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Air Quality Management District
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December xx, 2019

Amy Zimpfer
Associate Director, Air Division
US EPA Pacific Southwest, Region 9
75 Hawthorne St.
San Francisco, CA 94105

RE: 2006 24-hour PM2.5 standard attainment contingency and 2012 annual PM2.5 standard Reasonable Further Progress contingency requirements for South Coast Air Basin

Dear Ms. Zimpfer,

This letter is being submitted to provide technical clarification regarding 2006 24-hour PM2.5 standard attainment contingency and 2012 annual PM2.5 standard Reasonable Further Progress (RFP) contingency requirement for the South Coast Air Basin (Basin) based on the analysis included in the 2016 AQMP and the recently submitted Contingency Measure Plan[1] (hereafter referred as "Contingency Measure Plan") for the 1997 8-hour ozone standard to comply with CAA 182(e)(5) requirements.

Clean Air Act Section 172 article (c)(9) requires a State Implementation Plan (SIP) to provide a contingency plan with specific measures to be undertaken if the nonattainment area fails to make RFP, or to attain the national primary ambient air quality standard by the attainment date. Such contingency measures need to take effect in any such case without further action by the State or the Administrator. U.S. EPA provides further details in the Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements (81 FR 58010; hereafter referred as "PM2.5 Implementation Rule"[2]). In the PM2.5 Implementation Rule, contingency measures are required to provide either 1 year worth of air quality improvement or emissions reductions proportional to the overall amount of air quality improvement or emissions reductions needed to demonstrate attainment. The following

[1] South Coast AQMD, Final Contingency Measure Plan Planning for Attainment of the 1997 80 ppb 8-Hour Ozone Standard in the South Coast Air Basin, December 2019. Available at [HYPERLINK "http://www.aqmd.gov/docs/default-source/planning/1997-ozone-contingency-measure-plan/1997-8-hour-ozone-draft-contingency-measure-plan---120619.pdf?sfvrsn=6"]

[2] Document available at [HYPERLINK "https://www.govinfo.gov/content/pkg/FR-2016-08-24/pdf/2016-18768.pdf"]

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sections describe how the contingency measure requirements are addressed for the 2006 and 2012 PM2.5 standards in the Basin.

Contingency Plan for the Attainment of 2006 24-Hour PM2.5 Standard

The Basin is designated as "serious" nonattainment of the 2006 24-hour PM2.5 NAAQS with a 2019 attainment date. To comply with the attainment contingency requirements, South Coast AQMD is currently amending Rule 445 (Wood Burning Devices) which is scheduled for adoption in April 2020. Currently, the rule requires residential wood burning curtailment during a winter season - November through February. The rule mandates a curtailment in the county where a specific source/receptor area is forecast to exceed 30 µg/m3, and/or require a mandatory winter burning curtailment in the entire South Coast Air Basin where any specific source/receptor area is forecast to exceed 30 µg/m3. The proposed amendment may require the curtailment to be expanded both seasonally and geographically or adjust the threshold to be lower than the current value to facilitate further emission reductions. Upon a finding of the failure to attain the 2006 24-hour PM2.5 standard, Rule 445 will be triggered which will generate approximately XXX tons per day (TPD) of PM2.5 emissions reductions.

In addition, staff has conducted an evaluation of the 1-year worth of emission reductions required for contingency measures. The 1-year worth of progress is defined as the total emission reductions to occur from 2012 to 2019 divided by 7 years, as shown in Table 1. The Basin experiences continuous reduction of PM2.5 and its precursor emissions due to existing and newly adopted regulations, as indicated by the baseline emissions in Table 1. The baseline reductions are due to on-going implementation of existing regulations and continuous turn over of old vehicles to newer and cleaner vehicles.

Table 1. PM and its precursor emissions in 2012, 2019 and 2020 and 1-year worth of emission reductions. Unit is tons per day (TPD).

	PM2.5	VOC	NOx	SOx	NH3
2012 Baseline	66.42	470.12	539.85	18.38	81.06
2019 Baseline	63.87	375.63	353.09	16.57	73.95
1-year worth of progress	0.36	13.50	26.68	0.26	1.02
2020 Baseline	63.86	369.59	329.65	16.67	73.25
Progress after the attainment	0.01	6.04	23.44	-0.10	0.70

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In addition to existing regulations that are reflected in the 2016 AQMP, California Air Resources Board adopted "Amendments To The Heavy-Duty Vehicle Inspection Program And Periodic Smoke Inspection Program (hereafter, HD Inspection Program)"[3], which became effective on July 1, 2019. These amendments are expected to achieve additional PM2.5 emission reduction of 0.203 TPD[4] in 2020. Baseline combined with HD Inspection Program yields approximately equal to 1-year worth of progress

As indicated in Table 1, all pollutants except SOx continue to decrease in 2020 while NOx emissions decrease at a faster rate than the other pollutants. NOx and NH3 emission reductions in 2020 are close to the 1-year worth of progress. Total SOx emissions in 2019 are 16.57 TPD which are less than 5 % of the total NOx emissions indicating that sulfate mass is substantially smaller than nitrate mass in ambient PM. PM2.5 chemical composition measurement confirms that majority of PM in the Basin are nitrate and organic carbon and only minor amount of sulfate exists, especially during winter high PM episodes which are typically driven by high nitrate amounts. This correlation is well demonstrated in Figures V-7-2 through V-7-5 of the 2016 AQMP, Appendix V. Therefore, the small marginal increase in SOx emissions is not expected to contribute to the exceedance of 24-hour PM2.5 in the Basin. As for VOC, the progress in the year after the attainment is slower than those of NOx, PM2.5 and NH4. However, precursor trading ratios for the 24-hour PM2.5 indicate that 1 ton of VOC emissions is approximately equal to the contribution of 0.3 ton of NOx emissions to ambient PM2.5 mass. The inter-pollutant trading ratios are approved by EPA[5] for use in transportation conformity analyses and provided in Table VI-D-5 of the 2016 AQMP Appendix VI. The trading ratios indicate that NOx emission reduction is a more efficient way to reduce ambient PM2.5 level in the Basin. The 2016 AQMP includes commitments to reduce NOx emissions by 45% and 55% to attain the 1997 and 2008 8-hour ozone standards in 2023 and 2031, respectively. The progress toward achieving these reductions will provide additional early NOx benefit for PM2.5.

In summary, South Coast AQMD will implement Rule 445, Wood Burning Devices, as a contingency measure to be undertaken if the Basin fails to attain the 2006 PM2.5 24-hour standard. The emission reductions anticipated from Rule 445 in conjunction with reductions from existing and newly adopted regulations are expected to be sufficient for the 1-year worth of progress.

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[3] Amendments to the Heavy-Duty Vehicle Inspection Program and Periodic Smoke Inspection Program [HYPERLINK "https://ww2.arb.ca.gov/rulemaking/2018/heavy-duty-vehicle-inspection-program-and-periodic-smoke-inspection-program"]

[4] Staff Report: Initial Statement of Reasons, Table 6: Projected Annual PM Emissions Benefits (TPD) for San Joaquin Valley and South Coast Air Basin

[5] EPA 40 CFR Part 52 [EPA–R09–OAR–2017–0490; FRL–9988–60–Region 9] Approval and Promulgation of Implementation Plans; California; South Coast Serious Area Plan for the 2006 PM2.5 NAAQS

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Contingency Plan for 2022 RFP of the 2012 PM2.5 Annual Standard

The Basin is currently designated as "moderate" nonattainment of the 2012 annual PM2.5 NAAQS with an attainment date of 2021. The 2016 AQMP includes South Coast AQMD's re-designation request for the 2012 annual PM2.5 standard from "moderate" to "serious" attainment status, which will extend the attainment date from 2021 to 2025.

CAA Title I, Part D, Subpart 1 (General Requirements) RFP requirements, Subpart 4 (Provisions for PM) §189(c)(1) addresses the requirement for states to submit quantitative milestones for both "moderate" and "serious" areas. Milestones are to be achieved every three years until the area is re-designated as attainment and demonstrating reasonable further progress. According to EPA's PM2.5 Implementation Rule, the "moderate" and "serious" area attainment plans would have to include quantitative milestones to be achieved by 4.5 and 7.5 years, respectively, from the area's date of designation of nonattainment. For the 2012 annual PM2.5 NAAQS, first quantitative milestone year is 2019, 4.5 years after the designation date of April 2015, and the second quantitative milestone is year 2022, three years after the first quantitative milestone.

Staff has conducted the following analysis to address the contingency plan for RFP for the milestone year 2022. Milestone year report for 2019 is being submitted separately. As stated above, South Coast AQMD is currently in a process of amending Rule 445 (Wood Burning Devices) which is expected to be adopted in April 2020. In the event that South Coast Air Basin cannot demonstrate an RFP in 2022, the second milestone year toward the attainment of 2012 annual PM2.5 standard, Rule 445 will be triggered which is expected to achieve xx tons per year of PM2.5 reductions.

According to EPA's PM Implementation Rule, 1-year worth of progress was defined as the emission differences between the 2012 baseline and 2025 attainment date divided by 13 years, as shown in Table 2. Similar to the 2006 standard attainment contingency discussion, continuing implementation of existing regulations and turn-over of older vehicles and equipment to cleaner vehicles and equipment, future baseline emissions achieve excess emission reductions in 2022. Despite significant growth in economy and population, substantial amounts of excess NOx and NH3 reductions are achieved in 2022. The increase in PM2.5 emissions are primarily associated with paved road dust and cooking categories, both of which are also driven by fast growth in population and vehicle miles traveled.

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Table 2. 1-year worth of emission reductions and progress in 2022

	PM2.5	VOC	NOx	SOx	NH3
2012 Baseline	66.42	470.12	539.85	18.38	81.06
2025 Attainment Scenario	64.10	335.87	205.63	17.35	72.33
1-year worth of reduction	0.18	10.33	25.71	0.08	0.67
2021 Baseline	63.82	365.39	309.09	16.79	72.86
2022 Baseline	64.06	362.31	290.46	16.96	72.59
Progress in 2022	-0.24	3.08	18.63	-0.17	0.27

Additional PM2.5 emission reductions are however expected from newly adopted rules including CARB's HD Inspection Program, which will achieve 0.146 tons per day of PM2.5 emission reduction in 2022. CARB's recent regulatory effort to reduce emissions from Ocean-Going Vessels At Berth is expected to achieve additional PM and NOx reductions. Additional NOx reductions are also expected from the measures recently adopted or identified by CARB and South Coast AQMD in the Contingency Measure Plan. Table 3 includes a list of newly adopted regulations or programs in the Contingency Measure Plan. The reductions associated with these measures will be fully achieved by Jan 1, 2023. Since these emissions are not included in the 2016 AQMP or in the attainment demonstration of the 2012 annual PM2.5 standard, these are considered surplus to the 2012 annual PM2.5 attainment.

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Table 3. Additional NOx Reductions from newly adopted regulations and programs.[6]

Measure Description	NOx Reductions (tons per day)
Airports MOU	0.5
Metrolink Locomotives	3
Low Carbon Fuel Standard and Alternative Diesel Fuels Regulation	1.7
ATCM for Portable Engines, and the Statewide Portable Equipment Registration Program	0.25
HD Inspection and Maintenance (I/M) Program	4.2

In summary, South Coast Air Basin is expected to meet the RFP contingency requirement for the 2012 annual PM2.5 standard in 2022. However, in case of failure to meet the RFP requirement, South Coast AQMD will implement Rule 445, Wood Burning Devices, which in combination with additional NOx and PM2.5 reductions from existing and newly adopted regulations and programs are expected to meet the RFP contingency requirements.

If you have any questions or would like to discuss these issues, please contact me at 909-396-2239, or pfine@aqmd.gov.

Sincerely,

Philip Fine
Deputy Executive Officer
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[6] Table ES-1 in the Final Contingency Measure Plan

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