

Staff Report

2015 update to the South Coast Air Basin 24-hour PM2.5 plan

Release Date: February 9, 2015

Scheduled for Consideration: February 18, 2015



California Environmental Protection Agency

AIR RESOURCES BOARD

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This report documents the Air Resources Board (ARB) staff's review of the *Supplement to the 24-Hour PM2.5 State Implementation Plan for the South Coast Air Basin*¹ (PM2.5 Plan Supplement) adopted by the South Coast Air Quality Management District (District) on February 6, 2015. The PM2.5 Plan Supplement demonstrates compliance with the requirements under Clean Air Act (Act) Subpart 4 for the 24-hour PM2.5 National Ambient Air Quality Standard (NAAQS). Submittal of the PM2.5 Plan Supplement will provide the information needed for the U.S. Environmental Protection Agency (U.S. EPA) to approve the PM2.5 portion of the South Coast 2012 Air Quality Management Plan² (2012 AQMP).

I. Background

In December 2012, the District adopted the 2012 AQMP, which included a demonstration that it met the planning requirements for the 35 ug/m³ 24-hour PM2.5 NAAQS under Subpart 1 of the Act. ARB approved the 2012 AQMP on January 25, 2013³, and submitted it to U.S. EPA on February 13, 2013.

The 2012 AQMP was developed to meet requirements of the U.S. EPA 2007 *Fine Particle Implementation Rule*⁴ based on the Subpart 1 provisions of the Act. The 2012 AQMP included all of the required planning elements of the Act under Subpart 1 for the 24-hour PM2.5 NAAQS, including:

- Emission inventories;
- Attainment demonstration based on air quality modeling for 2014;
- Reasonably Available Control Measures (RACM) analysis;
- Reasonable Further Progress (RFP) Demonstration;
- Contingency measures; and
- Transportation conformity budgets for 2014.

Shortly after the District adopted the 2012 AQMP, the D.C. Circuit Court of Appeals determined that U.S. EPA erred in developing its implementation rule for PM2.5 under the Subpart 1 general provisions of the Act without considering the more specific particulate matter provisions in Subpart 4. The Court remanded the rule back to U.S. EPA to address the Subpart 4 provisions.⁵

In June 2014, U.S. EPA classified the South Coast Air Basin as a moderate nonattainment area⁶ for the 35 ug/m³ 24-hour PM2.5 NAAQS under Subpart 4 of the

¹ *Supplement to the 24-Hour PM2.5 State Implementation Plan for the South Coast Air Basin*, <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2015/2015-feb6-022.pdf?sfvrsn=2>

² South Coast Air Quality District 2012 AQMP, <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan>

³ 2012 South Coast Ozone and PM2.5 State Implementation Plan http://www.arb.ca.gov/planning/sip/planarea/scabsip.htm#2012_plan

⁴ U.S. EPA, *Clean Air Fine Particle Implementation Rule; Final Rule*. (20586 – 20667) April 25, 2007. <http://www.epa.gov/fedrgstr/EPA-AIR/2007/April/Day-25/a6347.pdf>

⁵ U.S. Court of Appeals for the District of Columbia Circuit, Case No. 08-1250, January 4, 2013. <http://www.gpo.gov/fdsys/pkg/USCOURTS-caDC-08-01250/pdf/USCOURTS-caDC-08-01250-0.pdf>

⁶ U.S. EPA, 79 FR 105, pp. 31566-31782 (June 2, 2014) <http://www.gpo.gov/fdsys/pkg/FR-2014-06-02/pdf/2014-10395.pdf>

Act and directed the State to submit a new State Implementation Plan (SIP) that meets moderate area requirements. U.S. EPA directed states to apply the existing guidance for PM10 implementation under Subpart 4 to the PM2.5 NAAQS. The table below details the differences between Subpart 1 and Subpart 4 of the Act.

Comparison of Subpart 1 and Subpart 4 Implementation Requirements

SIP Component	Subpart 1	Subpart 4
Classifications	None	Moderate and Serious
Attainment Dates	<ul style="list-style-type: none"> • Five years from designation date (December 2014) • May be extended up to ten years from designation date (December 2019) 	<ul style="list-style-type: none"> • Moderate: attain by the end of the sixth year after designation (December 2015) • Serious: attain by the end of the tenth year after designation (December 2019)
SIP Submission Deadlines	Three years after designation	<ul style="list-style-type: none"> • Moderate: submittal 18 months after designation • Serious: submittal 18 months after classification to serious
Precursor Requirements	<ul style="list-style-type: none"> • Must address sources of directly emitted PM2.5, sulfur oxides (SOx), and nitrogen oxides (NOx). • Address ammonia or reactive organic gases (ROG) if they significantly contribute to PM2.5 levels. 	Must address sources of all PM2.5 and PM2.5 precursors.
Level of Emission Controls	Reasonably Available Control Measures (RACM) including Reasonably Available Control Technology (RACT)	<ul style="list-style-type: none"> • Moderate Area: RACM/RACT • Serious Area: Best Available Control Measures (BACM)
Reasonable Further Progress (RFP)	Linear progress towards attainment	Quantitative milestones to be achieved every 3 years
Permitting Program	<ul style="list-style-type: none"> • Major Sources are not required to control ammonia or ROG, unless demonstrated that they contribute significantly to PM2.5 concentrations in the area. • Major source is over 100 tons per year (tpy). 	<ul style="list-style-type: none"> • Major Sources must control all precursors of PM2.5, unless demonstrated that such precursors do not contribute to levels which exceed the NAAQS. • Major source is over 100 tpy for Moderate Area and over 70 tpy for Serious Area.

On February 6, 2015, the District adopted the PM2.5 Plan Supplement. The PM2.5 Plan Supplement demonstrates that the existing 2012 AQMP along with minor revisions included in the PM2.5 Plan Supplement satisfies the Subpart 4 requirements of the Act for a moderate PM2.5 nonattainment area. Specifically, the minor revisions to the planning elements to meet Subpart 4 requirements are:

- Demonstration of attainment of the 24-hour PM2.5 NAAQS by 2015;
- New transportation conformity budgets for 2015;
- Subpart 4 precursor requirements, and
- RACM/RACT analysis for PM2.5 precursors.

Each of the updated elements to satisfy Subpart 4 provisions are further described below. Additionally, the PM2.5 Plan Supplement clarifies the list of control strategy commitments that are providing emission reductions in the attainment demonstration, and includes a discussion of the effects of the past few years of drought conditions on the 2012 AQMP attainment determination.

II. PM2.5 Plan Supplement Elements Meet Subpart 4 Requirements

The PM2.5 Plan Supplement includes a detailed comparison of PM2.5 implementation requirements under Subpart 1 and Subpart 4. These requirements are summarized in the previous table. Focusing on the requirements that differ between the Subparts, the PM2.5 Plan Supplement demonstrates that the 2012 AQMP adopted by the District and ARB with this minor revision will satisfy the Subpart 4 requirements.

2015 Attainment Demonstration

The lack of rainfall and associated drought conditions in 2013 and 2014 impacted 24-hour PM2.5 concentrations in the South Coast Air Basin. The PM2.5 Plan Supplement Attachment B includes an analysis evaluating precipitation levels and the impact on current PM2.5 concentrations. The District analysis demonstrates that based on data in 2012 and 2013, and preliminary data for 2014, attainment of the 35 ug/m³ 24-hour NAAQS will not be achievable by the end of 2014 as anticipated in the 2012 AQMP.

However, under Subpart 4, moderate nonattainment areas must demonstrate attainment within six years after designation, or by 2015, not 2014. The PM2.5 Plan Supplement Attachment A demonstrates South Coast Air Basin attainment of the 24-hour PM2.5 NAAQS in 2015 in conformance with Subpart 4 requirements. To calculate a 2015 design value based on modeling in the 2012 AQMP, the District interpolated between projected 2014 and 2019 24-hour PM2.5 design values.

To further support the 2015 attainment demonstration in the PM2.5 Plan Supplement, the District analyzed the PM2.5 and PM2.5 precursor emission reductions that will occur between 2014 and 2015. The 2012 AQMP control strategy focused on measures to bring the last nonattaining monitoring site, at Mira Loma, into attainment. The strategy included enhanced control measures to reduce emissions from wood burning and open burning on days when high PM2.5 levels are expected. These measures have now been adopted and implemented by the District. The reductions from implementation of

these strategies provide the air quality improvements needed to demonstrate attainment of the 24-hour PM_{2.5} NAAQS in 2015.

Precursor Requirements

Under Subpart 1, only SO_x, and NO_x were presumed to be significant precursors to ambient PM_{2.5}. Under Subpart 4, all PM_{2.5} precursors (NO_x, SO_x, ROG and ammonia) must be considered unless these precursors do not contribute significantly to PM_{2.5} levels exceeding the standard. The PM_{2.5} Plan Supplement Attachment E describes the District analysis of Subpart 4 precursor requirements and demonstrates that the 2012 AQMP and District rules presently meet the Subpart 4 criteria.

Major stationary sources of NO_x and SO_x are presently subject to District rules meeting emission offsets required by Subpart 4 Section 189(e). Thus, to demonstrate compliance with Subpart 4 Section 189(e) for the remaining precursors, the District performed an analysis of ROG and ammonia emissions from major stationary sources. Major sources of ROG and ammonia each contribute less than 2 percent of the overall emissions in the South Coast Air Basin. At these relatively small emission levels, major sources of ROG and ammonia do not contribute significantly to ambient PM_{2.5} levels. In addition, both ROG and ammonia are subject to requirements for Best Available Control Measures under existing New Source Review (NSR) rules at a zero threshold.

Reasonably Available Control Measures (RACM)/Reasonable Available Control Technology (RACT) demonstration

For both Subpart 1 and Subpart 4 moderate areas, RACM/RACT is the required minimum level of control of emission sources. The RACM/RACT analysis compares District rules and regulations governing emission limits to those established by U.S. EPA guidance, other California air districts and representative agencies elsewhere throughout the U.S. Subpart 4 requires that RACM/RACT assessments cover rules for both PM_{2.5} and PM_{2.5} precursors.

The PM_{2.5} Plan Supplement RACM/RACT demonstration in Attachment D builds upon previous RACM and RACT analyses from recent SIP submittals to U.S. EPA^{7,8}. In conjunction, the previous assessments along with the PM_{2.5} Plan Supplement demonstrate that State and District rules are equivalent to or more stringent than rules in other districts and states with the exception of two District rules. For these rules that the District identified as having the potential for further reductions, the District has committed to their further evaluation as part of the 2016 AQMP control measure development.

With this analysis and commitment to further evaluate rules identified as having the potential for further emission reductions, the District has met the moderate area RACM/RACT requirement.

⁷ 2012 AQMP, Appendix VI: Reasonably Available Control Measures (RACM) Demonstration

⁸ 2016 AQMP RACT Analysis, <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2014/2014-jun6-031.pdf?sfvrsn=2>

2015 Transportation Conformity Budgets

The Act requires that SIPs include transportation conformity budgets for the purpose of ensuring that transportation plans are consistent with the SIP attainment demonstration. The PM2.5 Plan Supplement Attachment C includes transportation conformity budgets for the revised 2015 attainment date. These budgets replace the transportation conformity budgets for the original 2014 attainment year in the 2012 AQMP.

The on-road emissions for PM2.5 and PM2.5 precursors were derived from the South Coast Air Basin annual average emission inventory. The emissions budgets for PM2.5 and its precursors were provided for the 2015 attainment year. Like the 2014 transportation conformity budgets in the 2012 AQMP, the transportation conformity budgets used in the PM2.5 Plan Supplement were based on the 2012 Regional Transportation Plan (RTP) Final annual average Vehicle Miles Traveled (VMT) data provided by the Southern California Association of Governments (SCAG). The 2015 VMT distribution was interpolated from the 2012 RTP 2014 and 2019 profiles provided by SCAG. The 2015 VMT derived from the interpolation was input into the California transportation model (EMFAC2011) to generate the 2015 transportation conformity budgets listed in the PM2.5 Plan Supplement.

III. Other Elements in the PM2.5 Plan Supplement

Update of 2012 AQMP Commitments

The attainment strategy included as part of the 2012 AQMP and PM2.5 Plan Supplement reflects a combination of emission reductions from ARB and District ongoing regulations and programs, and proposed control measures with implementation dates. The amount of estimated reductions from each measure and the timing of the measure's implementation are required information to show attainment of the NAAQS by the attainment date.

The 2012 AQMP included several control measures that did not include estimated reductions or implementation dates⁹ and were therefore not part of the strategy necessary to demonstrate attainment. The PM2.5 Plan Supplement Attachment F updates the adoption dates for these measures.

IV. Other Subpart 4 Requirements

Reasonable Further Progress (RFP)

Under Subpart 1, a SIP must demonstrate generally linear progress to meet RFP requirements. Under Subpart 4, a SIP must include quantitative milestones to be achieved every three years until the area is redesignated to attainment. Since the plan demonstrates attainment at the next milestone, no quantitative milestones are included.

Contingency Requirements

The Act requires that a SIP provide contingency measures in the event of failure to attain the 24-hour PM2.5 NAAQS by the applicable attainment date. These contingency

⁹ South Coast Air Quality District 2012 AQMP Chapter 4, Table 4-2

measures must be already adopted, take effect without further action, not be relied upon to demonstrate attainment for the time in which they serve as contingency measures, and contain trigger mechanisms for implementation. U.S. EPA guidance states that the contingency measure requirements can be satisfied with already adopted control measure provided those controls will achieve emission reductions above and beyond what is needed to demonstrate attainment.

The 2012 AQMP contingency control measure, CMB-01, *Further NOx Reductions from RECLAIM*, will achieve an additional two tons per day of NOx emissions reductions from the RECLAIM market if the 24-hour PM2.5 standard is not attained by 2015. The PM2.5 SIP Supplement also includes CMB-01 as a contingency measure. The District anticipates bringing control measure CMB-01 to their board in the first quarter of 2015 and includes the appropriate automatic trigger mechanism consistent with the Act contingency measure requirements.

New Source Review (NSR) Program

U.S. EPA also set a deadline of December 31, 2014 for the District to demonstrate their PM2.5 permitting program complies with Subpart 4 requirements. In December 2014, the District amended NSR Rule 1325 to satisfy the Subpart 4 requirements and ARB submitted the rule to U.S. EPA.

V. Staff Recommendation

The *Supplement to the 24-Hour PM2.5 State Implementation Plan for the South Coast Air Basin* demonstrates that the South Coast 2012 AQMP along with the current revisions satisfies requirements for a moderate PM2.5 nonattainment area under Subpart 4 of the Act. Once submitted to U.S. EPA, this revision together with the 2012 AQMP will enable U.S. EPA to approve the amended 2012 AQMP as meeting Subpart 4 moderate area requirements.

Staff recommends that the Board approve the *Supplement to the 24-Hour PM2.5 State Implementation Plan for the South Coast Air Basin* and submit it to U.S. EPA as a revision to the California SIP.