# Chapter NR 154

# AIR POLLUTION CONTROL



**History:** Chapter NR 154 as it existed on March 31, 1972 was repealed and a new chapter NR 154 was created, Register, March, 1972, No. 195, effective April 1, 1972.

FOREWORD

Chapter 144, Wis. Stats., directs the department of natural resources to organize a comprehensive program to enhance the quality, management, and protection of the state's air resources. These rules are one part of that program. Chapter 144 also stresses the role of county government in establishing local air pollution control programs in cooperation with the department.

The objectives of these rules are to maintain standards of air quality at a level which will provide adequate protection to public health and welfare, and to prevent detrimental effect on property and our environment.

Nothing in these rules or in chapter 144, Wis. Stats., prohibits a county or local jurisdiction from adopting more restrictive ordinances where local conditions indicate their need.

These rules, all or in part, may be adopted by reference by a county or municipality.

It shall be the policy of the department to seek reasonable uniformity among local air pollution control ordinances in order to make the statewide comprehensive program more effective and less complicated for all persons concerned.

These rules are subject to periodic revision to reflect advancing control technology, increasing knowledge of the effect on health of sub-acute long term exposure to air pollutants and increased knowledge of the effect of pollutants on plant life, animal life, soils, and water resources.

**NR 154.01 Definitions.** (1) Affected facility is any type or class of air contaminant source which is required to submit a notice of intent and plans and specifications to the department prior to construction.

(2) Air contaminant is dust, fumes, mist, liquid, smoke, other particulate matter, vapor, gas, odorous substances, or any combination thereof but not including uncombined water vapor.

(3) Air contaminant source is any facility, building, structure, equipment, vehicle, or action or combination therein which directly or indirectly results in the emission of any air contaminant.

(a) Stationary source is any facility, building, structure, installation, or action or combination therein which directly or

indirectly results in the emission of any air contaminant at a fixed location.

1. Direct source is any stationary source which directly results in the emission of any air contaminant at a fixed location. (e.g., building demolition, foundry, grain elevator, gravel or stone quarry, paper mill, power plant, etc.)

2. Indirect source is any stationary source which conveys motor vehicles or which attracts or may attract mobile source activity and thus indirectly causes the emission of any air contaminant. Such indirect sources include, but are not limited to:

a. Highways and roads.

b. Parking facilities.

c. Retail, commercial and industrial facilities.

d. Recreation, amusement, sports and entertainment facilities.

e. Airports.

f. Office and government buildings.

g. Apartment and condominium buildings.

h. Education facilities.

(b) Portable source is any facility, installation, operation or equipment which directly results in the emission of any air contaminant while at a fixed location but is capable of being transported to a different location. (e.g., portable asphalt plant, portable package boiler, portable air curtain destructor, etc.) A modified portable source or a source which has never received a plan approval shall be considered a direct stationary source for the purpose of initial department approval of the source pursuant to sections NR 154.04 and NR 154.05.

(c) Semistationary source is any facility, installation, operation or equipment that has the capability of emitting any air contaminant while moving, but generally does not emit while moving. (e.g., diesel cranes, air compressors and electric generators such as those used at construction sites, etc.)

(d) Mobile source is any motor vehicle or equipment which is capable of emitting any air contaminant while moving. (e.g., automobile, bulldozer, bus, locomotive, motorboat, motorcycle, snowmobile, steamship, truck, etc.)

(4) Aircraft operation is a landing or a takeoff.

(5) Air curtain destructor is an incineration device which utilizes a pit for burning combustible matter, into which air is blown at high velocity through a manifold and nozzle system along one side of the pit to create a turbulent, vortical flow of air combustible gases in the pit to bring about complete combustion.

(6) Air pollution is the presence in the atmosphere of one or more air contaminants in such quantities and of such duration as is or tends to be injurious to human health or welfare, animal or plant life, or

property, or would unreasonably interfere with the enjoyment of life or property.

(7) Air pollution episode levels: Levels of air quality which are so degraded as to pose imminent danger to public health.

(a) "Alert": The alert level is that concentration of one or more air contaminants at which the first stage control actions begin.

(b) "Warning": The warning level indicates air quality is continuing to degrade and that additional control actions are necessary.

(c) "Emergency": The emergency level indicates that air quality is continuing to degrade to a level that should never be reached and that the most stringent control actions are necessary.

(8) AQCR: Air quality control region.

(9) Air quality maintenance area: An area designated pursuant to federal or Wisconsin laws as having the potential for exceeding any of the ambient air quality standards.

(10) Air region: An area designated pursuant to federal or Wisconsin laws in which a program to maintain or achieve air standards is implemented on a regional basis.

(11) Ambient air: The portion of the atmosphere external to buildings and to which the general public has access.

(12) API: American Petroleum Institute, 1801 K Street, N.W., Washington, D.C., 20006.

(13) ASME: American Society of Mechanical Engineers, 345 E. 47th Street, New York, New York.

(14) ASTM: American Society for Testing and Materials, 1916 Race St., Philadelphia, Pa., 19103.

(15) Areawide air quality analysis: A macroscale analysis utilizing a modeling technique approved by the department.

(16) Asbestos mill: Any facility engaged in the conversion or any intermediate step in the conversion of asbestos ore into commercial asbestos. Outside storage of asbestos materials is not considered a part of such a facility.

(17) Asbestos tailings: Any solid waste product of asbestos mining or milling operations which contain asbestos.

(18) Associated parking area: A parking facility or facilities owned and/or operated in conjunction with an indirect source.

(19) Average daily traffic: The total traffic volume during a given time period in whole days greater than one day and less than one year divided by the number of days in that time period. The average daily traffic is commonly abbreviated as ADT.

(20) BTU: British thermal unit.

(21) Commence construction: To engage in a program of on-site construction, including site clearance, grading, dredging or landfilling specifically designed for a stationary source in preparation for the

fabrication, erection or installation of the building components of the stationary source. (Formerly NR 154.01 (8)).

(22) Commence modification: To engage in a program of on-site modification which may include site clearance, grading, dredging or landfilling in preparation for a specific modification of a stationary source.

(23) Commercial asbestos: Any variety of asbestos which is produced by extracting asbestos from asbestos ore.

(24) Crude petroleum: A naturally occuring mixture which consists of hydrocarbons and/or sulfur, nitrogen and/or oxygen derivatives of hydrocarbons and which is a liquid at standard conditions.

(25) Department: The department of natural resources, state of Wisconsin.

(26) Dose: The total exposure to a pollutant over a specified time period.

$$\text{Dose} = \int_{T_1}^{T_2} C\,dT$$

where $T_1$ is the starting time, $T_2$ the end of the time period and C is the pollutant concentration which varies with time, $C = f(T)$.

(27) Emergency or reserve equipment: That equipment used when normal equipment fails, or used only to meet high peak loads.

(28) Emission: A release of air contaminants into the atmosphere.

(29) Equivalent air-dried kraft pulp: Pulp production which produces a loading of black liquor solids to the recovery furnace equivalent to that loading produced with kraft pulp.

(30) Equivalent opacity: An opacity of 20 percent per Ringlemann number.

(31) Floating roof: A storage vessel cover consisting of a double deck, a pontoon single deck, an internal floating cover or covered floating roof, which rests upon and is supported by the petroleum liquid being contained, and is equipped with a closure seal or seals to seal the space between the roof edge and tank wall.

(32) Fuel gas: Any gas which is generated by a petroleum refinery process unit and which is combusted, including any gaseous mixture of natural gas and fuel gas which is combusted.

(33) Fugitive dust: Solid airborne particles emitted from any source other than a flue or stack.

(34) Highway project: All or a portion of a proposed new or modified section of highway. Where an environmental statement is to be prepared, the highway project may be taken to cover the same length of highway.

(35) Hydrocarbon: Any organic compound containing carbon and hydrogen.

(36) Implementation plan: A plan adopted to implement, maintain, and enforce air standards within an air region, or portion thereof.

(37) Kraft process: Any pulping process which uses an alkaline sulfide solution containing sodium hydroxide and sodium sulfide for a cooking liquor.

(38) Modification: Any change in physical size or method of operation of a stationary or portable source which increases the amount of any air contaminant emitted except that:

(a) Routine maintenance and repair shall not be considered physical changes.

(b) The following shall not be considered changes in method of operation unless an ambient air quality standard is violated:

1. An increase in production rate if such increase does not exceed the operating design capacity of the stationary source.

2. An increase in the hours of operation.

3. Use of an alternate fuel or raw material.

4. Resumption of operation of existing equipment after a period of closure.

(39) New direct or portable source: A direct or portable source, the construction or modification of which is commenced after April 1, 1972, or the effective date of promulgation of an emission limit which applies.

(40) New indirect source: An indirect source, the construction or modification of which is commenced after July 1, 1975.

(41) Noncondensibles: Gases and vapors from processes that are not condensed with the equipment used in those processes.

(42) Opacity: The state of a substance which renders it partially or wholly impervious to rays of light.

(43) Open burning: Oxidation from which the products of combustion are emitted directly into the ambient air without passing through a stack or chimney.

(44) Organic compound: A compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates, ammonium carbonate and methane.

(45) Parking capacity: The maximum number of vehicles which a parking facility is designed to hold based on an allotment of not more than 350 square feet of stall and aisle area per vehicle.

(46) Particulate or particulate matter:

(a) For an existing direct or portable source: Any material which exists as a solid at standard conditions.

(b) For a new direct or portable source: Any material which exists as a solid or liquid at standard conditions except uncombined water.

(47) Parts per million (ppm): Parts of a contaminant per million parts of gas by volume.

(48) Peak hour volume: The highest one-hour traffic volume in a calendar year.

(49) Performance test: Measurements of emissions or other procedures used for the purpose of determining compliance with a standard of performance.

(50) Person: Any individual, corporation, cooperative, owner, tenant, lessee, syndicate, partnership, firm, association, trust, estate, public or private institution, political subdivision of the state of Wisconsin, any state agency, or any legal successor, representative, agent, or agency of the foregoing.

(51) Petroleum: The crude oil removed from the earth and the oils derived from tar sands, shale and coal.

(52) Petroleum liquid: Crude petroleum, condensate and any finished or intermediate products manufactured in a petroleum refinery except for Number 2 through Number 6 fuel oils as specified in ASTM-D-396-73[1], gas turbine fuel oils Numbers 2-GT through 4-GT as specified in ASTM-D-2880-71[1], or diesel fuel oils Numbers 2-D and 4-D as specified in ASTM-D975-73[1].

(53) Petroleum refinery: Any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants or other products through distillation of petroleum or through redistillation, cracking or reforming of unfinished petroleum derivatives.

(54) Process gas: Any gas generated by a petroleum refinery process unit except fuel gas and process upset gas as defined in this section.

(55) Process line: One or more actions or unit operations which must function simultaneously in order to manufacture or modify a product. (e.g., a spray booth, conveyor and drying oven are considered a process line.)

(56) Process upset gas: Any gas generated by a petroleum refinery process unit as a result of start-up, shut-down, upset or malfunction.

(57) Process weight: The total weight of all materials introduced into any direct source operation, except liquid fuels, gaseous fuels and air.

(58) Refinery process unit: Any segment of petroleum refinery in which a specific processing operation is conducted.

(59) Reid vapor pressure: The absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids except liquified petroleum gases as determined by ASTM-D-323-72[1].

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[1]American Society for Testing and Materials, Part 17, 1973.

Note: 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, Pyare Square Building, Secretary of State and Revisor of Statutes, State Capitol, Madison, Wisconsin, and may be procured for personal use from ASTM, 1916 Race Street, Philadelphia, Pa., 19103.

[2]Ringelmann Chart published December, 1950, by the U.S. Bureau of Mines.

Note: Copies of "Fundamentals of Smoke Abatement," December, 1950, Ringelmann Chart, Information Circular 7588, are available for inspection at the offices of Department of Natural Resources, Pyare Square Building, and Secretary of State and Revisor of Statutes, State Capitol, Madison, Wisconsin, and may be procured for personal use from the United States Department of Interior, Washington, D.C.

(60) Ringelmann Chart: The chart published by the U.S. bureau of mines in which are illustrated graduated shades of grey to black for use in estimating the shade or density of smoke.[2]

(61) Secretary: The secretary of the department of natural resources, state of Wisconsin.

(62) Smoke: All products of combustion of sufficient density to be observable, including but not limited to carbon, dust, fly ash, and other particles.

(63) Stack: Any device or opening designed or used to emit air contaminants to the ambient air.

(64) Standard conditions: A temperature of 20° Celsius (centigrade) (68°F) and a pressure of 760 millimeters of mercury (29.92 inches of mercury).

(65) Standard Metropolitan Statistical Area (SMSA): Such area as designated by the U.S. bureau of the budget in the following publication: "Standard Metropolitan Statistical Areas,"[3] issued in 1967, with subsequent amendments. The following Wisconsin counties are included in SMSA's:

(a) Appleton-Oshkosh, Wisconsin SMSA:

1. Calumet county

2. Outagamie county

3. Winnebago county

(b) Duluth-Superior, Minnesota-Wisconsin SMSA: Douglas county

(c) Green Bay, Wisconsin SMSA: Brown county

(d) Kenosha, Wisconsin SMSA: Kenosha county

(e) La Crosse, Wisconsin SMSA: La Crosse county

(f) Madison, Wisconsin SMSA: Dane county

(g) Milwaukee, Wisconsin SMSA:

1. Milwaukee county

2. Ozaukee county

3. Washington county

4. Waukesha county

(h) Minneapolis-St. Paul, Minnesota-Wisconsin SMSA: St. Croix county

(i) Racine, Wisconsin SMSA: Racine county

[3]Specified in Federal Information Processing Standards, Publication 8-2, U.S. Department of Commerce, National Bureau of Standards, November, 1972, as amended by publication OMB-64 of the Executive Office of the President, Office of Management and Budget, April 27, 1973.

Note: Copies of Federal Information Processing Standards Publication 8-2 are available for inspection in the office of the Department of Natural Resources, Pyare Square Building and the Secretary of State and Revisor of Statutes, Capitol, Madison, Wisconsin, or may be obtained for personal use from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

(66) Total reduced sulfur (TRS): Hydrogen sulfide, mercaptans, dimethyl disulfide, and any other organic sulfides.

(67) Traffic volume: The number of vehicles that pass a particular point on the roadway during a specific time period. Volume can be expressed in terms of daily traffic or annual traffic as well as on an hourly basis.

(68) True vapor pressure: The equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods described in American Petroleum Institute Bulletin 2517, *Evaporation Loss from Floating Roof Tanks,* 1962.

(69) Uncombined water: Water not chemically or physically bound to other materials.

(70) Vapor recovery system: A vapor gathering system capable of collecting all types of hydrocarbon vapors and gases discharged and a vapor disposal system capable of processing such hydrocarbon vapors and gases so as to prevent their emission into the atmosphere.

**History:** Cr. Register, March, 1972, No. 195, eff. 4-1-72, renum. (41) (a) 6 to be (41) (c); am. (41) (c) 3. and 4., Register, December, 1972, No. 204, eff. 1-1-73; r. and recr., Register, June, 1975, No. 234, eff. 7-1-75; renum. (3) (b) and (c) to be (3) (c) and (d), renum. (3) (a) 3. to be (3) (b) and am., am. (38) (intro.), Register, April, 1977, No. 256, eff. 5-1-77.

**NR 154.02 Applicability.** (1) The provisions of this chapter govern the release of air contaminants to the ambient air and the regulation of air contaminant sources by the department.

(2) The department may by order issued under section 144.35 (1) (b), Wis. Stats., authorize compliance with an emission limitation prescribed in this chapter after July 31, 1975, to expire on the date stated in the order, if it determines that NR 154.09 (1) Wis. Adm. Code applies and that all the conditions listed in such rule and hereunder are met. The department shall hold a public hearing in accordance with its rules prior to granting any such deferral which exceeds 90 days in total duration and shall not, without the express approval of a majority of the natural resources board, grant any deferral which exceeds one year in total duration. Prior to authorizing any such deferral, the department shall determine:

(a) The cause of the violation was a mechanical breakdown, act of God, or some other condition beyond the entity's control;

(b) The air contaminant source is located so that it will not delay attainment or affect maintenance of an ambient air quality standard at any point beyond the property line of the entity;

(c) Good faith efforts have been made to comply with this chapter and the cause of noncompliance could not have been forestalled by normal maintenance procedures (including advanced purchase of inventory and replacement parts);

(d) If the source is a new source, the cause of the violation was a mechanical breakdown or act of God which was demonstrably beyond the entity's control when using all prudent planning;

(e) The air contaminant for which a deferral is sought is not a hazardous pollutant for which an emission standard has been

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; am. (4) (a), Register, November, 1976, No. 251, eff. 12-1-76.

**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 $SO_2$ per million BTU input.

2. Firing of solid fossil fuel: 1.2 pounds of $SO_2$ 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 $SO_2$ 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 ($H_2S$) 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 $H_2S$ 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 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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from the American Petroleum Institute, 1801 K Street, N.W., Washington, D.C. 20006.

(d) Maintenance requirements. No person shall place, hold or store in a storage vessel any petroleum liquid which has a vapor pressure under storage conditions in excess of 1.5 pounds per square inch absolute, unless:

1. It is painted and maintained so as to prevent excessive temperature and vapor pressure increases.

2. The seals of any floating roof are maintained so as to minimize emissions, and

3. All gaging and sampling devices are gas-tight except when gaging or sampling are taking place.

(3) PHOTOCHEMICALLY REACTIVE ORGANIC SUBSTANCES. (a) An organic compound shall be considered reactive if it is included in any of the following 3 groups:

1. Group A: Hydrocarbons, alcohols, aldehydes, esters, ethers or ketones, which have olefinic or cyclo-olefinic type unsaturation.

2. Group B: Aromatic compounds with 8 or more carbon atoms to the molecule, except ethylbenzene.

3. Group C: Ethylbenzene, toluene, or ketones having branched hydrocarbon structures.

(b) A solvent or mixture of organic compounds shall be considered reactive if any of the following conditions are met:

1. More than 20% of the total volume is composed of any combination of compounds listed in Groups A, B or C in NR 154.13(3)(a).

2. More than 5% of the total volume is composed of any combination of the compounds listed in Group A in NR 154.13(3)(a).

3. More than 8% of the total volume is composed of any combination listed in Group B in NR 154.13(3)(a).

(4) CONTROL OF PHOTOCHEMICALLY REACTIVE ORGANIC SUBSTANCES. In the Southeast Wisconsin Intrastate AQCR or for any new or modified direct source throughout the state, control of reactive organic substance emissions shall include, but is not limited to, the precautions listed in this subsection. Compliance with the limitations in this subsection shall not preclude any source from conformance with any and all limitations in NR 154.13.

(a) When storing, handling or transporting photochemically reactive organic compounds, solvents or mixtures having a vapor pressure greater than 1.5 psia at 70°F, the following limitations shall apply:

1. On storage tanks having greater than 40,000-gallon capacity, floating roofs, vapor condensation systems, vapor holding tanks or similar controls shall be used.

2. On storage tanks having greater than 1,000-gallon capacity, a permanent submerger fill pipe must be used, provided such a tank does not have controls mentioned in NR 154.13 (4) (a) 1.

3. At facilities with over 40,000 gallons per day throughput, a vapor collection and disposal system, vapor collection adaptors and vapor-tight seal, or an underfill method with the top hatches partially closed or a means of creating a slight back pressure when loading tank trucks or trailers must be used.

4. At facilities with 40,000 gallons or less per day throughput, the underfill method or a submerged fill pipe extending to within 6 inches of the tank bottom shall be employed when loading tank trucks or trailers.

(b) For any process line emitting photochemically reactive organic compounds, solvents or mixtures, the following limitations shall apply:

1. Any process line, except enclosed paint spray booths and volatile organic compound water separation systems, which emits more than 15 pounds per day or 3 pounds per hour of a reactive organic compound, solvent or mixture must control these emissions by at least 85%.

2. Any enclosed paint spraying operation which emits more than 30 pounds per day or 6 pounds per hour of a reactive organic compound, solvent or mixture must control these emissions by at least 85%.

3. Any volatile reactive organic compound—water separation system that processes over 200 gallons per day must control the emission of volatile organic substances by at least 85%.

(c) No person shall cause, suffer, allow or permit organic compounds to be handled or used without taking reasonable precautions to prevent the escape or emission of photochemically reactive 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.

3. Use of disposal methods which prevent organic compounds from being evaporated in or emitted to the ambient air.

(d) Exceptions to limitations. The provisions of sections NR 154.13 (4) (a), (4) (b) and (4) (c) shall not apply to the use or application of insecticides, pesticides, herbicides, saturated halogenated hydrocarbons, perchlorethylene, benzene, acetone, trichloroethylene, or other organic compounds which have been shown to be virtually unreactive in the formation of photochemical oxidants.

(5) ORGANIC COMPOUND PROGRAM DUE DATES. Organic compound control shall follow the following time schedule:

(a) Existing direct sources in the Southeast Air Region: The department may grant until July 31, 1975 for compliance with limitations in section NR 154.13 (4).

(b) New direct sources in the state: Compliance with sections NR 154.13(2) and (4) shall be shown to the department on initial start-up or first use of the source or installation.

History: Cr. Register, March, 1972, No. 195, eff. 4-1-72; r. and recr., Register, June, 1975, No. 234, eff. 7-1-75.

**NR 154.14 Control of carbon monoxide emissions.** (1) GENERAL LIMITATIONS. No person shall cause, suffer, allow, or permit emission of carbon monoxide to the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution.

(2) CARBON MONOXIDE LIMITATIONS. No person shall cause, suffer, allow, or permit significant emissions of carbon monoxide from any new direct source not listed below to be emitted to the ambient air unless such emissions are incinerated at 1,300°F for 0.3 seconds, or reduced by some other means an equivalent amount. Such emissions shall include, but are not limited to, the exhaust from cupolas, blast furnaces, basic oxygen furnaces; or waste streams from petroleum fluid cokers or other petroleum processes. Compliance with these limitations shall be shown to the department on initial startup of the source.

(a) Petroleum refineries (fluid catalytic cracking unit catalyst regenerators): 0.050% carbon monoxide by volume, dry basis.

History: Cr. Register, March, 1972, No. 195, eff. 4-1-72; am. (2) and cr. (2)(a), Register, June, 1975, No. 234, eff. 7-1-75.

**NR 154.15 Control of nitrogen compound emissions.** (1) GENERAL LIMITATIONS. No person shall cause, suffer, allow, or permit nitrogen oxides or nitrogen compounds to be emitted to the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution.

(2) NITROGEN OXIDES LIMITATIONS. No person shall cause, suffer, allow, or permit nitrogen oxides (expressed as $NO_2$) 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 gaseous fossil fuel; 0.20 pounds of $NO_2$ per million BTU input.

2. Firing of liquid fossil fuel: 0.30 pounds of $NO_2$ per million BTU input.

3. Firing of solid fossil fuel: 0.70 pounds of $NO_2$ per million BTU input.

(b) New or modified weak nitric acid plants (acid 30 to 70% in strength:) 3.0 pounds of $NO_2$ per ton of acid produced.

History: Cr. Register, March, 1972, No. 195, eff. 4-1-72.

**NR 154.16 Use of standby fuel.** (1) USE OF STANDBY FUEL SHALL MEET THE FOLLOWING LIMITATIONS:

(a) Visible emissions:

1. The limits in visible emission shall be the same as section NR 154.11(7)(c) of these rules.

(b) *Particulate emission limits:*

1. No person while burning standby fuel shall cause, suffer, allow, or permit to be emitted to the ambient air particulate matter which substantially contribute to the exceeding of an air standard or create air pollution.

(c) *Sulfur emission limits:*

1. In the Southeast Wisconsin Intrastate Air Quality Control Region, no person shall cause, suffer, allow, or permit use of standby fuel with greater sulfur content than:

a. Coal: 1.50% (by weight as fired)

b. Residual Oil: 1.00%

c. Distillate Oil: 0.70%

2. Variance from the above sulfur limits may be granted by the department until July 1, 1975 or until existing fuel supplies are used.

History: Cr. Register, March, 1972, No. 195, eff. 4-1-72; am. (1) (a) and (c), Register, June, 1975, No. 234, eff. 7-1-75.

**NR 154.17 Control of motor vehicles, internal combustion engines, and mobile sources.** (1) GENERAL LIMITATIONS. No person shall cause, suffer, allow, or permit emissions of particulate matter, sulfur oxides, hydrocarbons, carbon monoxide, nitrogen oxides, or odors from a motor vehicle, internal combustion engine, or mobile source which substantially contribute to the exceeding of an air standard or create air pollution.

(2) CONTROL OF MOTOR VEHICLES. No person shall cause, suffer, allow, or permit the removal, dismantling, disconnection, disabling, or disrepair of any air pollution control device or system which has been installed on a motor vehicle or internal combustion engine. Such devices or systems include but are not limited to:

(a) Positive crank case ventilation system.

(b) Exhaust emission control devices.

(c) Evaporative fuel loss control systems.

(d) Any control device operating on principles such as thermal decomposition, catalytic oxidation or reduction, absorption, or adsorption.

(3) REQUIREMENTS. The following requirement applies to motor vehicles in the Southeast Wisconsin Intrastate AQCR.

(a) Gasoline powered on the road vehicles: inspection, and repair if necessary, for a gasoline-powered vehicle to be eligible for registration. Inspection and repair shall include:

1. Positive crankcase ventilation system.

2. Hosing on pollution control system.

3. Cleaning of air cleaner.

4. Setting of idle speed (manufacturer recommendation).

(13) FUNDABLE CAPACITY. That the eligible costs do not include costs allocable to the transportation and/or treatment of sewage in excess of the fundable capacity as determined in NR 128.06 (1) and (2).

(14) COSTS INCURRED PRIOR TO AWARD. That project construction has not been started prior to approved date of initiation of construction. Payment shall not be authorized for costs incurred prior to the approved date of the initiation of construction which shall be established in the grant agreement.

(15) WATER CONSERVATION PROGRAM. That for a step 3 grant, an approvable plan and schedule for implementing the flow reduction measures deemed to be cost-effective in accordance with NR 110.09 (2) (k) has been submitted by the applicant. This requirement only applies to projects for which state or federal step 1 grant was awarded after May 12, 1978.

History: Cr. Register, December, 1978, No. 276, eff. 1-1-79.

**NR 128.12 Grant conditions.** Each treatment works grant shall be subject to the following conditions:

(1) NON-STATE CONSTRUCTION COSTS. The grantee agrees to pay the non-state or federal costs of treatment works construction associated with the project and commits itself to complete the construction of the treatment works.

(2) SERVICE AREAS. The grantee agrees to provide timely sewerage service to all users within the delineated service area except in areas where annexation is refused, pursuant to s. 144.07 (1m), Stats.

(3) PROCUREMENT. The grantee and party to any subagreement shall comply with all applicable provisions of NR 128.14. The department may make appropriate review of grantee procurement methods from time to time.

(4) ACCESS. The grantee must insure that department representatives will have access to the project work whenever it is in preparation or progress. The grantee must provide proper facilities for such access and inspection. The grantee must allow the department or any authorized representative to have access to any books, documents, plans, reports, papers, and other records of the contractor which are pertinent to the project for the purpose of making audit, examination, excerpts, copies and transcriptions. The grantee must insure that a party to a subagreement will provide access to project work, sites, documents, and records.

(5) CONSTRUCTION INSPECTION. In the case of any project involving step 3, the grantee will provide and maintain adequate construction inspection of the project to insure that the construction conforms with the approved plans and specifications.

(6) PROJECT INITIATION AND COMPLETION. The grantee agrees to expeditiously initiate and complete the project or cause it to be constructed and completed in accordance with the grant agreement and application, including any project schedule approved by the department. Failure of the grantee to promptly initiate step 1, 2, or 3 project construction may result in termination of the grant.

(7) COPIES OF CONTRACT DOCUMENTS. In addition to notifying the department of any project changes, the grantee shall promptly submit to

the department a copy of any prime contract or modification of it and of revisions to plans and specifications.

(8) PROJECT CHANGES. (a) The grantee shall obtain prior written approval by the department for:

1. Project changes which may:

a. Substantially alter the design and scope of the project;

b. Alter the type of treatment to be provided;

c. Substantially alter the location, size, capacity, or quality of any major item of equipment; or

d. Increase the amount of state funds needed to complete the project.

2. Change orders amounting to more than $100,000 or 5% of the grant agreement, whichever is less, for which department reviews are required.

(b) Prior department approval is not required for changes to correct minor errors, minor changes, or emergency changes.

(c) No approval of a project change shall obligate the state of Wisconsin to increase the amount of the grant or payments made under a grant agreement unless a grant increase is also approved under NR 128.18. This does not preclude submission or consideration of a request for a grant amendment.

(9) OPERATION AND MAINTENANCE. (a) The grantee must make provisions satisfactory to the department for assuring economic and effective operation and maintenance of treatment works. The grantee must follow a plan of operation approved by the department.

(b) As a minimum, such plan shall include provision for:

1. An operation and maintenance manual for each facility;

2. An emergency operating and response program;

3. Properly trained management, operation and maintenance personnel;

4. Adequate budget for operation and maintenance;

5. Operational reports;

6. Provisions for laboratory testing and monitoring adequate to determine influent and effluent characteristics and removal efficiencies as specified in the terms and conditions of the WPDES permit for the facility; and

7. An operation and maintenance program for the sewer system.

(c) The department shall not pay:

1. More than 50% of the state share of any step 3 activities unless the grantee has furnished either a draft of the operation and maintenance manual for review or adequate evidence of timely development of such a draft; or

4. No owner or operator of a bulk gasoline plant or delivery vessel shall permit the transfer of gasoline unless:

a. Submerged or bottom filling is used; and

b. The vapor balance system is in good working order and is connected and operating; and

c. Delivery vessel hatches are closed at all times during transfer operations; and

d. There are no leaks in the delivery vessels' pressure/vacuum relief valves and hatch covers, nor in the delivery vessel tanks or stationary storage tanks or associated vapor and liquid lines during loading or unloading; and

e. The pressure relief valves on stationary storage tanks and delivery vessels are set to release at no less than 4.8 kilo Pascals (0.7 pounds per square inch gauge), or the highest possible pressure consistent with state or local fire codes or the national fire prevention association guidelines.

5. Vapor balance systems required under subds. (3) (b) 2. and 3. shall include vapor space connections on the stationary storage tank and on the delivery vessel with connecting pipe or hose. These connections are required either for loading of the bulk plant storage tank only or for both loading and unloading, as indicated in subd. (3) (b) 1. Both sides of all junctions shall be equipped with fittings which are vapor tight and will automatically and immediately close upon disconnection so as to prevent release of organic compound vapors.

6. Notwithstanding par. (1) (c), no owner or operator of a bulk gasoline plant shall permit gasoline to be spilled, discarded in sewers or stored in open containers.

(c) Gasoline dispensing facilities. 1. Applicability. a. Effective July,* [August 1,], 1979, par. (3) (c) applies, subject to the provisions of sub. (9), to gasoline dispensing facilities, to the delivery vessels used to bring these facilities the gasoline which they dispense, and to the operation of transferring gasoline to the dispensing facilities with the following exceptions:

1) Gasoline dispensing facilities which are supplied exclusively by bulk gasoline plants whose unloading operations are exempted from the requirements of par. (3) (b) by (3) (b) 1.a.

2) Gasoline dispensing facilities located outside the counties of Brown, Calumet, Dane, Dodge, Fond du Lac, Jefferson, Kenosha, Manitowoc, Milwaukee, Outagamie, Ozaukee, Racine, Rock, Sheboygan, Walworth, Washington, Waukesha and Winnebago.

3) Delivery vessels used exclusively to supply exempt gasoline dispensing facilities or used exclusively for the transfer operations exempted under 4) through 7) below.

4) Transfers made to storage tanks of gasoline dispensing facilities equipped with floating roofs or their equivalent which have been approved by the department.

5) Transfers made to any stationary storage tank at a gasoline dispensing facility with a capacity of 7,580 liters (2,000 gallons) or less which is in place on or before July* 1, [August 1,] 1979.

6) Transfers made to any stationary storage tank at a gasoline dispensing facility with a capacity of 2,176 liters (575 gallons) or less which is installed after July* 1, [August 1,] 1979.

7) Transfers made to stationary gasoline storage tanks with a capacity of 2,176 liters (575 gallons) or less used primarily for the fueling of agricultural equipment.

2. No owner or operator of a gasoline dispensing facility and no owner of a gasoline storage tank at such a facility shall transfer or cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank not excluded under subd. (3) (c) 1. unless the storage tank is equipped with a submerged fill pipe and the vapors displaced from it by filling during the ozone season are processed by a vapor control system in accordance with subd. (3) (c) 3.

3. A vapor control system required by subd. (3) (c) 2. shall include one or more of the following:

a. A vapor balance system with a vapor-tight vapor return line from the storage tank to the delivery vessel and a system that will ensure the vapor line is connected before gasoline can be transferred into the storage tank; or

b. A refrigeration-condensation system or equivalent capable of recovering at least 90% by weight of the organic compounds in the displaced vapor; or

c. A system demonstrated to have control efficiency equivalent to or greater than that provided under a. or b. above and approved by the department.

4. During the ozone season, the operator of a delivery vessel shall not commence transfer of gasoline to any gasoline dispensing facility equipped with a vapor balance system pursuant to (3) (c) 3.a. without first properly connecting the vapor return line. The delivery vessel shall be designed, maintained and operated to be vapor tight at all times that it is vapor-laden.

5. During the ozone season, vapor-laden delivery vessels shall be refilled in Wisconsin only at:

a. Bulk gasoline terminals complying with par. (3) (a); or

b. Bulk gasoline plants equipped with a vapor balance system for unloading as described in subd. (3) (b) 5.

6. Each owner of a gasoline storage tank or delivery vessel shall:

a. Install all necessary control systems and make all necessary process modifications in accordance with subds. 2., 3., 4. and 5. of par. (3) (c); and

b. Repair, replace or modify any worn out or malfunctioning component or element of design, and keep such records as may be requested in writing by the department relating to the repair, replacement or modification of any component or element of design of the control system.

2. Where a source is subject to requirements of this section in effect prior to July*1, [August 1,] 1979, the source shall continue to comply with such requirements during the interim period prior to the final compliance date in the applicable compliance schedule.

3. Where a source is not subject to requirements of this section in effect prior to July*1, [August 1,] 1979, the final compliance plan shall specify reasonable measures to minimize emissions of volatile organic compounds during the interim period prior to the final compliance date.

(10) EXCEPTIONS AND DEFERRALS. (a) Exceptions for certain organic compounds. For sources on which construction or modification is commenced on or before July*1, [August 1,] 1979, the provisions of subs. (2) (b), (3) (d) and (8) (a) shall not apply to the use or application of insecticides, pesticides, herbicides, saturated halogenated hydrocarbons, perchloroethylene or acetone. In addition, none of the provisions of this section shall apply to the use or emission of trichlorotrifluoroethane (freon 113), ethane or methane.

(b) Internal offsets. 1. On or before December 31, 1987, no owner or operator of any surface coating facility shall cause or allow the emission of volatile organic compounds from any coating line to exceed the limitations contained in this section unless:

a. Each coating line which is involved in the internal offset is operating with an emission rate of volatile organic compounds less than or equal to the special emission rate for the coating line (which may be a weighted daily average) contained in a compliance plan approved under this paragraph;

b. The construction or modifiction of the coating line was commenced on or before July*1, [August 1,] 1979; and

c. The combined emission rate from all coating lines involved in the internal offset is less than or equal to an emission rate determined by the following equation: $E = A_1 \times B_1 + A_2 \times B_2 + \ldots A_n \times B_n$ where E = the total allowable emission rate from all of the coating lines involved in the internal offset in kilograms per hour (pounds per hour), $A_{1,2\ldots n}$ = the allowable emission rate for each coating line pursuant to sub. (4) in kilograms per liter (pounds per gallon) of coating, excluding water, delivered to the coating applicator, and $B_{1,2\ldots n}$ = the amount of coating material in liters per hour (gallons per hour), excluding water, delivered to the coating applicator; and

d. The owner or operator has certified, and the department has confirmed, that the emissions of all air contaminants from all existing sources owned or controlled by the owner or operator in the state are in compliance with or under a schedule for compliance as expeditiously as practicable with, all applicable local, state and federal laws and regulations.

2. The provisions of subd. 1. apply to a surface coating facility only after the department has approved a compliance plan which specifies an emission rate for each of the coating lines involved in the internal offset. If, at any time, the department determines that one of these emission rates is being exceeded, approval of the compliance plan may be revoked and subd. 1. shall no longer apply to the facility.

3. The compliance plan required under subd. 2. shall include a compliance schedule consistent with sub. (9). Notwithstanding subd. (9) (e) 2., the internal offset provided for in the compliance plan may remain in effect until December 31, 1987. After December 31, 1987, no owner or operator of any coating line shall cause or allow the emission of volatile organic material from the coating line to exceed any limitation contained in sub. (4).

(c) Compliance schedule delays. Notwithstanding any compliance schedule approved or issued under sub. (9), the department may approve a new compliance schedule which provides additional time for completion of an increment of progress, provided:

1. That the owner or operator of the source is able to document to the department's satisfaction that the source is unable to meet the applicable deadline under sub. (9) for said increment of progress due to circumstances beyond the owner or operator's control which could not reasonably have been avoided by using all prudent planning; and

2. That the additional time allowed for the said increment of progress does not exceed that originally allotted under sub. (9); and

3. That the final compliance date is not later than December 31, 1982, except as provided in (9) (f) 1.c. or subd. (10) (b) 3.

(d) Limitation of restrictions to the ozone season. Where the requirements of this section are met by means of a fossil-fuel fired incinerator, use of the incinerator shall be required only during the ozone season, provided that operation of the incinerator is not required for purposes of occupational health or safety or for the control of toxic or hazardous substances, malodors, or other pollutants regulated by other sections of this chapter.

**History:** Cr. Register, March, 1972, No. 195, eff. 4-1-72; r. and recr., Register, June, 1975, No. 234, eff. 7-1-75; am. Register, July, 1979, No. 283, eff. 8-1-79.

**NR 154.14 Control of carbon monoxide emissions.** (1) GENERAL LIMITATIONS. No person shall cause, suffer, allow, or permit emission of carbon monoxide to the ambient air which substantially contribute to the exceeding of an air standard or cause air pollution.

(2) CARBON MONOXIDE LIMITATIONS. No person shall cause, suffer, allow, or permit significant emissions of carbon monoxide from any new direct source not listed below to be emitted to the ambient air unless such emissions are incinerated at 1,300°F for 0.3 seconds, or reduced by some other means an equivalent amount. Such emissions shall include, but are not limited to, the exhaust from cupolas, blast furnaces, basic oxygen furnaces; or waste streams from petroleum fluid cokers or other petroleum processes. Compliance with these limitations shall be shown to the department on initial startup of the source.

(a) Petroleum refineries (fluid catalytic cracking unit catalyst regenerators): 0.050% carbon monoxide by volume, dry basis.

**History:** Cr. Register, March, 1972, No. 195, eff. 4-1-72; am. (2) and cr. (2) (a), Register, June, 1975, No. 234, eff. 7-1-75.