ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R09–OAR–2021–0260; FRL–8644–02–R9]

Partial Approval and Partial Disapproval of Air Quality Implementation Plans; California; San Joaquin Valley Serious Area and Section 189(d) Plan for Attainment of the 1997 Annual $PM_{2.5}$ NAAQS

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to approve in part and disapprove in part portions of a state implementation plan (SIP) revision submitted by the State of California to meet Clean Air Act (CAA or ''Act'') requirements for the 1997 annual fine particulate matter ($PM_{2.5}$) national ambient air quality standards (NAAQS or ''standards'') in the San Joaquin Valley $PM_{2.5}$ nonattainment area. Specifically, the EPA is proposing to approve the 2013 base year emissions inventories in the submitted SIP revisions. Because the area did not attain by the State's projected attainment date of December 31, 2020, the EPA is proposing to disapprove the attainment demonstration and related elements, including the comprehensive precursor demonstration, five percent annual emission reductions demonstration, best available control measures (BACM) demonstration, reasonable further progress (RFP) demonstration, quantitative milestone demonstration, and contingency measures. The EPA is also proposing to disapprove the motor vehicle emission budgets in the plan as not meeting the requirements of the CAA and EPA regulations.

DATES: Any comments on this proposal must be received by August 23, 2021.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–R09–OAR–2021–0260 at *https://www.regulations.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*. The 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 (*e.g.,* audio or video) 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. The 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 *https://www.epa.gov/dockets/commenting-epa-dockets.* If you need assistance in a language other than English or if you are a person with disabilities who needs a reasonable accommodation at no cost to you, please contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section.

FOR FURTHER INFORMATION CONTACT: Ashley Graham, Air Planning Office (ARD–2), EPA Region IX, 75 Hawthorne Street, San Francisco, CA 94105, (415) 972–3877, or by email at *graham.ashleyr@epa.gov.*

SUPPLEMENTARY INFORMATION: Throughout this document, ''we,'' ''us,'' and ''our'' refer to the EPA.

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I. Background for Proposed Action

A. $PM_{2.5}$ NAAQS

Under section 109 of the CAA, the EPA has established NAAQS for certain pervasive air pollutants (referred to as ''criteria pollutants'') and conducts periodic reviews of the NAAQS to determine whether they should be revised or whether new NAAQS should be established.

On July 18, 1997, the EPA revised the NAAQS for particulate matter by establishing new NAAQS for particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$).[1] The EPA established primary and secondary annual and 24-hour standards for $PM_{2.5}$.[2] The annual primary and secondary standards were set at 15.0 micrograms per cubic meter ($\mu g/m^3$), based on a three-year average of annual mean $PM_{2.5}$ concentrations, and the 24-hour primary and secondary standards were set at 65 $\mu g/m^3$, based on the three-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations at each monitoring site within an area.[3] Collectively, we refer herein to the 1997 annual and 24-hour $PM_{2.5}$ NAAQS as the ''1997 $PM_{2.5}$ NAAQS'' or ''1997 $PM_{2.5}$ standards.''

On October 17, 2006, the EPA revised the level of the 24-hour $PM_{2.5}$ NAAQS to 35 $\mu g/m^3$,[4] and on January 15, 2013, the EPA revised the level of the primary annual $PM_{2.5}$ NAAQS to 12.0 $\mu g/m^3$.[5] Even though the EPA has lowered the 24-hour and annual $PM_{2.5}$ standards, the 1997 $PM_{2.5}$ standards remain in effect.

The EPA established these standards after considering substantial evidence from numerous health studies demonstrating that serious health effects are associated with exposures to $PM_{2.5}$ concentrations above these levels. Epidemiological studies have shown statistically significant correlations between elevated $PM_{2.5}$ levels and premature mortality. Other important health effects associated with $PM_{2.5}$ exposure include aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions, emergency room visits, absences from school or work, and restricted activity dates), changes in lung function and increased respiratory symptoms, and new evidence for more subtle indicators of cardiovascular health. Individuals particularly sensitive to $PM_{2.5}$ exposure include

[1] 62 FR 38652.

[2] For a given air pollutant, ''primary'' NAAQS are those determined by the EPA as requisite to protect the public health, allowing an adequate margin of safety, and ''secondary'' standards are those determined by the EPA as requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air. See CAA section 109(b).

[3] 40 CFR 50.7.

[4] 71 FR 61144.

[5] 78 FR 3086.

older adults, people with heart and lung disease, and children.[6]

Sources can emit $PM_{2.5}$ directly into the atmosphere as a solid or liquid particle (primary $PM_{2.5}$ or direct $PM_{2.5}$), or $PM_{2.5}$ can form in the atmosphere (secondary $PM_{2.5}$) as a result of various chemical reactions from precursor emissions of nitrogen oxides (NO_X), sulfur oxides (SO_X), volatile organic compounds (VOC), and ammonia.[7]

B. San Joaquin Valley $PM_{2.5}$ Designations, Classifications, and SIP Revisions

Following promulgation of a new or revised NAAQS, the EPA is required under CAA section 107(d) to designate areas throughout the nation as attaining or not attaining the NAAQS. Effective April 5, 2005, the EPA established the initial air quality designations for the 1997 annual and 24-hour $PM_{2.5}$ NAAQS, using air quality monitoring data for the three-year periods of 2001–2003 and 2002–2004.[8] The EPA designated the San Joaquin Valley as nonattainment for both the 1997 annual $PM_{2.5}$ NAAQS (15.0 μg/m^3) and the 1997 24-hour $PM_{2.5}$ NAAQS (65 μg/m^3).[9]

The San Joaquin Valley $PM_{2.5}$ nonattainment area encompasses over 23,000 square miles and includes all or part of eight counties: San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kings, and the valley portion of Kern.[10] The area is home to four million people and is one of the nation's leading agricultural regions. Stretching over 250 miles from north to south and averaging 80 miles wide, it is partially enclosed by the Coast Mountain range to the west, the Tehachapi Mountains to the south, and the Sierra Nevada range to the east. Under State law, the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD or ''District'') has primary responsibility for developing plans to provide for attainment of the NAAQS in this area. The District works cooperatively with the California Air Resources Board (CARB) in preparing attainment plans. Authority for regulating sources under state jurisdiction in the San Joaquin Valley is split under State law between the District, which has responsibility for regulating stationary and most area sources, and CARB, which has responsibility for regulating most mobile sources.

Within three years of the effective date of designations, states with areas designated as nonattainment for the 1997 $PM_{2.5}$ NAAQS were required to submit SIP revisions that, among other things, provided for implementation of reasonably available control measures (RACM), RFP, attainment of the standards as expeditiously as practicable but no later than five years from the nonattainment designation (in this instance, no later than April 5, 2010) unless the state justified an attainment date extension of up to five years, and contingency measures.[11]

Between 2007 and 2011, California submitted six SIP revisions to address nonattainment area planning requirements for the 1997 $PM_{2.5}$ NAAQS in the San Joaquin Valley,[12] which we refer to collectively as the ''2008 $PM_{2.5}$ Plan.'' On November 9, 2011, the EPA approved the portions of the 2008 $PM_{2.5}$ Plan, as revised in 2009 and 2011, that addressed attainment of the 1997 $PM_{2.5}$ NAAQS in the San Joaquin Valley $PM_{2.5}$ nonattainment area, except for the attainment contingency measures, which we disapproved.[13] We also granted the State's request to extend the attainment deadline for the 1997 $PM_{2.5}$ NAAQS in the San Joaquin Valley to April 5, 2015.[14]

Following a January 4, 2013 decision of the U.S. Court of Appeals for the D.C. Circuit (''D.C. Circuit'') remanding the EPA's 2007 implementation rule for the 1997 $PM_{2.5}$ NAAQS,[15] the EPA published a final rule on June 2, 2014, classifying the San Joaquin Valley, among other areas, as a Moderate nonattainment area for the 1997 $PM_{2.5}$ NAAQS under subpart 4, part D of title I of the Act.[16]

Effective May 7, 2015, the EPA reclassified the San Joaquin Valley as a Serious nonattainment area for the 1997 $PM_{2.5}$ NAAQS based on our determination that the area could not practicably attain these NAAQS by the April 5, 2015 attainment date.[17] Upon reclassification as a Serious area, the San Joaquin Valley became subject to a December 31, 2015 deadline under CAA section 188(c)(2) to attain the 1997 $PM_{2.5}$ NAAQS. On February 9, 2016, the EPA proposed to grant the State's request for extensions of the December 31, 2015 attainment date under CAA section 188(e), to December 31, 2018, for the 1997 24-hour $PM_{2.5}$ NAAQS, and to December 31, 2020, for the 1997 annual $PM_{2.5}$ NAAQS in the San Joaquin Valley.[18] However, on October 6, 2016, after considering public comments, the EPA denied California's request for these extensions of the attainment dates.[19] Consequently, on November 23, 2016, the EPA determined that the San Joaquin Valley had failed to attain the 1997 $PM_{2.5}$ NAAQS by the December 31, 2015 Serious area attainment date.[20] This determination triggered a requirement for California to submit, by December 31, 2016, a revised $PM_{2.5}$ attainment plan for the 1997 $PM_{2.5}$ NAAQS for the San Joaquin Valley that satisfies the requirements of CAA section 189(d).

On December 6, 2018, the EPA determined that California had failed to submit a complete Serious area and section 189(d) attainment plan for the 1997 $PM_{2.5}$ NAAQS, among other required SIP submissions for the San Joaquin Valley, by the submittal deadline.[21] This finding, which became effective on January 7, 2019, triggered clocks under CAA section 179(a) for the application of emissions offset sanctions 18 months after the finding and highway funding sanctions six months thereafter, unless the EPA affirmatively determines that the State has submitted a complete SIP addressing the identified deficiencies.[22] The finding also triggered the obligation under CAA section 110(c) on the EPA to promulgate a federal implementation plan no later than two years after the finding, unless the State has submitted, and the EPA has approved, the required SIP

[6] EPA, Air Quality Criteria for Particulate Matter, No. EPA/600/P–99/002aF and EPA/600/P–99/002bF, October 2004.

[7] For example, see 72 FR 20586, 20589 (April 25, 2007).

[8] 70 FR 944 (January 5, 2005).

[9] 40 CFR 81.305.

[10] For a precise description of the geographic boundaries of the San Joaquin Valley nonattainment area, see 40 CFR 81.305.

[11] CAA sections 172(a)(2), 172(c)(1), 172(c)(2), and 172(c)(9).

[12] 76 FR 69896, n. 2 (November 9, 2011).

[13] Id. at 69924.

[14] Id.

[15] *Natural Resources Defense Council* v. *EPA,* 706 F.3d. 428 (D.C. Cir. 2013) (''NRDC''). In NRDC, the court held that the EPA erred in implementing the 1997 $PM_{2.5}$ standards solely pursuant to the general implementation requirements of subpart 1, without also considering the requirements specific to nonattainment areas for particles less than or equal to 10 μm in diameter (PM_{10}) in subpart 4, part D of title I of the CAA. The court reasoned that the plain meaning of the CAA requires implementation of the 1997 $PM_{2.5}$ standards under subpart 4 because $PM_{2.5}$ falls within the statutory definition of PM_{10} and is thus subject to the same statutory requirements as PM_{10}. The court remanded the rule, without vacatur, and instructed the EPA ''to repromulgate these rules pursuant to Subpart 4 consistent with this opinion.''

[16] 79 FR 31566.

[17] 80 FR 18528 (April 7, 2015).

[18] 81 FR 6936. California's request for extension of the Serious Area attainment date for the San Joaquin Valley accompanied its Serious Area attainment plan for the 1997 $PM_{2.5}$ NAAQS and related motor vehicle emission budgets, submitted June 25, 2015 and August 13, 2015, respectively.

[19] 81 FR 69396. The EPA did not finalize the actions proposed on February 9, 2016, with respect to the submitted Serious area plan. Id. at 69400.

[20] 81 FR 84481.

[21] 83 FR 62720.

[22] Id. at 62723.

submittal.[23] CARB submitted a revised attainment plan for the 1997 $PM_{2.5}$ NAAQS, among other submissions, on May 10, 2019.[24] This SIP revision is the subject of this proposal. On June 24, 2020, the EPA issued a letter finding the submittal complete and terminating the sanctions clocks under CAA section 179(a).[25]

II. Summary and Completeness Review of the San Joaquin Valley $PM_{2.5}$ Plan

The EPA is proposing action on portions of three SIP revisions submitted by CARB to meet CAA requirements for the 1997 annual $PM_{2.5}$ NAAQS in the San Joaquin Valley. Specifically, the EPA is proposing to act on those portions of the following two plan submissions that pertain to the 1997 annual $PM_{2.5}$ NAAQS: The ''2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards,'' adopted by the SJVUAPCD on November 15, 2018, and by CARB on January 24, 2019 (''2018 $PM_{2.5}$ Plan''); [26] and the ''San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan,'' adopted by CARB on October 25, 2018 (''Valley State SIP Strategy''). CARB submitted the 2018 $PM_{2.5}$ Plan and Valley State SIP Strategy to the EPA as a revision to the California SIP on May 10, 2019.[27] We refer to these two SIP submissions collectively as the ''SJV $PM_{2.5}$ Plan'' or ''Plan.''

The EPA is also proposing action on 2019 amendments to the regional air district residential wood-burning rule, SJVUAPCD Rule 4901, ''Wood Burning Fireplaces and Wood Burning Heaters'' (''Rule 4901''), adopted by the SJVUAPCD on June 20, 2019, and by CARB on July 19, 2019.[28] These amendments include a contingency measure (in section 5.7.3 of the amended rule) that applies to the 1997 annual $PM_{2.5}$ NAAQS.

The SJV $PM_{2.5}$ Plan addresses the Serious area and CAA section 189(d) requirements for the 1997 $PM_{2.5}$ NAAQS in the San Joaquin Valley, including the State's demonstration that the area will attain the 1997 annual $PM_{2.5}$ NAAQS by December 31, 2020. In this proposal, the EPA is proposing to act only on those portions of the SJV $PM_{2.5}$ Plan that pertain to the 1997 annual $PM_{2.5}$ NAAQS. The EPA intends to act on the portions of the SJV $PM_{2.5}$ Plan that pertain to the 1997 24-hour $PM_{2.5}$ NAAQS and subsequent $PM_{2.5}$ NAAQS in separate rulemakings.

CAA sections 110(a)(1) and (2) and 110(l) require each state to provide reasonable public notice and opportunity for public hearing prior to the adoption and submission of a SIP or SIP revision to the EPA. To meet this requirement, every SIP submission should include evidence that adequate public notice was given and that an opportunity for a public hearing was provided consistent with the EPA's implementing regulations in 40 CFR 51.102.

CAA section 110(k)(1)(B) requires the EPA to determine whether a SIP submission is complete within 60 days of receipt. This section also provides that any plan that the EPA has not affirmatively determined to be complete or incomplete will become complete by operation of law six months after the date of submission. The EPA's SIP completeness criteria are found in 40 CFR part 51, Appendix V.

A. 2018 $PM_{2.5}$ Plan

The following portions of the 2018 $PM_{2.5}$ Plan and related support documents address both the Serious area requirements in CAA section 189(b) and the CAA section 189(d) requirements for the 1997 annual $PM_{2.5}$ NAAQS in the San Joaquin Valley: (i) Chapter 4 (''Attainment Strategy for $PM_{2.5}$''), (ii) Chapter 5 (''Demonstration of Federal Requirements for 1997 $PM_{2.5}$ Standards''); [29] (iii) numerous appendices to the 2018 $PM_{2.5}$ Plan; (iv) CARB's ''Staff Report, Review of the San Joaquin Valley 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards,'' release date December 21, 2018 (''CARB Staff Report''); [30] and (v) the State's and District's board resolutions adopting the 2018 $PM_{2.5}$ Plan (CARB Resolution 19–1 and SJVUAPCD Governing Board Resolution 18–11–16).[31]

The appendices to the 2018 $PM_{2.5}$ Plan that address the requirements for the 1997 annual $PM_{2.5}$ NAAQS include: (i) Appendix A (''Ambient $PM_{2.5}$ Data Analysis''); (ii) Appendix B (''Emissions Inventory''); (iii) Appendix C (''Stationary Source Control Measure Analyses''); (iv) Appendix D (''Mobile Source Control Measure Analyses''); (v) Appendix G (''Precursor Demonstration''); (vi) Appendix H (''RFP, Quantitative Milestones, and Contingency''); [32] (vii) Appendix I (''New Source Review and Emission Reduction Credits''); (viii) Appendix J (''Modeling Emission Inventory''); (ix) Appendix K (''Modeling Attainment Demonstration''); and (x) Appendix L (''Modeling Protocol'').

The District provided public notice and opportunity for public comment prior to its November 15, 2018 public hearing on and adoption of the 2018 $PM_{2.5}$ Plan.[33] CARB also provided public notice and opportunity for public comment prior to its January 24, 2019 public hearing on and adoption of the

[23] Id.

[24] Letter dated May 9, 2019, from Richard Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region 9.

[25] Letter dated June 24, 2020, from Elizabeth J. Adams, Director, Air and Radiation Division, EPA Region IX, to Richard W. Corey, Executive Officer, CARB, Subject: ''RE: Completeness Finding for State Implementation Plan (SIP) Submissions for San Joaquin Valley for the 1997, 2006, and 2012 Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standards (NAAQS) and Termination of Clean Air Act (CAA) Sanction Clocks.''

[26] The 2018 $PM_{2.5}$ Plan was developed jointly by CARB and the District.

[27] Letter dated May 9, 2019, from Richard Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region 9. The letter clarifies that the 2018 $PM_{2.5}$ Plan supersedes past submittals to the EPA that the agency has not yet acted on for the 1997 standards, including the *2015 Plan for the 1997 Standard* (submitted by CARB on June 25, 2015) and motor vehicle emission budgets (submitted by CARB August 13, 2015). The EPA previously acted on those portions of the ''2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards'' and the ''San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan'' that pertain to the 2006 $PM_{2.5}$ NAAQS (85 FR 44192, July 22, 2020), and is not, at this time, proposing to act on those portions that pertain to the 1997 24-hour $PM_{2.5}$ NAAQS or the 2012 annual $PM_{2.5}$ NAAQS. We intend to act on these portions of the submitted SIP revisions in subsequent rulemakings.

[28] Letter dated July 19, 2019, from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region 9.

[29] Chapter 6 (''Demonstration of Federal Requirements for the 2006 $PM_{2.5}$ Standard: Serious Plan and Extension Request'') and Chapter 7 (''Demonstration of Federal Requirements for the 2012 $PM_{2.5}$ Standard'') of the 2018 $PM_{2.5}$ Plan pertain to the 2006 $PM_{2.5}$ NAAQS and the 2012 $PM_{2.5}$ NAAQS, respectively. The EPA previously acted on those portions of the Plan that pertain to the 2006 $PM_{2.5}$ NAAQS (85 FR 44192, July 22, 2020) and intends to act on those portions that pertain to the 1997 24-hour $PM_{2.5}$ NAAQS and 2012 $PM_{2.5}$ NAAQS in separate rulemakings.

[30] Letter dated December 11, 2019, from Richard Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region 9, transmitting the CARB Staff Report [on the 2018 $PM_{2.5}$ Plan]. The CARB Staff Report includes CARB's review of, among other things, the 2018 $PM_{2.5}$ Plan's control strategy and attainment demonstration.

[31] CARB Resolution 19–1, ''2018 $PM_{2.5}$ State Implementation Plan for the San Joaquin Valley,'' January 24, 2019, and SJVUAPCD Governing Board Resolution 18–11–16, ''Adopting the [SJVUAPCD] 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards,'' November 15, 2018.

[32] Appendix H to 2018 $PM_{2.5}$ Plan, submitted February 11, 2020 via the EPA State Planning Electronic Collaboration System. Following the identification of a transcription error in the RFP tables of Appendix H, on February 11, 2020, the State submitted a revised version of Appendix H that corrects the transcription error and provides additional information on the RFP demonstration. All references to Appendix H in this proposed rule are to the revised version submitted on February 11, 2020, which replaces the version submitted with the 2018 $PM_{2.5}$ Plan on May 10, 2019.

[33] SJVUAPCD, ''Notice of Public Hearing for Adoption of Proposed 2018 $PM_{2.5}$ Plan for the 1997, 2006, and 2012 Standards,'' October 16, 2018, and SJVUAPCD Governing Board Resolution 18–11–16.

2018 $PM_{2.5}$ Plan.[34] The SIP submission includes proof of publication of notices for the respective public hearings. It also includes copies of the written and oral comments received during the State's and District's public review processes and the agencies' responses thereto.[35] Therefore, we find that the 2018 $PM_{2.5}$ Plan meets the procedural requirements for public notice and hearing in CAA sections 110(a) and 110(l) and 40 CFR 51.102. The 2018 $PM_{2.5}$ Plan became complete by operation of law on November 10, 2019.

B. Valley State SIP Strategy

CARB developed the ''Revised Proposed 2016 State Strategy for the State Implementation Plan'' (''2016 State Strategy'') to support attainment planning in the San Joaquin Valley and Los Angeles-South Coast Air Basin (''South Coast'') ozone nonattainment areas.[36] In its resolution adopting the 2016 State Strategy (CARB Resolution 17–7), the Board found that the 2016 State Strategy would achieve 6 tons per day (tpd) of NO_X emissions reductions and 0.1 tpd of direct $PM_{2.5}$ emissions reductions in the San Joaquin Valley by 2025 and directed CARB staff to work with SJVUAPCD to identify additional reductions from sources under District regulatory authority as part of a comprehensive plan to attain the $PM_{2.5}$ standards for the San Joaquin Valley and to return to the Board with a commitment to achieve additional emission reductions from mobile sources.[37]

CARB responded to this resolution by developing and adopting the ''San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan'' (''Valley State SIP Strategy'') to support the 2018 $PM_{2.5}$ Plan. The State's May 10, 2019 SIP submission incorporates by reference the Valley State SIP Strategy as adopted by CARB on October 25, 2018 and submitted to the EPA on November 16, 2018.[38]

The Valley State SIP Strategy includes an ''Introduction'' (Chapter 1), a chapter on ''Measures'' (Chapter 2), and a ''Supplemental State Commitment from the Proposed State Measures for the Valley'' (Chapter 3). Much of the content of the Valley State SIP Strategy is reproduced in Chapter 4 (''Attainment Strategy for $PM_{2.5}$'') of the 2018 $PM_{2.5}$ Plan.[39] The Valley State SIP Strategy also includes CARB Resolution 18–49, which, among other things, commits CARB to achieve specific amounts of NO_X and $PM_{2.5}$ emissions reductions by specific years, for purposes of attaining the $PM_{2.5}$ NAAQS in the San Joaquin Valley.[40]

CARB provided the required public notice and opportunity for public comment prior to its October 25, 2018 public hearing on and adoption of the Valley State SIP Strategy.[41] The SIP submission includes proof of publication of the public notice for this public hearing. It also includes copies of the written and oral comments received during the State's public review process and CARB's responses thereto.[42] Therefore, we find that the Valley State SIP Strategy meets the procedural requirements for public notice and hearing in CAA sections 110(a) and 110(l) and 40 CFR 51.102. The Valley State SIP Strategy became complete by operation of law on November 10, 2019.

C. District Rule 4901

With respect to the District contingency measure, the District states in Appendix H of the 2018 $PM_{2.5}$ Plan that it will amend Rule 4901 to include a requirement to be triggered upon a determination by the EPA that the San Joaquin Valley failed to meet a regulatory requirement necessitating implementation of a contingency measure.[43] On June 20, 2019, the District adopted amendments to Rule 4901 including a contingency measure (in section 5.7.3 of the amended rule), and, as an attachment to a letter dated July 19, 2019, CARB submitted the amended rule to the EPA for approval.[44] On July 22, 2020, we approved Rule 4901, as amended June 20, 2019, into the SIP based on our conclusion that the rule meets the requirements for enforceability and for SIP revisions in CAA sections 110(a)(2)(A), 110(l), and 193 but we did not evaluate section 5.7.3 of the amended rule for compliance with CAA requirements for contingency measures.[45] As part of that rulemaking, we stated that we would determine in future actions whether section 5.7.3 of Rule 4901, in conjunction with other submitted provisions, meets the statutory and regulatory requirements for contingency measures.[46] We are now evaluating section 5.7.3 of Rule 4901, as amended June 20, 2019, for compliance with the requirements for contingency measures for purposes of the 1997 annual $PM_{2.5}$ NAAQS.

Consistent with the requirements of 40 CFR part 51, Appendix V, we previously determined that CARB's submittal of the June 20, 2019 revisions to Rule 4901 satisfied the procedural requirements for SIP revisions under CAA section 110 and the EPA's implementing regulations.[47]

III. Clean Air Act Requirements for Serious $PM_{2.5}$ Areas That Fail To Attain

In the event that a Serious area fails to attain the $PM_{2.5}$ NAAQS by the applicable attainment date, CAA section 189(d) requires that ''the State in which such area is located shall, after notice and opportunity for public comment, submit within 12 months after the applicable attainment date, plan revisions which provide for attainment of the . . . standard. . .'' An attainment plan under section 189(d) must, among other things, demonstrate expeditious attainment of the NAAQS within the time period provided under CAA section 179(d)(3) and provide for annual reductions in emissions of direct $PM_{2.5}$ or a $PM_{2.5}$ plan precursor pollutant within the area of not less than five

[34] CARB, ''Notice of Public Meeting to Consider the 2018 $PM_{2.5}$ State Implementation Plan for the San Joaquin Valley,'' December 21, 2018, and CARB Resolution 19–1.

[35] CARB, ''Board Meeting Comments Log,'' March 29, 2019; J&K Court Reporting, LLC, ''Meeting, State of California Air Resources Board,'' January 24, 2019 (transcript of CARB's public hearing), and 2018 $PM_{2.5}$ Plan, Appendix M (''Summary of Significant Comments and Responses'').

[36] The EPA has approved certain commitments made by CARB in the 2016 State Strategy for purposes of attaining the ozone NAAQS in the San Joaquin Valley and South Coast ozone nonattainment areas (for example, see 84 FR 3302 (February 12, 2019) and 84 FR 52005 (October 1, 2019)) and for attaining the 2006 $PM_{2.5}$ NAAQS in the San Joaquin Valley (85 FR 44192 (July 22, 2020)).

[37] CARB Resolution 17–7, ''2016 State Strategy for the State Implementation Plan,'' March 23, 2017, 6–7.

[38] Letter dated May 9, 2019, from Richard Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region 9, 2.

[39] For example, Table 2 (proposed mobile source measures and schedule), Table 3 (emissions reductions from proposed mobile source measures), and Table 4 (summary of emission reduction measures) of the Valley State SIP Strategy correspond to tables 4–8, 4–9, and 4–7, respectively, of the 2018 $PM_{2.5}$ Plan, Chapter 4.

[40] CARB Resolution 18–49, ''San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan,'' October 25, 2018, 5.

[41] CARB, ''Notice of Public Meeting to Consider the San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan,'' September 21, 2018, and CARB Resolution 18–49.

[42] CARB, ''Board Meeting Comments Log,'' November 2, 2018 and compilation of written comments; and J&K Court Reporting, LLC, ''Meeting, State of California Air Resources Board,'' October 25, 2018 (transcript of CARB's public hearing).

[43] 2018 $PM_{2.5}$ Plan, Appendix H, H–25.

[44] Letter dated July 19, 2019 from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region 9.

[45] 85 FR 44206 (July 22, 2020) (final approval of Rule 4901); 85 FR 1131, 1132–33 (January 9, 2020) (proposed approval of Rule 4901).

[46] 85 FR 1131, 1132–33.

[47] 85 FR 1131 (January 9, 2020) (proposed approval of revised Rule 4901) and 85 FR 44206 (July 22, 2020) (final approval of revised Rule 4901).

percent per year from the most recent emissions inventory for the area until attainment.[48] In addition to the requirement to submit control measures providing for a five percent reduction in emissions of certain pollutants on an annual basis, the EPA interprets CAA section 189(d) as requiring a state to submit an attainment plan that includes the same basic statutory plan elements that are required for other attainment plans.[49] Specifically, a state must submit to the EPA its plan to meet the requirements of CAA section 189(d) in the form of a complete attainment plan submission that includes the following elements:

1. A comprehensive, accurate, current inventory of actual emissions from all sources of $PM_{2.5}$ and $PM_{2.5}$ precursors in the area;

2. A control strategy that includes additional measures (beyond those already adopted in previous SIPs for the area as RACM/RACT, best available control measures/best available control technology (BACM/BACT), and most stringent measures (if applicable)) that provide for attainment of the standards and, from the date of such submission until attainment, demonstrate that the plan will at a minimum achieve an annual five percent reduction in emissions of direct $PM_{2.5}$ or any $PM_{2.5}$ plan precursor;

3. A demonstration (including air quality modeling) that the plan provides for attainment as expeditiously as practicable;

4. Plan provisions that require RFP;

5. Quantitative milestones that are to be achieved every three years until the area is redesignated attainment and that demonstrate RFP toward attainment by the applicable date;

6. Contingency measures to be implemented if the area fails to meet any requirement concerning RFP or quantitative milestones or to attain by the applicable attainment date; and

7. Provisions to assure that control requirements applicable to major stationary sources of $PM_{2.5}$ also apply to major stationary sources of $PM_{2.5}$ precursors, except where the state demonstrates to the EPA's satisfaction that such sources do not contribute significantly to $PM_{2.5}$ levels that exceed the standards in the area.

A state with a Serious $PM_{2.5}$ nonattainment area that fails to attain the NAAQS by the applicable Serious area attainment date must also address any statutory requirements applicable to Moderate and Serious nonattainment area plans under CAA sections 172 and 189 of the CAA to the extent that those requirements have not already been met.[50]

A section 189(d) plan must demonstrate attainment as expeditiously as practicable, and no later than five years from the date of the EPA's determination that the area failed to attain, consistent with sections 179(d)(3) and 172(a)(2) of the CAA.[51] Pursuant to those provisions, the Administrator may also extend the attainment date to the extent the Administrator deems appropriate, for a period no greater than 10 years from the effective date of the EPA's determination that the area failed to attain, considering the severity of nonattainment and the availability and feasibility of pollution control measures.

The EPA provided its preliminary views on the CAA's requirements for particulate matter plans under part D, title I of the Act in the following guidance documents: (1) ''State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990'' (''General Preamble'');[52] (2) ''State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990; Supplemental'' (''General Preamble Supplement'');[53] and (3) ''State Implementation Plans for Serious PM–10 Nonattainment Areas, and Attainment Date Waivers for PM–10 Nonattainment Areas Generally; Addendum to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990'' (''General Preamble Addendum'').[54] More recently, in an August 24, 2016 final rule entitled, ''Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements'' (''$PM_{2.5}$ SIP Requirements Rule''), the EPA established regulatory requirements and provided further interpretive guidance on the statutory SIP requirements that apply to areas designated nonattainment for the $PM_{2.5}$ standards.[55] We discuss these regulatory requirements and interpretations of the Act as appropriate in our evaluation of the SJV $PM_{2.5}$ Plan that follows.

IV. Review of the San Joaquin Valley $PM_{2.5}$ Plan

A. Emissions Inventories

1. Statutory and Regulatory Requirements

CAA section 172(c)(3) requires that each SIP include a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutant or pollutants in the nonattainment area. The EPA discussed the emissions inventory requirements that apply to $PM_{2.5}$ nonattainment areas in the $PM_{2.5}$ SIP Requirements Rule and codified these requirements in 40 CFR 51.1008.[56] The EPA has also issued guidance concerning emissions inventories for $PM_{2.5}$ nonattainment areas.[57]

The base year emissions inventory should provide a state's best estimate of actual emissions from all sources of the relevant pollutants in the area, *i.e.,* all emissions that contribute to the formation of a particular NAAQS pollutant. For the $PM_{2.5}$ NAAQS, the base year inventory must include direct $PM_{2.5}$ emissions, separately reported filterable and condensable $PM_{2.5}$ emissions,[58] and emissions of all chemical precursors to the formation of secondary $PM_{2.5}$: nitrogen oxides (NO_X), sulfur dioxide (SO_2), volatile organic compounds (VOC), and ammonia.[59] In addition, the emissions inventory base year for a Serious $PM_{2.5}$ nonattainment area subject to CAA section 189(d) must be one of the three years for which monitored data were used to determine that the area failed to attain the $PM_{2.5}$ NAAQS by the applicable Serious area attainment date, or another technically appropriate year justified by the state in its Serious area SIP submission.[60] A state's SIP submission must include documentation explaining how it calculated emissions data for the inventory. In estimating mobile source emissions, a state should use the latest emissions models and planning assumptions available at the time the SIP is developed. The latest EPA-approved version of California's mobile

[48] CAA section 189(d) and 40 CFR 51.1010(c).

[49] 81 FR 58010, 58098 (August 24, 2016).

[50] Id. Because the EPA has not previously approved a SIP submission for the San Joaquin Valley as meeting the Serious area planning requirements under CAA sections 172 and 189 for the 1997 annual $PM_{2.5}$ NAAQS, the EPA is evaluating relevant portions of the SJV $PM_{2.5}$ Plan for compliance with these requirements, in addition to the requirements of CAA section 189(d).

[51] 81 FR 84481, 84482.

[52] 57 FR 13498 (April 16, 1992).

[53] 57 FR 18070 (April 28, 1992).

[54] 59 FR 41998 (August 16, 1994).

[55] 81 FR 58010.

[56] Id. at 58098–58099.

[57] ''Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations,'' U.S. EPA, May 2017 (''Emissions Inventory Guidance''), available at *https://www.epa.gov/air-emissions-inventories/air-emissions-inventory-guidance-implementation-ozone-and-particulate.*

[58] The Emissions Inventory Guidance identifies the types of sources for which the EPA expects states to provide condensable PM emissions inventories. Emissions Inventory Guidance, section 4.2.1 (''Condensable PM Emissions''), 63–65.

[59] 40 CFR 51.1008(c)(1).

[60] Id.

source emission factor model for estimating tailpipe, brake, and tire wear emissions from on-road mobile sources that was available during the State's and District's development of the SJV $PM_{2.5}$ Plan was EMFAC2014.[61] Following CARB's submission of the Plan, the EPA approved EMFAC2017, the latest revision to this mobile source emissions model, and established grace periods during which EMFAC2014 may continue to be used for transportation conformity purposes (*i.e.,* new regional emissions analyses and CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses).[62] States are also required to use the EPA's ''Compilation of Air Pollutant Emission Factors'' (''AP–42'') road dust method for calculating re-entrained road dust emissions from paved roads.[63] [64]

In addition to the base year inventory submitted to meet the requirements of CAA section 172(c)(3), the state must also submit a projected attainment year inventory and emissions projections for each RFP milestone year.[65] These future emissions projections are necessary components of the attainment demonstration required under CAA section 189(d) and the demonstration of RFP required under section 172(c)(2).[66] Emissions projections for future years (referred to in the Plan as ''forecasted inventories'') should account for, among other things, the ongoing effects of economic growth and adopted emissions control requirements. The state's SIP submission should include documentation to explain how the emissions projections were calculated. Where a state chooses to allow new major stationary sources or major modifications to use emission reduction credits (ERCs) that were generated through shutdown or curtailed emissions units occuring before the base year of an attainment plan, the projected emissions inventory used to develop the attainment demonstration must explicitly include the emissions from such previously shutdown or curtailed emissions units.[67]

2. Summary of the State's Submission

Summaries of the planning emissions inventories for direct $PM_{2.5}$ and $PM_{2.5}$ precursors (NO_X, SO_X,[68] VOC,[69] and ammonia) and the documentation for the inventories for the San Joaquin Valley $PM_{2.5}$ nonattainment area are included in Appendix B (''Emissions Inventory'') and Appendix I (''New Source Review and Emission Reduction Credits'') of the 2018 $PM_{2.5}$ Plan.

CARB and District staff worked together to develop the emissions inventories for the San Joaquin Valley $PM_{2.5}$ nonattainment area. The District worked with operators of the stationary facilities in the nonattainment area to develop the stationary source emissions estimates. The responsibility for developing emissions estimates for area sources such as agricultural burning and paved road dust was shared by the District and CARB. CARB staff developed the emissions inventories for both on-road and non-road mobile sources.[70]

The Plan includes winter (24-hour) average and annual average daily planning inventories for the 2013 base year, which were modeled from the 2012 emissions inventory, and estimated emissions for forecasted years from 2017 through 2028 for the attainment and RFP demonstrations for the 1997, 2006, and 2012 $PM_{2.5}$ NAAQS.[71] In this proposal, we are proposing action on those winter average and annual average emissions inventories necessary to support the attainment plan for the 1997 annual $PM_{2.5}$ NAAQS—*i.e.,* the 2013 base year inventory, forecasted inventories for the RFP milestone years of 2017, 2020 (attainment year), and 2023 (post-attainment milestone year), and additional forecasted inventories for 2018 and 2019 to support the five percent annual emission reduction demonstration. Each inventory includes emissions from stationary, area, on-road, and non-road sources.

The base year inventories for stationary sources were developed using actual emissions reports from facility operators. The State developed the base year emissions inventory for area sources using the most recent models and methodologies available at the time the State was developing the Plan.[72] The Plan also includes background, methodology, and inventories of condensable and filterable $PM_{2.5}$ emissions from stationary point and non-point combustion sources that are expected to generate condensable $PM_{2.5}$.[73] CARB used EMFAC2014 to estimate on-road motor vehicle emissions based on transportation activity data from the 2014 Regional Transportation Plan (2014 RTP) adopted by the transportation planning agencies in the San Joaquin Valley.[74] Re-entrained paved road dust emissions were calculated using a CARB methodology consistent with the EPA's AP–42 road dust methodology.[75]

CARB developed the emissions forecasts by applying growth and control profiles to the base year inventory. CARB's mobile source emissions projections take into account predicted activity rates and vehicle fleet turnover by vehicle model year and adopted controls.[76] In addition, the Plan states that the District is providing for use of pre-base year ERCs as offsets by accounting for such ERCs in the

[61] 80 FR 77337 (December 14, 2015). EMFAC is short for *EM*ission *FAC*tor. The EPA announced the availability of the EMFAC2014 model, effective on the date of publication in the **Federal Register**, for use in state implementation plan development and transportation conformity in California. Upon that action, EMFAC2014 was required to be used for all new regional emissions analyses and CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses that were started on or after December 14, 2017, which was the end of the grace period for using the prior mobile source emissions model, EMFAC2011.

[62] 84 FR 41717 (August 15, 2019). The grace period for new regional emissions analyses begins on August 15, 2019 and ends on August 16, 2021, while the grace period for hot-spot analyses begins on August 15, 2019 and ends on August 17, 2020. 84 FR 41717, 41720.

[63] The EPA released an update to AP–42 in January 2011 that revised the equation for estimating paved road dust emissions based on an updated data regression that included new emission tests results. 76 FR 6328 (February 4, 2011). CARB used the revised 2011 AP–42 methodology in developing on-road mobile source emissions; see *http://www.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2016.pdf.*

[64] AP–42 has been published since 1972 as the primary source of the EPA's emission factor information and is available at *https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors.* It contains emission factors and process information for more than 200 air pollution source categories. A source category is a specific industry sector or group of similar emitting sources. The emission factors have been developed and compiled from source test data, material balance studies, and engineering estimates.

[65] 40 CFR 51.1008 and 51.1012. See also Emissions Inventory Guidance, section 3 (''SIP Inventory Requirements and Recommendations'').

[66] 40 CFR 51.1004, 51.1008, 51.1011, and 51.1012.

[67] 40 CFR 51.165(a)(3)(ii)(C)(1).

[68] The SJV $PM_{2.5}$ Plan generally uses ''sulfur oxides'' or ''SO_X'' in reference to SO_2 as a precursor to the formation of $PM_{2.5}$. We use SO_X and SO_2 interchangeably throughout this notice.

[69] The SJV $PM_{2.5}$ Plan generally uses ''reactive organic gasses'' or ''ROG'' in reference to VOC as a precursor to the formation of $PM_{2.5}$. We use ROG and VOC interchangeably throughout this notice.

[70] The EPA regulations refer to ''non-road'' vehicles and engines whereas CARB regulations refer to ''Other Mobile Sources'' or ''off-road'' vehicles and engines. These terms refer to the same types of vehicles and engines. We refer herein to such vehicles and engines as ''non-road'' sources.

[71] 2018 $PM_{2.5}$ Plan, Appendix B, B–18 to B–19. The winter average daily planning inventory corresponds to the months of November through April when daily ambient $PM_{2.5}$ concentrations are typically highest. The base year inventory is from the California Emissions Inventory Development and Reporting System (CEIDARS) and future year inventories were estimated using the California Emission Projection Analysis Model (CEPAM), 2016 SIP Baseline Emission Projections, version 1.05.

[72] 2018 $PM_{2.5}$ Plan, Appendix B, section B.2 (''Emissions Inventory Summary and Methodology'').

[73] Id. at B–42 to B–44.

[74] Id. at B–37.

[75] Id. at B–28.

[76] Id. at B–18 and B–19.

projected 2025 emissions inventory.[77] The 2018 $PM_{2.5}$ Plan identifies growth factors, control factors, and estimated offset use between 2013 and 2025 for direct $PM_{2.5}$, NO_X, SO_X, and VOC emissions by source category and lists all pre-base year ERCs issued by the District for PM_{10}, NO_X, SO_X, and VOC emissions, by facility.[78]

Table 1 provides a summary of the winter (24-hour) average inventories in tons per day (tpd) of direct $PM_{2.5}$ and $PM_{2.5}$ precursors for the 2013 base year. Table 2 provides a summary of annual average inventories of direct $PM_{2.5}$ and $PM_{2.5}$ precursors for the 2013 base year. These annual average inventories provide the basis for the control measure analysis and the RFP and attainment demonstrations in the SJV $PM_{2.5}$ Plan.

TABLE 1—SAN JOAQUIN VALLEY WINTER AVERAGE EMISSIONS INVENTORY FOR DIRECT $PM_{2.5}$ AND $PM_{2.5}$ PRECURSORS FOR THE 2013 BASE YEAR

[tpd]

Category	Direct $PM_{2.5}$	NO_X	SO_X	VOC	Ammonia
Stationary Sources	8.5	35.0	6.9	86.6	13.9
Area Sources	41.4	11.5	0.5	156.8	291.5
On-Road Mobile Sources	6.4	188.7	0.6	51.1	4.4
Non-Road Mobile Sources	4.4	65.3	0.3	27.4	0.0
Totals [a]	60.8	300.5	8.4	321.9	309.8

Source: 2018 $PM_{2.5}$ Plan, Appendix B, tables B–1 to B–5.
[a] Totals reflect disaggregated emissions and may not add exactly as shown here due to rounding.

TABLE 2—SAN JOAQUIN VALLEY ANNUAL AVERAGE EMISSIONS INVENTORY FOR DIRECT $PM_{2.5}$ AND $PM_{2.5}$ PRECURSORS FOR THE 2013 BASE YEAR

[tpd]

Category	Direct $PM_{2.5}$	NO_X	SO_X	VOC	Ammonia
Stationary Sources	8.8	38.6	7.2	87.1	13.9
Area Sources	41.5	8.1	0.3	153.4	310.9
On-Road Mobile Sources	6.4	183.1	0.6	49.8	4.4
Non-Road Mobile Sources	5.8	87.4	0.3	33.8	0.0
Totals [a]	62.5	317.2	8.5	324.1	329.2

Source: 2018 $PM_{2.5}$ Plan, Appendix B, tables B–1 to B–5.
[a] Totals reflect disaggregated emissions and may not add exactly as shown here due to rounding.

3. The EPA's Evaluation and Proposed Action

We have reviewed the 2013 base year emissions inventories in the SJV $PM_{2.5}$ Plan and emissions inventory estimation methodologies used by California for consistency with CAA requirements and the EPA's guidance. We find that the inventories are based on the most current and accurate information available to the State and District at the time they were developing the Plan and inventories, including the latest version of California's mobile source emissions model that had been approved by the EPA at the time, EMFAC2014. The inventories comprehensively address all source categories in the San Joaquin Valley $PM_{2.5}$ nonattainment area and are consistent with the EPA's inventory guidance.

In accordance with 40 CFR 51.1008(c)(1), the 2013 base year is one of the three years for which monitored data were used to determine that the San Joaquin Valley area failed to attain the $PM_{2.5}$ NAAQS by the applicable Serious area attainment date for the 1997 annual $PM_{2.5}$ NAAQS,[79] and it represents actual annual average emissions of all sources within the nonattainment area. Direct $PM_{2.5}$ and $PM_{2.5}$ precursors are included in the inventories, and filterable and condensable direct $PM_{2.5}$ emissions are identified separately.

For these reasons, we are proposing to approve the 2013 base year emissions inventories in the SJV $PM_{2.5}$ Plan for the 1997 annual $PM_{2.5}$ NAAQS as meeting the requirements of CAA section 172(c)(3) and 40 CFR 51.1008.

B. $PM_{2.5}$ Precursors

1. Statutory and Regulatory Requirements

The composition of $PM_{2.5}$ is complex and highly variable due in part to the large contribution of secondary $PM_{2.5}$ to total fine particle mass in most locations, and to the complexity of secondary particle formation processes. A large number of possible chemical reactions, often non-linear in nature, can convert gaseous NO_X, SO_2, VOC, and ammonia to $PM_{2.5}$, making them precursors to $PM_{2.5}$.[80] Formation of secondary $PM_{2.5}$ may also depend on atmospheric conditions, including solar radiation, temperature, and relative humidity, and the interactions of precursors with preexisting particles and with cloud or fog droplets.[81]

Under subpart 4 of part D, title I of the CAA and the $PM_{2.5}$ SIP Requirements Rule, each state containing a $PM_{2.5}$ nonattainment area must evaluate all $PM_{2.5}$ precursors for regulation unless, for any given $PM_{2.5}$ precursor, the state demonstrates to the Administrator's satisfaction that such precursor does not contribute significantly to $PM_{2.5}$ levels that exceed the NAAQS in the nonattainment area.[82] The provisions of

[77] 2018 $PM_{2.5}$ Plan, Appendix I, I–1 to I–5.

[78] Id. at tables I–1 to I–5.

[79] 81 FR 84481, 84482 (November 23, 2016).

[80] ''Air Quality Criteria for Particulate Matter'' (EPA/600/P–99/002aF), EPA, October 2004, Chapter 3.

[81] ''Regulatory Impact Analysis for the Final Revisions to the National Ambient Air Quality Standards for Particulate Matter'' (EPA/452/R–12–005), EPA, December 2012), 2–1.

[82] 81 FR 58010, 58017–58020.

subpart 4 do not define the term ''precursor'' for purposes of $PM_{2.5}$, nor do they explicitly require the control of any specifically identified $PM_{2.5}$ precursor. The statutory definition of ''air pollutant,'' however, provides that the term ''includes any precursors to the formation of any air pollutant, to the extent the Administrator has identified such precursor or precursors for the particular purpose for which the term 'air pollutant' is used.'' [83] The EPA has identified NO_X, SO_2, VOC, and ammonia as precursors to the formation of $PM_{2.5}$.[84] Accordingly, the attainment plan requirements of subpart 4 apply to emissions of all four precursor pollutants and direct $PM_{2.5}$ from all types of stationary, area, and mobile sources, except as otherwise provided in the Act (*e.g.,* CAA section 189(e)).

Section 189(e) of the Act requires that the control requirements for major stationary sources of direct PM_{10} also apply to major stationary sources of PM_{10} precursors, except where the Administrator determines that such sources do not contribute significantly to PM_{10} levels that exceed the standard in the area. Section 189(e) contains the only express exception to the control requirements under subpart 4 (*e.g.,* requirements for RACM and RACT, BACM and BACT, most stringent measures, and new source review (NSR)) for sources of direct $PM_{2.5}$ and $PM_{2.5}$ precursor emissions. Although section 189(e) explicitly addresses only major stationary sources, the EPA interprets the Act as authorizing it also to determine, under appropriate circumstances, that regulation of specific $PM_{2.5}$ precursors from other source categories in a given nonattainment area is not necessary.[85] For example, under the EPA's longstanding interpretation of the control requirements that apply to stationary, area, and mobile sources of PM_{10} precursors in the nonattainment area under CAA section 172(c)(1) and subpart 4,[86] a state may demonstrate in a SIP submission that control of a certain precursor pollutant is not necessary in light of its insignificant contribution to ambient PM_{10} levels in the nonattainment area.[87]

Under the $PM_{2.5}$ SIP Requirements Rule, a state may elect to submit to the EPA a ''comprehensive precursor demonstration'' for a specific nonattainment area to show that emissions of a particular precursor from all existing sources located in the nonattainment area do not contribute significantly to $PM_{2.5}$ levels that exceed the standards in the area.[88] If the EPA determines that the contribution of the precursor to $PM_{2.5}$ levels in the area is not significant and approves the demonstration, the state is not required to control emissions of the relevant precursor from existing sources in the attainment plan.[89]

In addition, in May 2019, the EPA issued the ''Fine Particulate Matter ($PM_{2.5}$) Precursor Demonstration Guidance'' (''$PM_{2.5}$ Precursor Guidance''),[90] which provides recommendations to states for analyzing nonattainment area $PM_{2.5}$ emissions and developing such optional precursor demonstrations, consistent with the $PM_{2.5}$ SIP Requirements Rule. The $PM_{2.5}$ Precursor Guidance builds upon the draft version of the guidance, released on November 17, 2016 (''Draft $PM_{2.5}$ Precursor Guidance''), which CARB referenced in developing its precursor demonstration in the SJV $PM_{2.5}$ Plan.[91] The EPA's recommendations in the $PM_{2.5}$ Precursor Guidance are essentially the same as those in the Draft $PM_{2.5}$ Precursor Guidance, including the recommended annual contribution threshold of 0.2 $\mu g/m^3$.

We are evaluating the SJV $PM_{2.5}$ Plan in accordance with the presumption embodied within subpart 4 that all $PM_{2.5}$ precursors must be addressed in the State's evaluation of potential control measures, unless the State adequately demonstrates that emissions of a particular precursor or precursors do not contribute significantly to ambient $PM_{2.5}$ levels that exceed the $PM_{2.5}$ NAAQS in the nonattainment area. In reviewing any determination by the State to exclude a $PM_{2.5}$ precursor from the required evaluation of potential control measures, we consider both the magnitude of the precursor's contribution to ambient $PM_{2.5}$ concentrations in the nonattainment area and the sensitivity of ambient $PM_{2.5}$ concentrations in the area to reductions in emissions of that precursor.

2. Summary of the State's Submission

The State presents a summary of its $PM_{2.5}$ precursor analysis in Chapter 5 of the 2018 $PM_{2.5}$ Plan and the full precursor demonstration in Appendix G (''Precursor Demonstration'') of the 2018 $PM_{2.5}$ Plan.[92] Additional modeling results are presented in Appendix K (''Modeling Attainment Demonstration''), section 5.6 (''$PM_{2.5}$ Precursor Sensitivity Analysis''). CARB also provided clarifying information on its precursor assessment, including an Attachment A to its letter transmitting the 2018 $PM_{2.5}$ Plan to the EPA [93] and further clarifications in five email transmittals.[94] The CARB Staff Report contains additional discussion of the role of ammonia in the formation of ammonium nitrate and the role of VOC in the formation of ammonium nitrate and secondary organic aerosol.[95]

The Plan provides both concentration-based and sensitivity-based analyses of precursor contributions to ambient $PM_{2.5}$ concentrations in the San Joaquin Valley. The State supplemented the sensitivity analysis, particularly for ammonia, with additional information, including factors identified in the $PM_{2.5}$ Precursor Guidance, such as emission trends, the appropriateness of future year versus base year sensitivity, available emission controls, and the

[83] CAA section 302(g).

[84] 81 FR 58010, 58015.

[85] Id. at 58018–58019.

[86] General Preamble, 57 FR 13498, 13539–13542.

[87] Courts have upheld this approach to the requirements of subpart 4 for PM_{10}. See, *e.g., Assoc. of Irritated Residents* v. *EPA, et al.,* 423 F.3d 989 (9th Cir. 2005).

[88] 40 CFR 51.1006(a)(1).

[89] Id.

[90] ''$PM_{2.5}$ Precursor Demonstration Guidance,'' EPA–454/R–19–004, May 2019, including memorandum dated May 30, 2019 from Scott Mathias, Acting Director, Air Quality Policy Division and Richard Wayland, Director, Air Quality Assessment Division, Office of Air Quality Planning and Standards (OAQPS), EPA to Regional Air Division Directors, Regions 1–10, EPA.

[91] ''$PM_{2.5}$ Precursor Demonstration Guidance, Draft for Public Review and Comments,'' EPA–454/P–16–001, November 17, 2016, including memorandum dated November 17, 2016 from Stephen D. Page, Director, OAQPS, EPA to Regional Air Division Directors, Regions 1–10, EPA.

[92] A copy of the contents of Appendix G appears in the CARB Staff Report, Appendix C4 (''Precursor Demonstrations for Ammonia, SO_X, and ROG'').

[93] Letter dated May 9, 2019, from Richard Corey, Executive Officer, CARB, to Michael Stoker, Regional Administrator, EPA Region 9, Attachment A (''Clarifying information for the San Joaquin Valley 2018 Plan regarding model sensitivity related to ammonia and ammonia controls'').

[94] Email dated June 20, 2019, from Jeremy Avise, CARB, to Scott Bohning, EPA Region IX, Subject: ''RE: SJV model disbenefit from SO_X reduction,'' with attachment (''CARB's June 2019 Precursor Clarification''); email dated September 19, 2019, from Jeremy Avise, CARB, to Scott Bohning, EPA Region IX, Subject: ''FW: SJV species responses,'' with attachments (''CARB's September 2019 Precursor Clarification''); email dated October 18, 2019, from Laura Carr, CARB, to Scott Bohning, Jeanhee Hong, and Rory Mays, EPA Region IX, Subject: ''Clarifying information on ammonia,'' with attachment ''Clarifying Information on Ammonia'' (''CARB's October 2019 Precursor Clarification''); email dated April 19, 2021, from Laura Carr, CARB, to Rory Mays, EPA Region IX, Subject: ''Ammonia update,'' with attachment ''Update on Ammonia in the San Joaquin Valley'' (''CARB's April 19, 2021 Precursor Clarification''); and email dated April 26, 2021, from Laura Carr, CARB, to Scott Bohning, EPA Region IX, Subject: ''RE: Ammonia update,'' with attachment ''Ammonia in San Joaquin Valley'' (''CARB's April 26, 2021 Precursor Clarification'').

[95] CARB Staff Report, Appendix C, 9–16. The CARB Staff Report, Appendix C4 (''Precursor Demonstrations for Ammonia, SO_X, and ROG'') is very similar to the contents of Appendix G of the 2018 $PM_{2.5}$ Plan.

severity of nonattainment.[96] These analyses led the State to conclude that direct $PM_{2.5}$ and NO_X emissions contribute significantly to ambient $PM_{2.5}$ levels that exceed the $PM_{2.5}$ NAAQS in the San Joaquin Valley while ammonia, SO_X, and VOC do not contribute significantly to such exceedances.[97] We summarize the State's analysis and conclusions below. For a more detailed summary of the precursor demonstration in the Plan, please refer to the EPA's ''Technical Support Document, EPA Evaluation of $PM_{2.5}$ Precursor Demonstration, San Joaquin Valley $PM_{2.5}$ Plan for the 2006 $PM_{2.5}$ NAAQS,'' February 2020 (''EPA's $PM_{2.5}$ Precursor TSD'').

For ammonia, SO_X, and VOC, CARB assessed the 2015 annual average concentration of each precursor in ambient $PM_{2.5}$ at Bakersfield, for which the necessary speciated $PM_{2.5}$ data are available and where the highest $PM_{2.5}$ design values have been recorded in most years, and compared those concentrations to the recommended annual average contribution threshold of 0.2 μg/m^3 from the Draft $PM_{2.5}$ Precursor Guidance, which was available at the time the State developed the SIP.[98] The contributions of ammonia, SO_X, and VOC were 5.2 μg/m^3, 1.6 μg/m^3, and 6.2 μg/m^3, respectively. Given that these levels are well above the EPA's 0.2 μg/m^3 recommended contribution threshold, the State proceeded with a sensitivity-based analysis.

The State's sensitivity-based analysis used the same Community Multiscale Air Quality (CMAQ) modeling platform as that used for the Plan's attainment demonstration. The State modeled the sensitivity of ambient $PM_{2.5}$ concentration in the San Joaquin Valley to 30 percent and 70 percent emissions reductions in 2013, 2020, and 2024 for each of ammonia, SO_X, and VOC. The State estimated baseline (2013, 2020, and 2024) design values for $PM_{2.5}$ using relative response factors (RRFs) and calculated the ammonia, SO_X, and VOC precursor contribution for a given year and for each sensitivity scenario (30 percent and 70 percent emissions reductions) as the difference between its baseline design value and the design value for each sensitivity scenario.[99] Based on these analyses and supporting information, the State concludes that ammonia, SO_X, and VOC emissions do not contribute significantly to $PM_{2.5}$ levels that exceed the 1997 annual $PM_{2.5}$ NAAQS in the San Joaquin Valley.

3. The EPA's Evaluation and Proposed Action

As discussed in section IV of this proposal, the EPA is proposing to disapprove the attainment demonstration and related elements in the SJV $PM_{2.5}$ Plan for the 1997 annual $PM_{2.5}$ NAAQS, including the five percent annual emission reductions demonstration, reasonable further progress (RFP) demonstration, and quantitative milestones, based on ambient monitoring data that show that the Plan was insufficient to achieve attainment of the 1997 annual $PM_{2.5}$ NAAQS by December 31, 2020, the State's projected attainment date. Given that we are proposing to disapprove the attainment demonstration, and given that the precursor demonstration for the 1997 annual $PM_{2.5}$ NAAQS largely relies on the technical analyses and assumptions that provide the basis for the attainment demonstration, we are also proposing to disapprove the precursor demonstration in the SJV $PM_{2.5}$ Plan for the 1997 annual $PM_{2.5}$ NAAQS. Therefore, all precursors to the formation of $PM_{2.5}$ in the San Joaquin Valley (*i.e.,* NO_X, ammonia, SO_X, and VOC) remain ''$PM_{2.5}$ plan precursors'' as defined in 40 CFR 51.1000 for purposes of the 1997 annual $PM_{2.5}$ NAAQS for the Plan that is the subject of this proposal.

If the EPA takes final action on the SJV $PM_{2.5}$ Plan as proposed, California will be required to develop and submit a revised plan for the San Joaquin Valley area that addresses the applicable CAA requirements, including the requirements of CAA section 189(d). Under 40 CFR 51.1006, the State will be required to submit an updated precursor demonstration if it seeks to exempt sources of a particular precursor from control requirements in the new Serious area attainment demonstration. For these reasons, and because we are proposing to disapprove the precursor demonstration on the basis of our proposed disapproval of the attainment demonstration, we are not providing a full evaluation of the precursor demonstration for the 1997 annual $PM_{2.5}$ NAAQS in the SJV $PM_{2.5}$ Plan at this time.

C. Attainment Plan Control Strategy

1. Statutory and Regulatory Requirements

The overarching requirement for the CAA section 189(d) attainment control strategy is that it provides for attainment of the standards as expeditiously as practicable.[100] The control strategy must include any additional measures (beyond those already adopted in previous SIPs for the area as RACM/RACT or BACM/BACT) that are needed for the area to attain expeditiously. This includes reassessing any measures previously rejected during the development of any Moderate area or Serious area attainment plan control strategy.[101] The plan must also demonstrate that it will, at a minimum, achieve an annual five percent reduction in emissions of direct $PM_{2.5}$ or any $PM_{2.5}$ plan precursor from sources in the area until attainment, based on the most recent emissions inventory for the area.[102]

In the $PM_{2.5}$ SIP Requirements Rule, the EPA clarified its interpretation of the statutory language in CAA section 189(d) requiring a state to submit a new attainment plan to achieve annual reductions ''from the date of such submission until attainment,'' to mean annual reductions beginning from the due date of such submission until the new projected attainment date for the area based on the new or additional control measures identified to achieve at least five percent emissions reductions annually.[103] This interpretation is intended to make clear that even if a state is late in submitting its CAA section 189(d) plan, the area must still achieve its annual five percent emission reductions beginning from the date by

[96] $PM_{2.5}$ Precursor Guidance, 18–19 (consideration of additional information), 31 (available emission controls), and 35–36 (appropriateness of future year versus base year sensitivity).

[97] Direct $PM_{2.5}$ emissions are considered a primary source of ambient $PM_{2.5}$ (*i.e.,* no further formation in the atmosphere is required), and therefore is not considered a precursor pollutant under subpart 4, which may differ from a more generalized understanding of what contributes to ambient $PM_{2.5}$.

[98] 2018 $PM_{2.5}$ Plan, Appendix G, 3. The Plan does not present a concentration-based analysis for the 24-hour average concentrations in the San Joaquin Valley. Instead, CARB relied on the annual average concentration-based analysis as an interim step to the sensitivity-based analysis, for which CARB assessed the sensitivity of both 24-hour average and annual average ambient $PM_{2.5}$ concentrations to precursor emissions reductions. Separately, the Plan presents a graphical representation of annual average ambient $PM_{2.5}$ components (*i.e.,* crustal particulate matter, elemental carbon, organic matter, ammonium sulfate, and ammonium nitrate) for 2011–2013 for Bakersfield, Fresno, and Modesto. 2018 $PM_{2.5}$ Plan, Chapter 3, 3–3 to 3–4.

[99] This procedure is the procedure recommended by the EPA. $PM_{2.5}$ Precursor Guidance, 37.

[100] 81 FR 58010, 58100.

[101] 40 CFR 50.1010(c)(2)(ii).

[102] CAA section 189(d) and 40 CFR 51.1010(c).

[103] 81 FR 58010, 58101. The new projected attainment date is established by the EPA in accordance with the provisions of CAA sections 179(d)(3) and 172(a)(2), which require that the new attainment date be as expeditious as practicable but no later than 5 years from the date of publication in the **Federal Register** of the EPA's determination that the area failed to attain the relevant NAAQS, except that the EPA may extend the attainment date by up to 5 additional years based on the severity of nonattainment and the availability and feasibility of pollution control measures. Id. at 58103.

which the state was required to make its CAA section 189(d) submission, not by some later date. Because the deadline for California to submit a section 189(d) plan for the 1997 $PM_{2.5}$ NAAQS in the San Joaquin Valley was December 31, 2016, one year after the December 31, 2015 attainment date for these NAAQS under CAA section 188(c)(2), the starting point for the five percent emission reduction requirement under section 189(d) for this area is 2017.

As discussed in section III of this proposed rule, a state with a Serious $PM_{2.5}$ nonattainment area that fails to attain the NAAQS by the applicable Serious area attainment date must also address any statutory requirements applicable to Moderate and Serious nonattainment area plans under CAA sections 172 and 189 of the CAA to the extent that those requirements have not already been met. Because the EPA has not previously taken action to approve the California SIP as meeting the Serious nonattainment area planning requirements under CAA sections 172 and 189 for the 1997 annual $PM_{2.5}$ NAAQS for the San Joaquin Valley area, the EPA is reviewing the SJV $PM_{2.5}$ Plan for compliance with those requirements, including the requirement for BACM.

Section 189(b)(1)(B) of the Act requires for any Serious $PM_{2.5}$ nonattainment area that the state submit provisions to assure that BACM for the control of $PM_{2.5}$ and $PM_{2.5}$ precursors shall be implemented no later than four years after the date the area is reclassified as a Serious area. The EPA has defined BACM in the $PM_{2.5}$ SIP Requirements Rule to mean ''any technologically and economically feasible control measure that . . . can achieve greater permanent and enforceable emissions reductions of direct $PM_{2.5}$ emissions and/or emissions of $PM_{2.5}$ plan precursors from sources in the area than can be achieved through the implementation of RACM on the same source(s). BACM includes best available control technology (BACT).'' [104]

The EPA generally considers BACM a control level that goes beyond existing RACM-level controls, for example by expanding the use of RACM controls or by requiring preventative measures instead of remediation.[105] Indeed, as implementation of BACM and BACT is required when a Moderate nonattainment area is reclassified as Serious due to its inability to attain the NAAQS through implementation of ''reasonable'' measures, it is logical that ''best'' control measures should represent a more stringent and potentially more costly level of control.[106] If RACM and RACT level controls of emissions have been insufficient to reach attainment, the CAA contemplates the implementation of more stringent controls, controls on more sources, or other adjustments to the control strategy necessary to attain the NAAQS in the area.

Consistent with longstanding guidance provided in the General Preamble Addendum, the preamble to the $PM_{2.5}$ SIP Requirements Rule discusses the following steps for determining BACM and BACT:

(1) Develop a comprehensive emissions inventory of the sources of $PM_{2.5}$ and $PM_{2.5}$ precursors;

(2) Identify potential control measures;

(3) Determine whether an available control measure or technology is technologically feasible;

(4) Determine whether an available control measure or technology is economically feasible; and

(5) Determine the earliest date by which a control measure or technology can be implemented in whole or in part.[107]

The EPA allows consideration of factors such as physical plant layout, energy requirements, needed infrastructure, and workforce type and habits when considering technological feasibility. For purposes of evaluating economic feasibility, the EPA allows consideration of factors such as the capital costs, operating and maintenance costs, and cost effectiveness (*i.e.,* cost per ton of pollutant reduced by a measure or technology) associated with the measure or control.[108]

Once these analyses are complete, the state must use this information to develop enforceable control measures and submit them to the EPA for evaluation as SIP provisions to meet the basic requirements of CAA section 110 and any other applicable substantive provisions of the Act.

2. Summary of the State's Submission and the EPA's Evaluation and Proposed Action

The control strategy in the SJV $PM_{2.5}$ Plan is based on ongoing emissions reductions from baseline control measures. As the term is used here, baseline measures are State and District regulations adopted prior to the development of the SJV $PM_{2.5}$ Plan that continue to achieve emissions reductions through the projected 2020 attainment year and beyond. The 2018 $PM_{2.5}$ Plan describes these measures in Chapter 4,[109] Appendix C (''Stationary Source Control Measure Analyses''), and Appendix D (''Mobile Source Control Measure Analyses''). Reductions from these baseline measures are incorporated into the projected baseline inventories and reductions from District measures are individually quantified in Appendix C.

The 2018 $PM_{2.5}$ Plan states that mobile sources emit over 85 percent of the NO_X in the San Joaquin Valley and that CARB has adopted and amended regulations to reduce public exposure to diesel particulate matter, which includes direct $PM_{2.5}$ and NO_X, from ''fuel sources, freight transport sources like heavy-duty diesel trucks, transportation sources like passenger cars and buses, and non-road sources like large construction equipment.'' [110]

Given the need for substantial emissions reductions from mobile and area sources to meet the NAAQS in California nonattainment areas, the State of California has developed stringent control measures for on-road and non-road mobile sources and the fuels that power them. California has unique authority under CAA section 209 (subject to a waiver or authorization as applicable by the EPA) to adopt and implement new emissions standards for many categories of on-road vehicles and engines and new and in-use non-road vehicles and engines. The EPA has approved such mobile source regulations for which waiver authorizations have been issued as revisions to the California SIP.[111]

CARB's mobile source program extends beyond regulations that are subject to the waiver or authorization process set forth in CAA section 209 to

[104] 40 CFR 51.1000 (definitions). In longstanding guidance, the EPA has similarly defined BACM to mean, ''among other things, the maximum degree of emissions reduction achievable for a source or source category, which is determined on a case-by-case basis considering energy, environmental, and economic impacts.'' General Preamble Addendum, 42010, 42013.

[105] 81 FR 58010, 58081 and General Preamble Addendum, 42011, 42013.

[106] Id. and General Preamble Addendum, 42009–42010.

[107] 81 FR 58010, 58083–58085.

[108] 40 CFR 51.1010(a)(3) and 81 FR 58010, 58041–58042.

[109] 2018 $PM_{2.5}$ Plan, Chapter 4, Table 4–2.

[110] 2018 $PM_{2.5}$ Plan, Chapter 4, 4–9. For CARB's BACM analysis for mobile source measures, see 2018 $PM_{2.5}$ Plan, Appendix D, including analyses for on-road light-duty vehicles and fuels (starting on page D–17), on-road heavy-duty vehicles and fuels (starting on page D–35), and non-road sources (starting on page D–64).

[111] For example, see 81 FR 39424 (June 16, 2016); 82 FR 14446 (March 21, 2017); and 83 FR 23232 (May 18, 2018).

include standards and other requirements to control emissions from in-use heavy-duty trucks and buses, gasoline and diesel fuel specifications, and many other types of mobile sources. Generally, these regulations have also been submitted and approved as revisions to the California SIP.[112]

As to stationary and area sources, the SJV $PM_{2.5}$ Plan states that stringent regulations adopted for prior attainment plans continue to reduce emissions of NO_X and direct $PM_{2.5}$.[113] Specifically, Table 4–1 of the 2018 $PM_{2.5}$ Plan identifies 33 District measures that limit NO_X and direct $PM_{2.5}$ emissions from stationary and area sources.[114]

a. Best Available Control Measures

The State's BACM demonstration is presented in Appendix C (''Stationary Source Controls'') and Appendix D (''Mobile Source Control Measure Analyses'') of the 2018 $PM_{2.5}$ Plan. As discussed in section IV.A of this proposed rule, Appendix B (''Emissions Inventory'') of the 2018 $PM_{2.5}$ Plan contains the planning inventories for direct $PM_{2.5}$ and all $PM_{2.5}$ precursors (NO_X, SO_X, VOC, and ammonia) for the San Joaquin Valley nonattainment area together with documentation to support these inventories. Each inventory includes emissions from stationary, area, on-road, and non-road emission sources, and the State specifically identifies the condensable component of direct $PM_{2.5}$ for relevant stationary source and area source categories. As discussed in section IV.B of this proposed rule, the State concludes that the Plan should control emissions of $PM_{2.5}$ and NO_X to reach attainment. Accordingly, the BACM and BACT evaluation in the Plan addresses potential controls for sources of those pollutants.

For stationary and area sources, the District identifies the sources of direct $PM_{2.5}$ and NO_X in the San Joaquin Valley that are subject to District emission control measures and provides its evaluation of these regulations for compliance with BACM requirements in Appendix C of the 2018 $PM_{2.5}$ Plan. As part of its process for identifying candidate BACM and considering the technical and economic feasibility of additional control measures, the District reviewed the EPA's guidance documents on BACM, additional guidance documents on control measures for direct $PM_{2.5}$ and NO_X emission sources, and control measures implemented in other ozone and $PM_{2.5}$ nonattainment areas in California and other states.[115] The District also provides an analysis of several SIP-approved VOC regulations that, according to the District, also provide ammonia co-benefits.[116]

For mobile sources, CARB identifies the sources of direct $PM_{2.5}$ and NO_X in the San Joaquin Valley that are subject to the State's emission control measures and provides its evaluation of these regulations for compliance with BACM requirements in Appendix D of the 2018 $PM_{2.5}$ Plan. Appendix D describes CARB's process for determining BACM, including identification of the sources of direct $PM_{2.5}$ and NO_X in the San Joaquin Valley, identification of potential control measures for such sources, assessment of the stringency and feasibility of the potential control measures, and adoption and implementation of feasible control measures.[117] Appendix D of the 2018 $PM_{2.5}$ Plan also describes the current efforts of the eight local jurisdiction metropolitan planning organizations (MPOs) to implement cost-effective transportation control measures (TCMs) in the San Joaquin Valley.[118]

Because we are proposing to disapprove the comprehensive precursor demonstration in the SJV $PM_{2.5}$ Plan for purposes of the 1997 annual $PM_{2.5}$ NAAQS, all precursors to the formation of $PM_{2.5}$ (*i.e.,* NO_X, ammonia, SO_X and VOC) remain $PM_{2.5}$ plan precursors subject to control requirements under subpart 4 of part D, title I of the Act for purposes of the 1997 annual $PM_{2.5}$ NAAQS in the San Joaquin Valley. The SJV $PM_{2.5}$ Plan contains State and District control measures and related BACM analyses for sources of direct $PM_{2.5}$ and NO_X in the San Joaquin Valley but does not contain such measures or analyses for sources of SO_X or VOC emissions, given the State's assumption that these precursors would not be subject to controls. Furthermore, while the District provides an analysis of potential control of ammonia sources, the Plan does not identify any specific, enforceable requirement to reduce ammonia emissions in the area and does not demonstrate that the State or District adequately considered potential control measures for ammonia sources, given the State's assumption that ammonia would not be subject to controls. Without an approvable precursor demonstration, the SJV $PM_{2.5}$ Plan does not satisfy BACM and BACT requirements for sources of direct $PM_{2.5}$ and $PM_{2.5}$ plan precursors for purposes of the 1997 annual $PM_{2.5}$ NAAQS. We therefore propose to disapprove the BACM/BACT demonstration in the SJV $PM_{2.5}$ Plan for failure to meet the requirements of CAA section 189(b)(1)(B) and 40 CFR 51.1010 for the 1997 annual $PM_{2.5}$ NAAQS.

b. Five Percent Emission Reduction Requirement

The SJV $PM_{2.5}$ Plan's demonstration of annual five percent reductions in NO_X emissions is in section 5.2 of the 2018 $PM_{2.5}$ Plan. As shown in Table 3, the demonstration uses the 2013 base year inventory as the starting point from which the five percent per year emission reductions are calculated and uses 2017 as the year from which the reductions start. The target required reduction in 2017 is five percent of the base year (2013) inventory, which is approximately 15.9 tpd of NO_X, and the targets for subsequent years are additional reductions of five percent each year until the 2020 attainment year. The projected emissions inventories reflect NO_X emissions reductions achieved by baseline control measures and the demonstration shows that these NO_X emissions reductions are greater than the required five percent per year.

TABLE 3—2017–2020 ANNUAL FIVE PERCENT EMISSION REDUCTIONS DEMONSTRATION FOR THE SAN JOAQUIN VALLEY

Year	% Reduction from 2013 base year	5% Target (tpd NO_X)	CEPAM inventory v1.05 (tpd NO_X)	Meets 5%?
2013 (base year)			317.3	

[112] For example, see the EPA's approval of standards and other requirements to control emissions from in-use heavy-duty diesel trucks (77 FR 20308, April 4, 2012), and revisions to the California on-road reformulated gasoline and diesel fuel regulations (75 FR 26653, May 12, 2010).

[113] 2018 $PM_{2.5}$ Plan, Chapter 4, 4–3. For the District's BACM analysis for stationary and area source measures, see 2018 $PM_{2.5}$ Plan, Appendix C.

[114] Id. at Chapter 4, Table 4–1.

[115] 2018 $PM_{2.5}$ Plan, Chapter 4, section 4.3.1.

[116] Id. at Appendix C., section C.25.

[117] Id. at Appendix D, Chapter II.

[118] Id. at Appendix D, D–127 and D–128.

TABLE 3—2017–2020 ANNUAL FIVE PERCENT EMISSION REDUCTIONS DEMONSTRATION FOR THE SAN JOAQUIN VALLEY—Continued

Year	% Reduction from 2013 base year	5% Target (tpd NO_X)	CEPAM inventory v1.05 (tpd NO_X)	Meets 5%?
2017	5	301.3	233.4	Yes.
2018	10	285.5	221.5	Yes.
2019	15	269.6	214.5	Yes.
2020	20	253.8	203.3	Yes.

Source: 2018 $PM_{2.5}$ Plan, Table 5–2.

The State's methodology for calculating the five percent emission reduction targets for the years 2017, 2018, 2019, and 2020 is consistent with CAA requirements as interpreted in the $PM_{2.5}$ SIP Requirements Rule, and the Plan shows that NO_X emissions reductions from 2017 to 2020 are greater than the required five percent per year. However, the language in section 189(d) compels us to conclude that the five percent demonstration in the Plan does not meet that section's requirement for the 1997 annual $PM_{2.5}$ NAAQS. CAA section 189(d) requires that the plan provide for annual reductions of $PM_{2.5}$ or a $PM_{2.5}$ precursor of not less than five percent each year from the date of submission of the plan until the applicable attainment date approved by the EPA.[119] The Plan submitted by California does not demonstrate reductions after 2020 because it projects attainment of the 1997 annual $PM_{2.5}$ NAAQS by December 31, 2020. Because the EPA is proposing to disapprove the attainment demonstration, as discussed in section IV.D, based on ambient monitoring data for 2018–2020 indicating that the San Joaquin Valley did not attain the 1997 annual $PM_{2.5}$ NAAQS by the December 31, 2020 attainment date projected by the State in the SJV $PM_{2.5}$ Plan, December 31, 2020 is not the applicable attainment date for purposes of the 1997 annual $PM_{2.5}$ NAAQS in this area, and the Plan does not meet the requirement to demonstrate five percent reductions per year until attainment. Therefore, the EPA is proposing to disapprove the demonstration of the five percent annual emission reductions in the SJV $PM_{2.5}$ Plan for failure to meet the requirements of CAA section 189(d) and 40 CFR 51.1010(c) for the 1997 annual $PM_{2.5}$ NAAQS.

D. Attainment Demonstration and Modeling

1. Statutory and Regulatory Requirements

Section 189(d) of the CAA requires a state with a Serious nonattainment area that failed to attain the NAAQS by the Serious area attainment date to submit a revised attainment demonstration as part of a new plan. The $PM_{2.5}$ SIP Requirements Rule explains that the same general requirements that apply to Moderate and Serious area plans under CAA sections 189(a) and 189(b) should apply to plans developed pursuant to CAA section 189(d)—*i.e.,* the plan must include a demonstration (including air quality modeling) that the control strategy provides for attainment of the $PM_{2.5}$ NAAQS as expeditiously as practicable.[120] For purposes of determining the attainment date that is as expeditious as practicable, the state must conduct future year modeling that takes into account emissions growth, known controls (including any controls that were previously determined to be RACM/RACT or BACM/BACT), the five percent per year emissions reductions required by CAA section 189(d), and any other emissions controls that are needed for expeditious attainment of the NAAQS.

The EPA's $PM_{2.5}$ modeling guidance[121] (''Modeling Guidance'' and ''Modeling Guidance Update'') recommends that a photochemical model, such as the Comprehensive Air Quality Model with Extensions (CAMx) or Community Multiscale Air Quality Model (CMAQ), be used to simulate a base case, with meteorological and emissions inputs reflecting a base case year, to replicate concentrations monitored in that year. The model application to the base year undergoes a performance evaluation to ensure that it satisfactorily corroborates the concentrations monitored in that year. The model may then be used to simulate emissions occurring in other years required for a plan, namely the base year (which may differ from the base case year) and a future year.[122] The modeled response to the emission changes between those years is used to calculate RRFs that are applied to the design value in the base year to estimate the projected design value in the future year for comparison against the NAAQS. Separate RRFs are estimated for each chemical species component of $PM_{2.5}$, and for each quarter of the year, to reflect their differing responses to seasonal meteorological conditions and emissions. Because each species is handled separately, before applying an RRF, the base year design value must be speciated using available chemical species measurements—that is, each day's measured $PM_{2.5}$ design value must be split into its species components. The Modeling Guidance provides additional detail on the recommended approach.[123]

2. Summary of the State's Submission

As discussed in section IV.C, the SJV $PM_{2.5}$ Plan includes a modeled demonstration projecting that the San Joaquin Valley would attain the 1997

[119] Under 40 CFR 51.1000, the applicable attainment date is the latest statutory date by which an area is required to attain a particular $PM_{2.5}$ NAAQS or the attainment date approved by the EPA as part of an attainment plan for the area. For a Serious nonattainment area subject to the requirements of CAA section 189(d), the EPA establishes the applicable attainment date in accordance with the provisions of CAA sections 179(d)(3) and 172(a)(2). 81 FR 58010, 58103.

[120] 81 FR 58010, 58102.

[121] Memorandum dated November 29, 2018, from Richard Wayland, Air Quality Assessment Division, Office of Air Quality Planning and Standards, EPA, to Regional Air Division Directors, EPA, Subject: ''Modeling Guidance for Demonstrating Air Quality Goals for Ozone, $PM_{2.5}$, and Regional Haze,'' (''Modeling Guidance''), and memorandum dated June 28, 2011, from Tyler Fox, Air Quality Modeling Group, OAQPS, EPA, to Regional Air Program Managers, EPA, Subject: ''Update to the 24 Hour $PM_{2.5}$ NAAQS Modeled Attainment Test,'' (''Modeling Guidance Update'').

[122] In this section, we use the terms ''base case,'' ''base year'' or ''baseline,'' and ''future year'' as described in section 2.3 of the EPA's Modeling Guidance. The ''base case'' modeling simulates measured concentrations for a given time period, using emissions and meteorology for that same year. The modeling ''base year'' (which can be the same as the base case year) is the emissions starting point for the plan and for projections to the future year, both of which are modeled for the attainment demonstration. Modeling Guidance, 37–38.

[123] Modeling Guidance, section 4.4, ''What is the Modeled Attainment Tests for the Annual Average $PM_{2.5}$ NAAQS.''

annual $PM_{2.5}$ NAAQS by December 31, 2020, based on ongoing emissions reductions from baseline control measures. CARB conducted photochemical modeling with the CMAQ model using inputs developed from routinely available meteorological and air quality data, as well as more detailed and extensive data from the DISCOVER–AQ field study conducted in January and February of 2013.[124] The Plan's primary discussion of the photochemical modeling appears in Appendix K (''Modeling Attainment Demonstration'') of the 2018 $PM_{2.5}$ Plan. The State briefly summarizes the area's air quality problem in Chapter 2 (''Air Quality Challenges and Trends'') and the modeling results in Chapter 5.3 (''Attainment Demonstration and Modeling'') of the 2018 $PM_{2.5}$ Plan. The State provides a conceptual model of $PM_{2.5}$ formation in the San Joaquin Valley as part of the modeling protocol in Appendix L (''Modeling Protocol''). Appendix J (''Modeling Emission Inventory'') describes emission input preparation procedures. The State presents additional relevant information in Appendix C (''Weight of Evidence Analysis'') of the CARB Staff Report, which includes ambient trends and other data in support of the attainment demonstration.

CARB's air quality modeling approach investigated the many inter-connected facets of modeling ambient $PM_{2.5}$ in the San Joaquin Valley, including model input preparation, model performance evaluation, use of the model output for the numerical NAAQS attainment test, and modeling documentation. Specifically, this required the development and evaluation of a conceptual model, modeling protocol, episode (*i.e.,* base year) selection, modeling domain, CMAQ model selection, initial and boundary condition procedures, meteorological model choice and performance, modeling emissions inventory preparation procedures, model performance, attainment test procedure, adjustments to baseline air quality for modeling, the 2020 attainment test, and an unmonitored area analysis. These analyses are generally consistent with the EPA's recommendations in the Modeling Guidance.

The model performance evaluation in Appendix K includes statistical and graphical measures of model performance. The magnitude and timing of predicted concentrations of total $PM_{2.5}$, as well as of its ammonium and nitrate components, generally match the occurrence of elevated $PM_{2.5}$ levels in the measured observations. A comparison to other recent modeling efforts shows good model performance on bias, error, and correlation with measurements, for total $PM_{2.5}$ and for most of its chemical components. The Weight of Evidence Analysis shows the downward trend in NO_X emissions along with a 24 to 44 percent decrease in annual $PM_{2.5}$ design values between 1999 and 2017.[125] The analysis also shows decreases in daily $PM_{2.5}$ concentrations during winter, and in the frequency of high $PM_{2.5}$ concentrations generally.[126] Available ambient air quality data show that total $PM_{2.5}$ and ammonium nitrate concentrations have declined over the 2004–2017 period, despite some increases from time to time.[127] These trends show that there has been an improvement in air quality due to emissions reductions in the San Joaquin Valley.

The State conducted three CMAQ[128] simulations: (1) A 2013 base year simulation to demonstrate that the model reasonably reproduced the observed $PM_{2.5}$ concentrations in the San Joaquin Valley; (2) a 2013 baseline year simulation that was the same as the 2013 base year simulation but excluded exceptional event emissions, such as wildfire emissions; and (3) a 2020 future year simulation that reflects projected emissions growth and reductions due to controls that have already been adopted and implemented.

Table 4 shows the 2013 base year and 2020 projected future year annual $PM_{2.5}$ design values at monitoring sites in the San Joaquin Valley. The highest 2020 projected design value is 14.6 $\mu g/m^3$ at the Bakersfield—California monitoring site, which is below the 15.0 $\mu g/m^3$ level of the 1997 annual $PM_{2.5}$ NAAQS.

TABLE 4—PROJECTED FUTURE ANNUAL $PM_{2.5}$ DESIGN VALUES AT MONITORING SITES IN THE SAN JOAQUIN VALLEY

[$\mu g/m^3$]

Monitoring site	2013 Base design value	2020 Projected design value
Bakersfield—California	17.2	14.6
Fresno—Garland	16.9	14.2
Hanford	16.5	13.3
Fresno—Hamilton & Winery	16.2	13.5
Clovis	16.1	13.4
Visalia	16.0	13.5
Bakersfield—Planz	15.0	12.4
Madera	14.9	12.5
Turlock	14.2	11.9
Modesto	13.1	11.4
Merced–M. Street	13.1	10.9
Stockton	13.0	11.0
Merced—S Coffee	11.0	9.3
Manteca	10.1	8.7
Tranquility	7.7	6.4

Source: 2018 $PM_{2.5}$ Plan, Table 5–4.

[124] NASA, ''Deriving Information on Surface conditions from COlumn and VERtically Resolved Observations Relevant to Air Quality,'' available at *https://www.nasa.gov/mission_pages/discover-aq/index.html.*

[125] Weight of Evidence Analysis, 26–27, Figure 12, and Figure 24.

[126] Id. at Figure 16 and Figure 17.

[127] Id. at Figure 21.

[128] CMAQ Version 5.0.2.

3. The EPA's Evaluation and Proposed Action

The EPA has reviewed monitoring data recorded at air quality monitors throughout the San Joaquin Valley $PM_{2.5}$ nonattainment area to consider whether the area attained the 1997 annual $PM_{2.5}$ NAAQS by the December 31, 2020 attainment date projected in the SJV $PM_{2.5}$ Plan. We based our review on preliminary but complete and quality-assured ambient air monitoring data recorded during the three years preceding the State's identified attainment date (2018–2020).[129] The EPA has found that the $PM_{2.5}$ monitoring network in the San Joaquin Valley currently meets or exceeds the requirements for the minimum number of monitoring sites designated as State and Local Air Monitoring Stations (SLAMS) for $PM_{2.5}$ and that CARB's and the District's annual network plans meet the applicable requirements in 40 CFR part 58.[130]

Table 5 shows the annual arithmetic means and preliminary annual $PM_{2.5}$ design values at each of the 18 SLAMS monitoring sites within the San Joaquin Valley nonattainment area for the most recent three-year period (2018–2020). The data show that the annual design value for the 2018–2020 period ranged from 9.5 to 17.6 $\mu g/m^3$ across the area at monitors with valid design values, and that the valid design values exceeded 15.0 $\mu g/m^3$ (*i.e.,* the level of the 1997 annual $PM_{2.5}$ NAAQS) at eight of the monitoring sites, indicating that the area did not attain the 1997 annual $PM_{2.5}$ NAAQS by the projected December 31, 2020 attainment date.

As discussed in section IV.D.2, CARB's Weight of Evidence Analysis shows a long-term downward trend in annual $PM_{2.5}$ design values through 2017, the latest year prior to development of the SJV $PM_{2.5}$ Plan for which air quality data were available. As described in the Weight of Evidence Analysis, the San Joaquin Valley has shown a general downward trend in measured $PM_{2.5}$ concentrations despite the effects of extensive wildfires in 2008 and unusual meteorological conditions during the 2013/2014 winter that resulted in higher concentrations during those periods. Similarly, the San Joaquin Valley area may have experienced higher than normal $PM_{2.5}$ concentrations in 2018 and 2020 due to wildfires in the surrounding areas during the summer and fall months. Table 5 shows that concentrations at all 17 monitors in the San Joaquin Valley area with data spanning 2018 to 2020 are significantly higher in 2018 and 2020 relative to concentrations in 2019, possibly due to the wildfires in those years.

TABLE 5—2018–2020 ANNUAL $PM_{2.5}$ DESIGN VALUES FOR THE SAN JOAQUIN VALLEY NONATTAINMENT AREA

County	General location site	AQS ID	Annual arithmetic mean ($\mu g/m^3$)			2018–2020 Annual design values ($\mu g/m^3$) [a]
			2018	2019	2020	
Fresno	Fresno—Pacific	06–019–5025	17.1	11.2	18.7	**15.7**
	Fresno—Garland	06–019–0011	16.2	11.1	19.2	**15.5**
	Fresno—Foundry	06–019–2016	Inc	Inc	20.3	[b] **20.3** (Inv)
	Clovis	06–019–5001	14.3	10.3 (Inc)	18.4	14.4 (Inv)
	Tranquility	06–019–2009	11.1	5.8	11.5	9.5
Kern	Bakersfield—Planz Road	06–029–0016	19.4	13.0	20.3	**17.6**
	Bakersfield—California Ave.	06–029–0014	17.7	11.9	19.7	**16.4**
	Bakersfield—Golden State Highway	06–029–0010	18.1	12.4	20.0	**16.8**
Kings	Corcoran	06–031–0004	17.2	12.1	19.5	**16.3**
	Hanford	06–031–1004	17.7	12.2	19.9	**16.6**
Madera	Madera—Avenue 14	06–039–2010	14.0	9.7	16.9	13.5
Merced	Merced—M Street	06–047–2510	14.2	9.6	15.5	13.1
	Merced—Coffee	06–047–0003	15.1	9.1	14.7	13.0
San Joaquin	Stockton	06–077–1002	17.6	9.3	14.4	13.8
	Manteca	06–077–2010	13.4	8.3 (Inc)	14.8	12.2 (Inv)
Stanislaus	Modesto	06–099–0005	15.2	7.7	14.5	12.5
	Turlock	06–099–0006	17.2	10.7	15.5	14.5
Tulare	Visalia	06–107–2002	17.3	12.9	19.7	**16.7**

Source: EPA, Preliminary 2020 AQS Design Value Report, AMP480, accessed June 15, 2021.

Notes: Inc = Incomplete data. Inv = Invalid design value due to incomplete data. Design values shown in bold type do not meet the 1997 annual $PM_{2.5}$ NAAQS.

[a] This preliminary design value includes all available data; no data flagged for exceptional events have been excluded.

[b] The preliminary 2018–2020 design value at Fresno-Foundry (AQS ID: 06–019–2016) is based on concentration data from January 1, 2020 to December 31, 2020. The site began operation in 2020; therefore, data from January 1, 2018 to December 31, 2019 are not available. Based on 40 CFR part 50, Appendix N, section 4.1(b), three years of valid annual means are required to produce a valid annual $PM_{2.5}$ NAAQS design value. Thus, the Fresno-Foundry 2018–2020 preliminary design value is considered invalid.

Under 40 CFR part 50, appendix N, because the 2018–2020 preliminary design value exceeded the 15.0 $\mu g/m^3$ level of the 1997 annual $PM_{2.5}$ NAAQS, the San Joaquin Valley area did not attain the 1997 annual $PM_{2.5}$ NAAQS by December 31, 2020, as projected in the SJV $PM_{2.5}$ Plan. Therefore, the EPA is proposing to disapprove the attainment

[129] At the time of the EPA's review, the State had not yet certified the 2020 ambient air monitoring data. We understand that the State is working to certify the data and anticipate that the 2020 data will be certified prior to our final action. We do not expect the certified data to differ significantly from the data reflected in this proposal.

[130] Letter dated October 26, 2020, from Gwen Yoshimura, Manager, EPA Region 9, Air Quality Analysis Office, to Jon Klassen, Director of Strategies and Incentives, SJVUAPCD, and letter dated November 5, 2020, from Gwen Yoshimura, Manager, EPA Region 9, Air Quality Analysis Office, to Ravi Ramalingam, Chief, Consumer Products and Air Quality Assessment Branch, CARB.

demonstration in the SJV $PM_{2.5}$ Plan for the 1997 annual $PM_{2.5}$ NAAQS for failure to meet the requirements of CAA sections 189(d) and 179(d) and 40 CFR 51.1011(b). Because our proposal is based on ambient monitoring data clearly indicating that the Plan was insufficient to achieve attainment of the 1997 annual $PM_{2.5}$ NAAQS by the December 31, 2020 attainment date, we do not provide a full evaluation of the attainment demonstration analyses for these NAAQS at this time.

E. Reasonable Further Progress and Quantitative Milestones

1. Statutory and Regulatory Requirements

CAA section 172(c)(2) provides that all nonattainment area plans shall require RFP toward attainment. In addition, CAA section 189(c) requires that all $PM_{2.5}$ nonattainment area SIPs include quantitative milestones to be achieved every three years until the area is redesignated to attainment and that demonstrate RFP. Section 171(l) of the Act defines RFP as ''such annual incremental reductions in emissions of the relevant air pollutant as are required by [Part D] or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable [NAAQS] by the applicable date.'' Neither subpart 1 nor subpart 4 of part D, title I of the Act requires that states achieve a set percentage of emission reductions in any given year for purposes of satisfying the RFP requirement. For purposes of the $PM_{2.5}$ NAAQS, the EPA has interpreted the RFP requirement to require that the nonattainment area plans show annual incremental emission reductions sufficient to maintain generally linear progress toward attainment by the applicable deadline.[131]

Attainment plans for $PM_{2.5}$ nonattainment areas should include detailed schedules for compliance with emission regulations in the area and provide corresponding annual emission reductions to be achieved by each milestone in the schedule.[132] In reviewing an attainment plan under subpart 4, the EPA considers whether the annual incremental emission reductions to be achieved are reasonable in light of the statutory objective of timely attainment. Although early implementation of the most cost-effective control measures is often appropriate, states should consider both cost-effectiveness and pollution reduction effectiveness when developing implementation schedules for control measures and may implement measures that are more effective at reducing $PM_{2.5}$ earlier to provide greater public health benefits.[133]

The $PM_{2.5}$ SIP Requirements Rule establishes specific regulatory requirements for purposes of satisfying the Act's RFP requirements and provides related guidance in the preamble to the rule. Specifically, under the $PM_{2.5}$ SIP Requirements Rule, each $PM_{2.5}$ attainment plan must contain an RFP analysis that includes, at minimum, the following four components: (1) An implementation schedule for control measures; (2) RFP projected emissions for direct $PM_{2.5}$ and all $PM_{2.5}$ plan precursors for each applicable milestone year, based on the anticipated control measure implementation schedule; (3) a demonstration that the control strategy and implementation schedule will achieve reasonable progress toward attainment between the base year and the attainment year; and (4) a demonstration that by the end of the calendar year for each milestone date for the area, pollutant emissions will be at levels that reflect either generally linear progress or stepwise progress in reducing emissions on an annual basis between the base year and the attainment year.[134] Additionally, states should estimate the RFP projected emissions for each quantitative milestone year by sector on a pollutant-by-pollutant basis.[135]

Section 189(c) of the Act requires that $PM_{2.5}$ attainment plans include quantitative milestones that demonstrate RFP. The purpose of the quantitative milestones is to allow periodic evaluation of the area's progress towards attainment of the NAAQS consistent with RFP requirements. Because RFP is an annual emission reduction requirement and the quantitative milestones are to be achieved every three years, when a state demonstrates compliance with the quantitative milestone requirement, it should also demonstrate that RFP has been achieved during each of the relevant three years. Quantitative milestones should provide an objective means to evaluate progress toward attainment meaningfully, *e.g.,* through imposition of emission controls in the attainment plan and the requirement to quantify those required emission reductions. The CAA also requires states to submit milestone reports (due 90 days after each milestone), and these reports should include calculations and any assumptions made by the state concerning how RFP has been met, *e.g.,* through quantification of emission reductions to date.[136]

The CAA does not specify the starting point for counting the three-year periods for quantitative milestones under CAA section 189(c). In the General Preamble and General Preamble Addendum, the EPA interpreted the CAA to require that the starting point for the first three-year period be the due date for the Moderate area plan submission.[137] In keeping with this historical approach, the EPA established December 31, 2014, the deadline that the EPA established for a state's submission of any additional attainment-related SIP elements necessary to satisfy the subpart 4 Moderate area requirements for the 1997 $PM_{2.5}$ NAAQS, as the starting point for the first three-year period under CAA section 189(c) for the 1997 $PM_{2.5}$ NAAQS in the San Joaquin Valley.[138]

Under the $PM_{2.5}$ SIP Requirements Rule, each attainment plan submission for an area designated nonattainment for the 1997 $PM_{2.5}$ NAAQS before January 15, 2015, must contain quantitative milestones to be achieved no later than three years after December 31, 2014, and every three years thereafter until the milestone date that falls within three years after the applicable attainment date.[139] If the area fails to attain, this post-attainment date milestone provides the EPA with the tools necessary to monitor the area's continued progress toward attainment while the state develops a new attainment plan.[140] Quantitative milestones must provide for objective evaluation of RFP toward timely attainment of the $PM_{2.5}$ NAAQS in the area and include, at minimum, a metric for tracking progress achieved in implementing SIP control measures, including BACM and BACT, by each milestone date.[141]

Because the EPA designated the San Joaquin Valley area as nonattainment for the 1997 annual $PM_{2.5}$ NAAQS effective

[131] General Preamble Addendum, 42015.

[132] Id. at 42016.

[133] Id.

[134] 40 CFR 51.1012(a).

[135] 81 FR 58010, 58056.

[136] General Preamble Addendum, 42016–42017.

[137] General Preamble, 13539, and General Preamble Addendum, 42016.

[138] 79 FR 31566 (June 2, 2014) (final rule establishing subpart 4 moderate area classifications and deadline for related SIP submissions). Although this final rule did not affect any action that the EPA had previously taken under CAA section 110(k) on a SIP for a $PM_{2.5}$ nonattainment area, the EPA noted that states may need to submit additional SIP elements to fully comply with the applicable requirements of subpart 4, even for areas with previously approved $PM_{2.5}$ attainment plans, and that the deadline for any such additional plan submissions was December 31, 2014. Id. at 31569.

[139] 40 CFR 51.1013(a)(4).

[140] 81 FR 58010, 58064.

[141] Id. at 58064 and 58092.

April 5, 2005,[142] the plan for this area must contain quantitative milestones to be achieved no later than three years after December 31, 2014 (*i.e.,* by December 31, 2017), and every three years thereafter until the milestone date that falls within three years after the applicable attainment date.[143]

2. Summary of the State's Submission

Appendix H (''RFP, Quantitative Milestones, and Contingency'') of the 2018 $PM_{2.5}$ Plan contains the State's RFP demonstration and quantitative milestones for the 1997 annual $PM_{2.5}$ NAAQS,[144] and the Valley State SIP Strategy contains the control measure commitments that CARB has identified as mobile source quantitative milestones for the 2020 milestone date.[145] Given the State's conclusions that ammonia, SO_X, and VOC emissions do not contribute significantly to $PM_{2.5}$ levels that exceed the 1997 annual $PM_{2.5}$ NAAQS in the San Joaquin Valley, as discussed in section IV.B of this proposed rule, the RFP demonstration provided by the State addresses emissions of direct $PM_{2.5}$ and NO_X.[146] Similarly, the State developed quantitative milestones based upon implementation of control strategy measures in the adopted SIP and in the SJV $PM_{2.5}$ Plan that achieve reductions in emissions of direct $PM_{2.5}$ and NO_X.[147] For the 1997 annual $PM_{2.5}$ NAAQS, the RFP demonstration in the Plan shows generally linear progress toward attainment.

We describe the RFP demonstration and quantitative milestones in the SJV $PM_{2.5}$ Plan in greater detail below.

Reasonable Further Progress

The State addresses the RFP and quantitative milestone requirements in Appendix H to the 2018 $PM_{2.5}$ Plan submitted in February 2020. The Plan estimates that emissions of direct $PM_{2.5}$ and NO_X will generally decline from the 2013 base year to the projected 2020 attainment year, and beyond to the 2023 post-attainment quantitative milestone year. The Plan's emissions inventory shows that direct $PM_{2.5}$ and NO_X are emitted by a large number and range of sources in the San Joaquin Valley. Table H–2 in Appendix H contains an anticipated implementation schedule for District regulatory control measures and Table 4–8 in Chapter 4 of the 2018 $PM_{2.5}$ Plan contains an anticipated implementation schedule for CARB control measures in the San Joaquin Valley. Table H–5 in Appendix H contains projected emissions for each quantitative milestone year. These emission levels reflect baseline emission projections through the 2023 post-attainment milestone year.[148]

The SJV $PM_{2.5}$ Plan identifies emission reductions needed for attainment of the 1997 annual $PM_{2.5}$ NAAQS by 2020,[149] and identifies San Joaquin Valley's progress toward attainment in each milestone year.[150] The State and District set RFP targets for each of the quantitative milestone years as shown in Table H–8 of Appendix H of the 2018 $PM_{2.5}$ Plan.

According to the Plan, reductions in both direct $PM_{2.5}$ and NO_X emissions from 2013 base year levels result in emission levels consistent with attainment in the 2020 attainment year. Based on these analyses, the State and District conclude that the adopted control strategy is adequate to meet the RFP requirement for the 1997 annual $PM_{2.5}$ NAAQS.

Quantitative Milestones

Appendix H of the 2018 $PM_{2.5}$ Plan identifies the milestone dates of December 31, 2017, December 31, 2020, and December 31, 2023, for the 1997 $PM_{2.5}$ NAAQS.[151] Appendix H also identifies target emission levels to meet the RFP requirement for direct $PM_{2.5}$ and NO_X emissions for each of these milestone years,[152] and State and District control measures that will achieve emission reductions in the years leading up to each of the milestones, in accordance with the control strategy in the Plan.[153]

The Plan includes quantitative milestones for mobile, stationary, and area sources. For mobile sources, CARB has developed quantitative milestones that provide for an evaluation of RFP based on the implementation of specific control measures by the relevant three-year milestones. For each quantitative milestone year, the Plan provides for evaluating RFP by tracking State and District implementation of regulatory measures and SIP commitments during the three-year period leading to each milestone date, consistent with the control strategy in the SJV $PM_{2.5}$ Plan.[154] The identified regulatory measures include State measures for light-duty vehicles and non-road vehicles and several District measures for stationary and area sources.[155]

CARB submitted its 2017 Quantitative Milestone Report for the San Joaquin Valley to the EPA on December 20, 2018.[156] The report includes a certification that CARB and the District met the 2017 quantitative milestones identified in the SJV $PM_{2.5}$ Plan for the 1997 $PM_{2.5}$ NAAQS and discusses the State's and District's progress on implementing the three CARB measures and six District measures identified in Appendix H as quantitative milestones for the 2017 milestone year. On February 15, 2021, the EPA determined that the 2017 Quantitative Milestone Report was adequate.[157] In our evaluation of the 2017 Quantitative Milestone Report, we found that the control measures in the Plan are in effect, consistent with the RFP demonstration in the SJV $PM_{2.5}$ Plan for the 1997 annual $PM_{2.5}$ NAAQS, but we noted that the determination of adequacy did not constitute approval of any component of the SJV $PM_{2.5}$ Plan.[158]

3. The EPA's Evaluation and Proposed Action

As discussed in section IV.D, we are proposing to disapprove the attainment demonstration for the 1997 annual $PM_{2.5}$ NAAQS in the SJV $PM_{2.5}$ Plan because the area did not attain by the State's projected attainment date, which was December 31, 2020. As a result, the RFP

[142] 70 FR 944 (January 5, 2005).

[143] 40 CFR 51.1013(a)(4).

[144] As discussed in footnote 32, all references to Appendix H in this proposed rule are to the revised version submitted on February 11, 2020, which replaces the version submitted with the 2018 $PM_{2.5}$ Plan on May 10, 2019.

[145] Valley State SIP Strategy, Table 7 (identifying State measures scheduled for action between 2017 and 2020, inter alia) and CARB Resolution 18–49, ''San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan'' (October 25, 2018), 5 (adopting State commitment to begin public processes and propose for Board consideration the list of proposed SIP measures outlined in the Valley State SIP Strategy and included in Attachment A, according to the schedule set forth therein).

[146] 2018 $PM_{2.5}$ Plan, Appendix H, H–1.

[147] Id. at H–18 and H–19 (District milestones), and H–21 and H–22 (State milestones).

[148] Id. at tables H–3 to H–5.

[149] Id. at Table H–6.

[150] Id. at Table H–7.

[151] Id. at Table H–12.

[152] Id. at Table H–8.

[153] Id. at H–18 and H–19 (District milestones), and H–21 and H–22 (State milestones).

[154] Id. We note that the District's identified quantitative milestones for 2023 appear to contain a typographical error, as they include a District report on ''[t]he status of SIP measures adopted between 2017 and 2020 as per the schedule included in the adopted Plan.'' Id. at H–18 and H–19. We understand that the District intended to refer here to the status of SIP measures adopted between 2020 and 2023, consistent with the schedule in the 2018 $PM_{2.5}$ Plan.

[155] Id. at H–18 and H–19 (District milestones), and H–21 and H–22 (State milestones).

[156] Letter dated December 20, 2018, from Richard W. Corey, Executive Officer, CARB, to Michael Stoker, Regional Administrator, EPA Region 9, with attachment ''2017 Quantitative Milestone Report for the 1997 and 2006 NAAQS.''

[157] Letter dated February 15, 2021, from Deborah Jordan, Acting Regional Administrator, EPA Region IX, to Richard W. Corey, Executive Officer, CARB, with enclosure titled ''EPA Evaluation of 2017 Quantitative Milestone Report.''

[158] Id.

demonstration in the Plan does not achieve the statutory purpose of RFP to ''ensure attainment'' under CAA section 171(l) and the quantitative milestones do not ''demonstrate [RFP] toward attainment by the applicable date'' under CAA section 189(c). We are, therefore, proposing to disapprove the RFP and quantitative milestone elements of the SJV $PM_{2.5}$ Plan for the 1997 annual $PM_{2.5}$ NAAQS for failure to meet the requirements of CAA sections 172(c)(2), 171(1), and 189(c) and 40 CFR 51.1012 and 51.1013.

F. Contingency Measures

1. Requirements for Contingency Measures

Under CAA section 172(c)(9), each state required to make a nonattainment plan SIP submission must include, in such plan, contingency measures to be implemented if an area fails to meet RFP (''RFP contingency measures'') or fails to attain the NAAQS by the applicable attainment date (''attainment contingency measures''). Under the $PM_{2.5}$ SIP Requirements Rule, states must include contingency measures that will be implemented following a determination by the EPA that the state has failed: (1) To meet any RFP requirement in the approved SIP; (2) to meet any quantitative milestone in the approved SIP; (3) to submit a required quantitative milestone report; or (4) to attain the applicable $PM_{2.5}$ NAAQS by the applicable attainment date.[159] Contingency measures must be fully adopted rules or control measures that are ready to be implemented quickly upon failure to meet RFP or failure of the area to meet the relevant NAAQS by the applicable attainment date.[160]

The purpose of contingency measures is to continue progress in reducing emissions while a state revises its SIP to meet the missed RFP requirement or to correct ongoing nonattainment. Neither the CAA nor the EPA's implementing regulations establish a specific level of emission reductions that implementation of contingency measures must achieve, but the EPA recommends that contingency measures should provide for emission reductions equivalent to approximately one year of reductions needed for RFP in the nonattainment area at issue, calculated as the overall level of reductions needed to demonstrate attainment divided by the number of years from the base year to the attainment year. In general, we expect all actions needed to effect full implementation of the measures to occur within 60 days after the EPA notifies the state of a failure to meet RFP or to attain.[161]

To satisfy the requirements of 40 CFR 51.1014, the contingency measures adopted as part of a $PM_{2.5}$ attainment plan must consist of control measures for the area that are not otherwise required to meet other nonattainment plan requirements (*e.g.,* to meet RACM/RACT requirements) and must specify the timeframe within which their requirements become effective following any of the EPA determinations specified in 40 CFR 51.1014(a). In a 2016 decision called *Bahr* v. *EPA* (''*Bahr*''),[162] the Ninth Circuit Court of Appeals rejected the EPA's interpretation of CAA section 172(c)(9) to allow approval of already-implemented control measures as contingency measures. In *Bahr,* the Ninth Circuit concluded that contingency measures must be measures that are triggered and implemented only after the EPA determines that an area failed to meet RFP requirements or to attain by the applicable attainment date. Thus, within the geographic jurisdiction of the Ninth Circuit, already implemented measures cannot serve as contingency measures under CAA section 172(c)(9). To comply with section 172(c)(9), a state must develop, adopt, and submit a contingency measure to be triggered upon a failure to meet an RFP milestone, failure to meet a quantitative milestone requirement, or failure to attain the NAAQS by the applicable attainment date.

2. Summary of the State's Submission

The SJV $PM_{2.5}$ Plan addresses the contingency measure requirement for the 1997 annual $PM_{2.5}$ NAAQS in section 5.6 and Appendix H (specifically, section H.3 (''Contingency Measures'')) of the 2018 $PM_{2.5}$ Plan. The Plan relies on revisions to the District's wood-burning rule (Rule 4901) and refers to a SIP revision submitted by CARB on October 23, 2017, titled ''State Implementation Plan Attainment Contingency Measures for the San Joaquin Valley 15 $\mu g/m^3$ Annual $PM_{2.5}$ NAAQS'' (''2017 Contingency Measure SIP'').[163] On March 19, 2021, CARB withdrew the 2017 Contingency Measure SIP submission.[164] Therefore, we are not evaluating the 2017 Contingency Measure SIP as part of this action.

With respect to the District contingency measure, the 2018 $PM_{2.5}$ Plan states that the District will amend Rule 4901 to include a requirement that would be triggered upon a determination by the EPA that the San Joaquin Valley failed to meet a regulatory requirement necessitating implementation of a contingency measure.[165] As discussed in section II.C, the District adopted amendments to Rule 4901 on June 20, 2019, including a contingency measure in section 5.7.3 of the amended rule. In the EPA's July 22, 2020 final action to approve Rule 4901, as amended June 20, 2019, we did not evaluate section 5.7.3 of the amended rule for compliance with CAA requirements for contingency measures.[166] We are now evaluating section 5.7.3 of Rule 4901 for compliance with the requirements for contingency measures for purposes of the 1997 annual $PM_{2.5}$ NAAQS.

Rule 4901 is designed to limit emissions generated by the use of wood burning fireplaces, wood burning heaters, and outdoor wood burning devices. The rule establishes requirements for the sale/transfer, operation, and installation of wood burning devices and for advertising the sale of seasoned wood consistent with a moisture content limit within the San Joaquin Valley. The rule includes a two-tiered, episodic wood burning curtailment requirement that applies during four winter months, November through February. During a level one episodic wood burning curtailment, section 5.7.1 prohibits any person from operating a wood burning fireplace or unregistered wood burning heater, but permits the use of a properly operated wood burning heater that meets certification requirements and has a current registration with the District. Sections 5.9 through 5.11 impose specific registration requirements on any person operating a wood burning fireplace or wood burning heater and section 5.12 imposes specific certification requirements on wood burning heater professionals. During a level two episodic wood burning curtailment, operation of any wood burning device is prohibited by section 5.7.2.

Prior to the 2019–2020 wood burning season, the District imposed a level one

[159] 40 CFR 51.1014(a).

[160] 81 FR 58010, 58066 and General Preamble Addendum, 42015.

[161] 81 FR 58010, 58066. See also General Preamble, 13512, 13543–13544, and General Preamble Addendum, 42014–42015.

[162] *Bahr* v. *EPA,* 836 F.3d 1218, 1235–1237 (9th Cir. 2016).

[163] Letter dated October 23, 2017, from Richard W. Corey, Executive Officer, CARB, to Alexis Strauss, Acting Regional Administrator, EPA Region 9.

[164] Letter dated March 19, 2021, from Richard W. Corey, Executive Officer, CARB, to Deborah Jordan, Acting Regional Administrator, EPA Region 9, transmitting CARB Executive Order S–21–004.

[165] 2018 $PM_{2.5}$ Plan, Appendix H, H–25.

[166] 85 FR 44206 (July 22, 2020) (final approval of Rule 4901); 85 FR 1131, 1132–1133 (January 9, 2020) (proposed approval of Rule 4901).

curtailment when the $PM_{2.5}$ concentration was forecasted to be between 20 μg/m^3 and 65 μg/m^3 and imposed a level two curtailment when the $PM_{2.5}$ concentration was forecasted to be above 65 μg/m^3 or the PM_{10} concentration was forecasted to be above 135 μg/m^3. In 2019 the District adopted revisions to Rule 4901 to lower the wood burning curtailment thresholds in the ''hot spot'' counties of Madera, Fresno, and Kern. The District lowered the level one $PM_{2.5}$ threshold for these three counties from 20 μg/m^3 to 12 μg/m^3, and the level two $PM_{2.5}$ threshold from 65 μg/m^3 to 35 μg/m^3. The District did not modify the curtailment thresholds for other counties in the San Joaquin Valley—those levels remain at 20 μg/m^3 for level one and 65 μg/m^3 for level two.

The District's 2019 revision to Rule 4901 also included the addition of a contingency measure in section 5.7.3 of the rule, requiring that 60 days following the effective date of an EPA determination that the San Joaquin Valley has failed to attain the 1997, 2006, or 2012 $PM_{2.5}$ NAAQS by the applicable attainment date, the $PM_{2.5}$ curtailment levels of any county that has failed to attain the applicable standard will be lowered to the curtailment levels in place for hot spot counties. The District estimates that the potential emissions reduction of direct $PM_{2.5}$ would be in the range of 0.014 tpd (if the contingency measure is triggered in Kings County but not the other non-hot spot counties) to 0.387 tpd (if the contingency measure is triggered in all five of the non-hot spot counties), but there would be no emissions reduction if, at the time of the determination of failure to attain the 1997 annual $PM_{2.5}$ NAAQS by the attainment date, violations of the 1997 annual $PM_{2.5}$ NAAQS are observed only at monitors in the hot spot counties.[167] The corresponding potential NO_X emissions reduction would be in the range of 0.002 tpd to 0.060 tpd, respectively, but once again, there would be no emissions reduction if the violations are monitored in the hot spot counties only.[168] The EPA has already approved Rule 4901, as amended in 2019, as a revision to the California SIP.[169]

Appendix H of the 2018 $PM_{2.5}$ Plan also provides updated emissions estimates for the year following the State's projected attainment year (*i.e.,* 2021) to evaluate whether the emission reductions from the contingency measures are sufficient. Table H–3 in Appendix H of the 2018 $PM_{2.5}$ Plan shows that the emission reductions between 2020 and 2021 are estimated to be 0.5 tpd of direct $PM_{2.5}$ and 12.3 tpd of NO_X (based on the annual average inventory).

3. The EPA's Evaluation and Proposed Action

We have evaluated the contingency provision in Rule 4901 (*i.e.,* section 5.7.3 of the rule) for compliance with the requirements of CAA section 172(c)(9) and 40 CFR 51.1014 and find that the measure meets some, but not all, of the applicable requirements for contingency measures. The contingency provision in Rule 4901 is structured to be undertaken if the area fails to attain the 1997 $PM_{2.5}$ NAAQS, not before, and therefore is consistent with the *Bahr* decision disallowing already-implemented measures for contingency measure purposes under CAA section 172(c)(9). Furthermore, the contingency provision in Rule 4901 would achieve emission reductions above and beyond those that are projected to be achieved if the EPA finds that monitoring locations in counties outside of Fresno, Kern, or Madera counties (*i.e.,* the ''hot spot'' counties listed in the rule) are violating the 1997 annual $PM_{2.5}$ NAAQS as of the attainment date. In accordance with 40 CFR 51.1014, the contingency provision in Rule 4901 identifies a specific triggering mechanism. In this case, the triggering mechanism in the rule is the EPA's final determination that San Joaquin Valley has failed to attain the 1997 annual $PM_{2.5}$ NAAQS by the applicable attainment date.[170] The rule also specifies a timeframe within which its requirements become effective after a failure-to-attain determination (*i.e.,* 60 days from the effective date of the EPA's final determination), and would take effect with minimal further action by the State or the EPA.

Conversely, we have identified several deficiencies with respect to the contingency measure element of the SJV $PM_{2.5}$ Plan. First, the contingency provisions of Rule 4901 do not address the potential for State failures to meet RFP, to meet a quantitative milestone, or to submit a quantitative milestone report. In addition, the contingency measure provisions of Rule 4901 are not structured to achieve any additional emissions reductions if the EPA finds that the monitoring locations in the ''hot spot'' counties (*i.e.,* Fresno, Kern, or Madera) are the only counties in the San Joaquin Valley that are violating the 1997 annual $PM_{2.5}$ NAAQS as of the attainment date. To qualify as a contingency measure, a measure must be structured to achieve emissions reductions if triggered; however, the contingency provisions of Rule 4901 provide for such reductions only under certain circumstances. Thus, the contingency provisions of Rule 4901 should be revised to provide for additional emissions reductions in the San Joaquin Valley (if triggered) regardless of which monitoring site(s) is determined to be violating the 1997 annual $PM_{2.5}$ NAAQS as of the attainment date.

Furthermore, CAA section 172(c)(9) requires that the plan provide for the implementation of contingency measures to be undertaken if the area fails to attain the 1997 annual $PM_{2.5}$ NAAQS by the applicable attainment date. Given our proposed disapproval of the State's attainment demonstration for the 1997 annual $PM_{2.5}$ NAAQS, as described in section IV.D.3 of this proposed rule, it is not possible to determine whether emission reductions from contingency measures in the SJV $PM_{2.5}$ Plan that are intended to take effect upon an EPA finding that the area failed to attain the standards are in fact surplus to the attainment demonstration, as required by section 172(c)(9).

For these reasons, we are proposing to disapprove the contingency measure element of the SJV $PM_{2.5}$ Plan for the 1997 annual $PM_{2.5}$ NAAQS. If we finalize this proposal, we will remove from the California SIP the contingency provision in Rule 4901 (section 5.7.3) because this provision does not satisfy CAA requirements for contingency measures and is severable from the remainder of Rule 4901. The disapproval of section 5.7.3 of Rule 4901 would have no effect on our prior approval of the rule for purposes of meeting the BACM and MSM requirements for the 2006 $PM_{2.5}$ NAAQS in the San Joaquin Valley,[171] which

[167] See Table B–13 in Appendix B from the District's Final Staff Report (June 20, 2019) for revisions to Rule 4901.

[168] NO_X emissions reductions from the contingency measure are based on the District's estimates for direct $PM_{2.5}$ emissions using the ratio of direct $PM_{2.5}$ to NO_X in Table 1, page 8, of the District's Final Staff Report (June 20, 2019) for revisions to Rule 4901.

[169] 85 FR 44206 (July 22, 2020).

[170] Section 5.7.3 of Rule 4901 states that ''the District shall notify the public of an Episodic Curtailment for the $PM_{2.5}$ curtailment levels described in Sections 5.7.1.2 and 5.7.2.2 *for any county that has failed to attain the applicable standard.*'' (emphasis added) We interpret this to mean that the District would apply the more stringent curtailment provisions for any county identified in the EPA's final rule making the determination that the San Joaquin Valley failed to attain the applicable $PM_{2.5}$ NAAQS.

[171] 85 FR 44206 (final approval of Rule 4901) and 85 FR 44192 (determination that Rule 4901

Continued

would remain in effect for all but section 5.7.3 of Rule 4901.

G. Motor Vehicle Emission Budgets

1. Statutory and Regulatory Requirements

Section 176(c) of the CAA requires federal actions in nonattainment and maintenance areas to conform to the goals of the state's SIP to eliminate or reduce the severity and number of violations of the NAAQS and achieve timely attainment of the standards. Conformity to the SIP's goals means that such actions will not: (1) Cause or contribute to violations of a NAAQS, (2) worsen the severity of an existing violation, or (3) delay timely attainment of any NAAQS or any interim milestone.

Actions involving Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) funding or approval are subject to the EPA's transportation conformity rule, codified at 40 CFR part 93, subpart A. Under this rule, metropolitan planning organizations (MPOs) in nonattainment and maintenance areas coordinate with state and local air quality and transportation agencies, the EPA, the FHWA, and the FTA to demonstrate that an area's regional transportation plans (RTPs) and transportation improvement programs conform to the applicable SIP. This demonstration is typically done by showing that estimated emissions from existing and planned highway and transit systems are less than or equal to the motor vehicle emissions budgets (MVEBs or ''budgets'') contained in all control strategy SIPs. Budgets are generally established for specific years and specific pollutants or precursors and must reflect all of the motor vehicle control measures contained in the attainment and RFP demonstrations.[172]

Under the $PM_{2.5}$ SIP Requirements Rule, Serious area $PM_{2.5}$ attainment plans must include appropriate quantitative milestones and projected RFP emission levels for direct $PM_{2.5}$ and all $PM_{2.5}$ plan precursors in each milestone year.[173] For an area designated nonattainment for the 1997 $PM_{2.5}$ NAAQS before January 15, 2015, the attainment plan must contain quantitative milestones to be achieved no later than three years after December 31, 2014, and every three years thereafter until the milestone date that falls within three years after the applicable attainment date.[174] As the EPA explained in the preamble to the $PM_{2.5}$ SIP Requirements Rule, it is important to include a post-attainment year quantitative milestone to ensure that, if the area fails to attain by the attainment date, the EPA can continue to monitor the area's progress toward attainment while the state develops a new attainment plan.[175] Although the post-attainment year quantitative milestone is a required element of a Serious area plan, it is not necessary to demonstrate transportation conformity for 2023 or to use the 2023 budgets in transportation conformity determinations until such time as the area fails to attain the 1997 annual $PM_{2.5}$ NAAQS.

$PM_{2.5}$ plans should identify budgets for direct $PM_{2.5}$, NO_X, and all other $PM_{2.5}$ precursors for which on-road emissions are determined to significantly contribute to $PM_{2.5}$ levels in the area for each RFP milestone year and the attainment year, if the plan demonstrates attainment. All direct $PM_{2.5}$ SIP budgets should include direct $PM_{2.5}$ motor vehicle emissions from tailpipes, brake wear, and tire wear. With respect to $PM_{2.5}$ from re-entrained road dust and emissions of VOC, SO_2, and/or ammonia, the transportation conformity provisions of 40 CFR part 93, subpart A, apply only if the EPA Regional Administrator or the director of the state air agency has made a finding that emissions of these pollutants within the area are a significant contributor to the $PM_{2.5}$ nonattainment problem and has so notified the MPO and Department of Transportation (DOT), or if the applicable implementation plan (or implementation plan submission) includes any of these pollutants in the approved (or adequate) budget as part of the RFP, attainment, or maintenance strategy.[176]

By contrast, transportation conformity requirements apply with respect to emissions of NO_X unless both the EPA Regional Administrator and the director of the state air agency have made a finding that transportation-related emissions of NO_X within the nonattainment area are not a significant contributor to the $PM_{2.5}$ nonattainment problem and have so notified the MPO and DOT, or the applicable implementation plan (or implementation plan submission) does not establish an approved (or adequate) budget for such emissions as part of the RFP, attainment, or maintenance strategy.[177]

It is not always necessary for states to establish motor vehicle emissions budgets for all $PM_{2.5}$ precursors. The $PM_{2.5}$ SIP Requirements Rule allows a state to demonstrate that emissions of certain precursors do not contribute significantly to $PM_{2.5}$ levels that exceed the NAAQS in a nonattainment area, in which case the state may exclude such precursor(s) from its control evaluations for the specific NAAQS at issue. If a state successfully demonstrates that the emissions of one or more of the $PM_{2.5}$ precursors from all sources do not contribute significantly to $PM_{2.5}$ levels in the subject area, then it is not necessary to establish motor vehicle emissions budgets for such precursor(s).

Alternatively, the transportation conformity regulations contain criteria for determining whether emissions of one or more $PM_{2.5}$ precursors are insignificant for transportation conformity purposes.[178] For a pollutant or precursor to be considered an insignificant contributor based on the transportation conformity rule's criteria, the control strategy SIP must demonstrate that it would be unreasonable to expect that such an area would experience enough motor vehicle emissions growth in that pollutant and/or precursor for a NAAQS violation to occur. Insignificance determinations are based on factors such as air quality, SIP motor vehicle control measures, trends and projections of motor vehicle emissions, and the percentage of the total attainment plan emissions inventory for the NAAQS at issue that is comprised of motor vehicle emissions. The EPA's rationale for providing for insignificance determinations is described in the July 1, 2004 revision to the Transportation Conformity Rule.[179]

Transportation conformity trading mechanisms are allowed under 40 CFR 93.124 where a state establishes appropriate mechanisms for such trades. The basis for the trading mechanism is the SIP attainment modeling that establishes the relative contribution of each $PM_{2.5}$ precursor pollutant. The applicability of emission trading between conformity budgets for conformity purposes is described in 40 CFR 93.124(c).

The EPA's process for determining the adequacy of a budget consists of three

implements BACM and MSM for residential wood burning).

[172] 40 CFR 93.118(e)(4)(v).

[173] 40 CFR 51.1012(a), 51.1013(a)(1).

[174] 40 CFR 51.1013(a)(4) and 81 FR 58010, 58058 and 58063–58064 (August 24, 2016).

[175] 81 FR 58010, 58063–58064.

[176] 40 CFR 93.102(b)(3), 93.102(b)(2)(v), and 93.122(f); see also Conformity Rule preambles at 69 FR 40004, 40031–40036 (July 1, 2004), 70 FR 24280, 24283–24285 (May 6, 2005) and 70 FR 31354 (June 1, 2005).

[177] 40 CFR 93.102(b)(2)(iv).

[178] 40 CFR 93.109(f).

[179] 69 FR 40004.

basic steps: (1) Notifying the public of a SIP submittal; (2) providing the public the opportunity to comment on the budget during a public comment period; and, (3) making a finding of adequacy or inadequacy. The EPA can notify the public by either posting an announcement that the EPA has received SIP budgets on the EPA's adequacy website,[180] or through a **Federal Register** notice of proposed rulemaking when the EPA reviews the adequacy of an implementation plan budget simultaneously with its review and action on the SIP itself.[181]

2. Summary of the State's Submission

The 2018 $PM_{2.5}$ Plan includes budgets for direct $PM_{2.5}$ and NO_X emissions, calculated using annual average daily emissions, for 2017, 2020, and 2023 (RFP milestone year, attainment year, and post-attainment quantitative milestone year, respectively).[182] The Plan establishes separate direct $PM_{2.5}$ and NO_X subarea budgets for each county, or partial county (for Kern County), in the San Joaquin Valley.[183] CARB calculated the budgets using EMFAC2014, CARB's latest version of the EMFAC model for estimating emissions from on-road vehicles operating in California that was available at the time of Plan development, and the latest modeled vehicle miles traveled and speed distributions from the San Joaquin Valley MPOs from the Final 2017 Federal Transportation Improvement Program, adopted in September 2016. The budgets reflect annual average emissions because those emissions are linked with the District's attainment demonstration for the 1997 annual $PM_{2.5}$ NAAQS.

The direct $PM_{2.5}$ budgets include tailpipe, brake wear, and tire wear emissions but do not include paved road dust, unpaved road dust, and road construction dust emissions.[184] The State is not required to include re-entrained road dust in the budgets under section 93.103(b)(3) unless the EPA or the State has made a finding that these emissions are significant. Neither the State nor the EPA has made such a finding, but the Plan does include a discussion of the significance/insignificance factors for re-entrained road dust.[185] The budgets included in the 2018 $PM_{2.5}$ Plan for purposes of the 1997 annual $PM_{2.5}$ NAAQS are shown in Table 6.

TABLE 6—MOTOR VEHICLE EMISSION BUDGETS FOR THE SAN JOAQUIN VALLEY FOR THE 1997 ANNUAL $PM_{2.5}$ NAAQS

[Annual average, tpd]

County	2017 (RFP year)		2020 (Attainment year)		2023 (Post-attainment year)	
	$PM_{2.5}$	NO_X	$PM_{2.5}$	NO_X	$PM_{2.5}$	NO_X
Fresno	0.9	28.5	0.9	25.3	0.8	15.1
Kern	0.8	28.0	0.8	23.3	0.7	13.3
Kings	0.2	5.8	0.2	4.8	0.2	2.8
Madera	0.2	5.3	0.2	4.2	0.2	2.5
Merced	0.3	10.7	0.3	8.9	0.3	5.3
San Joaquin	0.7	14.9	0.6	11.9	0.6	7.6
Stanislaus	0.4	11.9	0.4	9.6	0.4	6.1
Tulare	0.4	10.8	0.4	8.5	0.4	5.2

Source: 2018 $PM_{2.5}$ Plan, Appendix D, Table 3–1. Budgets are rounded to the nearest tenth of a ton.

The State did not include budgets for VOC, SO_2, or ammonia. As discussed in section IV.B of this proposed rule, the State submitted a $PM_{2.5}$ precursor demonstration documenting its conclusion that control of these precursors would not significantly contribute to attainment of the 1997 annual $PM_{2.5}$ NAAQS. The State also included a discussion of the significance/insignificance factors for ammonia, SO_2, and VOC to demonstrate a finding of insignificance under the transportation conformity rule.[186]

In the submittal letter for the 2018 $PM_{2.5}$ Plan, CARB requested that the EPA limit the duration of the approval of the budgets to the period before the effective date of the EPA's adequacy finding for any subsequently submitted budgets.[187]

Conformity Trading Mechanism

The 2018 $PM_{2.5}$ Plan also includes a proposed trading mechanism for transportation conformity analyses that would allow future decreases in NO_X emissions from on-road mobile sources to offset any on-road increases in direct $PM_{2.5}$ emissions. The State is proposing to use a 6.5 to 1 NO_X to $PM_{2.5}$ ratio for the 1997 annual $PM_{2.5}$ NAAQS. This ratio was derived by performing a sensitivity analysis based on a 30 percent reduction of NO_X or $PM_{2.5}$ emissions and calculating the corresponding effect on design values at sites in Bakersfield and Fresno.

To ensure that the trading mechanism does not affect the ability of the San Joaquin Valley to meet the NO_X budget, the NO_X emissions reductions available to supplement the $PM_{2.5}$ budget would be only those remaining after the NO_X budget has been met.[188] The Plan also provides that the San Joaquin Valley MPOs shall clearly document the calculations used in the trading, along with any additional reductions of NO_X and $PM_{2.5}$ emissions in the conformity analysis.

3. The EPA's Evaluation and Proposed Action

The EPA generally first conducts a preliminary review of budgets submitted with an attainment or maintenance plan for $PM_{2.5}$ for adequacy, prior to taking action on the plan itself, and did so with respect to the $PM_{2.5}$ budgets in the 2018 $PM_{2.5}$ Plan. On June 18, 2019, the EPA announced the availability of the 2018 $PM_{2.5}$ Plan with MVEBs and a 30-day public comment period. This announcement was posted on the EPA's Adequacy website at: *https://www.epa.gov/state-and-local-*

[180] 40 CFR 93.118(f)(1).

[181] 40 CFR 93.118(f)(2).

[182] 2018 $PM_{2.5}$ Plan, Appendix D, Table 3–1.

[183] 40 CFR 93.124(c) and (d).

[184] 2018 $PM_{2.5}$ Plan, Appendix D, D–122 to D–123.

[185] 2018 $PM_{2.5}$ Plan, Appendix D, D–121 and D–122.

[186] 40 CFR 93.109(f).

[187] Letter dated May 9, 2019, from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region 9, 3.

[188] 2018 $PM_{2.5}$ Plan, Appendix D, D–126 and D–127.

transportation/state-implementation-plans-sip-submissions-currently-under-epa. The comment period for this notification ended on July 18, 2019. We did not receive any comments during this comment period.

We have reviewed the motor vehicle emissions budgets in the 2018 $PM_{2.5}$ Plan and find that, because we are proposing to disapprove the attainment demonstration and related elements of the SJV $PM_{2.5}$ Plan for purposes of the 1997 annual $PM_{2.5}$ NAAQS based on the area's failure to attain by the State's projected attainment date, the budgets cannot be consistent with the applicable requirements for RFP and attainment of the 1997 annual $PM_{2.5}$ NAAQS. Therefore, we are proposing to find that the motor vehicle emissions budgets do not meet applicable statutory and regulatory requirements, including the adequacy criteria specified in the transportation conformity rule.[189] As discussed earlier in sections IV.C, IV.D, and IV.E, we are proposing to disapprove the Plan's five percent, attainment, and RFP demonstrations. In addition, because we are proposing to disapprove the five percent and RFP demonstrations, the budgets are not consistent with the applicable requirements for the five percent annual reductions and RFP. Therefore, we are proposing to disapprove the budgets in the SJV $PM_{2.5}$ Plan. Our proposed disapproval relates only to the 1997 annual $PM_{2.5}$ NAAQS, and does not affect the status of the budgets for the 1997 24-hour $PM_{2.5}$ NAAQS or the previously-approved budgets for the 2006 $PM_{2.5}$ NAAQS and related trading mechanism, which remain in effect for those $PM_{2.5}$ NAAQS. Because we are disapproving the attainment and RFP demonstrations, the budgets are not eligible for a protective finding.[190]

If our proposed disapproval of the budgets is finalized, upon the effective date of our final rule, the area would be subject to a conformity freeze under 40 CFR 93.120 of the transportation conformity rule. No new transportation plan, transportation improvement program (TIP), or project may be found to conform until the State submits another control strategy implementation plan revision fulfilling the same CAA requirements, the EPA finds the budgets in the revised plan adequate or approves the budgets, the MPO makes a conformity determination for the new budgets, and the U.S. Department of Transportation makes a conformity determination.[191] In addition, only transportation projects outside of the first four years of the current conforming transportation plan and TIP or that meets the requirements of 40 CFR 93.104(f) during the resulting conformity freeze may be found to conform until California submits a new attainment plan for the 1997 annual $PM_{2.5}$ NAAQS and (1) the EPA finds the submitted budgets adequate per 40 CFR 93.118 or (2) the EPA approves the new attainment plan and conformity to the new plan is determined.[192] Furthermore, if, as a result of our final disapproval action, the EPA imposes highway sanctions under section 179(b)(1) of the Act two years from the effective date of our final rule, then the conformity status of the transportation plan and TIP will lapse on that date and no new transportation plan, TIP, or project may be found to conform until California submits a new plan for the 1997 annual $PM_{2.5}$ NAAQS, and conformity to the plan is determined.[193]

H. Nonattainment New Source Review Requirements Under CAA Section 189(e)

CAA section 189(e) specifically requires that the control requirements applicable to major stationary sources of direct $PM_{2.5}$ also apply to major stationary sources of $PM_{2.5}$ precursors, except where the Administrator determines that such sources do not contribute significantly to $PM_{2.5}$ levels that exceed the standards in the area.[194] The control requirements applicable to major stationary sources of direct $PM_{2.5}$ in a Serious $PM_{2.5}$ nonattainment area include, at minimum, the requirements of a nonattainment NSR permit program meeting the requirements of CAA sections 172(c)(5) and 189(b)(3). As part of our April 7, 2015 final action to reclassify the San Joaquin Valley area as Serious nonattainment for the 1997 $PM_{2.5}$ standards, we established a May 7, 2016 deadline for the State to submit nonattainment NSR SIP revisions addressing the requirements of CAA sections 189(b)(3) and 189(e) of the Act for the 1997 $PM_{2.5}$ NAAQS.

California submitted nonattainment NSR SIP revisions to address the subpart 4 requirements for the San Joaquin Valley Serious $PM_{2.5}$ nonattainment area on November 20, 2019. We are not proposing any action on this submission at this time. We will act on this submission through a separate rulemaking, as appropriate.

V. Proposed Action

For the reasons discussed in this proposed rule, under CAA section 110(k)(3), the EPA is proposing to approve in part and disapprove in part the portions of the SJV $PM_{2.5}$ Plan that pertain to the 1997 annual $PM_{2.5}$ NAAQS for the San Joaquin Valley nonattainment area as follows:

(1) We are proposing to approve the 2013 base year emissions inventories as meeting the requirements of CAA section 172(c)(3) and 40 CFR 51.1008; and

(2) We are proposing to disapprove the following elements:

(a) The precursor demonstration as not meeting the requirements of 40 CFR 51.1006,

(b) The BACM/BACT demonstration as not meeting the requirements of CAA section 189(b)(1)(B) and 40 CFR 51.1010,

(c) The five percent demonstration as not meeting the requirements of CAA section 189(d) and 40 CFR 51.1010(c),

(d) The attainment demonstration as not meeting the requirements of CAA sections 189(d) and 179(d) and 40 CFR 51.1011(b),

(e) The RFP demonstration as not meeting the requirements of CAA sections 172(c)(2) and 171(1) and 40 CFR 51.1012,

(f) The quantitative milestone demonstration as not meeting the requirements of CAA section 189(c) and 40 CFR 51.1013,

(g) The contingency measures as not meeting the requirements of CAA section 172(c)(9) and 40 CFR 51.1014, and

(h) The motor vehicle emissions budgets as not meeting the requirements of CAA section 176(c) and 40 CFR 93.118(e)(4).

A. Effect of Finalizing the Proposed Disapproval Actions

If we finalize disapprovals of the precursor demonstration, BACM/BACT demonstration, five percent demonstration, attainment demonstration, RFP and milestone demonstrations, motor vehicle emission budgets, or contingency measures, the offset sanction in CAA section 179(b)(2) will be applied in the San Joaquin Valley area 18 months after the effective date of such final disapproval. For new or modified major stationary sources in the area, the ratio of emission reductions to increased emissions shall be at least 2 to 1. The highway funding sanctions in CAA section 179(b)(1) will apply in the area six months after the offset sanction is imposed. Neither sanction will be imposed if California

[189] 40 CFR 93.118(e)(4).

[190] 40 CFR 93.120(a)(3).

[191] 40 CFR 93.120(a)(2).

[192] Id.

[193] 40 CFR 93.120(a)(1).

[194] General Preamble, 13539 and 13541–13542.

submits and we approve SIP revisions meeting the applicable CAA requirements prior to the implementation of the sanctions.[195]

In addition to the sanctions, CAA section 110(c)(1) provides that the EPA must promulgate a federal implementation plan (FIP) addressing any disapproved elements of the plan two years after the effective date of disapproval unless the State submits, and the EPA approves, the required SIP submittal. As a result of the EPA's December 6, 2018 determination that California had failed to submit the required attainment plan for the 1997 $PM_{2.5}$ NAAQS, among other required SIP submissions for the San Joaquin Valley,[196] the EPA is already subject to a statutory deadline to promulgate a FIP for this purpose no later than two years after the effective date of that determination.[197]

Furthermore, if we take final action disapproving the SJV $PM_{2.5}$ Plan, a conformity freeze will take effect upon the effective date of any final disapproval (usually 30 days after publication of the final action in the **Federal Register**). A conformity freeze means that only projects in the first four years of the most recent RTP and TIP can proceed. During a freeze, no new RTPs, TIPs, or RTP/TIP amendments can be found to conform.[198]

Finally, if the EPA takes final action on the SJV $PM_{2.5}$ Plan as proposed, California will be required to develop and submit a revised plan for the San Joaquin Valley area that addresses the applicable CAA requirements, including the requirements of CAA section 189(d). In accordance with sections 179(d)(3) and 172(a)(2) of the CAA, the revised plan must demonstrate attainment as expeditiously as practicable and no later than five years from the date of the EPA's determination that the area failed to attain (*i.e.,* by November 23, 2021), except that the EPA may extend the attainment date to a date no later than 10 years from the date of this determination (*i.e.,* to November 23, 2026), considering the severity of nonattainment and the availability and feasibility of pollution control measures.[199]

The EPA is soliciting public comments on the issues discussed in this proposed rule. We will accept comments from the public on this proposal for the next 30 days.

VI. Incorporation by Reference

In this document, the EPA is proposing to amend regulatory text that includes incorporation by reference. As explained in section IV.F.3 of this preamble, the EPA is proposing to remove section 5.7.3 of SJVUAPCD Rule 4901 from the California State Implementation Plan, which is incorporated by reference in accordance with the requirements of 1 CFR part 51.

VII. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at *http://www2.epa.gov/laws-regulations/laws-and-executive-orders.*

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a significant regulatory action and was therefore not submitted to the Office of Management and Budget (OMB) for review.

B. Paperwork Reduction Act (PRA)

This action does not impose an information collection burden under the PRA because this proposed SIP disapproval, if finalized, will not in-and-of itself create any new information collection burdens but will simply disapprove certain State requirements for inclusion in the SIP.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. This proposed SIP disapproval, if finalized, will not in-and-of itself create any new requirements but will simply disapprove certain state requirements for inclusion in the SIP.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. This action proposes to disapprove pre-existing requirements under state or local law and imposes no new requirements. Accordingly, no additional costs to state, local, or tribal governments, or to the private sector, result from this action.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Coordination With Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175, because the SIP revision that the EPA is proposing to disapprove would not apply on any Indian reservation land or in any other area where the EPA or an Indian tribe has demonstrated that a tribe has jurisdiction, and will not impose substantial direct costs on tribal governments or preempt tribal law. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that the EPA has reason to believe may disproportionately affect children, per the definition of ''covered regulatory action'' in section 2–202 of the Executive Order. This action is not subject to Executive Order 13045 because this proposed SIP disapproval, if finalized, will not in-and-of itself create any new regulations but will simply disapprove certain state requirements for inclusion in the SIP.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act (NTTAA)

Section 12(d) of the NTTAA directs the EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. The EPA believes that this action is not subject to the requirements of section 12(d) of the NTTAA because application of those requirements would be inconsistent with the CAA.

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[195] See 40 CFR 52.31, which sets forth in detail the sanctions consequences of a final disapproval.

[196] 83 FR 62720.

[197] Id.

[198] See 40 CFR 93.120(a).

[199] 81 FR 84481, 84482 (November 23, 2016) (final EPA action determining that the San Joaquin Valley had failed to attain the 1997 $PM_{2.5}$ NAAQS by the December 31, 2015 Serious area attainment date).

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Population

The EPA lacks the discretionary authority to address environmental justice in this rulemaking.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Ammonia, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur dioxide, Volatile organic compounds.

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

Dated: July 12, 2021.

Deborah Jordan,

Acting Regional Administrator, Region IX.

[FR Doc. 2021–15551 Filed 7–21–21; 8:45 am]

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