

Chapter 6

Reasonable Further Progress

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6 REASONABLE FURTHER PROGRESS

6.1 INTRODUCTION

This chapter explains and demonstrates reasonable further progress (RFP) and quantitative milestones that are required until the SJVAB reaches attainment of the PM10 air quality standards. The data in this chapter is based on information that has been provided in other chapters of this plan.

6.2 THE DISTRICT'S INTERPRETATION OF 5 PERCENT REQUIREMENTS

The SJVAB is the first PM10 nonattainment area nationwide to be subject to the five (5) percent requirement, and prior to the *2003 PM10 Plan*, no precedent had been set for interpreting this requirement. Since EPA approval of the *2003 PM10 Plan*, and the subsequent 9th circuit court decision from 2005 upholding this approval¹, the *2003 PM10 Plan* approach to the 5 percent requirement has solidified. The District's interpretation of the 5 percent requirement is summarized as follows:

- a. The annual 5 percent per year emission reduction requirement represents the aggregate of directly emitted PM10 emissions and appropriate precursor emissions.
- b. EPA guidance regarding the 5 percent requirement makes no mention of the relative effectiveness of the reductions, but it would be logical to assume that the reductions must have some effect on the attainment problem and, in fact, should be related to efficient and expeditious progress.
- c. Although no precedent is available for PM10, the CAA includes a 3 percent milestone requirement for ozone that allows NOx substitution and is additive for VOC and NOx reductions. In keeping with the NOx substitution guidance, a PM10 nonattainment area should be able to meet the milestone by reducing PM10, PM10 precursors, or both as long as both have an effect on ambient PM10 concentrations.
- d. An area with directly emitted PM10 and precursor problems should be able to reduce zero percent of one pollutant and 5 percent of the other, or some combination in between, to meet the requirement as long as this is consistent with the attainment demonstration.
- e. To ensure that every year achieves at least 5 percent, the 5 percent reduction should be demonstrated with a running average for every year until attainment.

¹ United States Court of Appeals for the Ninth Circuit. *Association of Irrigated Residents v. United States Environmental Protection Agency*; Michael Leavitt. No. 04-72650. EPA No. Fed. Reg. 69.

District stationary source controls often get immediate reductions, and then the benefits decline due to growth in that source category. In this case, the first year or two of rule implementation will show substantial percentage reductions, but later years may show category growth due to the newer and lower baselines. When regulations affecting large sources are implemented early on, there is little additional opportunity for reductions later when they are needed as part of a 5 percent reduction demonstration. Artificially delaying rule implementation to a later date in order to meet the 5 percent RFP in a year that is short on reductions would be contrary to CAA provisions requiring expeditious implementation.

Another way to interpret the requirement for 5 percent reductions of PM₁₀ or PM₁₀ precursors is to conclude that it means that in each year, you must meet at least 5 percent of either PM₁₀ or precursors. For example, if a District achieves a 5 percent PM₁₀ reduction in one year, no reduction in precursors is required that year. In a later year, there could be a 5 percent reduction in precursors and zero percent reduction in PM₁₀.

The 5 percent calculation is based on directly emitted PM₁₀ and PM₁₀ precursors that contribute significantly toward attainment. Studies such as Kleeman, Ying, and Kaduwela (2005) indicate that NO_x is the most significant precursor for PM₁₀ in the SJVAB. Furthermore, the updated photochemical modeling conducted for this Plan (Chapter 5) that uses CRPAQS data shows the importance of NO_x emissions as a PM₁₀ precursor in the SJVAB. As such, the District's approach to the 5 percent reduction requirements is based on achieving at least a 5 percent reduction from the base year of either PM₁₀ or NO_x for each year.

6.3 PAST PROGRESS: MILESTONES

Section 189(c) of the CAA requires quantitative milestones to be achieved every three years until an area reaches attainment. These quantitative milestones are to be based on RFP. RFP is defined in Section 171(1) as the annual incremental reductions in emissions required for the purpose of ensuring attainment of NAAQS by the applicable date. For Serious PM₁₀ nonattainment areas, Section 189(d) of the CAA requires an annual reduction of at least 5 percent of emissions of PM₁₀ or PM₁₀ precursor within an area is required by CAA Section 189(d).

The milestone years for PM₁₀ are tied to SIP submittal dates and federal CAA requirements. So for the SJVAB, the District was required to submit a PM₁₀ SIP by December 31, 2002. Therefore, the annual 5 percent emission reduction requirement became effective in calendar year 2003. The basis for the 5 percent annual reduction in the *2003 PM₁₀ Plan* was the emissions inventory for 2002, so the first RFP, 3-year milestones is 2005. The next milestone is 2008, and attainment must be reached by 2010. The milestone of primary interest in this section is 2005.

The emissions reductions achieved each year are based on the emissions inventory and any reductions that will be achieved by future commitments. The planning emissions inventory used in this plan, CCOS 2.14, includes most control measure reductions that will be achieved by regulations that have been adopted by the District as of May 2005. Table 6-1 shows the total percent reduction from base year 2002 that has been achieved for the years 2003 through 2005 as well as 5 percent reduction extractions.

Table 6-1 Reductions from 2002 Base Year and 5 Percent Extraction

Year	NOx			PM10		
	Emissions (tpd)	% reduction ^a	5% met?	Emissions (tpd)	% reduction ^a	5% met?
2002	526.7			323.8		
2003	512.3	2.73		325.5	-0.53 ^c	
2004	498.2	5.41	Yes	324.3	-0.15 ^c	
2005	464.7 ^b	11.77	Yes	301.3 ^b	6.95	Yes

a All percent reductions are calculated from the base year, 2002

b 2005 emissions inventory values have been adjusted here to include emissions from rules that will reduce emissions in 2005 but have not yet been incorporated into the inventory used in this plan. These reductions are presented in Chapter 4.

c A negative reduction value reflects increasing emissions

A number of interpretations for the milestone requirement can be developed from the language of the CAA. CAA Section 182(c)2B indicates that 3-year RFP calculations can be based on a 3-year average. Since 5 percent reductions are achieved 3 times over the three year period above, RFP has been met for this 3-year average. Alternatively, CAA Section 172(c)8 allows for equivalent techniques in planning procedures. A 3-year average of 5 percent per year can be considered equivalent to an even 5 percent per year reduction without averaging. Finally, CAA Section 172(c)9 on contingency measures requires that if RFP is not met, then contingency measure reductions must go into effect. Surplus 5 percent achievements in 2005 can be interpreted as the surplus that covers any lacking in 2003.

The fact that more progress was expected for 2003 than is actually seen in the current emissions inventory is most likely a reflection of increased understanding of the Valley's emissions inventory. District regulations and programs enacted between 2003 and 2005 have played a critical role in the improving air quality described in Chapter 2.

6.4 FUTURE PROGRESS: REASONABLE FURTHER PROGRESS DEMONSTRATION REQUIREMENT

The District is required to achieve reductions of 5 percent per year of PM10 or PM10 precursors until attainment is reached. The District's attainment date is 2010, so 5 percent per year reductions need to be shown between now (2005) and 2010. The District's approach of achieving at least a 5 percent reduction from the base year of

either PM10 or NOx for each year is used. The year 2002 is the base year for all RFP calculations.

To determine our future progress, the CCOS 2.14 emissions projections, which reflect reductions from rules adopted by the District through May 2005, are adjusted for reductions from control measure commitments in Chapter 4. By applying the planned reductions to the appropriate years of the inventory, the future emissions can be more accurately projected. Table 6-2 shows this adjustment, and new emissions totals are used to calculate the total percent reduction from the base year in Table 6-3. For RFP, the goal is to be able to show emissions reductions of 5 percent per year for either NOx or PM10. The percent reductions used for the milestone requirements show that this requirement was met. Table 6-3 shows the achievement of 5 percent reductions for the years 2006-2010.

Table 6-2 Emissions Based on an Adjustment of the Inventory for Reduction Commitments

Year	TPD of emissions in CCOS 2.14	Chapter 4 reductions	New emissions total
NOx			
2006	457.1	10.7	446.4
2007	437.7	10.7	427.0
2008	421.2	20.7	400.5
2009	407.1	20.7	386.4
2010	392.0	42.8 ^a	349.2
PM10			
2006	299.5	2.7	296.8
2007	299.7	2.7	297.0
2008	293.2	3.8	289.4
2009	294.8	3.8	291.0
2010	285.9	6.7*	279.2

^a 2010 reductions include District and state measures from Chapter 4

Table 6-3 Percent of Emissions Reductions from Base Year and 5 Percent Extraction

Year	NOx			PM10		
	Emissions (tpd)	% reduction ^b	5% met?	Emissions (tpd)	% reduction ^b	5% met?
2002	526.7			323.8		
2006	446.4	15.25	Yes	296.8	8.34	
2007	437.0 ^a	17.03		290.3 ^a	10.3	Yes
2008	400.5	23.96	Yes	289.4	10.62	
2009	386.4	26.64	Yes	291.0	10.12	
2010	349.2	33.70	Yes	279.2	13.77	

^a In 2007, 10 tpd NOx reductions are converted to 6.67 tpd PM10 reductions.

^b Two 5% were already removed from NOx and one 5% removed from PM10 for milestone

References:

Kleeman, Michael J; Ying, Qi; and Kaduwela, Ajith (2005). "Control Strategies for the reduction of nitrate in California's San Joaquin Valley." *Atmospheric Environment* 39 (2005): 5325-5341.