

g. Heating or preheating furnaces: 0.3 pounds of particulate matter per 1,000 pounds of gas.

h. Blast furnaces: 0.2 pounds of particulate matter per 1,000 pounds of gas.

i. Asphalt, concrete, or aggregate mix plants: 0.3 pounds of particulate matter per 1,000 pounds of gas.

j. Cement kilns: 0.2 pounds of particulate matter per 1,000 pounds of gas.

k. Lime kilns: 0.2 pounds of particulate matter per 1,000 pounds of gas.

l. Cement clinker coolers: 0.3 pounds of particulate matter per 1,000 pounds of gas.

m. Grinding, drying, mixing, conveying, sizing, or blending: 0.2 pounds of particulate matter per 1,000 pounds of gas.

n. Grain processing or handling: 0.4 pounds of particulate matter per 1,000 pounds of gas.

o. Any other process not enumerated: 0.4 pounds of particulate matter per 1,000 pounds of gas.

(4) PARTICULATE EMISSION LIMITS FOR FUEL BURNING INSTALLATIONS. No person shall cause, suffer, allow, or permit the emission of particulate matter to the ambient air from any indirect heat exchanger, power or heating plant, fuel-burning installation, or pulp recovery furnace in excess of one of the following limitations:

(a) All installations on which construction or modification is commenced after April 1, 1972 shall meet the emission limits of this paragraph.

1. Installations specified hereunder; emissions in excess of:

a. Installations of 250 million BTU per hour or less: 0.15 pounds of particulate matter per million BTU to any stack.

b. Installations of more than 250 million BTU per hour: 0.10 pounds of particulate matter per million BTU input to any stack.

(b) All installations on which construction or modification was commenced on or before April 1, 1972 shall meet the emission limits of this paragraph.

1. Installations throughout the state shall meet the following emission limits:

a. All installations: emissions determined by use of figure 2 of the ASME Standard Number APS-1 with the maximum emission irrespective of stack height of 0.60 pounds of particulate matter per million BTU input to any stack.

b. American Society of Mechanical Engineers Standard Number APS-1, Second Edition, November, 1968, copyright 1969. Copies of Standard Number APS-1 are available for inspection in the office of department of natural resources, Pyare Square Building and secretary of state and revisor of statutes, state Capitol, Madison, Wisconsin and

may be obtained for personal use from the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, N.Y. 10017.

2. Installations located in subregion 1 of the Lake Michigan Intrastate AQCR; in addition to meeting the emission limits of (4) (b) i.a. of this section, these installations shall, by July 31, 1975, meet the following emission limits:

a. All installations: emissions determined by use of figure 2 of the ASME Standard Number APS-1 with the maximum emission irrespective of stack height of 0.30 pounds of particulate matter per million BTU input to any stack.

3. Installations located in the Southeast Wisconsin Intrastate AQCR; in addition to meeting the emission limits of (4) (b) i.a. of this section by July 31, 1975, these installations shall by July 1, 1976 submit a plan and implementation schedule acceptable to the department for meeting the following requirements as expeditiously as possible:

a. Installations of 250 million BTU per hour or less (heat input of an installation shall follow ASME standard number APS-1); maximum emission defined by the equation,  $E = 0.3 - 0.0006I$  where  $I$  is heat input in millions of BTU per hour and  $E$  is maximum allowable particulate emissions in pounds per million BTU to any stack. Installations with maximum heat input less than one million BTU per hour shall not be required to meet particulate emission limits of NR 154.11 (4). Installations located in areas which have not attained ambient air quality standards may be required to install best available control technology even though best available control technology might not be required to meet the emission limits established by the above equation.

b. Installations of more than 250 million BTU per hour: maximum emission of 0.15 pounds of particulate matter per million BTU input to any stack.

(5) PARTICULATE EMISSION LIMITS FOR INCINERATORS. No person shall cause, suffer, allow, or permit particulate matter, concentrations corrected to 12% carbon dioxide, to be emitted to the ambient air from any incinerator in excess of one of the following limitations:

(a) All incinerators on which construction or modification is commenced after April 1, 1972 shall meet the emission limits of this paragraph.

1. Incinerators other than those specified in (5) (a) 2. of this section; emissions in excess of:

a. Incinerators rated at 4,000 pounds of waste per hour or more: 0.15 pounds of particulate per 1,000 pounds of exhaust gas.

b. Incinerators rated at over 500 pounds of waste per hour and less than 4,000 pounds of waste per hour: 0.20 pounds of particulate per 1,000 pounds of exhaust gas.

c. Incinerators rated at 500 pounds of waste per hour or less other than prefabricated domestic incinerators below 5 cubic feet capacity: 0.30 pounds of particulate matter per 1,000 pounds of exhaust gas.

d. Prefabricated domestic incinerators below 5 cubic feet capacity shall not exceed the performance emission requirements prescribed by the United States of America Standards Institute for domestic incinerators, standard Z21.6.

e. United States of America Standards Institute Approval Requirements for Domestic Gas-Fired Incinerators, number Z21.6, approved December 28, 1966, copyright 1967. Copies of Approval Requirements Z21.6 are available for inspection in the office of department of natural resources, Pyare Square Building, and secretary of state and revisor of statutes, State Capitol, Madison, Wisconsin and may be obtained for personal use from American Gas Association, Inc., 605 Third Avenue, New York, N.Y. 10016.

2. Sewage treatment plant sludge and grit incinerators on which construction or modification is commenced after February 1, 1975; emissions shall not exceed 1.30 pounds per ton of dry sludge or grit input (0.65 grams per kilogram of dry sludge or grit input).

(b) All incinerators on which construction or modification was commenced on or before April 1, 1972 shall meet the emission limits of this paragraph.

1. Incinerators located throughout the state; emissions in excess of:

a. Incinerators rated at over 500 pounds of waste per hour: 0.50 pounds of particulate per 1,000 pounds of exhaust gas.

b. Incinerators rated at 500 pounds of waste per hour or less: 0.60 pounds of particulate per 1,000 pounds of exhaust gas.

2. Incinerators located in subregion 1 of the Lake Michigan Intrastate AQCR or in the Southeast Wisconsin Intrastate AQCR; in addition to meeting the emission limits of (5) (b) 1. of this section these incinerators shall, by July 31, 1975, meet the following emission limits:

a. Incinerators of 5 cubic feet capacity or more: 0.30 pounds of particulate per 1,000 pounds of exhaust gas.

b. Prefabricated domestic incinerators below 5 cubic feet capacity shall not exceed the performance emission requirements prescribed by the United States of America Standards Institute for domestic incinerators, standard Z21.6.

(6) VISIBLE EMISSIONS. No person shall cause, suffer, allow, or permit emissions into the ambient air from any direct or portable source in excess of one of the following limitations: Where the presence of uncombined water is the only reason for failure to meet the requirements of this subsection, such failure shall not be a violation of this section.

(a) All direct and portable sources on which construction or modification is commenced after April 1, 1972 shall meet the emission limits of this paragraph. In addition, all direct and portable sources located in subregion 1 of the Lake Michigan Intrastate AQCR or in the Southeast Wisconsin Intrastate AQCR on which construction or modification was commenced on or before April 1, 1972 shall, by July 31, 1975, meet the emission limits of this paragraph.

1. Direct or portable sources other than those specified in (6) (a) 2. of this section; emissions of shade or density greater than number 1 of the Ringelmann chart or 20 percent opacity with the following exceptions:

a. When combustion equipment is being cleaned or a new fire started, emissions not to exceed number 4 of the Ringelmann chart or 80 % opacity for 5 minutes in any one hour. Combustion equipment may not be cleaned nor a fire started more than 3 times per day.

b. For stated periods of time, as permitted by the department, for such purpose as operating test, use of emergency or reserve equipment, or other good cause, provided no hazard or unsafe condition arises.

c. For direct or portable sources in operation on or before February 1, 1975, where performance test data taken concurrently with Ringelmann or opacity readings show the source to be in compliance with the emission limits but not the Ringelmann or opacity limits. In this case, Ringelmann or opacity limits shall be set at 0.5 Ringelmann or 10 % opacity above the average read during the stack test.

2. Direct or portable sources specified hereunder on which construction or modification is commenced after February 1, 1975; emissions of shade or density greater than:

a. Asphalt concrete plants (any combination of the following: dryers; systems for screening, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; systems for mixing asphalt concrete; and the loading, transfer, and storage systems associated with emission control systems): 20 percent opacity.

b. Petroleum refineries (fluid catalytic cracking unit catalyst regenerators and fluid catalytic cracking unit incinerator-waste heat boilers): 30 percent opacity, except for 3 minutes in any one hour.

c. Secondary lead smelters:

i. Blast or cupola furnaces and reverberatory furnaces: 20 percent opacity.

ii. Pot furnaces of more than 550 pounds (250 kilograms) charging capacity: 10 percent opacity.

d. Secondary brass and bronze ingot production plants:

i. Reverberatory furnaces of 2,205 pounds per hour (1,000 kilograms per hour) or greater production capacity: 20% opacity.

ii. Electric furnaces of 2,205 pounds per hour (1,000 kilograms per hour) or greater production capacity and blast or cupola furnaces of 550 pounds per hour (250 kilograms per hour) or greater production capacity: 10% opacity.

e. Sewage treatment plants (sewage sludge and grit incinerators): 20 percent opacity.

(b) All direct and portable sources on which construction or modification was commenced on or before April 1, 1972 shall meet the emission limits of this paragraph. Direct and portable sources located in subregion 1 of the Lake Michigan Intrastate AQCR or in the

Southeast Wisconsin Intrastate AQCR shall also meet the requirements of subsection (6) (a) of this section.

1. All direct or portable sources; emissions of shade or density equal to or greater than number 2 of the Ringelmann chart or 40% opacity. Exceptions listed in (6) (a) 1. of this section shall apply.

**History:** Cr. Register, March, 1972, No. 195, eff. 4-1-72; r. and recr. (3) to (6), r. (7), Register, June, 1975, No. 234, eff. 7-1-75; emerg. am. (4) (b) 3, eff. 12-3-75; am. (4) (a) 1. a. and (4) (b) 3. (intro.) r. and recr. (4) (b) 3. a., Register, April, 1976, No. 244, eff. 5-1-76.

**NR 154.12 Control of sulfur emissions.** (1) **GENERAL LIMITATIONS.** No person shall cause, suffer, allow, or permit emission of sulfur or sulfur compounds into the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution. The limitation on sulfur content of stand-by fuel is specified in section NR 154.16 and the limitation on total reduced sulfur from pulping operations is specified in section NR 154.18 (2).

(2) **SULFUR LIMITATIONS.** No person shall cause, suffer, allow, or permit sulfur dioxide to be emitted to the ambient air in amounts greater than:

(a) New or modified fossil fuel-fired steam generators rated at over 250 million BTU per hour:

1. Firing of liquid fossil fuel: 0.80 pounds of SO<sub>2</sub> per million BTU input.

2. Firing of solid fossil fuel: 1.2 pounds of SO<sub>2</sub> per million BTU input.

(b) New or modified sulfuric acid plants other than those utilized primarily as a means of preventing emission to the ambient air of sulfur dioxide or other sulfur compounds: 4.0 pounds of SO<sub>2</sub> per ton of acid produced.

(c) In the Southeast Wisconsin Intrastate AQCR installations of 250 million BTU per hour or less (heat input of an installation shall follow ASME standard number APS-1) in addition to meeting the emission limits of section NR 154.11(4) Wis. Adm. Code, shall not burn coal with a sulphur content exceeding 1.11 pounds per million BTU in the coal.

(3) **PETROLEUM REFINERIES.** No person shall cause, suffer, allow or permit the release into the atmosphere or the burning of any fuel gas in an incinerator-waste heat boiler or process heater which contains greater than 0.10 grains of hydrogen sulfide (H<sub>2</sub>S) per dry cubic foot at standard conditions (0.23 grams per dry cubic meter at standard conditions) unless the gases resulting from combustion are treated in a manner which prevents the release of sulfur dioxide to the atmosphere as effectively as controlling the concentration of H<sub>2</sub>S in the fuel gas being burned.

**History:** Cr. Register, March, 1972, No. 195, eff. 4-1-72; cr. (3), Register, June, 1975, No. 234, eff. 7-1-75; cr. (2) (c), Register, April, 1976, No. 244, eff. 5-1-76.

**NR 154.13 Control of organic compound emissions.** (1) **GENERAL LIMITATIONS.** No person shall cause, suffer, allow or permit organic

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compound emissions into the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution.

(2) STORAGE OF PETROLEUM LIQUIDS. (a) The storage, monitoring and maintenance requirements of subsections (2) (b), (c) and (d) of this section shall apply to all new or modified storage vessels for petroleum liquids of more than 40,000-gallon (151,412 liter) capacity, with the exception of:

1. Storage vessels for the crude petroleum or condensate stored, processed and/or treated at a drilling and production facility outside a Standard Metropolitan Statistical Area prior to custody transfer.

2. Pressure vessels which are designed to operate at pressures in excess of 15 pounds per square inch gauge without emissions into the atmosphere except under emergency conditions.

3. Subsurface caverns or porous rock reservoirs.

4. Underground tanks if the total volume of petroleum liquids added to and taken from a tank annually does not exceed twice the volume of the tank.

(b) Storage requirements. The owner or operator of any storage vessel to which this section applies shall store petroleum liquids as follows:

1. If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 1.5 pounds per square inch absolute (78 millimeters of mercury) but not greater than 11.1 pounds per square inch absolute (570 millimeters of mercury), the storage vessel shall be equipped with a floating roof, a vapor recovery system or their equivalents.

2. If the true vapor pressure of the petroleum liquid, as stored, is greater than 11.1 pounds per square inch absolute (570 millimeters of mercury), the storage vessel shall be equipped with a vapor recovery system or its equivalent.

(c) Monitoring requirements. 1. The owner or operator of any storage vessel to which this section applies shall, for each such storage vessel, maintain a file of each type of petroleum liquid stored, the typical Reid vapor pressure of each type of petroleum liquid stored and the dates of storage. Dates on which the storage vessel is empty shall be indicated.

2. The owner or operator of any storage vessel to which this section applies shall, for each such storage vessel, determine and record the average monthly storage temperature and true vapor pressure of the petroleum liquid stored at such temperature if:

a. The petroleum liquid has a true vapor pressure, as stored, greater than 0.5 pounds per square inch absolute (26 millimeters of mercury) but less than 1.5 pounds per square inch absolute (78 millimeters of mercury) and is stored in a vessel other than one equipped with a floating roof, a vapor recovery system or their equivalents; or

b. The petroleum liquid has a true vapor pressure, as stored, greater than 9.1 pounds per square inch absolute (470 millimeters of

mercury) and is stored in a storage vessel other than one equipped with a vapor recovery system or its equivalent.

3. The average monthly storage temperature is an arithmetic average calculated for each calendar month, or portion thereof if storage is for less than a month, from bulk liquid storage temperatures determined at least once every 7 days.

4. The true vapor pressure shall be determined by the procedures in API Bulletin 2517. This procedure is dependent upon determination of the storage temperature and the Reid vapor pressure, which requires sampling of the petroleum liquids in the storage vessels. Unless the department requires in specific cases that the stored petroleum liquid be sampled, the true vapor pressure may be determined by using the average monthly storage temperature and the typical Reid vapor pressure. For those liquids for which certified specifications limiting the Reid vapor pressure exist, that Reid vapor pressure may be used. For other liquids, supporting analytical data must be made available on request to the department when typical Reid vapor pressure is used.

(cm) American Petroleum Institute, Bulletin 2517 *Evaporation Loss from Floating Roof Tanks*, February, 1962. Copies of Bulletin 2517, *Evaporation Loss from Floating Roof Tanks* are available for inspection in the office of the department of natural resources, Pyare Square Building and secretary of state and revisor of statutes, State Capitol, Madison, Wisconsin, and may be obtained for personal use

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