

Chapter NR 155

AMBIENT AIR QUALITY

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History: Chapter NR 155 as it existed on March 31, 1972 was repealed and a new chapter NR 155 was created, Register, March, 1972, No. 195, effective April 1, 1972.

FOREWARD

Air standards are definitions of the characteristics of ambient air quality which, in terms of present day knowledge, need to be maintained in order to protect the public health and welfare and our environment from adverse effects of air pollution.

The purpose of air standards should be viewed as goals or objectives to be achieved by these and other rules of the department, by regional implementation plans, and by enforcement programs of both state and local governments as population, industrial activity, and land use changes.

The standards are meaningful for pollution control when applied to achieve and maintain desired air quality as expressed by the standards.

Because of variation in population, transportation, and industrial densities, in addition to variation in terrain and meteorology, equal air quality may not be achieved throughout a region or area.

These standards conform to national ambient air quality standards. They are subject to review as knowledge of the effects of air pollution on health, plant and animal life, property, visibility, and our environment increases.

These standards are promulgated pursuant to ch. 144, Stats., which directs the department of natural resources to undertake a comprehensive program to manage and protect the state's air resources. These rules are one part of that program.

NR 155.01 Definitions. In addition to the definitions contained in this section, the definitions contained in s. NR 154.01, also apply to this chapter.

(1) **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.

(2) **AIR STANDARD OR AMBIENT AIR QUALITY STANDARD:** The definition of levels of air quality which are necessary to protect public health and welfare.

(a) *Primary air standard:* The level of air quality which provides protection for public health with an adequate margin of safety.

(b) *Secondary air standard:* The level of air quality which may be necessary to protect public welfare from anticipated adverse effects.

(3) **AMBIENT AIR:** The portion of the atmosphere external to buildings and to which the general public has access.

(4) **IMPLEMENTATION PLAN:** A plan adopted to implement, maintain and enforce air standards within an air region, or portion thereof.

(5) **STANDARD CONDITIONS:** A temperature of 25° centigrade and a pressure of 760 millimeters of mercury.

(6) **REFERENCE METHODS:** The method of choice for sampling and analyzing for an air contaminant.

(7) **EQUIVALENT METHOD:** Any method of sampling and analyzing for an air contaminant which has a consistent relationship to the reference method.

History: Cr. Register, March, 1972, No. 195, eff. 4-1-72; cr. (intro.), Register, August, 1981, No. 308, eff. 9-1-81.

NR 155.02 Applicability of air standards. (1) **SCOPE.** The air standards apply to the entire state without exception.

(2) **AIR REGIONS.** The air standards apply in the following regions:

(a) Interstate air quality control regions:

1. Duluth (Minnesota)—Superior (Wisconsin) Interstate Air Quality Control Region including the counties of Ashland, Bayfield, Burnett, Douglas, Iron, Price, Rusk, Sawyer, Taylor, and Washburn in Wisconsin, and the counties of Aitkin, Carlton, Cook, Itasca, Koochiching, Lake and St. Louis in Minnesota.

2. Southeast Minnesota—La Crosse (Wisconsin) Interstate Air Quality Control Region including the counties of Barron, Buffalo, Chippewa, Clark, Crawford, Dunn, Eau Claire, Jackson, La Crosse, Monroe, Pepin, Pierce, Polk, St. Croix, Trempealeau, and Vernon in Wisconsin, and the counties of Blue Earth, Brown, Dodge, Faribault, Fillmore, Freeborn, Goodhue, Houston, Le Sueur, Martin, Mower, Nicollet, Olmsted, Rice, Sibley, Steele, Wabasha, Waseca, Watonwan, and Winona in Minnesota.

3. Metropolitan Dubuque Interstate Air Quality Control Region including Grant county in Wisconsin and Clayton, Dubuque, and Jackson counties in Iowa.

4. Rockford (Illinois)—Janesville-Beloit (Wisconsin) Interstate Air Quality Control Region including Rock county in Wisconsin, and Boone, DeKalb, Ogle, Stephenson, and Winnebago counties in Illinois.

(b) Intrastate air quality control regions:

1. Lake Michigan Intrastate Air Quality Control Region consisting of the counties of Brown, Calumet, Door, Fond du Lac, Green Lake, Kewaunee, Manitowoc, Marinette, Marquette, Menominee, Oconto, Outagamie, Shawano, Sheboygan, Waupaca, Waushara, and Winnebago. For purposes of applying rules and regulations the Lake Michigan Air Region will be divided into two subregions. Winnebago, Outagamie and Brown Counties will constitute subregion 1. Calumet, Door, Fond du Lac, Green Lake, Kewaunee, Manitowoc, Marinette, Marquette, Menominee, Oconto, Shawano, Sheboygan, Waupaca, and Waushara counties will constitute subregion 2.

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2. Southeastern Wisconsin Intrastate Air Quality Control Region consisting of the counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington and Waukesha.

3. Southern Wisconsin Intrastate Air Quality Control Region consisting of the counties of Columbia, Dane, Dodge, Green, Iowa, Jefferson, Lafayette, Richland and Sauk.

4. North Central Wisconsin Intrastate Air Quality Control Region consisting of the counties of Adams, Forest, Florence, Juneau, Langlade, Lincoln, Marathon, Oneida, Portage, Vilas and Wood.

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

NR 155.03 Air standards. (1) SULFUR OXIDES: (a) *Primary standards:*

1. 80 micrograms per cubic meter (.03 ppm)—annual arithmetic mean.

2. 365 micrograms per cubic meter (.14 ppm)—maximum 24-hour concentration not to be exceeded more than once per year.

(b) *Secondary standards:*

1. 1300 micrograms per cubic meter (0.5 ppm)—maximum 3-hour concentration not to be exceeded more than once per year.

(2) SUSPENDED PARTICULATE MATTER. (a) *Primary standards:*

1. 75 micrograms per cubic meter—annual geometric mean.

2. 260 micrograms per cubic meter—maximum 24-hour concentration not to be exceeded more than once per year.

(b) *Secondary standards:*

1. 60 micrograms per cubic meter—annual geometric mean.

2. 150 micrograms per cubic meter—maximum 24-hour concentration not to be exceeded more than once per year.

(3) CARBON MONOXIDE: PRIMARY AND SECONDARY STANDARDS. (a) 10 milligrams per cubic meter (9 ppm)—maximum 8-hour concentration not to be exceeded more than once per year.

(b) 40 milligrams per cubic meter (35 ppm)—maximum 1-hour concentration not to be exceeded more than once per year.

(4) OZONE: PRIMARY AND SECONDARY STANDARDS. 0.12 ppm (235 micrograms per cubic meter)—maximum 1-hour average concentration. The ozone standards are attained when the expected number of days per calendar year with maximum hourly average concentrations above the designated level is equal to or less than one, as determined by the methodology of 40 C.F.R. s. 50.9, Appendix H (as of September 1, 1981).

(5) HYDROCARBONS: PRIMARY AND SECONDARY STANDARDS. 160 micrograms per cubic meter (.24 ppm) measured and corrected for methane—maximum 3-hour concentration (6 to 9 am) not to be exceeded more than once per year.

(6) NITROGEN DIOXIDE: PRIMARY AND SECONDARY STANDARDS. 100 micrograms per cubic meter (.05 ppm)—annual arithmetic mean.

(7) **LEAD; PRIMARY AND SECONDARY STANDARDS.** The primary and secondary standards for lead and its compounds, measured as elemental lead, are: 1.5 micrograms per cubic meter, maximum arithmetic mean averaged over a calendar quarter, as a constituent of suspended particulate matter.

History: Cr. Register, March, 1972, No. 195, eff. 4-1-72; r. (1) (b)1. and 2., renum. (1) (b)3. to be 1., Register, June, 1975, No. 234, eff. 7-1-75; am. (4), Register, August, 1981, No. 308, eff. 9-1-81; reprinted to correct error in (3), Register, November, 1981, No. 311; cr. (7), Register, April, 1983, No. 328, eff. 5-1-83.

NR 155.035 Ambient air increments. (1) SCOPE. The ambient air increments apply to all attainment areas of the state.

(2) **CLASS I INCREMENTS.** In any area of this state classified under the federal clean air act as a class I area, the ambient air increment of sulfur dioxide and particulate matter may not exceed the following amounts:

(a) Particulate matter

1. Annual geometric mean..... 5 micrograms per cubic meter
2. Twenty-four hour maximum 10 micrograms per cubic meter

(b) Sulfur dioxide

1. Annual arithmetic mean..... 2 micrograms per cubic meter
2. Twenty-four hour maximum 5 micrograms per cubic meter
3. Three hour maximum..... 25 micrograms per cubic meter

(3) **CLASS II INCREMENTS.** In any area of this state classified under the federal clean air act as a class II area, the ambient air increment of sulfur dioxide and particulate matter may not exceed the following amounts:

(a) Particulate matter

1. Annual geometric mean..... 19 micrograms per cubic meter
2. Twenty-four hour maximum 37 micrograms per cubic meter

(b) Sulfur dioxide

1. Annual arithmetic mean..... 20 micrograms per cubic meter
2. Twenty-four hour maximum 91 micrograms per cubic meter
3. Three hour maximum..... 512 micrograms per cubic meter

(4) **CLASS III INCREMENTS.** In any area of this state classified under the federal clean air act as a class III area, the ambient air increment of sulfur dioxide and particulate matter may not exceed the following amounts:

(a) Particulate matter

1. Annual geometric mean..... 37 micrograms per cubic meter
2. Twenty-four hour maximum 75 micrograms per cubic meter

(b) Sulfur dioxide

1. Annual arithmetic mean..... 40 micrograms per cubic meter

2. Twenty-four hour maximum 182 micrograms per cubic meter
3. Three hour maximum..... 700 micrograms per cubic meter

(5) **EXCEPTION FOR NON-ANNUAL CONCENTRATIONS.** Notwithstanding subs. (2) (intro.), (3) (intro.) and (4) (intro.), the ambient air increment of an air contaminant based on concentrations for any period other than an annual period may be exceeded during one such period per year.

(6) **MAXIMUM CONCENTRATION.** The maximum allowable concentration of any air contaminant in any attainment area may not exceed a concentration for such contaminant for each period of exposure equal to the maximum concentrations permitted under the primary or secondary air standards in s. NR 155.03.

History: Cr. Register, April, 1983, No. 238, eff. 5-1-83.

NR 155.04 Measurement of air quality. (1) REFERENCE METHODS. The following shall be used as reference methods when measuring air quality: sulfur dioxide (pararosaniline analysis), suspended particulate (high volume sampler), carbon monoxide (nondispersive infrared spectrometry), photochemical oxidants (gas phase chemiluminescence corrected for interferences due to nitrogen oxide and sulfur dioxide), hydrocarbons (flame ionization corrected for methane), nitrogen dioxide (none).

(2) **EQUIVALENT METHODS.** The following shall be considered as equivalent to reference methods for the purpose of air quality measurement: sulfur dioxide—gas chromatographic separation, flame photometric detection (provided teflon is used throughout the instrument system in parts exposed to the air stream), flame photometric detection (provided interfering sulfur compounds present in significant quantities are removed), coulometric detection (provided oxidizing and reducing interferences such as O_3 , NO_2 , and H_2S are removed), the automated pararosaniline analysis; suspended particulate—tape sampler; carbon monoxide—gas chromatographic separation, catalytic conversion flame ionization detection; photochemical oxidants—potassium iodide colorimetric detection (provided a correction is made for SO_2 and NO_2), UV photometric detection of ozone (provided compensation is made for interfering substances), chemiluminescence analysis differing from that of the reference method; all pollutants—other procedures approved by the department.

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

NR 155.05 Interpretation of air quality data with respect to air standards. The department shall, for implementation purposes, take into account levels and variations in natural background levels of contaminants, the quality of air entering a region, abnormal local short-term activities and the numbers and types of persons and property affected.

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

NR 155.06 Guidelines for application of air standards. (1) IN ALL AIR REGIONS. No local programs may grant variances or construction or operating permits in conflict with the implementation plan for that region.

(2) **IN ALL AIR REGIONS.** Any person may be required to reduce his emissions below limits established in an implementation plan or by air pollution control rules where his emissions cause or substantially con-

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tribute to exceeding an air standard in a localized area. In this case, appropriate special orders, which are not general in application, may be issued.

(3) **FUELS AND RAW MATERIALS.** The department may prescribe characteristics of fuels and raw material for existing and planned facilities.

History: Cr. Register, March, 1972, No. 195, eff. 4-1-72; r. (4), Register, April, 1983, No. 328, eff. 5-1-83.

NR 155.07 Severability. Should any section, paragraph, phrase, sentence, or clause of this chapter be declared invalid or unconstitutional for any reason, the remainder of this chapter shall not be affected thereby.

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