (40) microns in size exists beyond the property line of the emission source.
- (3) No person shall cause or allow the operation of a vehicle of the second division as defined by Ill. Rev. Stat., Ch. 95 1/2, § 1-217, as revised, or a Semitrailer as defined by Ill. Rev. Stat., Ch. 95 1/2, § 1-187, as revised, without a covering sufficient to prevent the release of particulate matter into the ambient air.
- (4) Except for the stockpiling of materials, Rule 203 (i) shall not apply to emission associated with the manufacture of coke.

(j) Manufacture of Coke.

(1) Behive Coke Ovens

No person shall cause or allow the use of behive ovens for the manufacture of coke.

(2) By-product Coke Plant

(A) Fuel Combustion Emission Sources - Fuel

Fuel combustion emission sources associated with by-product coke ovens shall comply with Rule 202(a) and 203(h) of this Part 2.

(B) Charging

(i) No person shall cause or allow the charging of coal or other solid material to a coke oven unless a gas-tight connection is made between the coke oven charging system and the coke oven charging port.

(ii) No person shall cause or allow the emission of particulate matter into the ambient air, other than uncombined water, of an opacity greater than 20 per cent from any coke oven or coke oven charging system whenever the gas-tight connection required by Rule 203 (j) (2) (B) (i) of this Part 2 is in place.

(iii) Compliance Dates: Every owner or operator of an emission source or of existing air pollution control equipment shall comply with the standards and limitations of Rule 203 (j) (2) (B) (i) and 203 (j) (2) (B) (ii) on or before December 31, 1973.

(iv) No person shall cause or allow the emission of particulate matter into the ambient air from any one coke oven charging port except for a period not to exceed 30 seconds during any one coke charging operation.

- (v) Compliance Dates: Every owner or operator of an emission source or of air pollution control equipment shall comply with standards and limitations of Rule 203 (j) (2) (B) (4) 60 days after the effective date of Part 2 of this Chapter 3.
- (vi) No person shall cause or allow the emission of particulate matter into the ambient air from any one coke oven charging port except for a period not to exceed 15 seconds during any one coke charging operation.
- (vii) Compliance Dates: Every owner or operator of an emission source or of existing air pollution control equipment shall comply with the standards and limitations of Rule 203 (j) (2) (B) (vi) on December 31, 1973.
- (C) Pushing: (To follow)
- (D) Quench Towers: No person shall cause or allow the operation of a by-product coke plant if the emissions from any quench tower exceed an opacity of 30 per cent after July 1, 1972.
- (E) Quench Cars: (To follow)
- (F) Special Requirements for Operation, Maintenance and Compliance of By-Product Coke Plants
- (i) Work Rules - No person shall cause or allow the operation of a by-product coke plant without operating and maintenance work rules approved by the Agency. Such work rules shall be submitted to and approved by the Agency no later than 60 days after the effective date of Part 2 of this Chapter 3. No such plan shall be approved by the Agency unless it contains, as a minimum, information sufficient to prove to the Agency that the emission of specified air contaminants will conform to the requirements of Rule 203.
- (ii) Coke Oven Doors
- (aa) During coking, no person shall cause or allow the operation of a coke oven that emits any specified air contaminants

to the ambient air from the coke oven doors.

(bb) no person shall cause or allow the operation of a coke oven unless

(bb-1) there is on the plant premises, an inventory of spare coke oven doors and seals at all times, and

(bb-2) there is, on the plant premises, a repair facility capable of prompt and efficient repair of coke oven doors and seals that conforms to the requirements of Rule 203 (j) (2) (F) (i).

(k) Measurement Methods

Particulate emissions from stationary emission sources subject to Rule 203, shall be determined by the procedures described in the ASME Power Test Code 27-1957 as revised from time to time, or by any other equivalent procedure approved by the Agency.

(l) Compliance Dates

(1) Every owner or operator of a new emission source or of new air pollution control equipment shall comply with the standards and limitations of Rule 203 on the effective date of Part 2 of this Chapter 3.

(2) Except as otherwise provided in Rule 203, every owner or operator of an existing emission source or of existing air pollution control equipment shall comply with the standards and limitations of Rule 203 on December 31, 1973.

(3) Notwithstanding any other provisions of Rule 203 of this Part 2, every owner or operator of an existing emission source or of existing air pollution control equipment subject to Rule 203 (i) shall comply with the standards and limitations of Rule 203 (i) on July 1, 1972.

- (4) Notwithstanding any other provisions of Rule 203 of this Part 2, every owner or operator of an existing emission source or of existing air pollution control equipment which
- (A) is required to comply with Rules 2-2.54, 3-3.111, 3-3.112, 3-3.120 and 3-3.230 of Rules and Regulations Governing the Control of Air Pollution as amended August 19, 1969, and
  - (B) which is in compliance with such Rules as of the effective date of these regulations or has a current variance as of the effective date of these regulations,
- shall comply with Rule 203 on July 1, 1975.

204 . . . . Sulfur Standards and Limitations.

(a) Sulfur Dioxide Emission Standards and Limitations for Fuel Combustion Emission Sources.

(1) Solid Fuel Used Exclusively - No person shall cause or allow the emission of sulfur dioxide into the ambient air from any such fuel combustion emission source to exceed 1.8 pounds of sulfur dioxide per million btu of actual heat input.

(2) Liquid Fuel Used Exclusively - No person shall cause or allow the emission of sulfur dioxide into the ambient air from any such fuel combustion emission source to exceed 0.7 pounds of sulfur dioxide per million btu of actual heat input.

(b) Combination of Solid and Liquid Fuels - Any fuel combustion emission source using any combination of solid, liquid, and gaseous fuels shall comply with the emission standards and limitations determined by the following equation:

$$E = 1.8 H_S + 0.7 H_L$$

where:

E = allowable sulfur dioxide emission rate  
in pounds per hour;

H<sub>S</sub> = actual heat input from solid fuel in million  
btu per hour;

H<sub>L</sub> = actual heat input from liquid fuel in million  
btu per hour.

(c) Combination of Fuel Combustion Emission Sources.

(1) No person shall cause or allow the total of all sulfur dioxide emissions from all fuel combustion emission sources at any single plant or premises to exceed the emissions determined by the following equations:



$$E = 20,000 \left( \frac{H_s}{300} \right)^2$$

$$H_s = \frac{P_1 H_1 + P_2 H_2 + \dots + P_n H_n}{100}$$

100

(Note:  $P_1 + P_2 + \dots + P_n = 100$ )

where:

$E$  = maximum allowable sulfur dioxide emission in pounds per hour from all fuel combustion emission sources at any single plant or premises;

$P_i$ ,  $i = 1, 2, \dots, n$  = percentage of total emissions  $E$  emitted from stack  $i$ ;

$H_i$ ,  $i = 1, 2, \dots, n$  = physical height in feet above grade of stack  $i$ .

(2) No person shall cause or allow the operation of any new emission source in such a manner that the emissions of sulfur dioxide from such new emission source, in combination with emissions of sulfur dioxide from all other emission sources within a 1-mile radius exceeds 20,000 pounds of sulfur dioxide per hour.

(d) Sulfur Standards and Limitations for Process Emission Sources.

(1) Sulfur Dioxide Standards and Limitations

(A) Except as further provided in this Part 2, no person shall cause or allow the emission of sulfur dioxide into the ambient air from any process emission source to exceed 1500 ppm.

(B) No person shall cause or allow the emission of sulfur dioxide into the ambient air from any new sulfuric acid manufacturing plant to exceed the quantity determined by the following equation:

$$E = \frac{650}{P}$$

where:

E = maximum allowable sulfur dioxide  
emission in pounds per hour;

P = strength of acid in percent sulfuric  
acid.

- (2) Sulfuric Acid Mist Standards and Limitations - No person shall cause or allow the emission of sulfuric acid mist into the ambient air from any process emission source to exceed the quantity determined by the following equation:

$$E = \frac{20}{P}$$

where:

E = maximum allowable sulfuric acid mist  
emission in pounds per hour;

P = strength of acid in per cent sulfuric  
acid.

(e) Measurement Methods.

(1) Sulfur Dioxide Measurement.

Measurement of sulfur dioxide emissions from stationary sources shall be made according to the procedure published in 36 Fed. Reg. 15717, Method 6, or by measurement procedures specified by the Agency according to the provisions of Part 1 of this Chapter 3 and application of standard emission factors as published in Public Health Service Publication 999-AP-42, Compilation of Air Pollutant Emission Factors as revised from time to time.

(2) Sulfuric Acid Mist and Sulfur Trioxide Measurement.

Measurement of sulfuric acid mist and sulfur trioxide shall be according to the Barium-thorin titration method as published in

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36 Fed. Reg. 15720, Method 8.

(f) Compliance Dates.

- (1) Every owner or operator of a new emission source or of new air pollution control equipment shall comply with the standards and limitations of Rule 204 on the effective date of Part 2 of this Chapter 3.
- (2) Every owner or operator of an existing emission source or of existing air pollution control equipment shall comply with the standards and limitations of Rule 204 on or before December 31, 1974.

204 . . . Sulfur Standards and Limitations.

(a) Sulfur Dioxide Emission Standards and Limitations for all existing fuel combustion emission sources located in Major Metropolitan Areas (MMA's) and all new fuel combustion emission sources.

(1) Solid Fuel Used Exclusively - No person shall cause or allow the emission of sulfur dioxide into the ambient air from any such fuel combustion emission source to exceed 1.8 pounds of sulfur dioxide per million btu of actual heat input.

(2) Liquid Fuel Used Exclusively - No person shall cause or allow the emission of sulfur dioxide into the ambient air from any such fuel combustion emission source to exceed 0.7 pounds of sulfur dioxide per million btu of actual heat input.

(b) Sulfur Dioxide Emission Standards and Limitations for all Existing Fuel Combustion Emission Sources Not Located in MMA's.

(1) Solid Fuel Used Exclusively - No person shall cause or allow the emission of sulfur dioxide into the ambient air from any such fuel combustion emission source to exceed 6.0 pounds of sulfur dioxide per million btu of actual heat input.

(2) Liquid Fuel Used Exclusively - No person shall cause or allow the emission of sulfur dioxide into the ambient air from any such fuel combustion emission source to exceed 0.7 pounds of sulfur dioxide per million btu of actual heat input.

(c) Combination of Solid and Liquid Fuels - Any fuel combustion emission source using any combination of solid, liquid, and gaseous fuels shall comply with the emission standards and limitations determined by the following equation:

$$E = S_3H_3 + 0.7H_1$$

where:

E = allowable sulfur dioxide emission rate in pounds per hour;

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$S_s$  = solid fuel sulfur dioxide emission standard - 1.8 pounds per million btu from Rule 204 (a) (1) or 6.0 pounds per million btu from Rule 204 (b) (1), whichever is applicable.

$H_s$  = actual heat input from solid fuel in million btu per hour;

$H_l$  = actual heat input from liquid fuel in million btu per hour.

(d) Combination of Fuel Combustion Emission Sources.

- (1) No person shall cause or allow the total of all sulfur dioxide emissions from all fuel combustion emission sources at any single plant or premises to exceed the emissions determined by the following equation:

$$E = 20,000 \left( \frac{H_s}{300} \right)^2$$

$$H_s = \frac{P_1 H_1 + P_2 H_2 + \dots + P_n H_n}{100}$$

(Note:  $P_1 + P_2 + \dots + P_n = 100$ )

where:

$E$  = maximum allowable sulfur dioxide emission in pounds per hour from all fuel combustion emission sources at any single plant or premises;

$P_i$ ,  $i = 1, 2, \dots, n$  = percentage of total emissions  $E$  emitted from stack  $i$ ;

$H_i$ ,  $i = 1, 2, \dots, n$  = physical height in feet above grade of stack  $i$ .

- (2) No person shall cause or allow the operation of any new emission

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source in such a manner that the emissions of sulfur dioxide from such new emission source, in combination with emissions of sulfur dioxide from all other emission sources within a 1-mile radius exceeds 20,000 pounds of sulfur dioxide per hour.

(e) Sulfur Standards and Limitations for Process Emission Sources.

(1) Sulfur Dioxide Standards and Limitations

(A) Except as further provided in this Part 2, no person shall cause or allow the emission of sulfur dioxide into the ambient air from any process emission source to exceed 1500 ppm.

(B) No person shall cause or allow the emission of sulfur dioxide into the ambient air from any new sulfuric acid manufacturing plant to exceed the quantity determined by the following equation:

$$E = \frac{650}{P}$$

where:

E = maximum allowable sulfur dioxide emission in pounds per hour;

P = strength of acid in percent sulfuric acid.

(2) Sulfuric Acid Mist Standards and Limitations - No person shall cause or allow the emission of sulfuric acid mist into the ambient air from any process emission source to exceed the quantity determined by the following equation:

$$E = \frac{20}{P}$$

where:

E = maximum allowable sulfuric acid mist emission in pounds per hour;

P = strength of acid in per cent sulfuric acid.

(f) Measurement Methods.

(1) Sulfur Dioxide Measurement.

Measurement of sulfur dioxide emissions from stationary sources shall be made according to the procedure published in 36 Fed. Reg. 15717, Method 6, or by measurement procedures specified by the Agency according to the provisions of Part 1 of this Chapter 3 and application of standard emission factors as published in Public Health Service Publication 999-AP-42, Compilation of Air Pollutant Emission Factors as revised from time to time.

(2) Sulfuric Acid Mist and Sulfur Trioxide Measurement.

Measurement of sulfuric acid mist and sulfur trioxide shall be according to the Barium-thorin titration method as published in 36 Fed. Reg. 15720, Method 8.

(g) Compliance Dates.

(1) Every owner or operator of a new emission source or of new air pollution control equipment shall comply with the standards and limitations of Rule 204 on the effective date of Part 2 of this Chapter 3.

(2) Every owner or operator of an existing emission source or of existing air pollution control equipment shall comply with the standards and limitations of Rule 204 on or before December 31, 1973.

Rule 205 . . . . Organic Material Emission Standards and Limitations.

(a) Volatile Organic Materials.

(1) Storage of Volatile Organic Materials - No person shall cause or allow the storage of any volatile organic materials in any stationary tank reservoir or other container of more than 40,000 gallons capacity unless such tank, reservoir, or other container

A. is a pressure tank capable of maintaining working pressures sufficient at all times to prevent vapor or gas loss to the ambient air or

B. is designed and equipped with one of the following vapor loss control devices:

(i) A floating roof, consisting of a pontoon type, double deck type roof or internal floating cover, which rests on the surface of the liquid contents and is equipped with a closure seal or seals to close the space between the roof edge and the tank wall. This control equipment shall not be permitted if the volatile organic compounds have a vapor pressure of 12.5 pounds per square inch absolute or greater at 70°F. All tank gauging or sampling devices shall be gas-tight except during tank gauging or sampling.

(ii) A vapor recovery system, consisting of

(aa) a vapor gathering system capable of collecting 85 per cent or more of the volatile organic compound vapors and gases discharged and

(bb) a vapor disposal system capable of processing such volatile organic vapors and gases so as to prevent



their emission to the ambient air and equipped with gas-tight tank gauging and sampling devices except when gauging or sampling is taking place.

(iii) Other equipment or means of equal efficiency approved by the Agency according to the provisions of Part I of this Chapter 3.

C. No person shall cause or allow the storage of any volatile organic compound in any stationary storage vessel with a capacity of more than 250-gallons unless such vessel is equipped with a permanent submerged fill pipe or an equivalent device approved by the Agency according to the provisions of Part I of this Chapter 3, or is a pressure tank as described in Section 205(a) (1)A or is fitted with a vapor recovery system as described in Section 205 (a) (1) (ii).

(2) Volatile Organic Material Loading Facilities.

- A. No person shall cause or allow the loading of any volatile organic compounds capable of emitting vapor in excess of 40 lbs. per day into any railroad tank car, barge, tank truck or trailer from any loading facility unless such loading facility is equipped with a vapor emission reduction system with an efficiency of 85 per cent or more or a vapor collection and disposal system as approved by the Agency according to the provisions of Part I of this Chapter 3.
- B. When loading volatile organic compounds into any railroad tank car, barge, tank truck or trailer, a loading arm connected to the vapor recovery system by an adaptor, a pneumatic, hydraulic, or other mechanical means shall be

provided to force a vapor-tight seal between the adaptor and the hatch. A means satisfactory to the Agency shall be provided to prevent liquid organic compounds from draining and their vapors from leaking from the loading device when it is removed from the hatch of the unit being filled, or to accomplish complete drainage and vapor evacuation before such removal.

- C. When loading volatile compounds through means other than hatches, all loading and vapor lines shall be equipped with fittings which make liquid and vapor-tight connections and which close automatically when connected.
- D. Rule 205 (a) (2) shall not apply to the loading of volatile organic compounds into or from any railroad tank car, barge, tank truck or trailer from any facility loading not more than 40,000 gallons of volatile organic compounds in any one day.

(3) Volatile Organic Compound Water Separation.

- A. No person shall use any compartment of an single or multiple compartment volatile organic effluent water separator which receives effluent water containing 200 gallons a day or more of volatile organic material from any equipment processing, refining, treating, storing, or handling volatile organic compounds unless such compartment is equipped with one of the following vapor loss control devices, properly installed, in good working order, in operation and is 85 per cent or more efficient:
  - (i) A container having all openings sealed and totally enclosing the liquid contents. All gauging and sampling devices shall

be gas-tight except during gauging or sampling.

(ii) A container equipped with a floating roof, consisting of a pontoon type, double deck roof, or internal floating cover, which will rest on the surface of the contents and be equipped with a closure seal or seals to close the space between the roof edge and container wall. All gauging and sampling devices shall be gas-tight except during gauging or sampling.

(iii) A container equipped with a vapor recover system consisting of a vapor gathering system capable of collecting the organic vapors and gases discharged and a vapor disposal system capable of processing such organic vapors and gases so as to prevent their emission to the ambient air and with all container gauging and sampling devices gas-tight except during gauging or sampling.

(iv) Such other equipment specified by the Agency according to the provisions of Part 1 of this Chapter 3.

(4) Pumps and Compressors.

Every rotating shaft pump and compressor handling volatile organic compounds shall have mechanical seals or other air pollution control equipment specified by the Agency according to the provisions of Part 1 of this Chapter 3. Losses from reciprocating and all other types of pumps shall be no greater than losses from an approved rotating shaft system using mechanical seals.

(b) Organic Solvents

(1) Architectural Coatings.

No person shall cause or allow the sale or use of any architectural coating containing photochemically reactive solvents in a volume of

greater than 20 per cent in containers with a capacity of more than one gallon.

(2) Flame-baked, heat-cured or heat-polymerized organic solvents.

No person shall cause or allow the discharge of more than 3 pounds per hour or more than 15 pounds per day of organic materials into the ambient air from any individual article, machine, equipment or other emission source in which any organic solvent or any material containing organic solvent comes into contact with flame or is baked, heat-cured, or heat polymerized, in the presence of oxygen, except as provided in Rule 205 (b) (4) and Rule 205 (b) (7).

(3) All other Organic Solvents.

No person shall cause or allow the discharge of more than 8 pounds per hour or more than 40 pounds per day of organic materials into the ambient air from any individual article, machine, equipment or other emission source using any organic solvent or material containing organic solvents.

(4) Alternative Standard.

Emissions in excess of those permitted by Rule 205 (b) (2) and Rule 205 (b) (3) are allowable if the emissions are controlled by one of the following methods:

- A. thermal incineration so that the CO content is 100 ppm or less, corrected to 50% excess air; or
- B. absorbs a process which and/or adsorbs and/or condenses 85 per cent of the total organic material; or
- C. any other process approved by the Agency according to the provisions of Part 1 of this Chapter 3 that is of sufficient reliability and effectiveness so as to remove 85 per cent of the total organic material.

(5) Emissions During Clean-up Operations.

Emissions released during clean-up operations utilizing any organic

solvent to clean any emission source emitting air contaminants specified in Rule 205, or any air pollution control equipment, shall be included with other emissions of organic material from such an emission source or air pollution control equipment in determining total emissions.

(6) Photochemically Reactive Solvents.

No person shall cause or allow the disposal of more than 1/2 gallons of any photochemically reactive solvent by any means which will permit the evaporation of such solvent into the atmosphere.

(7) Exceptions.

The provisions of Rule 205 (b) (2), Rule 205 (b) (3), and Rule 205 (b)

(4) shall not apply to:

(A) the spraying or use of insecticides, herbicides, or other pesticides.

(B) the use, application, evaporation, or drying of saturated halogenated hydrocarbons, or perchloroethylene.

(C) the loading or storage of organic solvents.

(D) the application of paving asphalt from sunrise to sunset and when air pollution emergency conditions are not present.

(E) paints, varnishes, or lacquers that use a water or alkali base to replace organic solvents so that the solvent content is 20 per cent or less by volume or less of organic compounds.

(F) Every owner or operator of an emission source who proves to the Agency according to the provisions of Part 1 of this Chapter 3, that such owner or operator is converting to water or alkali base substituted solvents on the effective date of Part 2 of this Chapter 3 shall be exempt from Rule 205 (b) (2), from Rule 205 (b) (3), and from Rule 205 (b) (4) until July 1, 1978, as long as the local ambient air at the property line of the emission source does not contain hydrocarbons in excess of the Federal Ambient Air Quality Standards.

(c) Waste Gas Disposal.

(1) Petroleum Refinery and Petrochemical Manufacturing Emissions.

No person shall cause or allow the discharge of hydrocarbons into the ambient air from

- (A) any catalyst regeneration of a petroleum cracking system,
- (B) any petroleum fluid coker, or
- (C) any waste gas stream from any petroleum or petrochemical producing plant

unless such waste gas stream is burned in a device so that the gas stream does not contain more than 100 ppm of carbon monoxide corrected to 50% excess air or is controlled by an equally effective control device as approved by the Agency according to the provisions of Part 1 of this Chapter 3.

(2) Vapor Blowdown.

No person shall emit hydrocarbon gases to the ambient air from a vapor blowdown system unless such gases are burned

- (A) as described in 205 (c) (1) or
- (B) in a smokeless flare, or
- (C) in other air pollution control equipment specified by the Agency according to the provisions of Part 1 of this Chapter 3.

If such gases are burned in a smokeless flare, the stack shall be at least 2.5 times the height of surrounding buildings or other inhabited structures within a radius of 500 feet.

(d) Testing Method for Determination of Emissions of Organic Material.

The total hydrocarbon concentrations in an effluent stream shall be measured by a Flame Ionization Detector. Results shall be reported as total "carbon," using methane as a standard. Methane in the gas stream shall be measured separately by Gas Chromatography and shall be subtracted from the total hydrocarbon concentration as measured

by the Flame Ionization Detector.

(e) Compliance Dates.

- (1) Every owner or operator of a new emission source or of new air pollution control equipment shall comply with the standards and limitations of Rule 205 on the effective date of Part 2 of this Chapter 3.
- (2) Every owner or operator of an existing emission source or of existing air pollution control equipment shall comply with the standards and limitations of Rule 205 on or before December 31, 1973.

Rule 206 . . . . Carbon Monoxide Emission Standards and Limitations

(a) Fuel-Combustion Emission Sources

No person shall cause or allow any fuel-combustion emission source to emit carbon monoxide in excess of 200 ppm, corrected to 50 per cent excess air from any stack.

(b) Incinerators - No person shall cause or allow any incinerator to emit carbon monoxide in excess of 500 ppm, corrected to 50 per cent excess air from any stack.

(c) Petroleum Processes

No person shall cause or allow the emission of a carbon monoxide waste gas stream into the ambient air from any petroleum process unless the waste gas stream is burned in a direct flame afterburner or controlled by other air pollution control equipment specified by the Agency according to the provisions of Part 1 of this Chapter 3.

(d) Blast Furnaces and Basic Oxygen Furnaces

No person shall cause or allow the emission into the ambient air of gases containing carbon monoxide generated during the operation of a blast furnace or basic oxygen furnace unless such gases are burned in a direct flame afterburner or controlled by other pollution control equipment specified by the Agency according to the provisions of Part 1 of this Chapter 3.

(e) Cupolas

No person shall cause or allow the emission into the ambient air of gases containing carbon monoxide generated during the operation of a cupola with a manufacturer's rated melt rate in excess of 5 tons per hour, except when such gases are burned in a direct flame afterburner or controlled by other pollution control equipment specified by the Agency according to the provisions of Part 1 of this Chapter 3.

(f) Measurement Methods

Carbon monoxide concentrations in an effluent stream shall be measured by



the Nondispersive Infrared Method or by other methods approved by the Agency according to the provisions of Part 1 of this Chapter 3.

(g) Compliance Dates

- (1) Every owner or operator of a new emission source or of new air pollution control equipment shall comply with the standards and limitations of Rule 206 on the effective date of Part 2 of this Chapter 3.
- (2) Every owner or operator of an existing emission source or of existing air pollution control equipment shall comply with the standards and limitations of Rule 206 on or before December 31, 1973.

## Rule 207 . . . . . Nitrogen Oxides Emission Standards and Limitations

(a) New Fuel-Combustion Emission Sources.

No person shall cause or allow the emission of nitrogen oxides into the ambient air from any new fuel-combustion emission source with a manufacturer's rated capacity equal to or greater than 250 million btu per hour to exceed the following standards and limitations:

- (1) for gas firing, 0.20 pounds per million btu of actual heat input,
- (2) for oil firing, 0.30 pounds per million btu of actual heat input,
- (3) for dual gas and oil firing, 0.30 pounds per million btu of actual heat input,
- (4) for coal firing, 0.90 pounds per million btu of actual heat input.

(b) Existing Fuel-Combustion Emission Sources.

No person shall cause or allow the emission of nitrogen oxides into the ambient air from any existing fuel-combustion emission source with a manufacturer's rated capacity equal to or greater than 250 million btu per hour to exceed the following limitations:

- (1) for gas and/or oil firing, 0.3 pounds per million btu of actual heat input.
- (2) for coal firing, 0.9 pounds per million btu of actual heat input.

(c) Nitric Acid Manufacturing Plants.(1) New Weak-Nitric Acid Plants.

No person shall cause or allow the discharge of nitrogen oxides into the ambient air from any new weak-nitric acid manufacturing

plant to exceed the following standards and limitations:

- A. 3.0 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis)
- B. Visible emissions in excess of 5 per cent opacity
- C. 0.1 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis) from any acid storage tank vents.

(2) No person shall cause or allow the discharge of nitrogen oxide into the ambient air from any existing weak-nitric acid manufacturing plant to exceed the following standards and limitations:

- A. 5.5 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis)
- B. Visible emissions in excess of 5 per cent opacity
- C. 0.2 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis) from any acid storage tank vents.

(3) Concentrated Nitric Acid Plants.

No person shall cause or allow the discharge of nitrogen oxides into the ambient air from any concentrated-nitric acid manufacturing plant to exceed the following standards and limitations:

- A. 3.0 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis)
- B. 225 ppm of nitrogen oxides (expressed as  $\text{NO}_2$ ) in any effluent gas stream emitted into the ambient air.
- C. Visible emissions in excess of 5 per cent opacity.

(4) Nitric Acid Concentrating Plants.

No person shall cause or allow the discharge of nitrogen oxides into the ambient air from any nitric acid concentrating plant to exceed the following limitations:

- A. 3.0 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis)
- B. Visible emissions in excess of 5 per cent opacity.

(d) Industrial Processes: General

(1) New Plants

No person shall cause or allow the discharge of nitrogen oxides into the ambient air from any new plant producing products of organic nitrations and oxidations using nitric acid to exceed the following standards and limitations:

- A. 5.0 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of nitric acid (100 per cent acid basis) used in such plant.
- B. Visible emissions in excess of 5 per cent opacity.

(2) Existing Plants.

No person shall cause or allow the discharge of nitrogen oxides into the ambient air from any existing plant producing products of organic nitrations and oxidations using nitric acid to exceed 10.0 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of nitric acid (100 per cent acid basis) used in such plant.

(3) Exemption.

Rule 207(e) (1) and Rule 207(e) (2) shall not apply to any facility using less than 100 tons of nitric acid (100 per cent acid basis) annually or which produces less than 1 ton of nitrogen oxides (expressed as  $\text{NO}_2$ ) per year.

(e) Measurement Method.

Measurement of nitrogen oxides shall be according to the Phenol Disulfonic Acid Method as published in 36 Fed. Reg. 15718, Method 7.

(f) Compliance Dates.

- (1) Every owner or operator of a new emission source or of new air pollution

control equipment shall comply with the standards and limitations of Rule 207 on the effective date of Part 2 of this Chapter 3.

- (2) Except as otherwise provided in Rule 207(f) (3), every owner or operator of an existing emission source or of existing air pollution control equipment shall comply with the standards and limitations of Rule 207 on or before December 31, 1973.
- (3) Notwithstanding any other provisions of Rule 207 of this Part 2, existing coal fired fuel combustion emission sources shall comply with the standards and limitations of Rule 207 on or before December 31, 1974.

## Rule 207 . . . . Nitrogen Oxides Emission Standards and Limitations

(a) New Fuel-Combustion Emission Sources.

No person shall cause or allow the emission of nitrogen oxides into the ambient air from any new fuel-combustion emission source with a manufacturer's rated capacity equal to or greater than 250 million btu per hour to exceed the following standards and limitations:

- (1) for gas firing, 0.20 pounds per million btu of actual heat input,
- (2) for oil firing, 0.30 pounds per million btu of actual heat input,
- (3) for dual gas and oil firing, 0.30 pounds per million btu of actual heat input,
- (4) for coal firing, 0.90 pounds per million btu of actual heat input.

(b) Existing Fuel-Combustion Emission Sources in the Chicago MMA.

No person shall cause or allow the emission of nitrogen oxides into the ambient air from any existing fuel-combustion emission source with a manufacturer's rated capacity equal to or greater than 250 million btu per hour to exceed the following limitations:

- (1) for gas and/or oil firing, 0.5 pounds per million btu of actual heat input.
- (2) for coal firing, 0.9 pounds per million btu of actual heat input.

(c) Nitric Acid Manufacturing Plants.(1) New Weak-Nitric Acid Plants.

No person shall cause or allow the discharge of nitrogen oxides into the ambient air from any new weak-nitric acid manufacturing

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plant to exceed the following standards and limitations:

- A. 3.0 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis)
- B. Visible emissions in excess of 5 per cent opacity
- C. 0.1 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis) from any acid storage tank vents.

(2) No person shall cause or allow the discharge of nitrogen oxide into the ambient air from any existing weak-nitric acid manufacturing plant to exceed the following standards and limitations:

- A. 5.5 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis)
- B. Visible emissions in excess of 5 per cent opacity
- C. 0.2 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis) from any acid storage tank vents.

(3) Concentrated Nitric Acid Plants.

No person shall cause or allow the discharge of nitrogen oxides into the ambient air from any concentrated-nitric acid manufacturing plant to exceed the following standards and limitations:

- A. 3.0 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis)
- B. 225 ppm of nitrogen oxides (expressed as  $\text{NO}_2$ ) in any effluent gas stream emitted into the ambient air.
- C. Visible emissions in excess of 5 per cent opacity.

(4) Nitric Acid Concentrating Plants.

No person shall cause or allow the discharge of nitrogen oxides into the ambient air from any nitric acid concentrating plant to exceed the following limitations:

A. 3.0 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of acid produced (100 per cent acid basis)

B. Visible emissions in excess of 5 per cent opacity.

(d) Industrial Processes: General

(1) New Plants

No person shall cause or allow the discharge of nitrogen oxides into the ambient air from any new plant producing products of organic nitrations and oxidations using nitric acid to exceed the following standards and limitations:

A. 5.0 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of nitric acid (100 per cent acid basis) used in such plant.

B. Visible emissions in excess of 5 per cent opacity.

(2) Existing Plants.

No person shall cause or allow the discharge of nitrogen oxides into the ambient air from any existing plant producing products of organic nitrations and oxidations using nitric acid to exceed 10.0 pounds of nitrogen oxides (expressed as  $\text{NO}_2$ ) per ton of nitric acid (100 per cent acid basis) used in such plant.

(3) Exemption.

Rule 207(e) (1) and Rule 207(e) (2) shall not apply to any facility using less than 100 tons of nitric acid (100 per cent acid basis) annually or which produces less than 1 ton of nitrogen oxides (expressed as  $\text{NO}_2$ ) per year.

(e) Measurement Method.

Measurement of nitrogen oxides shall be according to the Phenol Disulfonic Acid Method as published in 36 Fed. Reg. 15718, Method 7.

(f) Compliance Dates.

(1) Every owner or operator of a new emission source or of new air pollution



control equipment shall comply with the standards and limitations of Rule 207 on the effective date of Part 2 of this Chapter 3.

- (2) Except as otherwise provided in Rule 207(f) (3), every owner or operator of an existing emission source or of existing air pollution control equipment shall comply with the standards and limitations of Rule 207 on or before December 31, 1973.
- (3) Notwithstanding any other provisions of Rule 207 of this Part 2, existing coal fired fuel combustion emission sources shall comply with the standards and limitations of Rule 207 on or before December 31, 1974.

Rule 208 . . . .ODORS

(a) Odorous Chemical Species

No person shall cause or allow the emission of any substance specified in Table 2.4 of this Rule 208 so as to cause an objectionable odor:

- (1) on or adjacent to residential, recreational, institutional, retail sales, hotel or educational premises. An odor on or adjacent to such premises shall be deemed objectionable if the concentration of any substance specified in Table 2.4 exceeds the odor threshold limit in Table 2.4.
- (2) on or adjacent to industrial premises. An odor on or adjacent to such premises shall be deemed objectionable if the concentration of any substance specified in Table 2.4 exceeds 1.5 times the concentration of the substance shown in Column 2 of Table 2.4,
- (3) on or adjacent to premises other than those in Rule 208(a)(1) and Rule 208(a)(2). An odor on or adjacent to such premises shall be deemed objectionable when the concentration of any substance specified in Table 2.4 exceeds 2 times the concentration of that substance shown in Column 2 of Table 2.4.

(b) Testing Method:

The concentration of any substance specified in Table 2.4 shall be determined by a recognized quantitative chemical analysis of an accuracy sufficient to produce a standard deviation of less than 20 per cent of the odor threshold limit for that substance or any other equivalent method as approved by the Agency.

(c) Inedible Rendering Plants:

No person shall cause or allow the operation of any device, machine, equipment, or other contrivance for the inedible rendering of animal or marine matter unless all gases, vapors and gas entrained effluents from such plants are treated in such manner that the odor concentra-

tion in such gases, vapors and gas entrained effluents is not greater than 120 odor units/cubic foot as determined by Mills adaptation of ASIM D-1391-57. ("Quantitative Odor Measurement," A Paper by John L. Mills, 56th Annual Meeting of the Air Pollution Control Association, in Detroit, Michigan, June 9-13, 1963).

T A B L E 2.4 ODOR THRESHOLD LIMITS

Chemical	Odor Threshold (ppm by volume)
Acetaldehyde	0.21
Acetic acid	1.0
Acetone	100.0
Acrolein	0.21
Acrylonitrile	21.4
Allyl chloride	0.47
Amine, dimethyl	0.047
Amine, monomethyl	0.021
Amine, trimethyl	0.00021
Ammonia	46.8
Aniline	1.0
Benzene	4.68
Benzyl chloride	0.047
Benzyl sulfide	0.0021
Bromine	0.047
Butyric acid	0.001
Carbon disulfide	0.21
Carbon tetrachloride (chlorination of CS <sub>2</sub> )	21.4
Carbon tetrachloride (chlorination of CH <sub>4</sub> )	100.0
Chloral	0.047
Chlorine	0.314
Dimethylacetamide	46.8
Dimethylformamide	100.0
Dimethyl sulfide	0.001
Diphenyl ether (perfume grade)	0.1
Diphenyl sulfide	0.0047

Chemical	Odor Threshold (ppm by volume)
Ethanol (synthetic)	10.0
Ethyl acrylate	0.00047
Ethyl mercaptan	0.001
Formaldehyde	1.0
Hydrochloric acid gas	10.0
Hydrogen sulfide (from Na <sub>2</sub> S)	0.0047
Hydrogen sulfide gas	0.00047
Methanol	100.0
Methyl chloride	(above 10 ppm)
Methylene chloride	214.0
Methyl ethyl ketone	10.0
Methyl isobutyl ketone	0.47
Methyl mercaptan	0.0021
Methyl methacrylate	0.21
Monochlorobenzene	0.21
Monomethylamine	0.021
Nitrobenzene	0.0047
Paracresol	0.001
Paraxylene	0.47
Perchloroethylene	4.68
Phenol	0.047
Phosgene	1.0
Propylene	0.031
Pyridine	0.021
Styrene (inhibited)	0.1
Styrene (uninhibited)	0.047

Chemical	Odor Threshold (ppm by volume)
Sulfur dichloride	0.001
Sulfur dioxide	0.47
Toluene (from coke)	4.68
Toluene (from petroleum)	2.14
Tolylene diisocyanate	2.14
Trichloroethylene	21.4

Rule 209 . . . . Open Burning

Part 2 of this Chapter 3 shall not apply to emissions from open burning,  
and such emissions shall be subject to Part 4 of this Chapter 3.