



6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R03-OAR-2017-0423; FRL-9977-34-Region 3]

Approval and Promulgation of Air Quality Implementation Plans; Pennsylvania; Base Year Emissions Inventories for the Lebanon and Delaware County Nonattainment Areas for the 2012 Annual Fine Particulate Matter National Ambient Air Quality Standard

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to approve two state implementation plan (SIP) revisions submitted by the Commonwealth of Pennsylvania. These revisions pertain to base year emission inventories for the Lebanon County and Delaware County nonattainment areas for the 2012 annual fine particulate national ambient air quality standard (NAAQS). The Clean Air Act (CAA) requires states to submit a comprehensive, accurate and current inventory of actual emissions from all sources of direct and secondary ambient fine particulate matter less than 2.5 microns in diameter (PM_{2.5}) for all PM_{2.5} nonattainment areas. This action is being taken under Title I of the CAA.

DATES: Written comments must be received on or before **[insert date 30 days after date of publication in the Federal Register]**.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-R03-OAR-2017-0423 at <http://www.regulations.gov>, or via email to spielberger.susan@epa.gov. For comments submitted at Regulations.gov, follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. For either manner of

submission, EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, please contact the person identified in the “For Further Information Contact” section. For the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <http://www2.epa.gov/dockets/commenting-epa-dockets>.

FOR FURTHER INFORMATION CONTACT: Brian Rehn, (215) 814-2176, or by e-mail at rehn.brian@epa.gov.

SUPPLEMENTARY INFORMATION:

I. Background

Ambient or outdoor air can contain a variety of pollutants, including particulate matter (PM). Airborne PM can be comprised of either solid or liquid particles, or a complex mixture of particles in both solid and liquid form. The most common airborne PM constituents include sulfate (SO₄); nitrate (NO₃); ammonium; elemental carbon; organic mass; and inorganic material, referred to as “crustal” material, which can include metals, dust, soil and other trace elements. PM_{2.5} includes “primary” particles, which are directly emitted into the air by a variety of sources, and “secondary” particles, that are formed in the atmosphere as a result

of reactions between precursor pollutants (e.g., SO₄ and NO₃ from emissions of mobile and stationary sources of oxides of nitrogen and sulfur dioxide combining with ammonia).

The human health effects associated with long- or short-term exposure to PM_{2.5} are significant and include premature mortality, aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions and emergency room visits) and development of chronic respiratory disease. Welfare effects associated with elevated PM_{2.5} levels include visibility impairment, effects on sensitive ecosystems, materials damage and soiling, and climatic and radiative processes.

On December 14, 2012, EPA promulgated a revised primary annual PM_{2.5} NAAQS to provide increased protection of public health from fine particle pollution (the 2012 annual PM_{2.5} NAAQS). 78 FR 3086 (January 15, 2013). In that action, EPA strengthened the primary annual PM_{2.5} standard, lowering the level from 15.0 micrograms per cubic meter (µg/m³) to 12.0 mg/m³. The 2012 annual PM_{2.5} NAAQS is attained when the 3-year average of the annual arithmetic mean monitored values does not exceed 12.0 mg/m³. *See* 40 CFR 50.18.

On January 15, 2015 (80 FR 2206), EPA published area designations, as required by CAA section 107(d)(1), for the 2012 annual PM_{2.5} NAAQS. Through that designations action, EPA identified as “nonattainment” those areas that were then violating the 2012 annual PM_{2.5} NAAQS based on quality-assured, certified air quality monitoring data from 2011 to 2013 and those areas that contributed to a violation of the NAAQS in a nearby area. In that action, EPA designated the Delaware County and Lebanon County nonattainment areas as moderate nonattainment for the 2012 annual PM_{2.5} NAAQS, effective April 15, 2015. *See* 40 CFR 81.339. Pennsylvania’s Delaware County and the Lebanon County nonattainment areas are each

comprised of a single county. Under section 172(c)(3) of the CAA, Pennsylvania is required to submit a comprehensive, accurate, and current inventory of actual emissions from all sources (point, nonpoint, nonroad, and onroad) of the relevant pollutants, in each nonattainment area. EPA's "Provisions for Implementation of the PM_{2.5} NAAQS" (or PM implementation rule), at 40 CFR part 51, subpart Z, sets criteria for which pollutants are to be included by states in the required base year emission inventory. This inventory must include direct PM_{2.5} emissions, separately reported PM_{2.5} filterable and condensable emissions, and emissions of the PM_{2.5} precursors. 40 CFR 51.1008.

II. Summary of SIP Revision and EPA Analysis

On May 5, 2017, the Pennsylvania Department of Environmental Protection (PADEP) submitted a formal SIP revision consisting of the 2011 base year emissions inventory for the Delaware County nonattainment area for the 2012 annual PM_{2.5} NAAQS. On September 25, 2017, PADEP submitted a formal revision consisting of the 2011 base year emission inventory for the Lebanon County nonattainment area for the 2012 annual PM_{2.5} NAAQS.

PADEP selected 2011 as its base year for SIP planning purposes, per EPA's PM implementation rule, at 40 CFR 51.1008(a)(1)(i), which requires that the base year inventory year shall be one of the 3 years for which monitored data were used for designations or another technically appropriate inventory year if justified by the state in the plan submission. EPA's nonattainment designations for the 2012 annual PM_{2.5} NAAQS were made for both the Delaware County and Lebanon County nonattainment areas based on monitoring data from 2011-2013 and thus included 2011. Furthermore, 2011 was the most recent and complete inventory for which emissions could be derived from the 2011 National Emission Inventory Version 2 (NEI v2).

PADEP's 2011 base year inventories for both areas include emissions estimates covering the stationary point, area (nonpoint), nonroad mobile, onroad mobile, and source categories.

EPA's PM_{2.5} implementation rule requires the base year emissions inventory to include direct PM_{2.5} emissions, as well as separately reported PM_{2.5} filterable and condensable emissions, and emissions of the scientific PM_{2.5} precursors. 40 CFR 51.1008(a)(1)(iv). In its 2011 base year inventory SIP submittals for the Delaware and Lebanon County nonattainment areas, PADEP reported actual annual emissions of directly-emitted PM_{2.5} emissions (PM_{2.5} PRI), as well as separately reported PM_{2.5} filterable and condensable particulate matter (PM CON) emissions.

PM CON is matter that exists as a vapor at stack conditions, but becomes a solid or liquid once it exits the stack and is cooled by ambient air. PADEP's base year inventories for these areas also include directly-emitted, primary particulate matter less than 10 microns in diameter (PM₁₀ PRI), emissions precursors that contribute to secondary formation of PM_{2.5}, including sulfur dioxides (SO₂), nitrogen oxides (NO_x), volatile organic compounds (VOC), and ammonia (NH₃) emissions.

Table 1 summarizes the 2011 emission inventory by source sector for each pollutant or pollutant precursor for the Delaware County 2012 annual PM_{2.5} nonattainment area, expressed as annual emissions in tons per year (tpy).

Table 1. Summary of 2011 Emissions of PM_{2.5}, PM₁₀, and PM_{2.5} Precursors for the Delaware County 2012 Annual PM_{2.5} NAAQS Nonattainment Area

Source Sector	Annual Emissions (tpy)					
	PM ₁₀ Primary ¹	PM _{2.5} Primary ²	SO ₂	NO _x	VOC	NH ₃
Stationary Point Sources ³	1,671.81	1,496.70	4,975.94	7,641.98	1,393.18	217.50

Area Sources ⁴	2,502.73	998.82	2,055.13	2,875.85	6,779.07	206.47
Onroad Mobile Sources ⁵	328.61	179.01	31.05	5,643.30	2,999.73	130.41
Nonroad Mobile Sources	128.87	121.78	3.498	1,123.96	1,787.97	1.759
Total Emissions	4,632.02	2,796.30	7,065.62	17,285.08	12,959.95	556.14

¹ Primary PM particles are emitted directly to the air from a source and include both filterable particulate and condensable components. Condensable PM (PM CON) exists as a vapor at stack conditions but exists as a solid or liquid once it exits the stack and is cooled by ambient air. All PM CON is smaller than 2.5 microns in diameter and, therefore, represents condensable matter for both PM₁₀ and PM_{2.5}. PM₁₀ Primary is the sum of filterable PM₁₀ (PM₁₀ FIL) and PM CON.

² PM_{2.5} Primary is the sum of filterable PM_{2.5} and PM CON.

³ The PM₁₀ Primary value for stationary point sources includes a condensable component of 656.39 tpy. Because PM₁₀ includes PM_{2.5} by definition, the PM_{2.5} Primary value for stationary point sources includes the same condensable component of 656.39 tpy.

⁴ PM₁₀ Primary includes PM₁₀ FIL and PM CON. PM_{2.5} Primary includes PM_{2.5} FIL and PM CON. Condensable emissions for the area source sector are a subset of PM Primary emissions, or 164.93 tpy.

⁵ Condensable emissions for the onroad and nonroad sectors are not separately calculated by the MOVES model, and are therefore included within the PM₁₀ Primary and PM_{2.5} Primary values of this table.

Table 2 summarizes the 2011 emission inventory by source sector for each pollutant or pollutant precursor for the Lebanon County 2012 annual PM_{2.5} nonattainment area, expressed as annual emissions in tons per year.

Table 2. Summary of 2011 Emissions of PM_{2.5}, PM₁₀, and PM_{2.5} Precursors for the Lebanon County 2012 Annual PM_{2.5} NAAQS Nonattainment Area

Source Sector	Annual Emissions (tpy)					
	PM ₁₀ Primary ¹	PM _{2.5} Primary ²	SO ₂	NO _x	VOC	NH ₃
Stationary Point Sources ³	136.64	80.68	278.53	690.30	182.37	17.44
Area Sources ⁴	4,462.63	1,287.21	373.62	869.09	5,924.16	3,843.03
Onroad Mobile Sources ⁵	140.23	92.50	11.21	2,937.04	1,331.72	49.15
Nonroad Mobile Sources	64.48	61.55	1.684	615.91	668.43	0.751
Total Emissions	4,803.98	1,521.94	665.05	5,112.33	8,106.69	3,910.37

¹ Primary PM particles are emitted directly to the air from a source and include both filterable particulate and condensable components. PM₁₀ Primary is the sum of filterable PM₁₀ FIL and PM CON.

² PM_{2.5} Primary is the sum of filterable PM_{2.5} and PM CON.

³ The PM₁₀ Primary value for stationary point sources includes a condensable component of 48.04 tpy. Because PM₁₀ includes PM_{2.5} by definition, the PM_{2.5} Primary value for stationary point sources includes the same condensable component of 48.04 tpy.

⁴ PM₁₀ Primary includes PM₁₀ FIL and PM CON. PM_{2.5} Primary includes PM_{2.5} FIL and PM CON. Condensable emissions for the area source sector are a subset of PM Primary emissions, or 38.88 tpy.

⁵ Condensable emissions for the onroad and nonroad sectors are not separately calculated by the MOVES model, and are therefore included within the PM₁₀ Primary and PM_{2.5} Primary values of this table.

Stationary point sources are large, stationary, and identifiable sources of emissions that release pollutants into the atmosphere. PADEP extracted data for PM_{2.5} source emissions from the 2011 NEI v2, which receives input from each state's annual inventory estimates. For the Delaware County nonattainment area, major sources of PM_{2.5} emissions and precursors have historically been refineries, electric power plants, and pulp and paper mills. For the Lebanon County nonattainment area, the major sources include an electric power plant and a mineral processing facility.

Area sources are stationary, nonpoint sources that are too small and numerous to be inventoried individually. Area sources are inventoried at the county level and aggregated with like categories. Area sources are typically estimated by multiplying an emission factor by some collective activity for each source category, such as population or employment data. PADEP accounted for control efficiency, rule effectiveness, and rule penetration in its area source calculations, where possible. PADEP's SIP submittals for the Delaware County and Lebanon County nonattainment areas each lists these area source emissions by source category in an appendix to the SIP.

Onroad sources of emissions include motor vehicles, such as cars, trucks, and buses, which are operated on public roadways. PADEP modelled onroad emissions using EPA's Motor Vehicle Emission Simulator (MOVES) model, version MOVES2014, coupled with vehicle miles of travel activity levels. PADEP reports these onroad emissions estimates in an appendix of each area's SIP submittal by pollutant and by highway source category.

Nonroad sources are mobile, internal combustion sources other than highway motor vehicles, including, but not limited to, lawn and garden equipment, recreational vehicles, construction and agricultural equipment, and industrial equipment. However, emissions from locomotives, commercial marine vessels, and aircraft are included with the point and area source sectors. Nonroad mobile source emissions from different source categories are calculated using various methodologies, primarily by use of EPA's MOVES NONROAD emissions model or from EPA's National Mobile Inventory Model (NMIM). PADEP reports its nonroad emissions in an appendix to each area's base year SIP submittal.

EPA reviewed Pennsylvania's 2011 base year emission inventory submissions including results, procedures, and methodologies for the Delaware County and Lebanon County nonattainment areas and found them to be acceptable and approvable under sections 110 and 172(c)(3) of the CAA. EPA prepared a Technical Support Document (TSD) for each of the Delaware County and Lebanon County nonattainment areas in support of this rulemaking. These TSDs are available online at <http://www.regulations.gov>, Docket ID No. EPA-R03-OAR-2017-0423.

III. Proposed Action

EPA is proposing to approve Pennsylvania's SIP revision dated May 5, 2017 for the base year emission inventory for the Delaware County 2012 annual PM_{2.5} NAAQS nonattainment area and Pennsylvania's SIP revision dated September 25, 2017 for the base year emission inventory for the Lebanon County 2012 annual PM_{2.5} NAAQS nonattainment area. EPA is proposing to approve the base year emission inventories for these areas because the inventories for PM_{2.5} and its precursors were prepared in accordance with the applicable requirements of sections 110 and

172(c)(3) of the CAA and its implementing regulations including 40 CFR 51.1008. EPA is soliciting public comments on the issues discussed in this document. These comments will be considered before taking final action. EPA is taking a single rulemaking action proposing to approve both of these SIP submittals, which were submitted separately, as they address the same emission inventory requirement for two different moderate 2012 annual PM_{2.5} nonattainment areas in the same state. However, if EPA receives adverse comment on the proposed approval affecting only one of these SIP revisions, EPA reserves the right to take separate final action on the remaining SIP revision if relevant comments are not received on that SIP revision.

IV. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the CAA and applicable federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this action merely approves state law as meeting federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this proposed action:

- Is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Orders 12866 (58 FR 51735, October 4, 1993) and 13563 (76 FR 3821, January 21, 2011);
- Is not an Executive Order 13771 (82 FR 9339, February 2, 2017) regulatory action because SIP approvals are exempted under Executive Order 12866.
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.);

- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 et seq.);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- Does not have federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- Is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA; and
- Does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, this proposed rule to approve the base year emission inventory SIP revisions for the Delaware County and Lebanon County nonattainment areas under the 2012 annual PM_{2.5} NAAQS does not have tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), because the SIP is not approved to apply in Indian country located in the state, and EPA notes that it will not impose substantial direct costs on tribal governments or preempt tribal law.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

Authority: 42 U.S.C. 7401 et seq.

Dated: April 19, 2018.

Cosmo Servidio,
Regional Administrator,
Region III.

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