



Chapter 9

Attainment Demonstration, RACM, RFP, and Contingency Measures



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Chapter 9: Attainment Demonstration, RACM, RFP, and Contingency Measures

The District's multi-faceted control strategy will achieve expeditious attainment Valley-wide. Kern County is expected to be the last portion of the San Joaquin Valley air basin (Valley) to attain the 24-hour PM_{2.5} standard, with attainment in 2019. This chapter shows that this plan satisfies federal PM_{2.5} plan requirements for attainment, reasonably available control measures (RACM), reasonable further progress (RFP), and contingency measures.

9.1 ATTAINMENT OUTLOOK

Initial attainment deadlines for PM_{2.5} are five years from the effective date of the nonattainment designation, though up to a five year extension is available. This sets the initial attainment date for the federal 24-hour PM_{2.5} standard (National Ambient Air Quality Standard, or NAAQS) at December 14, 2014, with an extension up to December 14, 2019, if needed. EPA has clarified that for an attainment date of December 14, 2014, air monitoring data collected in calendar years 2012 through 2014 would be used to determine whether the area has reached attainment.¹ December 14, 2019 attainment would then be based on air monitoring data collected in calendar years 2017 through 2019. To be granted an extension, an area must show that it cannot attain by 2014, but will attain as expeditiously as possible, no later than 2019.

Photochemical modeling and other technical analyses for this plan establish an emissions level at which the Valley would attain the federal 24-hour PM_{2.5} standard. Attaining the federal PM_{2.5} standard is extremely challenging, particularly in the southern Valley, and will require tremendous reductions in emissions. Given the significant contribution of ammonium nitrate to the Valley's PM_{2.5} concentrations, reductions in NO_x emissions are particularly important. To achieve the NO_x reductions critical for reaching attainment in the Valley, ARB has adopted regulations that will significantly reduce NO_x emissions from various mobile sources. Achieving this level of emissions reductions requires adequate time and carries a tremendous cost. These reductions are ultimately achieved in time to bring most of the Valley into attainment well before 2019, with the exception of Bakersfield.

All areas of the Valley will attain the standard in 2019 with the regulatory controls in this plan (see Chapter 5). In particular, Kern County is projected to be the last portion of the Valley to attain, and is thus the area with the most need for additional emissions reductions through this plan. Table 9-1 shows that the 2019 emissions target would not be achieved in Kern County prior to 2019. In order for Bakersfield to attain a year earlier by 2018, an additional 2.1 tons per day of NO_x reductions would be needed in

¹ U.S. Environmental Protection Agency (2012, March 2). Memorandum from the Office of Air Quality Planning and Standards: Implementation Guidance for the 2006 24-Hour Fine Particle (PM_{2.5}) National Ambient Air Quality Standards (NAAQS). Pages 14-15. Retrieved from http://www.epa.gov/ttn/naaqs/pm/pdfs/20120302_implement_guidance_24-hr_pm2.5_naaqs.pdf

Kern County. To put this in perspective, achieving this level of emissions reductions is equivalent to virtually eliminating all passenger vehicles in Kern County in 2018.

The District's "no stone unturned" evaluation of emissions sources and emissions controls did not reveal any additional reasonably available emissions reductions opportunities that could expedite attainment, with all new control strategies scheduled for implementation by 2017. There are no unused control strategies available that could achieve the reductions necessary to accelerate attainment, because every reasonable control measure is already included in the plan (discussed further in Section 9.5). Thus, the modeled emissions targets cannot be achieved before 2019, and 2019 is the most expeditious attainment year available.

This 2012 *PM2.5 Plan* demonstrates that the Valley will attain the federal 24-hour *PM2.5* standard as expeditiously as possible, with all feasible measures and strategies being implemented to accomplish this goal. The non-regulatory control measures not credited in the attainment demonstration are achieving actual emissions reductions in the Valley. The District will continue to reduce emissions wherever possible to expedite air quality improvements Valley-wide.

Table 9-1 Kern County Attainment Outlook

Ref#		2007 base year	2014	2015	2016	2017	2018	2019
1	Winter <i>PM2.5</i> emissions inventory, reflecting adopted control measures	15.4	11.8	11.5	11.4	11.4	11.4	11.4
2	New control measure commitments (Table 9-1)		0	0	0.1	0.3	0.3	0.3
3	Winter <i>PM2.5</i> emissions inventory reflecting full plan control strategy (Line 1 – Line 2)		11.8	11.5	11.3	11.1	11.1	11.1
4	Direct <i>PM2.5</i> Attainment Target		11.1					
5	Winter <i>NOx</i> emissions inventory, reflecting full plan control strategy	115.4	63.8	58.6	54.5	51.5	48.9	46.8
6	<i>NOx</i> Attainment Target		46.8					
7	Winter <i>SOx</i> emissions inventory, reflecting full plan control strategy	3.6	1.8	1.8	1.8	1.8	1.8	1.8
8	<i>SOx</i> Attainment Target		1.8					
<i>Attainment?</i>			No	No	No	No	No	Yes
Projected attainment year			2019					

9.2 REASONABLY AVAILABLE CONTROL MEASURES (RACM)

Table 9-1 shows that sufficient emissions reductions will be achieved for the Valley to reach attainment in 2019. A PM_{2.5} attainment plan must also demonstrate implementation of RACM (reasonably available control measures): the collection of reasonable emissions reductions that, taken as a group, advance attainment of an air quality standard by at least one year. Put another way, the total of all potential emissions reductions opportunities that are *not* included as plan commitments must not advance attainment by one year. Measures that are not necessary to satisfy Reasonable Further Progress (RFP) or expeditious attainment are also not required RACM for the area.

To advance attainment by at least one year, the collective emissions reductions that could be achieved through unused but reasonably available controls would have to achieve the 2019 emissions levels by 2018 in Kern County. Per the District's Risk-based Strategy, through which the District prioritizes public health benefits in its attainment control strategy, the District is adopting its new rule amendments to reduce directly-emitted PM_{2.5} to achieve the necessary PM_{2.5} reductions by 2017, in advance of the 2019 attainment year. Similarly, the SO_x emissions level needed for attainment is being achieved by 2014.

Advancing attainment by one year would thus depend on expediting NO_x reductions. However, many NO_x emissions are being reduced as adopted regulations are fully implemented through fleet turn-over and normal equipment replacement. In fact, as demonstrated in Appendix B, 92% of NO_x reductions from the 2007 base emission inventory to attainment in 2019 come from mobile sources. These reductions cannot be expedited through additional stationary and area source regulations, for which the District has regulatory authority. Based on the difference between 2018 and 2019 NO_x emissions levels shown in Table 9-2, unused control measures would have to achieve 2.1 tons per day (tpd) of NO_x reductions in Kern County to advance attainment by one year. However, as previously discussed, there are no unused control measures in this plan because every reasonable control measure is used in this plan.

RACM are, by definition, reasonable. Although an air quality attainment plan must include a thorough analysis of reasonably available measures, it need not analyze every conceivable measure; reasonability must drive the analysis. Any measure that is absurd, unenforceable, impractical, or would cause severely disruptive socioeconomic impacts is unreasonable.

This analysis must consider all agencies' opportunities together, but the starting point is the separate analyses of each agency:

- **District:** as discussed in Appendix D, and Chapter 5, all reasonable control measures under the District's jurisdiction are being implemented. The District has adopted many of the toughest stationary and area sources rules in the

nation. There are no reasonable regulatory control measures excluded from use in this plan; therefore, there are no emissions reductions associated with unused regulatory control measures.

- **ARB:** as discussed in Appendix C, all reasonable control measures under ARB's jurisdiction for mobile sources are being implemented. Given the significant emission reductions needed for attainment in California, ARB has adopted some of the most stringent control measures nationwide for on-road and off-road mobile sources and the fuels that power them. There are no reasonable regulatory control measures excluded from use in this plan; therefore, there are no emissions reductions associated with unused regulatory control measures.
- **Metropolitan Planning Organizations (MPOs):** as discussed in Appendix C, all reasonable control measures under MPO jurisdiction are being implemented. There are no reasonable regulatory control measures excluded from use in this plan; therefore, there are no emissions reductions associated with unused regulatory control measures.

There are no reasonable regulatory control measures from any agency's jurisdiction that have been excluded from use in this plan; therefore, there are no emissions reductions associated with unused regulatory control measures. The District also considered whether ammonia emissions reductions could expedite attainment. Based on 2018 emissions and analysis conducted for this plan, the District estimates the 2018 design value for Bakersfield-California is at least 1 $\mu\text{g}/\text{m}^3$ higher than the attainment level. It would therefore take at least 125 tons of additional ammonia emissions reductions to advance attainment by one year. As discussed in Chapter 5, this is an infeasible amount of emissions reductions for ammonia, since there are no control strategies that exist or have been identified which could achieve such large reductions.

9.3 REASONABLE FURTHER PROGRESS (RFP)

Clean Air Act (Act) Section 171(1) defines reasonable further progress (RFP) as incremental emission reductions leading to the attainment date. EPA's interpretation of the RFP requirement for federal PM_{2.5} standards is "generally linear progress" from the base year to the attainment year, demonstrated at RFP milestone years.² "Generally linear progress" is calculated in an exactly linear fashion.

This plan identifies 2019 as the most expeditious attainment date practicable in the San Joaquin Valley, with a baseline year of 2007. For the federal 24-hour PM_{2.5} standard, the RFP milestone years are 2014 and 2017.³ RFP is demonstrated for the

² 72 FR 20633, codified at 40 CFR 51 Subpart Z Section 51.1000 (Definitions)

³ U.S. Environmental Protection Agency (2012, March 2). Memorandum from the Office of Air Quality Planning and Standards: Implementation Guidance for the 2006 24-Hour Fine Particle (PM_{2.5}) National Ambient Air Quality Standards (NAAQS). Page 16. Retrieved from http://www.epa.gov/ttn/naaqs/pm/pdfs/20120302_implement_guidance_24-hr_pm2.5_naaqs.pdf

nonattainment area as a whole. RFP requirement targets and attainment demonstrations are as follows:

1. Determine the Emissions Inventory of the Valley with the Plan control strategy for the baseline year, the RFP years, and the attainment year.

Table 9-2 Emissions Inventory with Plan Control Strategy (tpd)

Description	2007	2014	2017	2019
Direct PM2.5				
Emission Inventory (Table B-1)	87.1	64.4	63.5	64.0
Subtract Additional CM Reductions (Table 10-1)	0.0	0.0	0.3	0.3
Projected Direct Emissions Inventory , reflecting full plan control strategy	87.1	64.4	63.2	63.7
NOx				
Projected Emissions Inventory , reflecting full plan control strategy (Table B-2)	465.1	275.7	226.9	208.5
SOx				
Projected Emissions Inventory , reflecting full plan control strategy (Table B-3)	12.8	8.6	8.8	9.0

2. Determine the total reductions from the 2007 baseline emission inventory that must be achieved to reach attainment.

Table 9-3 Total Reductions Necessary to Reach Attainment (tpd)

Pollutant	2007 Baseline Emissions Inventory	Attainment Emissions Level	Reductions Needed
Direct PM2.5	87.1	63.7	23.4
NOx	465.1	208.5	256.6
SOx	12.8	9	3.8

3. Determine the fraction of reductions that are achieved in each RFP milestone year. The base year of 2007 and attainment year of 2019 span a 12-year period.
 - 2014 occurs at year seven of twelve (7/12), so **58.3%** of the needed emissions reductions must occur by 2014.
 - 2017 occurs at year ten of twelve (10/12), so **83.3%** of the needed emissions reductions must occur by 2017.

4. Determine the RFP target emissions levels using reduction fractions.

Table 9-4 Target Emissions Levels for RFP Milestone Years (tpd)

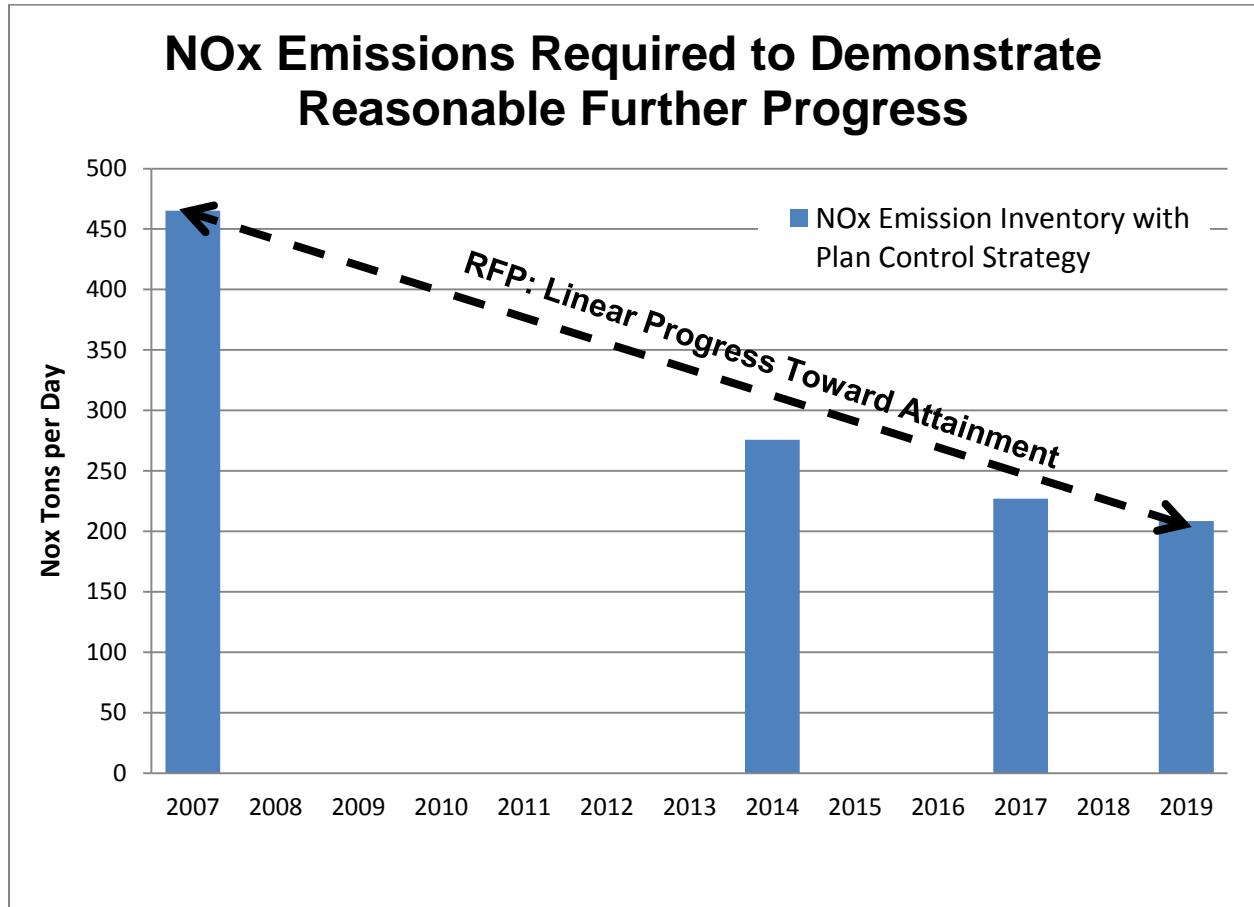
Pollutant	2007 Emissions Inventory	Reductions Needed	2014		2017	
			Tons to be reduced (B x 58.3%)	RFP target emissions level (A-C)	Tons to be reduced (B x 83.3%)	RFP target emissions level (A-E)
			A	B	C	D
Direct PM2.5	87.1	23.4	13.6	73.5	19.5	67.6
NOx	465.1	256.6	149.6	315.5	213.7	251.4
SOx	12.8	3.8	2.2	10.6	3.2	9.6

5. Compare RFP target emissions level (Table 9-4) to the projected emissions inventory (Table 9-2) to determine compliance with RFP targets.

Table 9-5 RFP Target Demonstration (2014 and 2017)

	2014			2017		
	RFP target emissions level	Projected emissions inventory	RFP target met?	RFP target emissions level	Projected emissions inventory	RFP target met?
Direct PM2.5	73.5	64.4	Yes	67.6	63.2	Yes
NOx	315.5	275.7	Yes	251.4	226.9	Yes
SOx	10.6	8.6	Yes	9.6	8.8	Yes

Figure 9-1 NOx RFP Demonstration



9.4 CONTINGENCY MEASURES

Contingency measures are extra emissions reductions that go into effect without further regulatory action. In an attainment plan, the measures must be “extra” in the sense that the reductions are not accounted for in RFP or in the attainment demonstration. Contingency reductions must start occurring automatically, without any further regulatory action, in the following scenarios:

- **RFP contingencies:** Used if planned emissions controls fail to reach the emissions targets specified in the attainment plan for RFP. The need to implement RFP contingencies is based on the emissions inventory in the RFP milestone years.
- **Attainment contingencies:** Used if a region fails to attain a federal standard by the final attainment date. The need to implement attainment contingencies is based on ambient air quality data as of the end of the attainment year. If EPA finds that an area fails to attain a standard on time, contingency reductions must be implemented automatically. An area often must adopt a new attainment plan, and sometimes other penalties apply as well, depending on the requirements associated with the standard in question.

The contingency years for this plan are the RFP milestone years (2014 and 2017) and the attainment year (2019). The total emissions reductions available from contingency measures should be equivalent to about one year of reductions needed for RFP⁴. This is based on the overall level of reductions needed to demonstrate attainment (see Table 9-3) divided by the number of years between the base year and the attainment year (12 years). Table 9-6 shows the resulting contingency need for each pollutant.

Table 9-6 Contingency Emissions Reductions Target (in tons per day, or tpd)

	Contingency Need = “One year’s worth of RFP”
PM2.5	2.0
NOx	21.4
SOx	0.3

Interpollutant trading can be used to demonstrate equivalent emissions reductions levels between PM2.5, NOx, and SOx reductions strategies. Appendix G (Weight of Evidence Analysis) documents the methodology used to develop the relative efficacy of emission reductions from the different PM2.5 precursors based on photochemical modeling sensitivity runs. The current modeling using Valley-wide emissions reductions demonstrates that the greatest benefits are achieved from reductions in directly emitted PM2.5, followed by NOx (based on EPA’s relative response factor procedures). Kern County specific model sensitivity runs were also conducted to evaluate the benefits of

⁴ Clean Air Fine Particle Implementation Rule [PM2.5 Implementation Rule]. 72 Fed. Reg. 79, pp. 20586–20667. At 20642-43. (2007, April 25). Retrieved from <http://www.gpo.gov/fdsys/pkg/FR-2007-04-25/pdf/E7-6347.pdf#page=1>

emission reductions focused on the Bakersfield area. These runs show that directly emitted PM_{2.5} emission reductions are approximately eight times more effective than NO_x reductions. Refer to Appendix G Section 10.c. (Evaluation of precursor sensitivity) and Section 11 (Summary) for the complete analysis and discussion). Additionally, due to the photochemistry of ammonium sulfate formation, one ton of SO_x reductions is equivalent to one ton of PM_{2.5} reductions; therefore, for contingency purposes, SO_x is equivalent to directly emitted PM_{2.5}.

9.4.1 What Qualifies as a Contingency Measure?

Contingency measures must be fully adopted rules or control measures that are ready to be implemented quickly without significant additional action by the state or local agency or by EPA⁵. The plan should contain trigger mechanisms and a schedule for the contingency measure implementation. Contingency measures can include measures already adopted and scheduled for implementation, as long as these measures are not relied on to provide emissions reductions needed to provide for RFP or expeditious attainment.

Based on these general contingency requirements, the District is utilizing three types of contingency measures:

- A. Surplus reductions from implementation of traditional regulations
- B. Regulations with a contingency trigger
- C. SIP-creditable incentive-based emissions reductions

9.4.1.1 Surplus Reductions from Implementation of Traditional Regulations

Although contingency measures must be surplus to RFP and attainment calculations, areas are not required to wait until there is an RFP or attainment failure to implement the measures. In fact, designing an effective adopted-but-not-implemented approach with an appropriate implementation trigger is only an option in very limited circumstances (see 9.4.1.2). Both already-adopted regulations and new or amended regulations to be pursued under this plan

As shown in the RFP demonstration in this chapter, significant regulatory emissions reductions are being achieved by 2014 and 2017 – more than the minimum needed to demonstrate RFP in those years. As such, the difference between the RFP target emissions level and the actual projected emissions level can serve as contingency reductions in 2014 and 2017. Using the data in Table 9-5, Table 9-7 shows amount of reductions available in 2014 and 2017.

⁵ Clean Air Act Section 172(c)9, 40 CFR 51.1012.

Table 9-7 Reductions Surplus to RFP for Contingency (tpd)

Year	2014			2017		
	RFP target emissions level	Projected emissions inventory	Contingency	RFP target emissions level	Projected emissions inventory	Contingency
PM2.5	73.5	64.4	9.1	67.6	63.2	4.4
NOx	315.5	275.7	39.8	251.4	226.9	24.5
SOx	10.6	8.6	2.0	9.6	8.8	0.8

As the 2019 attainment contingency need would not occur until 2020 (since attainment would be based on air quality data collected through the end of 2019), the additional PM2.5 and NOx reductions occurring between 2019 and 2020 can serve as attainment contingencies (Table 9-8). SOx will not be further reduced between 2019 and 2020 and is thus omitted from Table 9-8.

Table 9-8 Attainment Contingencies from Traditional Regulatory Reductions (tpd)

		2019 emissions	2020 emissions	Attainment Contingency
PM2.5	Adopted measures	62.0	61.9	0.1
	Rule 4692 reduction for contingency accounting (Appendix D)			0.3
	Rule 4901 reduction for contingency accounting (Appendix D)			1.3
	Total			1.7
NOx (adopted measures only)		208.5	196.2	12.3

The control measures achieving the contingency reductions in Tables 9-7 and 9-8 are as follows:

- Rule 4692 PM2.5 contingency:** The modeling conducted for this plan shows that reducing emissions from under-fired charbroiling by 20% in Kern County is necessary for attainment; thus, only the reductions achieved in Kern County are accounted for in the attainment demonstration. By reducing emissions from under-fired charbroiling 20% Valley-wide, the District achieves significant health benefits Valley-wide per the District's Risk-based Strategy, and the emissions reductions achieved in the Valley's other seven counties can be counted as contingency reductions, as reflected in Table 9-9. This contingency reduction approach would be valid for 2017 as well, but is not needed to show sufficient contingency reductions as shown in Table 9-10 at the end of this chapter.
- Rule 4901 PM2.5 contingency:** Similarly, the modeling conducted for this plan shows that lowering the Rule 4901 wood burning curtailment level from 30 $\mu\text{g}/\text{m}^3$ to 20 $\mu\text{g}/\text{m}^3$ is necessary for attainment in both Kern County and Kings County; thus, only the reductions achieved in Kern and Kings Counties are accounted for in the attainment demonstration. By lowering the wood burning curtailment

Valley-wide, the District achieves significant health benefits Valley-wide per the District's Risk-based Strategy, and the Rule 4901 emissions reductions achieved in the Valley's other six counties can be counted as contingency reductions, as reflected in Table 9-9. This contingency reduction approach would be valid for 2017 as well, but is not needed to show sufficient contingency reductions as shown in Table 9-9 at the end of this chapter.

- **Adopted mobile source measures for NOx contingency:** Most of the total NOx contingency reductions (12.2 tpd of the total 12.3 tpd NOx reduction need in 2019, for example) are from adopted mobile source control measures for the following sources:
 - Passenger cars, light-duty vehicles, and medium-duty vehicles
 - Heavy-duty trucks
 - Buses
 - Aircraft
 - Trains
 - Commercial harbor craft
 - Motor homes
 - Off-road equipment
 - Farm equipment
- **Adopted stationary and area source measures for NOx contingency:** Some of the total NOx contingency reductions (0.1 tpd of the total NOx reduction need in 2019, for example) are from adopted District rules:
 - Rule 4307 (Boilers, Steam Generators, and Process Heaters- 2.0 MMBtu/hr to 5.0 MMBtu/hr)
 - Rule 4308 (Boilers, Steam Generators, and Process Heaters- 0.075 MMBtu/hr to less than 2.0 MMBtu/hr)
 - Rule 4320 (Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr)
 - Rule 4702 (Internal Combustion Engines)
 - Rule 4103 (Open Burning)

9.4.1.2 Regulations with Contingency Trigger

The District's 2008 Amendment to Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters) included a contingency provision (Section 5.6.5 of Rule 4901) that would lower the mandatory wood burning curtailment threshold if the Valley fails to attain the 1997 PM_{2.5} standard by April 2015. The contingency, if implemented, would lower the curtailment level from a forecast 24-hour level PM_{2.5} level of 30 µg/m³ to 20 µg/m³, which would result in more "No Burn" days and more emissions reductions from residential wood combustion. The trigger for this measure is that the lower threshold would become effective 60 days after final EPA rulemaking that the Valley failed to attain the federal annual PM_{2.5} standard set in 1997 by the applicable attainment deadline (April 2015). Since the wood burning curtailments are effective from November through February, the earliest the contingency level would take effect would be November 1, 2015, pending EPA finding that the Valley failed to attain.

If, as projected in the *2008 PM_{2.5} Plan*, the Valley reaches the PM_{2.5} standard by the deadline, then this contingency measure would not be used. The Governing Board directed District staff to report on the likely necessity of this existing contingency measure or the potential for substitute measures. However, this *2012 PM_{2.5} Plan* contains a commitment to lower the curtailment level 20 µg/m³ officially before for the current contingency trigger could occur. As such, the need to evaluate the likely necessity of this existing contingency measure is now moot, with the contingency level being implemented regardless of a failure to attain the 1997 PM_{2.5} standard. The contingency reductions still apply to the *2008 PM_{2.5} Plan*, since that plan did not rely on those reductions.

Given EPA's acceptance of the previous Rule 4901 contingency measure, though, the District commits to include a contingency threshold in the next Rule 4901 amendment. Since the curtailment level in rule would be 20 µg/m³, the District proposes a new contingency level of 15 µg/m³, to be implemented if EPA finds that the Valley fails to attain the federal 24-hour PM_{2.5} standard set in 2006 by 2019. The emissions reductions that would be achieved by this contingency measure are based on the increased number of "No Burn" days resulting from the curtailment threshold decreasing from 20 µg/m³ down to 15 µg/m³: **1.5 tpd of PM_{2.5}**, as an average day during the wood burning season (November - February). However, average winter reductions greatly understate the full impact of Rule 4901 "No burn" days, which reduce some of the most harmful species of particulates in the times and places where air quality is forecast to reach unhealthy levels. A Valley-wide no-burn day achieves a direct PM_{2.5} emission reduction of 16.7 tons. No other single regulation achieves this level of effectiveness. This Rule 4901 Contingency-Trigger reduction is in addition to the contingency reductions quantified in section 9.4.1.1 above.

9.4.1.3 SIP-Creditable Incentive-Based Emissions Reductions

As discussed in Chapter 6 of this plan, voluntary incentive programs achieve emissions reductions beyond those achieved by regulations alone. Incentive programs accelerate the adoption of cleaner technologies and encourage the use of cleaner technologies by those not yet subject to air quality regulations. Incentives allow the District to reduce emissions from source categories outside of the District's traditional regulatory authority, as well as source categories where financial hardship would otherwise prevent traditional control strategies from being implemented. As discussed in Chapter 6, and reflected in Table 10-1, the District will be developing a new rule (Rule 9610) allowing for SIP-credit of incentive based emissions reductions.

The District will continue to seek opportunities for additional incentive reductions Valley-wide to achieve emissions reductions for contingency and expedite public health benefits Valley-wide. However, as this plan's modeling and analysis shows the particular effectiveness of localized controls, replacing of on- and off-road engines that are likely to operate in Kern County would be especially effective in accelerating Bakersfield's attainment of the 24-hour PM_{2.5} standard. The District will consider

opportunities to target mobile source incentive reductions, per this PM_{2.5} standard as well as the Valley's other attainment and public health considerations.

Both ARB and the District are committed to pursuing the needed funding and to target incentive programs to provide for expeditious attainment. Some source categories that are good candidates for such targeted incentive reductions, due to their associated post-2019 regulatory deadlines, include, but are not limited to:

- Further emissions reductions from construction equipment to accelerate conversion of older construction equipment to Tier 4. Upon targeting construction fleet turnover in the Kern County area, the District could work to encourage use of the cleanest equipment (and discourage the use of other equipment) during episodes generating poor air quality.
- Accelerated retirement of older light- and medium-duty vehicles
- Accelerated retirement of older on- and off-road diesel vehicles and equipment, including on-road diesel, off-road, and agricultural equipment
- Further emission reductions from freight locomotives, including the introduction of Tier 4 locomotives in the South Coast air basin that then travel through the Valley

At this time, the District proposes to achieve **1.9 tpd of NO_x reductions** through Rule 9610 and related incentive programs to use as contingency for 2019. Beginning in 2017, the District will evaluate the Valley's progress towards attainment of the 2006 federal PM_{2.5} standard. If needed, the District will explore any other legally feasible corrective actions that may be suitable, such as additional reductions from ARB, and amend the SIP if appropriate before the Rule 9610 contingency reductions are needed.

9.4.2 Sufficient Contingency Reductions

Areas like the Valley that have significant nonattainment challenges have developed several generations of aggressive and far-reaching emission reduction measures to meet various Clean Air Act requirements. The result of this "no stone left unturned" policy is that when viable emission reductions are identified, they are implemented to contribute to expeditious attainment. Reductions are not usually held in reserve to be used only if an area fails to meet a milestone. As a result, contingency measure demonstrations in the Valley have been a challenge, historically.

However, this chapter has outlined three types of contingency measures being used to meet the contingency reductions required for this plan:

- Surplus from traditional regulations (see Section 9.4.1.1)
- Regulations with contingency trigger (see Section 9.4.1.2)
- SIP-creditable incentives (see Section 9.4.1.3)

Table 9-9 shows how these approaches together generate enough emissions reductions to meet the contingency reductions required for this plan.

Table 9-9 Demonstration of Sufficient Contingency Reductions

	2014	2017	2019	Data reference
PM2.5				
<i>Surplus from traditional regulations</i>	9.1	4.4	1.7	Tables 9-7 and 9-8
<i>Regulations with contingency trigger</i>	0	0	1.5	Section 9.4.1.2
<i>SIP-creditable incentives</i>	0	0	0	Section 9.4.1.3
<i>Subtract PM2.5 reductions, trade for SOx</i>	0	0	-0.3*	1:1 trading ratio*
<i>Subtract PM2.5 reductions, trade for NOx</i>			-0.9*	1:8 trading ratio*
Total contingency reductions achieved	9.1	4.4	2.0	
Contingency reductions required	2.0			Table 9-6
Contingency need met?	Yes	Yes	Yes	
NOx				
<i>Surplus from traditional regulations</i>	39.7	24.4	12.3	Tables 9-7 and 9-8
<i>Regulations with contingency trigger</i>	0	0	0	Section 9.4.1.2
<i>SIP-creditable incentives</i>	0	0	1.9	Section 9.4.1.3
<i>Substitute PM2.5 reductions</i>			7.2*	Above, with 1:8 trading ratio*
Total contingency reductions achieved	39.7	24.4	21.4	
Contingency reductions required	21.4			Table 9-6
Contingency need met?	Yes	Yes	Yes	
SOx				
<i>Surplus from traditional regulations</i>	2.0	0.8	0	Tables 9-7 and 9-8
<i>Regulations with contingency trigger</i>	0	0	0	Section 9.4.1.2
<i>SIP-creditable incentives</i>	0	0	0	Section 9.4.1.3
<i>Substitute PM2.5 reductions</i>			0.3*	Above, with 1:1 trading ratio*
Total contingency reductions achieved	2.0	0.8	0.3	
Contingency reductions required	0.3			Table 9-6
Contingency need met?	Yes	Yes	Yes	
* 1 ton of direct PM2.5 emissions reductions is equivalent to 1 ton of SOx reductions or 8 tons of NOx reductions as demonstrated in the Weight of Evidence (Appendix G). These ratios are conservative estimates summarizing the plan as a whole, not reflecting ratios appropriate for New Source Review (NSR)				