# CHAPTER 33-15-02
# AMBIENT AIR QUALITY STANDARDS



**33-15-02-01. Scope.** The ambient air quality standards as presented in this chapter pertain to the ambient air within the boundaries of North Dakota.

**History:** Amended effective October 1, 1987.
**General Authority:** NDCC 23-25-03
**Law Implemented:** NDCC 23-25-03

**33-15-02-02. Purpose.** It is the purpose of these air quality standards to set forth levels of air quality for the maintenance of public health and welfare and to provide guidance to governmental and other parties interested in abating air pollution. Since the ambient air in North Dakota is generally cleaner than these standards, the standards are not a permit for the unnecessary degradation of air quality.

**History:** Amended effective October 1, 1987.
**General Authority:** NDCC 23-25-03
**Law Implemented:** NDCC 23-25-03

**33-15-02-03. Air quality guidelines.** In keeping with the purpose of these ambient air quality standards, the quality should be such that:

1. The public health will be protected including sensitive or susceptible segments of the population.

2. Concentrations of pollutants will not cause public nuisance or annoyance.

3. Agricultural crops, animals, forest, and other plant life will be protected.

4. Visibility will be protected.

5. Metals or other materials will be protected from abnormal corrosion or damage.

6. Fabrics will not be soiled, deteriorated, or their colors affected.

7. Natural scenery will not be obscured.

**History:** Amended effective October 1, 1987.
**General Authority:** NDCC 23-25-03
**Law Implemented:** NDCC 23-25-03

**33-15-02-04. Ambient air quality standards.**

1. **Particulates and gases.** Except as provided in section 33-15-02-07, the standards of ambient air quality listed in table 1 define the limits of air contamination by particulates and gases. Any air contaminant which exceeds these limits is hereby declared to be unacceptable and requires air pollution control measures. The stated limits include normal background levels of particulates and gases.

2. **Radioactive substances.** The ambient air shall not contain any radioactive substances exceeding the concentrations specified in article 33-10.

3. **Other air contaminants.** The ambient air shall not contain air contaminants in concentrations that would be injurious to human health or well-being or unreasonably interfere with the enjoyment of property or that would injure plant or animal life. The department may establish, on a case-by-case basis, specific limits of concentration for these contaminants.

**History:** Amended effective October 1, 1987; January 1, 1989; September 1, 1998.
**General Authority:** NDCC 23-25-03
**Law Implemented:** NDCC 23-25-03

**33-15-02-05. Methods of sampling and analysis.** Air contaminants listed under table 1 shall be measured by the method or methods listed in title 40, Code of Federal Regulations, parts 50 and 53. Hydrogen sulfide sampling equipment and methods must be approved by the department. Hydrogen sulfide analyzers must be designed for use as ambient air quality monitors and must be capable of meeting performance specifications as determined by the department.

The sampling and analytical procedures employed and the number, duration, and location of samples to be taken to measure ambient levels of air contaminants shall be consistent with obtaining results which are precise, accurate, and representative of the conditions being evaluated.

**History:** Amended effective October 1, 1987; December 1, 1994.
**General Authority:** NDCC 23-25-03
**Law Implemented:** NDCC 23-25-03

**33-15-02-06. Reference conditions.** The standards of ambient air quality listed in table 1 are corrected to a reference temperature of twenty-five degrees

Celsius [298 degrees Kelvin] and a reference pressure of seven hundred sixty millimeters of mercury [101.3 kilopascals].

**General Authority:** NDCC 23-25-03
**Law Implemented:** NDCC 23-25-03

**33-15-02-07. Concentrations of air contaminants in the ambient air restricted.**

1. Except as provided in subsections 3 and 4, no person may cause or permit the emission of contaminants to the ambient air from any source in such a manner and amount that causes or contributes to a violation in the ambient air of those standards stated in section 33-15-02-04.

2. Nothing in any other part or section of this article may in any manner be construed as authorizing or legalizing the emission of air contaminants in such manner as prohibited in subsections 1, 3, and 4.

3. No person may cause or permit the emission of sulfur oxides (sulfur dioxide) to the ambient air from any coal conversion facility or petroleum refinery in such a manner or amount that causes or contributes to a violation in the ambient air of the national ambient air quality standards for sulfur oxides (sulfur dioxide) in title 40, Code of Federal Regulations, part 50, sections 4 and 5. The national ambient air quality standards for sulfur oxides (sulfur dioxide) are summarized in table 2.

   Sources subject to this subsection must also comply with the prevention of significant deterioration increments in chapter 33-15-15.

4. In the case of malfunctions and maintenance shutdowns of an installation as specified in section 33-15-01-13, the department may permit the one-hour and twenty-four-hour sulfur dioxide ambient air quality standards of table 1 to be exceeded provided it has been demonstrated that the three-hour and twenty-four-hour national sulfur dioxide air quality standards will not be exceeded and all reasonable measures will be taken to minimize the quantity of emissions and the length of the malfunction or shutdown period.

**History:** Amended effective October 1, 1987; September 1, 1998.
**General Authority:** NDCC 23-25-03
**Law Implemented:** NDCC 23-25-03

## Table 1. AMBIENT AIR QUALITY STANDARDS

| Air Contaminants | Standards (Maximum Permissible Concentrations) | |
|---|---|---|
| Inhalable Particulates $PM_{10}$ | 150 | micrograms per cubic meter, 24-hour average concentration. The standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 micrograms per cubic meter, as determined in accordance with 40 CFR 50, Appendix K, is equal to or less than one. |
| $PM_{2.5}$ | 15.0 | micrograms per cubic meter annual arithmetic mean concentration. The standard is met when the annual arithmetic mean concentration, as determined in accordance with 40 CFR 50, Appendix N, is less than or equal to 15.0 micrograms per cubic meter. |
| | 35 | micrograms per cubic meter 24-hour average concentration. The standard is met when the $98^{th}$ percentile 24-hour concentration, as determined in accordance with 40 CFR 50, Appendix N, is less than or equal to 35 micrograms per cubic meter. |
| Sulfur Dioxide | 0.023 | parts per million (60 micrograms per cubic meter of air), maximum annual arithmetic mean concentration |
| | 0.099 | parts per million (260 micrograms per cubic meter of air), maximum 24-hour average concentration |
| | 0.273 | parts per million (715 micrograms per cubic meter of air), maximum 1-hour average concentration |
| Hydrogen Sulfide | 10.0 | parts per million (14 milligrams per cubic meter of air), maximum instantaneous (ceiling) concentration not to be exceeded |
| | 0.20 | parts per million (280 micrograms per cubic meter of air), maximum 1-hour average concentration not to be exceeded more than once per month |
| | 0.10 | parts per million (140 micrograms per cubic meter of air), maximum 24-hour average concentration not to be exceeded more than once per year |
| | 0.02 | parts per million (28 micrograms per cubic meter of air), maximum arithmetic mean concentration averaged over three consecutive months |
| Carbon Monoxide | 9 | parts per million (10 milligrams per cubic meter of air), maximum 8-hour concentration not to be exceeded more than once per year |
| | 35 | parts per million (40 milligrams per cubic meter of air), maximum 1-hour concentration not to be exceeded more than once per year |

| | | |
|---|---|---|
| Ozone | 0.075 | parts per million (147 micrograms per cubic meter of air) daily maximum 8-hour average concentration. The standard is met when the three-year average of the annual fourth-highest daily maximum 8-hour average concentration at an ambient air quality monitoring site is less than or equal to 0.075 ppm, as determined in accordance with 40 CFR 50, Appendix P. |
| Nitrogen Dioxide | 0.053 | parts per million (100 micrograms per cubic meter of air), maximum annual arithmetic mean |
| Lead | 1.5 | micrograms per cubic meter of air, maximum arithmetic mean averaged over a calendar quarter |

**History:** Amended effective December 1, 1994; April 1, 2009.

**Table 2. NATIONAL AMBIENT AIR QUALITY STANDARDS**

| Air Contaminant | Standards (Maximum Permissible Concentrations) | |
|---|---|---|
| Sulfur oxides (sulfur dioxide) | 0.030 | parts per million (80 micrograms per cubic meter of air) maximum annual arithmetic mean concentration, not to be exceeded in a calendar year |
| | 0.14 | parts per million (365 micrograms per cubic meter of air) maximum 24-hour concentration, not to be exceeded more than once per calendar year |
| | 0.5 | parts per million (1300 micrograms per cubic meter of air) maximum 3-hour concentration, not to be exceeded more than once per calendar year |

**History:** Amended effective September 1, 1998.