

## SUBCHAPTER C—AIR PROGRAMS

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AUTHORITY: 42 U.S.C. 7401, *et seq.*

SOURCE: 36 FR 22384, Nov. 25, 1971, unless otherwise noted.

#### § 50.1 Definitions.

(a) As used in this part, all terms not defined herein shall have the meaning given them by the Act.

(b) *Act* means the Clean Air Act, as amended (42 U.S.C. 1857-18571, as amended by Pub. L. 91-604).

(c) *Agency* means the Environmental Protection Agency.

(d) *Administrator* means the Administrator of the Environmental Protection Agency.

(e) *Ambient air* means that portion of the atmosphere, external to buildings, to which the general public has access.

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(f) *Reference method* 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 in accordance with part 53 of this chapter; it does not include a method for which a reference method designation has been cancelled in accordance with § 53.11 or § 53.16 of this chapter.

(g) *Equivalent method* means a method of sampling and analyzing the ambient air for an air pollutant that has been designated as an equivalent method in accordance with part 53 of this chapter; it does not include a method for which an equivalent method designation has been cancelled in accordance with § 53.11 or § 53.16 of this chapter.

(h) *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).

(i) *Indian country* is as defined in 18 U.S.C. 1151.

(j) *Exceptional event* means an event that affects air quality, is not reasonably controllable or preventable, is an event caused by human activity that is unlikely to recur at a particular location or a natural event, and is determined by the Administrator in accordance with 40 CFR 50.14 to be an exceptional event. It does not include stagnation of air masses or meteorological inversions, a meteorological event involving high temperatures or lack of precipitation, or air pollution relating to source noncompliance.

(k) *Natural event* means an event in which human activity plays little or no direct causal role.

(l) *Exceedance with respect to a national ambient air quality standard* means one occurrence of a measured or modeled concentration that exceeds the specified concentration level of such standard for the averaging period specified by the standard.

[36 FR 22384, Nov. 25, 1971, as amended at 41 FR 11253, Mar. 17, 1976; 48 FR 2529, Jan. 20, 1983; 63 FR 7274, Feb. 12, 1998; 72 FR 13580, Mar. 22, 2007]

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### § 50.2 Scope.

(a) National primary and secondary ambient air quality standards under section 109 of the Act are set forth in this part.

(b) National primary ambient air quality standards define levels of air quality which the Administrator judges are necessary, with an adequate margin of safety, to protect the public health. National secondary ambient air quality standards define levels of air quality which the Administrator judges necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Such standards are subject to revision, and additional primary and secondary standards may be promulgated as the Administrator deems necessary to protect the public health and welfare.

(c) The promulgation of national primary and secondary ambient air quality standards shall not be considered in any manner to allow significant deterioration of existing air quality in any portion of any State or Indian country.

(d) The proposal, promulgation, or revision of national primary and secondary ambient air quality standards shall not prohibit any State or Indian country from establishing ambient air quality standards for that State or area under a tribal CAA program or any portion thereof which are more stringent than the national standards.

[36 FR 22384, Nov. 25, 1971, as amended at 63 FR 7274, Feb. 12, 1998]

### § 50.3 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 §§ 50.7 and 50.13 and lead standards contained in § 50.16 shall 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 §§ 50.7 and 50.13 and of lead for purposes of comparison to the standards contained in § 50.16 shall be reported based on actual ambient air volume measured at the actual ambient temperature and

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pressure at the monitoring site during the measurement period.

[73 FR 67051, Nov. 12, 2008]

### § 50.4 National primary ambient air quality standards for sulfur oxides (sulfur dioxide).

(a) The level of the annual standard is 0.030 parts per million (ppm), not to be exceeded in a calendar year. The annual arithmetic mean shall be rounded to three decimal places (fractional parts equal to or greater than 0.0005 ppm shall be rounded up).

(b) The level of the 24-hour standard is 0.14 parts per million (ppm), not to be exceeded more than once per calendar year. The 24-hour averages shall be determined from successive non-overlapping 24-hour blocks starting at midnight each calendar day and shall be rounded to two decimal places (fractional parts equal to or greater than 0.005 ppm shall be rounded up).

(c) Sulfur oxides shall be measured in the ambient air as sulfur dioxide by the reference method described in appendix A to this part or by an equivalent method designated in accordance with part 53 of this chapter.

(d) To demonstrate attainment, 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 shall be considered a valid 24-hour average. In this case, the 24-hour block average shall be computed as the sum of the available hourly averages divided by 24.

[61 FR 25579, May 22, 1996]

### § 50.5 National secondary ambient air quality standard for sulfur oxides (sulfur dioxide).

(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 shall be determined from successive nonoverlapping 3-hour blocks starting at midnight each calendar day and shall be rounded to 1 decimal place (fractional parts equal to or greater than 0.05 ppm shall be rounded up).

(b) Sulfur oxides shall be measured in the ambient air as sulfur dioxide by the reference method described in appendix A of this part or by an equivalent method designated in accordance with part 53 of this chapter.

(c) 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 shall 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 shall be considered a valid 3-hour average. In all cases, the 3-hour block average shall be computed as the sum of the hourly averages divided by 3.

[61 FR 25580, May 22, 1996]

### § 50.6 National primary and secondary ambient air quality standards for PM<sub>10</sub>.

(a) The level of the national primary and secondary 24-hour ambient air quality standards for particulate matter 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 in accordance with appendix K to this part, is equal to or less than one.

(b) [Reserved]

(c) For the purpose of determining attainment of the primary and secondary standards, particulate matter shall be measured in the ambient air as PM<sub>10</sub> (particles with an aerodynamic

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diameter less than or equal to a nominal 10 micrometers) by:

(1) A reference method based on appendix J and designated in accordance with part 53 of this chapter, or

(2) An equivalent method designated in accordance with part 53 of this chapter.

[52 FR 24663, July 1, 1987, as amended at 62 FR 38711, July 18, 1997; 65 FR 80779, Dec. 22, 2000; 71 FR 61224, Oct. 17, 2006]

### § 50.7 National primary and secondary ambient air quality standards for PM<sub>2.5</sub>.

(a) The national primary and secondary ambient air quality standards for particulate matter are 15.0 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) annual arithmetic mean concentration, and 65  $\mu\text{g}/\text{m}^3$  24-hour average concentration measured in the ambient air as PM<sub>2.5</sub> (particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers) by either:

(1) A reference method based on appendix L of this part and designated in accordance with part 53 of this chapter; or

(2) An equivalent method designated in accordance with part 53 of this chapter.

(b) The annual primary and secondary PM<sub>2.5</sub> standards are met when the annual arithmetic mean concentration, as determined in accordance with appendix N of this part, is less than or equal to 15.0 micrograms per cubic meter.

(c) The 24-hour primary and secondary PM<sub>2.5</sub> standards are met when the 98<sup>th</sup> percentile 24-hour concentration, as determined in accordance with appendix N of this part, is less than or equal to 65 micrograms per cubic meter.

[62 FR 38711, July 18, 1997, as amended at 69 FR 45595, July 30, 2004]

### § 50.8 National primary ambient air quality standards for carbon monoxide.

(a) The national primary ambient air quality standards for carbon monoxide are:

(1) 9 parts per million (10 milligrams per cubic meter) for an 8-hour average concentration not to be exceeded more than once per year and

(2) 35 parts per million (40 milligrams per cubic meter) for a 1-hour average concentration not to be exceeded more than once per year.

(b) The levels of carbon monoxide in the ambient air shall be measured by:

(1) A reference method based on appendix C and designated in accordance with part 53 of this chapter, or

(2) An equivalent method designated in accordance with part 53 of this chapter.

(c) An 8-hour average shall be considered valid if at least 75 percent of the hourly average for the 8-hour period are available. In the event that only six (or seven) hourly averages are available, the 8-hour average shall be computed on the basis of the hours available using six (or seven) as the divisor.

(d) When summarizing data for comparison with the standards, averages shall be stated to one decimal place. Comparison of the data with the levels of the standards in parts per million shall be made in terms of integers with fractional parts of 0.5 or greater rounding up.

[50 FR 37501, Sept. 13, 1985]

### § 50.9 National 1-hour primary and secondary ambient air quality standards for ozone.

(a) The level of the national 1-hour primary and secondary ambient air quality standards for ozone measured by a reference method based on appendix D to this part and designated in accordance with part 53 of this chapter, is 0.12 parts per million (235  $\mu\text{g}/\text{m}^3$ ). The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 parts per million (235  $\mu\text{g}/\text{m}^3$ ) is equal to or less than 1, as determined by appendix H to this part.

(b) The 1-hour standards set forth in this section will remain applicable to all areas notwithstanding the promulgation of 8-hour ozone standards under § 50.10. The 1-hour NAAQS set forth in paragraph (a) of this section will no longer apply to an area one year after the effective date of the designation of that area for the 8-hour ozone NAAQS pursuant to section 107 of the Clean Air

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diameter less than or equal to a nominal 10 micrometers) by:

(1) A reference method based on appendix J and designated in accordance with part 53 of this chapter, or

(2) An equivalent method designated in accordance with part 53 of this chapter.

[52 FR 24663, July 1, 1987, as amended at 62 FR 38711, July 18, 1997; 65 FR 80779, Dec. 22, 2000; 71 FR 61224, Oct. 17, 2006]

### § 50.7 National primary and secondary ambient air quality standards for PM<sub>2.5</sub>.

(a) The national primary and secondary ambient air quality standards for particulate matter are 15.0 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) annual arithmetic mean concentration, and 65  $\mu\text{g}/\text{m}^3$  24-hour average concentration measured in the ambient air as PM<sub>2.5</sub> (particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers) by either:

(1) A reference method based on appendix L of this part and designated in accordance with part 53 of this chapter; or

(2) An equivalent method designated in accordance with part 53 of this chapter.

(b) The annual primary and secondary PM<sub>2.5</sub> standards are met when the annual arithmetic mean concentration, as determined in accordance with appendix N of this part, is less than or equal to 15.0 micrograms per cubic meter.

(c) The 24-hour primary and secondary PM<sub>2.5</sub> standards are met when the 98<sup>th</sup> percentile 24-hour concentration, as determined in accordance with appendix N of this part, is less than or equal to 65 micrograms per cubic meter.

[62 FR 38711, July 18, 1997, as amended at 69 FR 45595, July 30, 2004]

### § 50.8 National primary ambient air quality standards for carbon monoxide.

(a) The national primary ambient air quality standards for carbon monoxide are:

(1) 9 parts per million (10 milligrams per cubic meter) for an 8-hour average concentration not to be exceeded more than once per year and

(2) 35 parts per million (40 milligrams per cubic meter) for a 1-hour average concentration not to be exceeded more than once per year.

(b) The levels of carbon monoxide in the ambient air shall be measured by:

(1) A reference method based on appendix C and designated in accordance with part 53 of this chapter, or

(2) An equivalent method designated in accordance with part 53 of this chapter.

(c) An 8-hour average shall be considered valid if at least 75 percent of the hourly average for the 8-hour period are available. In the event that only six (or seven) hourly averages are available, the 8-hour average shall be computed on the basis of the hours available using six (or seven) as the divisor.

(d) When summarizing data for comparison with the standards, averages shall be stated to one decimal place. Comparison of the data with the levels of the standards in parts per million shall be made in terms of integers with fractional parts of 0.5 or greater rounding up.

[50 FR 37501, Sept. 13, 1985]

### § 50.9 National 1-hour primary and secondary ambient air quality standards for ozone.

(a) The level of the national 1-hour primary and secondary ambient air quality standards for ozone measured by a reference method based on appendix D to this part and designated in accordance with part 53 of this chapter, is 0.12 parts per million (235  $\mu\text{g}/\text{m}^3$ ). The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 parts per million (235  $\mu\text{g}/\text{m}^3$ ) is equal to or less than 1, as determined by appendix H to this part.

(b) The 1-hour standards set forth in this section will remain applicable to all areas notwithstanding the promulgation of 8-hour ozone standards under § 50.10. The 1-hour NAAQS set forth in paragraph (a) of this section will no longer apply to an area one year after the effective date of the designation of that area for the 8-hour ozone NAAQS pursuant to section 107 of the Clean Air

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Act. Area designations and classifications with respect to the 1-hour standards are codified in 40 CFR part 81.

(c) EPA's authority under paragraph (b) of this section to determine that the 1-hour standard no longer applies to an area based on a determination that the area has attained the 1-hour standard is stayed until such time as EPA issues a final rule revising or reinstating such authority and considers and addresses in such rulemaking any comments concerning (1) which, if any, implementation activities for a revised ozone standard (including but not limited to designation and classification of areas) would need to occur before EPA would determine that the 1-hour ozone standard no longer applies to an area, and (2) the effect of revising the ozone NAAQS on the existing 1-hour ozone designations.

[62 FR 38894, July 18, 1997, as amended at 65 FR 45200, July 20, 2000; 68 FR 38163, June 26, 2003, 69 FR 23996, Apr. 30, 2004]

### § 50.10 National 8-hour primary and secondary ambient air quality standards for ozone.

(a) The level of the national 8-hour primary and secondary ambient air quality standards for ozone, measured by a reference method based on appendix D to this part and designated in accordance with part 53 of this chapter, is 0.08 parts per million (ppm), daily maximum 8-hour average.

(b) The 8-hour primary and secondary ozone ambient air quality standards are met at an ambient air quality monitoring site when the average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to 0.08 ppm, as determined in accordance with appendix I to this part.

[62 FR 38894, July 18, 1997]

### § 50.11 National primary and secondary ambient air quality standards for nitrogen dioxide.

(a) The level of the national primary ambient air quality standard for nitrogen dioxide is 0.053 parts per million (100 micrograms per cubic meter), annual arithmetic mean concentration.

(b) The level of national secondary ambient air quality standard for nitrogen dioxide is 0.053 parts per million

(100 micrograms per cubic meter), annual arithmetic mean concentration.

(c) The levels of the standards shall be measured by:

(1) A reference method based on appendix F and designated in accordance with part 53 of this chapter, or

(2) An equivalent method designated in accordance with part 53 of this chapter.

(d) The standards are attained when the annual arithmetic mean concentration in a calendar year is less than or equal to 0.053 ppm, rounded to three decimal places (fractional parts equal to or greater than 0.0005 ppm must be rounded up). To demonstrate attainment, an annual mean must be based upon hourly data that are at least 75 percent complete or upon data derived from manual methods that are at least 75 percent complete for the scheduled sampling days in each calendar quarter.

[50 FR 25544, June 19, 1985]

### § 50.12 National primary and secondary ambient air quality standards for lead.

(a) National primary and secondary ambient air quality standards for lead and its compounds, measured as elemental lead by a reference method based on appendix G to this part, or by an equivalent method, are: 1.5 micrograms per cubic meter, maximum arithmetic mean averaged over a calendar quarter.

(b) The standards set forth in this section will remain applicable to all areas notwithstanding the promulgation of lead national ambient air quality standards (NAAQS) in § 50.16. The lead NAAQS set forth in this section will no longer apply to an area one year after the effective date of the designation of that area, pursuant to section 107 of the Clean Air Act, for the lead NAAQS set forth in § 50.16; except that for areas designated nonattainment for the lead NAAQS set forth in this section as of the effective date of § 50.16, the lead NAAQS set forth in this section will apply until that area submits, pursuant to section 191 of the Clean Air Act, and EPA approves, an

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Act. Area designations and classifications with respect to the 1-hour standards are codified in 40 CFR part 81.

(c) EPA's authority under paragraph (b) of this section to determine that the 1-hour standard no longer applies to an area based on a determination that the area has attained the 1-hour standard is stayed until such time as EPA issues a final rule revising or reinstating such authority and considers and addresses in such rulemaking any comments concerning (1) which, if any, implementation activities for a revised ozone standard (including but not limited to designation and classification of areas) would need to occur before EPA would determine that the 1-hour ozone standard no longer applies to an area, and (2) the effect of revising the ozone NAAQS on the existing 1-hour ozone designations.

[62 FR 38894, July 18, 1997, as amended at 65 FR 45200, July 20, 2000; 68 FR 38163, June 26, 2003, 69 FR 23996, Apr. 30, 2004]

### § 50.10 National 8-hour primary and secondary ambient air quality standards for ozone.

(a) The level of the national 8-hour primary and secondary ambient air quality standards for ozone, measured by a reference method based on appendix D to this part and designated in accordance with part 53 of this chapter, is 0.08 parts per million (ppm), daily maximum 8-hour average.

(b) The 8-hour primary and secondary ozone ambient air quality standards are met at an ambient air quality monitoring site when the average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to 0.08 ppm, as determined in accordance with appendix I to this part.

[62 FR 38894, July 18, 1997]

### § 50.11 National primary and secondary ambient air quality standards for nitrogen dioxide.

(a) The level of the national primary ambient air quality standard for nitrogen dioxide is 0.053 parts per million (100 micrograms per cubic meter), annual arithmetic mean concentration.

(b) The level of national secondary ambient air quality standard for nitrogen dioxide is 0.053 parts per million

(100 micrograms per cubic meter), annual arithmetic mean concentration.

(c) The levels of the standards shall be measured by:

(1) A reference method based on appendix F and designated in accordance with part 53 of this chapter, or

(2) An equivalent method designated in accordance with part 53 of this chapter.

(d) The standards are attained when the annual arithmetic mean concentration in a calendar year is less than or equal to 0.053 ppm, rounded to three decimal places (fractional parts equal to or greater than 0.0005 ppm must be rounded up). To demonstrate attainment, an annual mean must be based upon hourly data that are at least 75 percent complete or upon data derived from manual methods that are at least 75 percent complete for the scheduled sampling days in each calendar quarter.

[50 FR 25544, June 19, 1985]

### § 50.12 National primary and secondary ambient air quality standards for lead.

(a) National primary and secondary ambient air quality standards for lead and its compounds, measured as elemental lead by a reference method based on appendix G to this part, or by an equivalent method, are: 1.5 micrograms per cubic meter, maximum arithmetic mean averaged over a calendar quarter.

(b) The standards set forth in this section will remain applicable to all areas notwithstanding the promulgation of lead national ambient air quality standards (NAAQS) in § 50.16. The lead NAAQS set forth in this section will no longer apply to an area one year after the effective date of the designation of that area, pursuant to section 107 of the Clean Air Act, for the lead NAAQS set forth in § 50.16; except that for areas designated nonattainment for the lead NAAQS set forth in this section as of the effective date of § 50.16, the lead NAAQS set forth in this section will apply until that area submits, pursuant to section 191 of the Clean Air Act, and EPA approves, an

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implementation plan providing for attainment and/or maintenance of the lead NAAQS set forth in § 50.16.

(Secs. 109, 301(a) Clean Air Act as amended (42 U.S.C. 7409, 7601(a)))

[43 FR 46258, Oct. 5, 1978, as amended at 73 FR 67051, Nov. 12, 2008]

### § 50.13 National primary and secondary ambient air quality standards for PM<sub>2.5</sub>.

(a) The national primary and secondary ambient air quality standards for particulate matter are 15.0 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 PM<sub>2.5</sub> (particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers) by either:

(1) A reference method based on appendix L of this part and designated in accordance with part 53 of this chapter; or

(2) An equivalent method designated in accordance with part 53 of this chapter.

(b) The annual primary and secondary PM<sub>2.5</sub> standards are met when the annual arithmetic mean concentration, as determined in accordance with appendix N of this part, is less than or equal to 15.0  $\mu\text{g}/\text{m}^3$ .

(c) The 24-hour primary and secondary PM<sub>2.5</sub> standards are met when the 98th percentile 24-hour concentration, as determined in accordance with appendix N of this part, is less than or equal to 35  $\mu\text{g}/\text{m}^3$ .

[71 FR 61224, Oct. 17, 2006]

### § 50.14 Treatment of air quality monitoring data influenced by exceptional events.

(a) *Requirements.* (1) A State may request EPA to exclude data showing exceedances or violations of the national ambient air quality standard that are directly due to an exceptional event from use in determinations by demonstrating to EPA's satisfaction that such event caused a specific air pollution concentration at a particular air quality monitoring location.

(2) Demonstration to justify data exclusion may include any reliable and accurate data, but must demonstrate a

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clear causal relationship between the measured exceedance or violation of such standard and the event in accordance with paragraph (c)(3)(iv) of this section.

(b) *Determinations by EPA.* (1) EPA shall exclude data from use in determinations of exceedances and NAAQS violations where a State demonstrates to EPA's satisfaction that an exceptional event caused a specific air pollution concentration in excess of one or more national ambient air quality standards at a particular air quality monitoring location and otherwise satisfies the requirements of this section.

(2) EPA shall exclude data from use in determinations of exceedances and NAAQS violations where a State demonstrates to EPA's satisfaction that emissions from fireworks displays caused a specific air pollution concentration in excess of one or more national ambient air quality standards at a particular air quality monitoring location and otherwise satisfies the requirements of this section. Such data will be treated in the same manner as exceptional events under this rule, provided a State demonstrates that such use of fireworks is significantly integral to traditional national, ethnic, or other cultural events including, but not limited to July Fourth celebrations which satisfy the requirements of this section.

(3) EPA shall exclude data from use in determinations of exceedances and NAAQS violations, where a State demonstrates to EPA's satisfaction that emissions from prescribed fires caused a specific air pollution concentration in excess of one or more national ambient air quality standards at a particular air quality monitoring location and otherwise satisfies the requirements of this section provided that such emissions are from prescribed fires that EPA determines meets the definition in § 50.1(j), and provided that the State has certified to EPA that it has adopted and is implementing a Smoke Management Program or the State has ensured that the burner employed basic smoke management practices. If an exceptional event occurs using the basic smoke management