

# Draft Language For Ambient Air Quality Standards Update Rule Making

(Last Updated 4/15/13)

*The following is draft language for the proposed rule revision. In the revision, Ecology needs to:*

- *Align the rules with NAAQS by amending and possibly consolidating these chapters into a new chapter:*
  - *Ch. 173-470 WAC Ambient Air Quality Standards for Particulate Matter (formerly Ch. 18-40 WAC)*
  - *Ch. 173-474 WAC Ambient Air Quality Standards for Sulfur Oxides (formerly Ch. 18-56 WAC)*
  - *Ch. 173-475 WAC Ambient Air Quality Standards for Carbon Monoxide, Ozone, and Nitrogen Dioxide*
- *Add a Lead (Pb) standard consistent with NAAQS to a new chapter.*

## **Chapter 173-XXX WAC: Washington State ambient air quality standards**

### WAC Sections

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### **173-XXX-010 Purpose.**

This chapter establishes maximum acceptable levels for particulate matter, lead, sulfur dioxide, nitrogen oxides, ozone and carbon monoxide in the ambient air.

[Statutory Authority: Chapter 70.94 RCW. 87-19-080 (Order 87-19), §173-470-010, filed 9/16/87.]

**173-XXX-020 Applicability.**

- (1) The provisions of this chapter apply to all areas of the state of Washington.
- (2) All federal regulations directly referenced or indirectly referenced in this regulation are adopted as they exist on July 1, 2013.

**173-XXX-030 Definitions.**

(1) Unless a different meaning is clearly required by context, words and phrases used in this chapter have meanings consistent with general terms defined in chapter 173-400 WAC

(2) Definitions specific to this chapter:

(a) "Period" means any interval of the specified time.

(b) "ppmv" means parts per million by volume.

(c) "ppb" means parts per billion by volume, which is 1 part in 1,000,000,000 by volume

(d) *Federal Reference method (FRM)* means a method of sampling and analyzing the ambient air for an air pollutant that is specified as a reference method in an appendix to this part, or a method that has been designated as a reference method according to 40 CFR part 53; it does not include a method for which a reference method designation has been cancelled according to 40 CFR 53.11 or 53.16.

(e) *Federal Equivalent method (FEM)* means a method of sampling and analyzing the ambient air for an air pollutant that has been designated as an equivalent method according to 40 CFR part 53; it does not include a method for which an equivalent method designation has been cancelled according to 40 CFR 53.11 or 53.16.

(f) *Traceable* means that a local standard has been compared and certified either directly or via not more than one intermediate standard, to a primary standard such as a National Bureau of Standards Standard Reference Material (NBS SRM), or a USEPA/NBS-approved Certified Reference Material (CRM).

**173-XXX-040 Reference conditions.**

All measurements of air quality that are expressed as mass per unit volume (e.g., micrograms per cubic meter) other than for particulate matter (PM<sub>2.5</sub>) standards contained in 40 CFR 50.7, 50.13, and 50.18, and lead standards contained in 40 CFR 50.16 must be corrected to a reference temperature of 25 (deg) C and a reference pressure of 760 millimeters of mercury (1,013.2 millibars). Measurements of PM<sub>2.5</sub> for purposes of comparison to the standards contained in 40 CFR 50.7, 50.13, and 50.18, and of lead for purposes of comparison to the standards contained in 40 CFR 50.16 must be reported based on actual ambient air volume measured at the actual ambient temperature and pressure at the monitoring site during the measurement period.

**173-XXX-100 Ambient air quality standards for particulate matter.**

(1) Ambient Standard for PM10

- (a) The level of the 24-hour ambient air quality standard for PM10 is 150 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), 24-hour average concentration. The standards are attained when the expected number of days per calendar year with a 24-hour average concentration above 150  $\mu\text{g}/\text{m}^3$ , as determined according to 40 CFR part 50, appendix K to this part, is equal to or less than one.
- (b) For the purpose of determining attainment of the standard for particulate matter must be measured in the ambient air as PM<sub>10</sub> (particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers) by:
  - (i) A FRM based on 40 CFR part 50, appendix J and designated according to 40 CFR part 53, or
  - (ii) A FEM designated according to 40 CFR part 53.

(2) Ambient Standard for PM2.5.

- (a) The ambient air quality standards for PM2.5 are 12.0 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) annual arithmetic mean concentration and 35  $\mu\text{g}/\text{m}^3$  24-hour average concentration measured in the ambient air as PM2.5 (particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers) by either:
  - (i) A FRM based on 40 CFR Part 50 appendix L and designated according to 40 CFR part 53; or
  - (ii) A FEM designated according to 40 CFR part 53.
- (b) The annual PM2.5 standard is met when the annual arithmetic mean concentration, as determined according to 40 CFR Part 50 appendix N, is less than or equal to 12.0  $\mu\text{g}/\text{m}^3$ .
- (c) The 24-hour PM2.5 standard is met when the 98<sup>th</sup> percentile 24-hour concentration, as determined according to 40 CFR Part 50 appendix N, is less than or equal to 35  $\mu\text{g}/\text{m}^3$ .

**173-XXX-105 Ambient air quality standards for lead.**

- (1) The national primary and secondary ambient air quality standards for lead (Pb) and its compounds are 0.15 micrograms per cubic meter, arithmetic mean concentration over a 3-month period, measured in the ambient air as Pb either by:
  - (a) A FRM based on 40 CFR Part 50, Appendix G and designated according to 40 CFR part 53 or;
  - (b) A FEM designated according to 40 CFR part 53.
- (2) The national primary and secondary ambient air quality standards for Pb are met when the maximum arithmetic 3-month mean concentration for a 3-year period, as determined according to 40 CFR Part 50, appendix R, is less than or equal to 0.15 micrograms per cubic meter.

**173-XXX-110 Ambient air quality standard for sulfur oxides (sulfur dioxide)**

- (1) The level of the annual standard is 0.02 parts per million by volume (ppmv), not to be exceeded in a calendar year. The annual arithmetic mean must be rounded to three decimal places (fractional parts equal to or greater than 0.005 ppm must be rounded up).
- (2) The level of the 24-hour standard is 0.1 parts per million (ppm), not to be exceeded more than once per calendar year. The 24-hour averages must be determined from successive

- nonoverlapping 24-hour blocks starting at midnight each calendar day and must be rounded to two decimal places (fractional parts equal to or greater than 0.05 ppm must be rounded up).
- (3) (a) The level of the 3-hour standard is 0.5 parts per million (ppm), not to be exceeded more than once per calendar year. The 3-hour averages must be determined from successive nonoverlapping 3-hour blocks starting at midnight each calendar day and must be rounded to 1 decimal place (fractional parts equal to or greater than 0.05 ppm must be rounded up).
- (b) To demonstrate attainment, the second-highest 3-hour average must be based upon hourly data that are at least 75 percent complete in each calendar quarter. A 3-hour block average must be considered valid only if all three hourly averages for the 3-hour period are available. If only one or two hourly averages are available, but the 3-hour average would exceed the level of the standard when zeros are substituted for the missing values, subject to the rounding rule of paragraph (a) of this section, then this must be considered a valid 3-hour average. In all cases, the 3-hour block average must be computed as the sum of the hourly averages divided by 3
- (4)(a) The level of the 1-hour annual ambient air quality standard for sulfur oxides is 75 parts per billion, measured in the ambient air as sulfur dioxide (SO<sub>2</sub>).
- (b) The 1-hour standard is met at an ambient air quality monitoring site when the three-year average of the annual (99th percentile) of the daily maximum 1-hour average concentrations is less than or equal to 75 ppb, as determined according to 40 CFR Part 50, appendix T.
- (5) To demonstrate attainment with (1) or (2), , the annual arithmetic mean and the second-highest 24-hour averages must be based upon hourly data that are at least 75 percent complete in each calendar quarter. A 24-hour block average shall be considered valid if at least 75 percent of the hourly averages for the 24-hour period are available. In the event that only 18, 19, 20, 21, 22, or 23 hourly averages are available, the 24-hour block average shall be computed as the sum of the available hourly averages using 18, 19, etc. as the divisor. If fewer than 18 hourly averages are available, but the 24-hour average would exceed the level of the standard when zeros are substituted for the missing values, subject to the rounding rule of paragraph (b) of this section, then this must be considered a valid 24-hour average. In this case, the 24-hour block average must be computed as the sum of the available hourly averages divided by 24.
- (6) The level of the ambient sulfur oxides, measured as sulfur dioxide, must be measured by a FRM based on 40 CFR Part 50, appendix A or A-1, or by a FEM designated according to 40 CFR part 53.

### **173-XXX-120 Ambient air quality standard for nitrogen oxides**

- (1) The level of the annual ambient air quality standard for oxides of nitrogen is 53 parts per billion (100 µg/m<sup>3</sup>), annual average concentration, measured in the ambient air as nitrogen dioxide.
- (2) The level of the 1-hour ambient air quality standard for oxides of nitrogen is 100 ppb, 1-hour average concentration, measured in the ambient air as nitrogen dioxide.
- (3) The levels of nitrogen oxides must be measured by:
- (a) A FRM based on 40 CFR Part 50 appendix F; or
- (b) A FEM designated according to 40 CFR part 53.
- (4) The annual primary standard is met when the annual average concentration in a calendar year is less than or equal to 53 ppb, as determined according to 40 CFR Part 50 appendix S for the annual standard.

- (5) The 1-hour primary standard is met when the three-year average of the annual 98th percentile of the daily maximum 1-hour average concentration is less than or equal to 100 ppb, as determined according to 40 CFR Part 50 appendix S for the 1-hour standard.

**173-XXX-130 Ambient air quality standard for ozone**

- (1) Ozone in the ambient air must not exceed 0.075 ppmv, daily maximum 8-hour average.
- (2) The levels of ozone in the ambient air must be measured by a FRM based on 40 CFR Part 50 appendix D and designated according to 40 CFR part 53 or an FEM designated according to 40 CFR part 53.
- (3) The 8-hour ozone ambient air quality standard is met at an ambient air quality monitoring site when the 3-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to 0.75 ppm, as determined according to 40 CFR Part 50 appendix P.

**173-XXX-140 Ambient air quality standard for carbon monoxide.**

- (1) 9 ppmv (10 milligrams per cubic meter) for an 8-hour average concentration not to be exceeded more than once per year and
- (2) 35 ppmv (40 milligrams per cubic meter) for a 1-hour average concentration not to be exceeded more than once per year.
- (3) The levels of carbon monoxide in the ambient air must be measured by:
  - (a) A FRM based on 40 CFR Part 50 appendix C and designated according to 40 CFR part 53 ,  
or
  - (b) A FEM designated according to 40 CFR part 53.
- (4) An 8-hour average must be considered valid if at least 75 percent of the hourly averages for the 8-hour period are available. In the event that only six (or seven) hourly averages are available, the 8-hour average must be computed on the basis of the hours available using six (or seven) as the divisor.
- (5) When summarizing data for comparison with the standards, averages must be stated to one decimal place. Comparison of the data with the levels of the standards in parts per million must be made in terms of integers with fractional parts of 0.5 or greater rounding up.

**173-XXX-150 Monitor siting criteria**

Ambient monitors must be sited as required in 40 CFR Part 58.