

*Environmental  
Protection*

DEPARTMENT OF NATURAL RESOURCES 620-5  
NR 154

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; am. (4) (a), Register, November, 1976, No. 251, eff. 12-1-76; r. and recr. (1) to (4), Register, September, 1979, No. 285, eff. 10-1-79.

**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.

(5) **MADISON RACT SULFUR LIMITATIONS.** (a) No person shall cause, allow or permit sulfur dioxide to be emitted to the ambient air within the geographical boundaries of the city of Madison, Dane county, from any direct source on which construction or modification was commenced prior to November 1, 1979 in amounts greater than:

1. Any fossil fuel fired steam generating boiler rated at more than 25 million BTU heat input per hour but less than 100 million BTU heat input per hour firing solid fossil fuel or solid fossil fuel in combination

with solid, liquid or gaseous fuels: 7.0 pounds of sulfur dioxide per million BTU heat input.

2. Any fossil fuel fired steam generating boiler rated at equal to or greater than 100 million BTU heat input per hour firing solid fossil fuel or solid fossil fuel in combination with solid, liquid or gaseous fuels:

a. Any electrical utility boiler: 4.25 pounds of sulfur dioxide per million BTU heat input.

b. Any other boiler:

1) Height above ground of emission point of less than 180 feet: 2.5 pounds of sulfur dioxide per million BTU heat input.

2) Height above ground of emission point of 180 to 220 feet: X pounds of sulfur dioxide per million BTU heat input, where  $X=10 [0.0089 (\text{Emission Point Height}) - 1.18]$ .

3) Height above ground of emission point of more than 220 feet: 5.8 pounds of sulfur dioxide per million BTU heat input.

3. Any fossil fuel fired steam generating boiler rated at more than 25 million BTU heat input per hour firing liquid fossil fuel or liquid fossil fuel in combination with liquid or gaseous fuels:

a. Distillate fuel oil: that occurring from firing a distillate fuel oil with a sulfur content equal to or less than 0.5% by weight.

b. Residual fuel oil: that occurring from firing a residual fuel oil with a sulfur content equal to or less than 1.1% sulfur by weight.

(b) When a source is subject to the emission limitations of par. (a), the owner or operator shall not exceed the following increments of progress in achieving compliance, commencing with the nonattainment determination under NR 154.03 (1):

1. Submit plans for achieving compliance within 6 months.

2. Award any necessary contracts within 9 months.

3. Where physical alteration of the source is necessary to achieve compliance, commence construction within 12 months and complete construction within 30 months.

4. Where only fuel modification or switching is necessary to achieve compliance, commence operation using new fuel within 21 months.

5. Achieve final compliance with the applicable emission limitations and so certify to the department within 3 months of completion of construction or commencement of operation using new fuel.

6. Notwithstanding the increments of progress specified in this paragraph, all boilers to which par. (a) applies shall achieve final compliance and so certify to the department on or before December 31, 1982.

**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; cr. (5), Register, November, 1979, No. 287, eff. 12-1-79.

Register, November, 1979, No. 287  
Environmental Protection

**NR 154.13 Control of organic compound emissions.** (1) **GENERAL LIMITATIONS.** (a) No person shall cause, allow or permit organic compound emissions into the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution.

(b) No person shall cause, allow or permit organic compounds to be used or handled without using good operating practices and taking reasonable precautions to prevent the spillage, escape or emission of organic compounds, solvents or mixtures. Such precautions shall include, but are not limited to:

1. Use of caution to prevent spillage or leakage when filling tanks, trucks or trailers.
2. Use of caution when filling automobile tanks to prevent spillage.

(c) Disposal of volatile organic compound wastes. 1. Effective July\* 1, [August 1,] 1979, no person shall cause, allow, or permit the disposal of more than 5.7 liters (1.5 gallons) of any liquid volatile organic compound waste, or of any liquid, semisolid or solid waste materials containing more than 5.7 liters (1.5 gallons) of any volatile organic compounds, in any one day from a facility in a manner that would permit their evaporation into the ambient air during the ozone season. This includes, but is not limited to, the disposal of volatile organic compounds which must be removed from volatile organic compound control devices as so to maintain the control devices at their required operating efficiency.

2. Disposal during the ozone season shall be by methods approved by the department, such as incineration, recovery for reuse, or transfer in closed containers to an acceptable disposal facility, such that the quantity of volatile organic compounds which evaporates into the ambient air does not exceed 15% (by weight) or 5.7 liters (1.5 gallons) in any one day, whichever is larger.

(2) **STORAGE OF ORGANIC COMPOUNDS.** (a) Storage of petroleum liquids. 1. Applicability. a. The storage, monitoring and maintenance requirements of subs. (2) (a) 2, 3 and 4 of this section apply to all storage vessels for petroleum liquids of more than 151,412 liter (40,000 gallon) capacity on which construction or modification is commenced after July 1, 1975, with the exception of:

1) Storage vessels being used for number 2 through number 6 fuel oils as specified in ASTM-D-396-73, gas turbine fuel oils numbers 2-GT through 4-GT as specified in ASTM-D-2880-71, or diesel fuel oils numbers 2-D and 4-D as specified in ASTM-D975-73.

**Note:** See American Society for Testing and Materials, Part 17, 1973. Copies of applicable standards from Part 17; Petroleum Products - Fuels, Solvents, Burner Fuel Oils, Lubricating Oils, Cutting Oils, Lubricating Greases, Hydraulic Fluids; are available for inspection at the offices of the department of natural resources, secretary of state and revisor of statutes, Madison, Wisconsin, and may be obtained for personal use from ASTM, 1916 Race Street, Philadelphia, PA 19103.

2) 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.

3) Pressure vessels which are designed to operate at pressures in excess of 104 kilo Pascals (15 pounds per square inch gauge) without emissions except under emergency conditions.

4) Subsurface caverns or porous rock reservoirs.

5) 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. Effective July 1, 1980, the maintenance requirements of subd. (2) (a) 4. apply to all storage vessels for petroleum liquids of more than 7,571 liter (2,000 gallon) capacity.

c. Effective July\* 1, [August 1,] subd. (2) (a) 5 applies, subject to the provisions of sub. (9), to all fixed roof storage vessels with capacities greater than 151,412 liters (40,000 gallons) with the exception of those having capacities less than 1,600,000 liters (416,000 gallons) used to store crude petroleum and condensate prior to custody transfer.

2. Storage requirements. The owner or operator of any storage vessel to which this subdivision applies shall store petroleum liquids as follows:

a. If the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than 10.5 kilo Pascals (1.52 pounds per square inch absolute) but not greater than 77 kilo Pascals (11.1 pounds per square inch absolute), the storage vessel shall be equipped with a floating roof, a vapor recovery system or their equivalents.

b. If the true vapor pressure of the petroleum liquid, as stored, is greater than 77 kilo Pascals (11.1 pounds per square inch absolute) the storage vessel shall be equipped with a vapor recovery system or its equivalent.

3. Monitoring requirements. a. The owner or operator of any storage vessel to which this subdivision 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.

b. The owner or operator of any storage vessel to which this subdivision 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:

1) The petroleum liquid has a true vapor pressure, as stored, greater than 3.5 kilo Pascals (0.51 pounds per square inch absolute) but less than 10.5 kilo Pascals (1.52 pounds per square inch absolute) and is stored in a vessel other than one equipped with a floating roof, a vapor recovery system or their equivalents; or

2) The petroleum liquid has a true vapor pressure, as stored, greater than 63 kilo Pascals (9.1 pounds per square inch absolute) and is stored in a storage vessel other than one equipped with a vapor recovery system or its equivalent.

c. 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 shall be made available on request to the department when typical Reid vapor pressure is used.

*Note:* See American Petroleum Institute, Bulletin 2517 *Evaporation Loss from Floating Roof Tanks*, February, 1962. Copies of *Evaporation Loss from Floating Roof Tanks* are available for inspection in the offices of the department of natural resources, secretary of state and revisor of statutes, Madison, Wisconsin, and may be obtained for personal use from the American Petroleum Institute, 1801 K. Street, N.W., Washington, D. C. 20006.

4. Maintenance requirements. No person shall place, hold or store in a storage vessel any petroleum liquid which has a true vapor pressure as stored greater than 10.5 kilo Pascals (1.52 pounds per square inch absolute) unless:

a. Any tank surface exposed to the rays of the sun is painted and maintained white so as to prevent excessive temperature and vapor pressure increases; and

b. The seals of any floating roof are maintained so as to minimize emissions; and

c. All gauging and sampling devices are vapor-tight except when gauging or sampling is taking place.

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