

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

**APRIL 20, 2000
(Amended April 27, 2000)**

OZONE RATE OF PROGRESS REPORT

APPROVED FOR RELEASE

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INTRODUCTION

The San Joaquin Valley Air Basin (SJVAB) is designated as a serious nonattainment area for the one-hour ozone standard by the U.S. Environmental Protection Agency (EPA). The San Joaquin Valley Unified Air Pollution Control District (District) is the lead agency for air quality planning and regulation for the SJVAB. It is responsible for developing that portion of the State Implementation Plan (SIP) that deals with certain stationary and area source controls and, in cooperation with the transportation planning agencies (TPAs), the development of transportation control measures (TCMs). The California Air Resources Board (ARB) is the lead state agency for air quality and is responsible for submitting a SIP to EPA.

The Federal Clean Air Act Amendments (FCAAA) requires that the areas classified as “moderate” nonattainment and above to show “reasonable further progress” towards attainment. Reasonable further progress is defined as achieving 15 percent reduction from the 1990 baseline inventory for volatile organic compound (VOC) emissions by 1996, and an average three percent per year reduction each year thereafter until attainment is reached. The substitution of oxides of nitrogen (NOx) emission reductions for VOC emission reductions is permitted. These target emission level reductions are referred to as “milestones”.

To demonstrate that the milestones are being achieved, EPA required districts to prepare rate of progress plans. Under this requirement, the District submitted a 1993 Rate of Progress Plan¹ (1993 ROP) covering the six years from 1991 through 1996, and a Post-1996 Rate of Progress Plan (Post-1996 ROP)² that covers 1997-1999. The purpose of this report is to demonstrate that the target level of emissions or milestones for 1997-1999 (9 percent) and for 1990-1999 (24 percent) have been met.

While the District is responsible for the control of stationary and area sources and, in conjunction with TPAs, the development of TCMs, the ARB is responsible for developing emission standards for on-road motor vehicles, consumer products and pesticides. The EPA is responsible for reducing emissions from a number of sources including locomotives, aircraft, heavy duty vehicles used in interstate commerce, and other sources that are either preempted from state control or best regulated on a national level. To achieve the milestone reductions requires a partnership between EPA, ARB, and the District. The milestones can only be reached when all partners successfully reduce emissions from the sources for which they are responsible.

¹ San Joaquin Valley Unified Air Pollution Control District. *Revised 1993 Rate of Progress Plan*. November 4, 1994

² San Joaquin Valley Unified Air Pollution Control District. *Revised Post 1996 Rate of Progress Plan*. September 20, 1995

BACKGROUND

In the 1993 and 1996 ROPs, all control measures relied upon by the District to meet its 1996 and 1999 Target Levels of Emissions for VOC and NOx had been adopted by the District's Governing Board and were being implemented prior to the adoption of the 1993 and the Post-1996 ROPs. Although there was some "overlap" between Plans, the District followed EPA's *Guidance on the Post 1996 Rate-of-Progress Plan and the Attainment Demonstration*³ (Post 1996 Guidance) to ensure that the nine percent reductions reflected in the Post-1996 ROP were in addition to the fifteen percent reductions shown in its 1993 ROP. The two ROP plans, as well as the District's *Ozone Attainment Demonstration Plan*⁴ (OADP), were approved by EPA on September 25, 1996.

The emission reductions in this progress report are stated in 1994 SIP currency. That is, they are calculated by applying the updated control efficiencies for the rules to the 1999 forecasted SIP inventory prepared for the OADP and Post-1996 ROP in 1994. In 1999, the District updated its rule mapping, which is the association of prohibitory rules to emission source categories. The updated rule mapping has been applied to the 1999 forecasted SIP inventory, resulting in some previously unmapped sources being associated to particular rules. Thus, minor changes in the inventory for some rules have been made. The updated control efficiencies were prepared by an independent consultant (Arons Air Quality Services) between July 1999 and March 2000 and reflect rule penetration and compliance rate estimates. Although some changes to the inventory (other than those brought about by the new rule mapping) have occurred since 1994, they are not reflected in the SIP currency emission reductions.

The 1994 SIP currency methodology was used by the California Air Resources Board (ARB) for state measures in order to allow an "apples to apples" comparison of the emission benefits projected in the plans to the actual benefits that were achieved. A similar approach is being taken by all districts subject to the progress report requirement.

Emission reductions shown in this report are for 1999, i.e., the difference between the 1999 emissions estimates given current controls and 1999 emissions estimates given controls in place in 1990. Some of the rules referenced in this report had been adopted by one or more of the county districts prior to unification in 1991. Because most rules were adopted prior to 1990, many had achieved significant reductions prior to 1990 and these reductions are reflected in the 1990 baseline. For some rules, no further emission reductions were achieved after 1990. For other rules, which were implemented in phases,

³ US Environmental Protection Agency. *Guidance on the Post 1996 Rate-of-Progress Plan and the Attainment Demonstration*. February 18, 1994

⁴ San Joaquin Valley Unified Air Pollution Control District. *Ozone Attainment Demonstration Plan*. November 14, 1994

or were amended or adopted after 1990, incremental emission reductions occurred between 1990 and 1999.

1997-1999 MILESTONE (9 %) DEMONSTRATION

The emission reductions provided by District, State and applicable Federal control measures are shown on Tables 1, 2, and 3. Supporting documentation for District measures is located in Appendix A and for State and Federal measures in Appendix B.

In the Post-1996 ROP, for the 1999 milestone, the District demonstrated that the 9 percent reduction would be met through 4.5 percent each VOC and NO_x emission reductions. This required State and District measures to reduce VOC emissions by 22.7 tpd and NO_x emissions by 31.44 tpd.

As shown on Table 4, District, state and applicable federal measures achieved 20.14 tpd VOC emissions and 57.97 tpd NO_x emissions. Although VOC emission reductions were 0.51 percent short, the NO_x emission reductions were more than adequate to cover the original 4.5 percent and an additional 0.51 percent.

**TABLE 1
DISTRICT MEASURES
PLANNED VERSUS ACTUAL 1999 VOC EMISSION REDUCTIONS
IN 1994 SIP CURRENCY**

Rule No.	Rule Name	Projected Reduction	Updated SIP Currency Reduction
4401	Steam-enhanced Crude Oil Production Well Vents	19.32	12.02
4402	Crude Oil Production Sumps	20.33	22.51
4403	Components Serving Light Crude Oil or Gases at Light Crude Oil and Gas Production Facilities and Components at Natural Gas Processing Facilities	0.00	2.40
4451 ^a	Valves, Pressure Relief Valves, Flanges, Threaded Connection and Process Drains at Petroleum Refineries and Chemical Plants	0.57	0.00
4452 ^a	Pump and Compressor Seals at Petroleum Refineries and Chemical Plants	0.03	0.00
4453 ^a	Refinery Vacuum Producing Devices or Systems	0.00	0.00
4454 ^a	Refinery Process Unit Turnaround	0.00	0.00
4601	Architectural Coatings	3.28	2.91
4602	Motor Vehicle and Mobile Equipment Refinishing Operations	5.51	2.03
4603	Surface Coatings of Metal Parts and Products	0.02	0.08
4604 ^a	Can and Coil Coating Operations	0.05	0.00
4605	Aerospace Assembly	0.04	0.06
4606	Wood Products Coating Operations	0.96	0.23
4607	Graphic Arts	1.77	0.37
4621	Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants	0.20	2.29
4624 ^a	Organic Liquid Loading	0.00	0.00
4625 ^a	Wastewater Separators	1.87	0.00
4641 ^a	Cutback, Slow Cure, and Emulsified Asphalt Paving and Maintenance Operations	0.00	0.00
4642 ^b	Solid Waste Disposal Sites	1.41	0.73
4653 ^b	Adhesives	1.30	1.05
4661 ^a	Organic Solvents	0.00	0.00
4662	Organic Solvents Degreasing Operations	1.59	1.72
4672	Petroleum Solvent Dry Cleaning	0.12	0.11
4681 ^a	Rubber Tire Manufacturing	0.03	0.00
4682 ^a	Polystyrene Foam, Polyethylene, and Polypropylene Manufacturing	1.81	0.00
4684 ^b	Polyester Resin Operations	0.00	0.23
4691	Vegetable Oil Processing	0.75	1.00
TOTAL		60.96	49.74

^a Rule was adopted and fully implemented prior to 1990.

^b Rules 4642, 4653 and 4684 were not included in the 1996 ROP's projection of emission reduction projection, but did provide reductions during the 1990-1999 period.

**TABLE 2
DISTRICT MEASURES
PLANNED VERSUS ACTUAL 1999 NO_x EMISSION REDUCTIONS
IN 1994 SIP CURRENCY**

Rule No	Rule Name	1994 Projected Reduction (All Sources)	Total 1994 SIP Currency Reductions	1994 SIP Currency Reduction (SIP Creditable)^a
4305	Boilers, Process Heaters and Generators	35.90	37.63	13.17
and 4306 ^b	Smaller Boilers, Steam Generators, and Process Heaters	7.60		
4354	Glass Melting Furnaces	2.87	0.66	0.66
4412 ^c	Oil Well Drilling Rigs	0.87	0.00	0.00
4701	Emissions from Stationary IC Engines – Central and Western Kern County and	105.13	124.52	27.78
and 4702 ^d	Stationary IC Engines	15.55		
4703	Stationary Gas Turbine	11.92	11.73	8.86
4902	Residential Water Heaters	0.59	0.77	0.77
TCMs	Transportation Control Measures	1.50	1.5	NQ
TOTAL		181.93	176.81	51.24

^aThe 96 ROP and the OADP exempt the emissions generated by Westside NO_x sources for Rules 4305/4306, 4701/4702, and 4703 from use in determining if a target level of emissions has been met. The portion of the reduction of each rule credited to Eastside sources is shown.

^bProvisions for Rule 4306 were incorporated into rule 4305

^cRule not adopted

^dProvisions for Rule 4702 were incorporated into rule 4701

**TABLE 3
STATE AND FEDERAL MEASURE
PLANNED VERSUS ACTUAL 1999 NO_x EMISSION REDUCTIONS
IN 1994 SIP CURRENCY**

ARB Measures	1994 SIP Commitment		Projected Emission Reductions in "1994 SIP Currency"	
	VOC	NO _x	VOC	NO _x
M3: Medium-duty vehicles	0	0.39	0	0.27
M4: Heavy-duty vehicle incentives	0	0.74	0	0
M8: Heavy-duty gas vehicles	0	0.04	0	0
Baseline: Small off-road engines	0	0	(1.65)	(0.05)
Baseline: CaRFG2 (additional benefits)	0	0	4.90	0
Baseline: Heavy duty diesel engines (ROG benefit from PM standard)	0	0	1.70	0
Baseline: Consumer products	0	0	0.16	0
Baseline: Vapor recovery	0	0	(1.3)	0
New: Combustion chamber deposits	0	0	0	5.61
ARB Totals	0	1.17	3.81	5.83
BAR Measures				
Enhanced I/M	4.30	4.95	3.34	0.91
BAR Totals	4.30	4.95	3.34	0.91
DPR Measures				
Pesticides Strategy	12.99	0	12.99	0
DPR Total	12.99	0	12.99	0
Federal Measures				
M13: Marine vessel engines	0	0.02	0	0
Federal Totals	0	0.02	0	0
Combined State and Federal Measures				
Combined Totals	17.29	6.14	20.14	6.74

**TABLE 4
1997-1999 MILESTONE DEMONSTRATION
(9 PERCENT)**

FACTORS	VOC Emissions (tpd)	NOx Emissions (tpd)
1990 Baseline	543.9	712.00
Adjusted 1990 Baseline (Baseline minus Federal Measures)	504.4	698.80
1996 Target Level of Emissions^a	432.90	NA
1999 Target Level of Emissions^b	405.30	667.40
Reductions from District Rules	0.00	51.24
Reductions From State Programs	20.14	6.73
TOTAL REDUCTIONS	20.14	57.97
Fleet Turnover Correction Term	4.90	0.00
1999 VOC Inventory (1996 Target Level Of Emissions minus Control Measures Reductions and Fleet Correction Term)	407.86	NA
1999 NOx Inventory (1990 Baseline minus Control Measure Reductions)		640.83
EXCESS (SHORTFALL)	(2.56) (0.51%)	26.57
NOx Substitution Required (0.51%)		3.56
EXCESS NOx REDUCTIONS		23.01

^a1996 VOC target Level of Emissions is 85% of the 1990 Baseline minus Federal Motor Vehicle and Gasoline programs (543.9 tpd –34.6 tpd)

^bThe 1999 VOC target is based on a 15% 1990 baseline reduction between 1990 and 1996 and 4.5% reduction between 1996 and 1999 to account for the 4.5 NOx substitution. The percentages are applied to an adjusted baseline to account for Federal Motor Vehicle and Gasoline Programs. Finally, the baseline is adjusted by 4.9 tpd to account for fleet turnover correction. NOx target is 4.5% reduction from the 1990 baseline.

TWENTY FOUR PERCENT EMISSION REDUCTION DEMONSTRATION

The FCAA required the District and State measures to reduce VOC emissions by 24 percent between 1990 and 1999. To meet the 24 percent reduction goal, State and District VOC control measures must reduce emissions by 121.4 tpd. The substitution of oxides of nitrogen (NO_x) emission reductions for VOC emission reductions is permitted. The emission reductions provided by District and State VOC and NO_x rules are summarized in Tables 1, 2 and 3.

In addition to these programs, significant emission reductions were projected to be provided by the California Motor Vehicle Program. EMFAC 7F projected a change in the on-road mobile source VOC inventory from 172.91 tpd to 97.06 tpd, or by 75.85 tpd. Federal mobile source programs account for a projected 39.5 tpd of these reductions. State mobile source programs included in the EMFAC 7F program thus account for 36.35 tpd of the reductions. These reductions are included on Table 5. For the NO_x inventory, EMFAC 7F projected a decrease in the on-road inventory from 228.53 to 175.91, or 52.62 tpd. Federal mobile source programs account for 13.2 tpd of these emissions, with state mobile source programs accounting for the remaining 39.42 tpd. The 39.42 tpd reduction is included in the District's 24 percent milestone demonstration.

The 24 percent milestone demonstration is shown on Table 5.

**TABLE 5
1990-1999 MILESTONE DEMONSTRATION
(24 PERCENT)**

FACTORS	EMISSIONS (tpd)
ADJUSTED VOC 1990 BASE INVENTORY	504.40
1999 VOC Target Level of Emissions	383.00
District Rule VOC Rule Reductions	49.74
State Programs VOC Reductions	20.14
California Motor Vehicle Program (EMFAC 7-F) VOC Reductions	36.35 ^a
TOTAL REDUCTIONS	106.23
Projected 1999 VOC Inventory (Base Inventory minus VOC Control Measures Reductions)	398.17
VOC SHORTFALL	15.17 (3%)
1990 NO_x BASE INVENTORY	698.80
NO_x Substitution Required	20.96 (3%)
NO _x Reductions from District Rules	51.24
NO _x Reductions From State Programs	6.73
NO _x California Motor Vehicle Program	39.42 ^b
TOTAL NO_x AVAILABLE	97.39
EXCESS NO_x REDUCTIONS	76.43

^aThis number is calculated by comparing the EMFAC 7F 1990 and 1999 on-road mobile source inventories for VOCs and subtracting the 39.5 tpd VOC reduction that was projected to be provided by Federal Mobile Source Programs.

^bThis number is calculated by comparing the EMFAC 7F 1990 and 1999 on-road mobile source inventories for NO_x and subtracting the 31.2 tpd NO_x reduction that was projected to be provided by Federal Mobile Source Programs.

APPENDIX A DISTRICT RULE EVALUATION

I. VOLATILE ORGANIC COMPOUNDS (VOC) RULES

In the *Post 1996 Rate-of-Progress Plan* (Post-1996 ROP), the District determined that the target level emission reductions would be met partially through VOC emission reductions and partially through NO_x substitution. Twenty-four specific rules, all of which had been adopted prior to 1994, were identified as the sources for the VOC emission reductions. The Post-1996 ROP, however, did not quantify the reductions for each rule. However, the emission reductions that would be achieved by 1999, on a rule-by-rule basis, were quantified in 1994 OADP. The District was unable to locate the exact rule mapping and control factors used to associate emission source categories to rules used in the preparation of the projected 1999 emission reductions. This information was needed in order to develop the 1994 SIP currency projections needed for the milestone evaluation.

In order to recreate the emission inventories, the District employed the rulemapping used in the 1993 ROP. This rule mapping was applied to the “frozen” projected 1999 controlled and uncontrolled inventories that were prepared in 1994. The control efficiencies were then calculated from the difference between the controlled and uncontrolled inventories. While the emission reductions projected for 1999 for each rule are close to those identified in the OADP, in some cases they are not identical. In order to maintain the “apples to apples” or SIP currency comparison, the emission reductions obtained through the rulemapping are used as the “Emission Reduction in 1999” from the “1994 SIP” on the rule evaluation tables in this appendix.

Of the twenty-four (24) rules that were identified as the sources for reductions helping to achieve the target level of emissions for VOCs, five were not projected to generate additional reductions after 1990. These rules are listed on Table A-1 and are not discussed further in this report.

In addition to the rules identified in the 1996 ROP, several other VOC rules provided emission reductions between 1990 and 1999. These rules and their associated emission reductions are reflected in the milestone evaluation.

**TABLE A-1
VOC RULES ACHIEVEING NO ADDITIONAL REDUCTIONS BEYOND 1990.**

Rule No.	Rule Name
4453	Refinery Vacuum Producing Devices or Systems
4454	Refinery Process Unit Turnaround
4624	Organic Liquid Control
4641	Cutback, Slow Cure, and Emulsified Asphalt Paving and Maintenance Operations
4661	Organic Solvents

The District was created in 1991 through the unification of eight air management districts in the SJVAB. Some of the rules referenced in this report had been adopted by one or more of the air districts prior to unification. The rule adoption dates reflect the dates on which the rules became uniformly applicable to the entire SJVAB. Because most rules were adopted prior to 1990, many had achieved significant reductions prior to 1990 and these reductions are reflected in the 1990 baseline. For some rules, no further emission reductions were achieved after 1990. For other rules, which were implemented in phases, incremental emission reductions occurred between 1990 and 1999. The emission reductions in this report do not include any emission reductions that were achieved prior to 1990. Instead they reflect only the incremental reductions that occurred subsequent to 1990.

Rule 4401 (Steam-Enhanced Crude Oil Production Well Vents)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date(s)	
	1994 SIP	Actual
	5/1/92	5/1/95

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
19.33	0	12.02	0

Rule: This rule limits VOC emissions from all steam-enhanced crude oil production wells and any associated vapor collection and control systems. SIP approved rules had been adopted for this emission source category by Kern and Fresno counties prior to District unification. The District rule, which reflects the Fresno and Kern rules, was adopted in 1991.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: The rule provided 11.93 tpd emission reduction, which is 7.4 tpd less than projected. The shortfall is primarily caused by reduced estimates for rule penetration and compliance factors.

Rule 4402 (Crude Oil Production Sumps)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	5/1/97	5/1/97

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
20.33	0	22.51	0

Rule: This rule is designed to minimize VOC emissions by installing covers on sumps or replacing sumps with tanks. A SIP approved rule had been adopted for this emission source category by Kern County prior to District unification. The District rule, which reflects the Kern County rule, was adopted in 1991 and has not been significantly amended.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: The rule provides for a phased control approach over several years, with the last compliance date being 1997. IN 1994 SIP currency, the rule reduced emissions from this source by about 22.51 tpd, which is 2.18 tpd more than projected. The increase is due to a slightly higher control efficiency than originally projected.

Rule 4403 (Components Serving Light Crude Oil or Gases at Light Crude Oil and Gas Production Facilities and Components at Natural Gas Processing Facilities)

Amendment Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
NA	2/16/95	NA	8/16/95

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0	2.40	0

Rule: This rule sets limits on the VOC emissions from components at light crude oil and natural gas facilities. The rule defines a leak from these components and specifies how often the facility operators must inspect the components to ensure compliance with the provisions of the rule. The rule also specifies the repair requirements and how quickly the components must be repaired if it is determined by inspection that there are leaks. Kern County had adopted a SIP approved rule for this emission source category prior to District unification. The District rule, which reflected the Kern County rule, was adopted in 1991. In 1995, the rule was strengthened through an amendment which added about 10% control effectiveness.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: The rule was adopted and implemented prior to 1990. However, the 1995 amendment tightened the rule. In 1994 SIP currency, the tightened rule reduced emissions from this source by about 2.40 tpd.

Note: The OADP credits this rule with 4.55 tpd reduction on Page 4-19, Table 4-1. This reduction occurred prior to 1990 but was not included in the base case simulation for the attainment demonstration. It could be used to demonstrate attainment because it had not been taken out of the inventory. It could not be used for the milestone demonstration because it occurred prior to 1990.

Rule 4451 (Valves, Pressure Relief Valves, Flanges, Threaded Connection and Process Drains at Petroleum Refineries and Chemical Plants)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	11/1/91	11/1/91

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0.57	0	0	0

Rule: This rule limits leaks from valves, flanges, threaded connections and process drains that may result in fugitive emissions of VOC at petroleum refineries and chemical plants. Inspection, repair and maintenance schedules, record-keeping and administrative requirements, and test methods are specified. SIP approved rules had been adopted for this emission source category by Kern, Kings and San Joaquin counties prior to District unification. The District rule, which reflects these rules, was adopted in 1991 and has not been significantly amended.

Inventory: The updated rule mapping associated two additional source categories, with a combined inventory of 0.55 tpd, to Rule 4451.

Adopted regulation and emission reductions: The rule was fully implemented in Kern County prior to District unification and emission reductions were reflected in the 1990 baseline emissions inventory. Although the Kings and San Joaquin Counties' rules became effective in November 1991, there are no facilities known to be subject to this rule outside of Kern County. No additional emission reductions, therefore, occurred after 1990.

Rule 4452 (Pump and Compressor Seals at Petroleum Refineries and Chemical Plants)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	11/1/91	11/1/91

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0.03	0	0.00	0

Rule: This rule limits leaks from pumps and compressors and associated seals that may result in fugitive emissions of VOC at petroleum refineries and chemical plants. Inspection, repair and maintenance schedules, recordkeeping and administrative requirements, and test methods are specified. Kern County had adopted a SIP approved rule for this emission source category prior to District unification. The District rule, which reflects the Kern County rule, was adopted in 1991 and has not been significantly amended.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: The rule was fully implemented in Kern County prior to District unification and emission reductions were reflected in the 1990 baseline emissions inventory. There are no facilities subject to this rule outside of Kern County. No additional emission reductions, therefore, occurred after 1990.

Rule 4601 (Architectural Coatings)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	9/1/94	1994-1997

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
3.21*	0	2.91*	0

*These reductions reflect only those shown for the rule adopted in 1991. The OADP also projected an amendment to the rule that would provide an additional 1.51 tpd reductions. The amendment to the rule has been delayed.

Rule: This rule pertains to the supply, sale, offer for sale, application and the solicitation of the application of architectural coatings. The rule specifies VOC content limits for various types of coatings. No specific VOC content limits are included for thinning and clean-up solvents. SIP approved rules had been adopted by all eight counties in the San Joaquin Valley Air Basin (SJVAB) prior to District unification. The District rule, which reflects these rules, was adopted in 1991 and has not been significantly amended.

Inventory: The updated rule mapping associated two additional source categories, with a combined inventory of 6.61 tpd, to this rule.

Adopted regulation and emission reductions: The rule provides for a phased approach over several years, with the full compliance date being 1997. Although the rule was amended in 1997, the amendment did not result in any substantive changes that would affect emission reductions. The two categories added to the inventory were fully controlled in 1990 and emission reductions were reflected in the 1990 baseline emissions inventory. In 1994 SIP currency, the rule reduced emissions from this source by about 2.91 tpd, which is 0.30 tpd less than projected. The shortfall is primarily caused by reduced estimates for rule penetration and compliance factors.

Rule 4602 (Motor Vehicle and Mobile Equipment Refinishing Operations)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	1/1/95	1991-1995

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
5.51	0	2.03	0

Rule: This rule establishes various VOC content limits for motor vehicle and mobile equipment coating operations. Limits are specified by 1) the type of coating; 2) Group 1 vehicles and parts, where color matching is required; and 3) Group 2 mobile equipment and vehicles where color matching is not required. SIP approved rules had been adopted by all eight counties in the SJVAB prior to District unification. The District rule, which reflects these rules, was adopted in 1991. Although the rule was amended in 1994 and 1997, the amendments were not substantive.

Inventory: The updated rule mapping associated five additional source categories, with a combined inventory of 0.21 tpd to Rule 4602.

Adopted regulation and emission reductions: The rule provides for a phased approach over several years, with the full compliance date being 1995. In 1994 SIP currency, the rule reduced emissions from this source by about 2.03 tpd, which is 3.48 tpd less than projected. The shortfall is primarily caused by reduced estimates for rule penetration and compliance factors.

Rule 4603 (Surface Coating of Metal Parts and Products)

Adoption Date	Implementation Date	
Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	1994 SIP	Actual
	4/11/91	1991-1993

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0.02	0	0.08	0

Rule: This rule establishes VOC emission limits for the coating of metal parts and products and provides the administrative and recordkeeping requirements as well as test methods. SIP approved rules had been adopted by all eight counties in the SJVAB prior to District unification. The District rule, which reflects these rules, was adopted in 1991 and has not been significantly amended.

Inventory: District staff was unable to locate the rulemapping used in 1994 to determine the effectiveness of this rule and thus was not able to recreate the "Baseline Inventory in 1999".

Adopted regulation and emission reductions: The rule provides for a phased approach over two years, with the full compliance date being 1993. In 1994 SIP currency, the rule provided 0.08 tpd reductions, which is 0.06 tpd more than projected.

Rule 4604 (Can and Coil Coating Operations)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	11/1/92	11/1/92

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0.05	0	0.00	0

Rule: This rule establishes VOC emission limits for can and coil coating operations and provides the administrative requirements for recording and measuring the emissions. SIP approved rules had been adopted for this emission source category by Kings, Merced, Stanislaus, and San Joaquin counties and a non-SIP approved rule by Fresno County prior to District unification. The District rule, which reflects the SIP approved rules, was adopted in 1991 and has not been significantly amended.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: The rule provides for a phased approach between 1991 and 1992, with the full compliance date being November 1992. The District rule, however, achieved no additional reductions beyond those already reflected in the 1990 inventory.

Rule 4605 (Aerospace Assembly)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	11/1/94	1996-2002

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0.04	0	0.06	0

Rule: This rule establishes emission limits for aerospace coatings and adhesives and provides the administrative requirements for recording and measuring the emissions. No aerospace coatings and adhesives rule had been adopted by any country prior to District unification. The District rule was adopted in 1991. Although the rule was amended in 1993, 1994 and 1996, the 1993 and 1996 amendments were not substantive. The 1994 amendment is described below.

Inventory: The updated rule mapping associated two additional source categories, with an inventory of 0.06 tpd, to this rule.

Adopted regulation and emission reductions: The 1994 amendment resulted in a temporary delay in reducing an estimated two tons per year of emissions from coatings and surface cleaning solvents. The control efficiency has been reduced to account for the reduction. The rule established a phased compliance schedule, including years 1996, 1998, and 2002. For the purposes of this report, the 1999 control efficiency is based on the 1998 compliance requirement. In 1994 SIP currency, the rule reduced emissions from this source by about 0.06 tpd, which is 0.02 tpd more than projected. Although the overall control efficiency declined slightly, the total reductions increased due to the updated rulemapping.

Rule 4606 (Wood Products Coating Operations)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	7/1/96	1996-2005

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0.96	0	0.23	0

Rule: This rule establishes emission limits for wood products coating operations and provides the administrative requirements for recording and measuring the emissions. Fresno County had adopted a SIP approved rule for this emission source category prior to District unification. The District rule was adopted in 1991. Although Rule 4306 was amended in later years (1996 and 1998), no substantive changes occurred that decreased the rule's effectiveness.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: The rule provides for a phased control approach, with compliance with the first phase due by December 1996 and the second phase by July 2005. For the purposes of this report, the 1999 control efficiency is based on the 1996 compliance requirement. In 1994 SIP currency, the rule reduced emissions from this source by about 0.23 tpd, which is 0.73 tpd less than projected. The shortfall is primarily due reduced estimates for rule penetration and compliance factors.

Rule 4607 (Graphic Arts)

[Control Measure 4611 (Small Printing Operations) was adopted as an amendment to Rule 4607]

Amendment Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
4Q/95	9/17/97	4/Q/97	9/1998- 9/2000

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
1.77	0	0.37	0

Rule: This rule establishes emission limits for graphic arts printing operations and provides the administrative requirements for recording and measuring the emissions. SIP approved rules had been adopted for this emission source category by Kern, Stanislaus, and San Joaquin counties prior to District unification. The District rule, which reflects these rules, was adopted in the early 1990s. The rule was amended in 1997 to incorporate BARCT provisions for Graphic Arts facilities and small printing operations. Non-substantive amendments to the rule also occurred in 1992, 1993 and 1994.

Inventory: The updated rulemapping disassociated several source categories, with emissions totaling 1.44 tpd, from Rule 4607.

Adopted regulation and emission reductions: In 1997, using a tiered approach, the rule was amended to lower VOC limits for some operations. Compliance to the last tier is due in September 2000. When full compliance is reached, the lowered VOC limits will result in an additional 307 tons per year (0.84 tpd) emission reductions from graphic arts than would have occurred without the amendment. In 1999, however, the rule provides only 0.37 tpd reductions, which is 1.4 tpd less than projected. The shortfall is primarily due to two factors: the updated rulemapping reduced the inventory and there is a decline in control efficiency caused by changes in rule penetration and compliance factor estimates.

Rule 4621 (Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants)

Amendment Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
4Q/96	6/18/98	4Q/98	1998

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0.20	0	2.29	0

Rule: This rule establishes emission limits for the transfer of gasoline into stationary storage containers, delivery vessels, and bulk plants and provides the administrative requirements for determining compliance with the rule. SIP approved rules had been adopted for this emission source category by all eight counties in the SJVAB prior to District unification. The District rule, which reflects these rules, was adopted in 1991. In 1998, the rule was amended to tighten to lower VOC limits for some operations.

Inventory: The updated rule mapping associated four additional source categories, with a combined inventory of 2.92 tpd, to this rule.

Adopted regulation and emission reductions: Full compliance to the amended rule was required by the end of 1998. The lowered VOC limits resulted in an additional 0.40 tons per day emission reductions from this source than would have occurred without the amendment. In 1994 SIP currency, the rule reduced emissions from this source by about 2.29 tpd, which 2.09 tpd more than projected. The increase is primarily due to two factors: the updated rulemapping significantly increased the source inventory and there is a significantly higher overall control efficiency caused by changes in rule penetration and compliance factor estimates.

Rule 4625 (Wastewater Separators)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	7/1/93	7/1/93

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
1.87	0	0	0

Rule: This rule limits VOC emissions from wastewater separators by requiring a vapor loss control device. SIP approved rules had been adopted for this emission source category by all eight counties in the SJVAB prior to District unification. The District rule, which is similar but not identical to these rules, was adopted in 1991. No substantive amendments to the rule have been made.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: The District rule achieved no additional reductions beyond those already reflected in the 1990 inventory. Although the OADP projected a significant reduction from this source, the District is unable to locate the support documentation for the projected reduction. It appears, however, that the projection was in error.

Rule 4642 (Solid Waste Disposal Sites)

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
1Q/95	4/95	7/20/95	7/20/97

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
1.41	0	0.73	0

Rule: This rule reduces VOCs from solid waste disposal sites. SIP approved rules had not been adopted for this emission source category by any county in the SJVAB prior to District unification. The District rule was adopted on July 20, 1995 and non-substantively amended in 1998.

Inventory: No 1994 rulemapping was available for this rule. Based on available information, it was estimated that the 1994 projected inventory for 1999 was 3.92 tpd. The updated rulemapping indicates two source categories with a combined inventory of 6.09 tpd.

Adopted regulation and emission reductions: The rule provides for compliance by July 20, 1997. Although the inventory appears to have significantly increased due to the updated rulemapping, the rule, in 1994 SIP currency, reduced emissions from this source by only about 0.73 tpd, which is 0.68 tpd less than projected. The shortfall is primarily due to a major decline in control efficiency caused by reduced estimates for rule penetration and compliance factors.

Rule 4653 (Adhesives)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	3/19/98	1998-2001

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
1.30		1.05	

Rule: This rule reduces VOCs from the application of adhesive products. SIP approved rules had not been adopted for this emission source category by any county in the SJVAB prior to District unification. The District rule was adopted on March 17, 1994 and non-substantively amended in 1995 and 1998.

Inventory: No 1994 rulemapping was available for this rule. Based on available information, it was estimated that the 1994 projected inventory for 1999 was 2.6 tpd. The updated rulemapping indicates two source categories with a combined inventory of 2.29 tpd.

Adopted regulation and emission reductions: The rule provides for a phased control approach, with compliance with the first phase due by March 1998, with additional phases due in January 1999, 2000 and 2001. For the purposes of this report, the 1999 control efficiency is based on the 1999 compliance requirement. In 1994 SIP currency, the rule reduced emissions from this source by about 1.05 tpd, which is 0.25 tpd less than projected. The shortfall is primarily caused by reduced estimates for rule penetration and compliance factors and a minor change in the inventory due to the updated rulemapping.

Rule 4662 (Organic Solvents Degreasing Operations)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	11/1/92	11/1/92

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
1.59	0	1.72	0

Rule: This rule reduces VOC emissions from organic solvent degreasing operations and provides the administrative requirements for recording and measuring emissions. SIP approved rules had been adopted for this emission source category by all counties in the SJVAB, except Kings County, prior to District unification. The District rule, which reflects these rules, was adopted in 1991. No substantive amendments to the rule have been made.

Inventory: The updated rule mapping resulted in some minor shifting of source categories, resulting in a decrease in the inventory of 0.80 tpd.

Adopted regulation and emission reductions: Compliance to the rule was required by November 1992. In 1994 SIP currency, emissions from this source are reduced by about 1.72 tpd, which is 0.13 tpd more than projected. Although the inventory decreased, the updated control efficiency was slightly higher, resulting in a net increase.

Rule 4672 (Petroleum Solvent Dry Cleaning)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	11/1/92	11/1/92

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0.12	0	0.11	0

Rule: This rule reduces VOC emissions from petroleum solvent dry cleaning operations. Record keeping requirements and test methods are specified. No SIP approved rules had been adopted by any county in the SJVAB prior to unification. Fresno County, however, had adopted a non-SIP-approved rule. The District rule, which reflects the Fresno County rule, was adopted in 1991. No substantive amendments to the rule have been made.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: Compliance to the rule was required by November 1992. In 1994 SIP currency, the rule reduced emissions from this source by about 0.11 tpd, which 0.01 tpd less than projected.

Rule 4681 (Rubber Tire Manufacturing)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	5/16/91	5/16/91

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0.03	0	0	0

Rule: This rule limits VOC emissions from rubber tire and recapping treadstock manufacturing facilities by requiring control devices and good housekeeping procedures on undertread cementing, green tire coating, bead cementing and tread-end cementing operations. No county in the SJVAB had adopted such a SIP-approved rule prior to District unification. Kings County, however, had adopted a non-SIP-approved rule. The District's rule was adopted in 1991 and nonsubstantively amended in 1992 and 1993.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: Compliance to the rule was required by November 1992. The District rule achieved no additional reductions beyond those already reflected in the 1990 inventory.

Rule 4682 (Polystyrene Foam Manufacturing Options)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	6/16/96	6/16/96

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
1.81	0	0	0

Rule: This rule limits VOC emissions associated with the manufacturing of polystyrene foam, polyethylene and polypropylene. Kern County had adopted a SIP approved for this emission source category prior to District unification. The District rule, which reflects the Kern County rule, was adopted in May 1992 and amended in December 1992 and June 1994. The amendments were non-substantive in nature.

Inventory: The updated rule mapping associated 3 additional source categories, with a combined inventory of 1.15 tpd, to this rule.

Adopted regulation and emission reductions: Compliance to the rule was required by June 1996. However, ARB records indicate that all sources were controlled in 1990 and the emissions reflected in the 1990 base year inventory.

Rule 4691 (Vegetable Oil Processing)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	11/1/92	11/1/92

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0.75	0	1.00	0

Rule: This rule limits VOC emissions from vegetable oil processing operations and provides administrative requirements for recording and measuring emissions. No county in the SJVAB had adopted such a rule prior to District unification. The District rule was adopted in May 1991. No substantive amendments to the rule have been made.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: Compliance to the rule was required by November 1992. In 1994 SIP currency, the rule reduced emissions from this source by about 1.00 tpd, which 0.25 tpd more than projected. The higher emission reductions are due to a higher control efficiency than originally projected.

II. OXIDES OF NITROGEN (NO_x) RULES

The Post-1996 ROP approached NO_x substitution by looking at the change in the NO_x inventory in aggregate between 1990 and 1999. In summary, the calculation indicated that the NO_x inventory would be reduced from 667.4 tpd to 470.4 tpd, or by 197 tpd. With one exception, the District's control measures that would contribute to this reduction were not identified. The first exception relates to Westside NO_x measures. The Post 96 ROP specifically excluded the emission reductions due to the implementation of Rules 4701 and 4305 in the area west of Interstate 5 in Fresno, Kings and Kern Counties from being federally enforceable to achieve the nine percent reduction. The total emission reductions for both east- and Westside sources associated with Rule 4701 were identified as 107.64 tpd and with Rule 4305 as 30.61 tpd.

The District's NO_x rules which provided emission reductions between 1990 and 1999 are described in this section of this milestone evaluation.

Rule 4305 (Boilers, Steam Generators, and Process Heaters)

[Control Measure 4306 (Smaller Boilers, Steam Generators, and Process Heaters) was adopted as part of Rule 4305]

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
3Q/95*	12/96	3Q/99	12/16/94 to 5/31/2001

*Amendment to incorporate Control Measure 4306

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
East- and Westside Sources			
	30.68		37.63
Eastside Sources Only			
	NA		13.17

Rule: This rule limits NOx emissions from boilers, steam generators, and process heaters. No county in the SJVAB had adopted such a SIP-approved rule prior to District unification. The District rule was adopted in December 1993 and amended in 1995 and 1996.

Inventory: No 1994 rulemapping was available for this rule. Based on available information, it was estimated that the 1994 projected inventory for 1999 was 88.28tpd. The updated rulemapping provides an inventory of 86.32 tpd.

Adopted regulation and emission reductions: The 1995 amendment excluded Westside sources from federal enforceability. The 1996 amendment resulted in a slight increase in emission reductions (0.55 tpd). The rule provides for a multi-phase control approach, with compliance by various units due over several years starting in 1994 and ending in May 2001. The emission reductions provided by the rule represent both reductions that occurred between 1990 and 1996 under the rule that existed during the period, and emission reductions due to the rule tightening that occurred in 1996. The 1994 SIP currency emission reduction is somewhat more than the projection in the 1994 plans. This is due primarily to an increase in the control efficiency caused by changes to the estimated rule penetration and compliance factors. The 96 ROP and the OADP exempt the emissions generated by Westside NOx sources subject to this rule for use in determining if the target level of emissions has been met. The reductions shown are those from only the Eastside NOx sources.

Rule 4354 (Glass Melting Furnaces)

Amendment Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
1Q/96	2Q/98*	4Q/99	4Q/99 to 2005

*Substantive Amendment

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
	2.87		0.66

Rule: This rule limits NOx emissions from glass melting furnaces. No county in the SJVAB had adopted such a SIP-approved rule prior to District unification. The District rule was adopted in September 1994 and amended in 1998. The 1998 amendment was substantive in nature and will eventually result in significant emission reductions.

Inventory: The updated rule mapping did not significantly affect the inventory.

Adopted regulation and emission reductions: The rule provides for a multi-phase control approach, with compliance by various units due over several years beginning in 1995 and ending in approximately 2005. The 0.66 tpd emission reduction reflects the emissions reductions provided by the implementation of the rule adopted in 1995. The emissions expected to be provided by the amended rule, 2.87 tpd, will occur as the various phases become effective between 1999 and 2005

Rule 4701 (Emissions from Stationary IC Engines – Central and Western Kern County)

[Control Measure 4702 (Stationary IC Engines) was adopted as part of Rule 4701]

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
2Q/95*	12/19/96	4Q/97	5/95 to 5/01

*Amendment to incorporate Control Measure 4702

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
East- and Westside Sources			
	106.39		124.52
Eastside Sources Only			
0	NA	0	27.78

Rule: This rule limits VOCs and NOx from internal combustion engines with ratings equal to or greater than 50 BHP. Kern County had adopted the predecessor rule prior to District unification. The District rule was adopted in May 1992 and amended in 1994, 1995, 1996, and 1998. The 1996 amendment was a substantive amendment that incorporated Control Measure 4702.

Inventory: The updated rulemapping resulted in a five percent increase (7.39 tpd) in the inventory for this control measure category.

Adopted regulation and emission reductions: The rule provides for a three-phase control approach, with compliance with the first phase due by December 1995, the second phase by May 1999, and the final phase by May 2001. For the purposes of this report, the 1999 control efficiency is based on the 1999 compliance requirement. The current emission reduction estimate slightly exceeds the projection in the 1994 plans. The 96 ROP and the OADP exempt the emission reductions generated by Westside NOx sources subject to this rule for use in determining if the target level of emissions has been met. The portion of the reduction credited to Eastside sources is, therefore, also shown.

Rule 4703 (Stationary Gas Turbines)

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
8/1/94	8/1/94	8/18/94	1995-2000

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
East and West Side Sources			
	11.92		11.73
Eastside Sources Only			
	NA		8.86

Rule: This rule limits NOx emissions from stationary gas turbine systems. No county in the SJVAB had adopted such a SIP-approved rule prior to District unification. The District rule was adopted in August 1994 and amended in 1995, 1996, and 1997. The amendments were non-substantive in nature.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: The rule provides for a four-phase control approach, with compliance in March 1995, and August 1996, 1998, and August 2000. For the purposes of this report, the 1999 control efficiency is based on the 1998 compliance requirement. The 1994 SIP currency emission reduction is very close to that projected in the 1994 plans. The 96 ROP and the OADP exempt the emissions generated by Westside NOx sources subject to this rule for use in determining if the target level of emissions has been met. . The portion of the reduction credited to Eastside sources is, therefore, also shown.

Rule 4902 (Residential Water Heaters)

Adopted Prior to Preparation of Post-1996 ROP and OADP and No Substantive Amendments	Implementation Date	
	1994 SIP	Actual
	6/17/1993	1993-2003

Emission Reductions in 1999 (Tons per Day in "1994 SIP Currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
	1.36		0.77

Rule: This rule limits NOx emissions from residential water heaters by prohibiting the sale, installation, or offer for sale of any natural gas-fired water heater manufactured after December 17, 1994 that emits more than 40 nanograms of NO₂ per Joule of heat output. No county in the SJVAB had adopted a rule prior to District unification. The District rule was adopted in June 1993 and has not been amended.

Inventory: The updated rule mapping did not result in any changes to the inventory for this control measure category.

Adopted regulation and emission reductions: Compliance to the rule was required by December 1993. Because residential water heaters have a lifespan of 7-15 years, an average lifespan of 10 years (10 percent per year) was used to determine when emission reductions would occur. In 1994 SIP currency, the rule reduced emissions from this source by about 0.77 tpd, which 0.59 tpd less than projected. The rule will achieve the full 1.36 tpd when it reaches full implementation in 2003.

Rule 4412 (Oil Well Drilling Rigs)

This rule was not adopted.

TCMS:

Rule 9001, Commute Based Trip Reduction was adopted by the District but was rescinded in response to state legislation that prohibited such rules.

Although other TCMs have been implemented by the Transportation Planning Agencies in the District, they have not been quantifiable.

APPENDIX B

Preliminary 1994 STATE IMPLEMENTATION PLAN FOR OZONE -PROGRESS REPORT-

[Preliminary]
1994 STATE IMPLEMENTATION PLAN FOR OZONE
-- PROGRESS REPORT --

BACKGROUND

The 1990 Amendments to the federal Clean Air Act (Act) set new deadlines for attainment of the federal one-hour ozone standard based on the severity of an area's pollution problem. The 1990 Act also requires serious and above ozone nonattainment areas to show steady progress toward attainment – a 15 percent reduction in baseline volatile organic compound (VOC) emissions from 1990 to 1996, and a 3 percent reduction each year after that until the area attains the standard. The progress targets for 1999 and later, as well as the strategies to meet those targets, were required to be submitted as revisions to California's State Implementation Plan (SIP) for Ozone in 1994. This section examines the overall progress made by state and federal agencies in implementing SIP measures to reduce ozone precursors of VOC and oxides of nitrogen (NO_x).

The 1994 California State Implementation Plan for Ozone

On November 15, 1994, the Air Resources Board (ARB) adopted the 1994 SIP for Ozone. The SIP identifies new strategies that must be developed, adopted, and implemented to meet the interim milestones and reach attainment for six separate nonattainment areas in California. These areas, and their corresponding attainment dates, are shown in the table below.

Attainment Year	Nonattainment Area
1999	San Diego County and San Joaquin Valley
2005	Sacramento Region and Ventura County
2007	Southeast Desert
2010	South Coast

The SIP integrates components developed at both the local level (air districts and transportation agencies) and state level (ARB, Bureau of Automotive Repair (BAR), and the Department of Pesticide Regulation (DPR)). California's attainment strategy also assigns responsibility for specific emission reductions to the federal government. The attainment strategy builds on California's existing programs for motor vehicles, fuels, and industrial sources and clearly illustrates the need to develop, adopt, and implement many new programs to generate further emission reductions. U.S. EPA approved the SIP, including rate-of-progress demonstrations for all areas except the Southeast Desert, in September 1996.

Rate-of-Progress Requirements

Section 182(c)(2) of the Act requires serious and above nonattainment areas to demonstrate compliance with the rate-of-progress milestones contained in their ozone attainment plans. Rate-of progress milestones are intended to ensure that states monitor and remain accountable for steady, continuous progress toward clean air goals. The SIP must provide for a 15 percent reduction in VOC emissions from 1990 through 1996, and a 3 percent reduction each year after 1996 until the area attains the standard. The state and federal SIP commitments are expressed as reactive organic gases (ROG). The rate-of-progress target for the San Joaquin Valley was established by the attainment demonstration since 1999 was the attainment deadline. Since the modeled carrying capacity was expressed as ROG, there was no need to convert the emission reductions from state and federal measures. The attainment demonstration also established a NOx emission target for 1999.

States were required to submit reports to U.S. EPA demonstrating compliance with the 1996 milestone by February 15, 1997; subsequent progress demonstrations are due every three years. ARB and the districts met the 1996 milestone demonstration by relying on baseline measures that were already adopted prior to 1994. The next milestone compliance demonstration, for emission reductions achieved through November 15, 1999, is due February 15, 2000, when areas must show a 24 percent reduction from 1990 levels of VOC emissions. Because the San Joaquin Valley has not yet attained the federal one-hour ozone standard, the state must provide a demonstration for the San Joaquin Valley. The following demonstration for the San Joaquin Valley includes the eastern portion of Kern County . In addition to measures adopted prior to 1994, this demonstration relies on the adoption and implementation of new local, state and federal measures through 1999.

“1994 SIP Currency”

The Act requires each ozone nonattainment area to submit a base year inventory for 1990. This inventory must be a comprehensive accounting of the typical total anthropogenic ROG and NOx emissions during summer -- the peak ozone season. Emission forecasts are then projected for future years -- factoring in anticipated growth and other relevant socioeconomic changes, and expected controls based on implementation of local, state and federal rules adopted prior to 1994. Rate-of-progress emission reduction targets are based on these inventories.

There have been substantial improvements to the emission inventories for stationary, area, and mobile sources since the adoption of the 1994 SIP. Regulatory proposals often use improved inventories, which may be higher or lower than the corresponding inventory for the same category in the 1994 SIP. However, to allow an “apples to apples” comparison to emission reduction commitments in the 1994 SIP, the emission benefits for state and federal measures are presented in “1994 SIP currency,”

which reflects the benefits of the regulation when applied to the original 1994 SIP inventory for the applicable year.

In March 2000, ARB staff will bring to the Board a proposal to update the on-road emission inventory model (EMFAC2000) for California. The modifications recommended by staff represent the culmination of a significant effort to improve the accuracy of the on-road emission inventory. EMFAC2000 will include emissions that were not assumed in the 1994 SIP, including significant increases in NOx emissions from certain heavy-duty diesel vehicles that were found to be equipped with emission control systems that did not operate properly during normal highway use. Under the terms of a settlement, engine manufacturers will introduce diesel engines meeting 2004 emission standards two years early to help offset these increased emissions.

Based on the draft model, we believe that EMFAC2000 will show a dramatic increase in the statewide ROG and carbon monoxide inventory, and a smaller increase for NOx emissions from on-road motor vehicles. The mobile source control requirements previously adopted will partially mitigate these increases over time. We expect to use EMFAC2000 to develop the next SIP for the San Joaquin Valley in response to the anticipated “bump up” to a severe classification. However, as discussed above, to allow a comparison to the 1994 SIP, for the purposes of this progress report, emission benefits from state and federal measures are shown in “1994 SIP currency.”

Rate-of-Progress Evaluation Methodology

In evaluating our progress, we have taken a systematic, measure-by-measure approach. First, we compared the adoption and implementation dates contained in the SIP against the actual adoption date and the corresponding effective date of the regulations. Second, using “1994 SIP currency,” we compared the emission reductions from these adopted measures with the emission reduction target in the SIP. Next, we evaluated ARB actions that changed an adopted baseline measure and calculated the resultant increase or decrease in emission benefits. We also calculated the emission reduction benefits for new ARB measures not assumed in the SIP. We evaluated other state agency SIP commitments and federal assignments in the same manner. These analyses are summarized in one table that illustrates our progress on implementing the 1994 SIP.

This report is intended to help meet California’s obligations under section 182(g)(1) of the Clean Air Act which requires states to “determine whether each nonattainment area...has achieved a reduction in emissions...equivalent to the total emission reductions required” from 1996 to 1999. The required demonstration is limited to whether each area has obtained a 3 percent reduction in emissions per year averaged over the last three years. For the San Joaquin Valley, this analysis focuses on the ROG and NOx carrying capacity established by the attainment demonstration for 1999. We will use the combination of the local district’s element, and the state and federal report to prepare a summary of

the nonattainment area's milestone obligation and compliance demonstration as part of the final package to be sent to U.S. EPA.

STATE AND FEDERAL MEASURES IN THE 1994 SIP

ARB and U.S. EPA have actively pursued every feasible emission reduction measure over the last five years to meet our SIP commitments. As we have implemented the SIP, some measures have delivered more reductions than anticipated, while other measures have delivered fewer reductions due to technical feasibility or economic factors. In addition, ongoing evaluation has demonstrated that some strategies in the 1994 SIP are infeasible or would be ineffective in reducing emissions. The emission reductions from these commitments will be achieved through alternative measures. This section provides a description of progress through 1999 in implementing SIP commitments, changes to baseline measures, and new measures adopted that were not committed to in the SIP.

The following table summarizes the state and federal commitments in the 1994 SIP. As shown in the table, some measures were not credited in the San Joaquin Valley. In addition, long-term measures anticipating the development of new control techniques or technologies allowed under section 182(e)(5) of the Act could only be credited in extreme nonattainment areas – the South Coast. In the 1994 SIP, these measures include M-2 (Advanced technologies for light-duty vehicles) and M-9/M-10 (Off-road diesel equipment). However, once regulations implementing these commitments are adopted, all areas of California can take credit for the emission reductions contributing to decreased mobile source emissions. ARB has already adopted the Low Emission Vehicle II regulations to implement Measure M-2. This regulation will become effective in 2004. U.S. EPA has already adopted Measure M-10 and in January 2000 the Air Resources Board adopted parallel state regulations to implement Measure M-9. These off-road regulations will begin achieving emission reductions in 2000. The additional benefits of these measures will be reflected in the “bump up” SIP for the San Joaquin Valley.

State and Federal 1994 SIP Measures for the San Joaquin Valley

1994 SIP Measure Description	Adoption Date	Implementation Date	Expected Reductions in 1999?
M-1: Accelerated retirement of light-duty vehicles (ARB)	1996	1996-2010	South Coast only
M-2: Advanced technologies for light-duty vehicles (ARB)	2000	2004-2005	Long-Term South Coast only
M-3: Emission standards for medium-duty vehicles (ARB)	1997	1998-2002	Yes
M-4: Heavy-Duty Diesel Vehicles; early introduction of 2.0 g/bhp-hr NOx engines through incentives (ARB/local)	--	1996-2002	Yes
M-5: Heavy-Duty Diesel Vehicles; California-only 2.0 g/bhp-hr NOx emission standard (ARB)	1997	2002	No
M-6: Heavy-Duty Diesel Vehicles; 2.0 g/bhp-hr NOx national emission standard (U.S. EPA)	1997	2004	No
M-7: Accelerated retirement of heavy-duty vehicles (ARB)	1996	1996-2010	South Coast only
M-8: Heavy-Duty Gasoline Vehicles; lower emission standards in California (ARB)	1997	1998-2002	Yes
M-9: Off-road diesel equipment; 2.5 g/bhp-hr NOx std. – California standard (ARB)	2001	2004	Long-Term South Coast only
M-10: Off-road diesel equipment; 2.5 g/bhp-hr NOx std. - national standard (U.S. EPA)	2001	2004	Long-Term South Coast only
M-11: Industrial Gas & LPG equipment - California (ARB)	1997	2000-2004	No
M-12: Industrial Gas & LPG equipment - national (U.S. EPA)	1997	2000-2004	No
M-13: Marine Vessels national and international emission standards and operational controls (U.S. EPA)	1996	1998-2001	Yes
M-14: Locomotive engines - national standards (U.S. EPA)	1995	2000-2010	No
M-15: Aircraft engines - nationwide standards (U.S. EPA)	1999	2000	Long-Term South Coast only
M-16: Pleasure Craft - nationwide standards (U.S. EPA)	1995	1998	No
CP-2: Aerosol Paints (ARB)	1995	1995	No
CP-3: Consumer Products – Midterm Measures (ARB)	1997	1997	No
Enhanced Inspection and Maintenance (BAR)	1996	1996	Yes
Pesticides (DPR)	--	--	Yes

STATUS OF ARB'S SIP MEASURES

Measure M-3: Lower Emission Standards for Medium-Duty Vehicles

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
1997	Sept 1995	1998-2002	1998-2002

Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0.39	0	0.26

SIP commitment: Measure M-3 was designed to reduce NOx emissions from medium-duty vehicles through the accelerated implementation of more stringent exhaust emission standards.

Adopted regulation and emission reductions: ARB adopted the emission standards described in Measure M-3 ahead of schedule in September 1995, with the same implementation timeframe anticipated in the 1994 SIP. Because of a calculation error in the SIP, this regulation resulted in a shortfall of 0.13 tons per day of NOx in "1994 SIP currency." We are covering this shortfall with other ARB measures. The LEV II program adopted by ARB in 1998 will also provide additional NOx reductions from medium-duty vehicles beginning in 2004.

Measure M-4: Early Introduction of Cleaner Heavy-Duty Diesel Vehicles

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
---	---	1996 – 2002	1996 - 2002

Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0.74	0	0 – 0.74

SIP commitment: Measure M-4 is a joint state/local commitment that calls for locally implemented incentive programs to encourage the early introduction of cleaner heavy-duty diesel trucks and buses beginning in 1996.

Adopted regulation and emission reductions: Because this measure relied on incentives, the 1994 SIP did not anticipate adoption of regulations to implement this commitment. Instead, ARB has approved guidance for incentive

programs. ARB and the local districts are currently implementing M-4 through the Carl Moyer program. In the 1998-1999 fiscal year, the Carl Moyer program provided \$25 million statewide in incentives to reduce emissions from heavy-duty diesel engines. The 1999-2000 fiscal year budget provides \$19 million for Moyer projects statewide, supplemented by an additional \$4 million for infrastructure and advanced technology projects to be allocated by the California Energy Commission. ARB is working to secure continuing funding for the Moyer program. More than \$1 million in Moyer project funds have been obligated in the San Joaquin Valley area. Although many of the projects have not been completed, we expect these projects to begin achieving emission reductions in the next year. We are still working with the districts to quantify the benefits of these programs and determine the emission benefits.

Measure M-8: Emission Standards for Heavy-Duty Gasoline Vehicles

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
1997	Sept 1995	1998	2004

Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0.04	0	0

SIP commitment: Measure M-8 was designed to reduce NOx emissions from heavy-duty gasoline vehicles through more stringent exhaust emission standards.

Adopted regulation and emission reductions: Measure M-8 for heavy-duty gasoline trucks was adopted in 1995, and achieved the performance standard in the SIP. However, the implementation date was moved from 1998 to 2004 to harmonize with national requirements. The delay in implementation results in a shortfall of 0.04 tons per day of NOx in 1999. We are covering the shortfall with other ARB measures.

Baseline Measure: Small Off-Road Engines

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
Baseline	----	1994-2004	1994-2008

Change in Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0	(0.97)	(0.12)

SIP commitment: The small off-road engine (SORE) regulations reduce ROG and NOx emissions from the engines used in lawn and garden equipment. When we developed the 1994 SIP, the SORE regulations had already been adopted and were considered a baseline measure.

Adopted regulation and emission reductions: In 1998, the Board re-examined the SORE regulations to consider the technological feasibility of the Tier II standards, scheduled to take effect in 1999. The current inventory for this category is roughly triple the inventory assumed in the 1994 SIP due primarily to studies that showed emissions deterioration from these engines is significant. In the 1994 SIP, we assumed no deterioration from small off-road engines. The Board modified the regulations to delay the implementation of the Tier II standards for one year and focus on reducing deterioration emissions. (Because deterioration emissions were not included in the 1994 SIP inventory, we receive no credit in 1994 SIP currency for these reductions.) These changes result in fewer emission reductions in 1999 using "1994 SIP currency." We are covering this shortfall with other ARB measures.

Baseline Measure: Phase 2 Cleaner Burning Gasoline (CaRFG2)

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
Baseline	----	1996	1996

Change in Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0	4.03 - 6.77	0

SIP commitment: Phase 2 of California's reformulated gasoline regulations was considered a baseline measure in the 1994 SIP. Emission reductions for CaRFG2 were calculated assuming in-use gasoline met the requirements of the regulation.

Adopted regulation and emission reductions: Recent studies by ARB staff indicate that in-use gasoline in 1998 and 1999 is much cleaner than assumed in the 1994 SIP – refiners are supplying gasoline cleaner than required. They are certifying cleaner gasoline blends than required and are producing cleaner fuels than certified. These cleaner blends provided an extra 4.03 - 6.77 tons per day of ROG emission reductions in the San Joaquin Valley in 1999. Legislation signed in 1999 (SB 989, Sher) requires refiners to maintain or improve upon the air quality benefits of in-use CaRFG2 as of January 1, 1999 as oxygenates are removed. Because the legislation effectively “locks-in” the benefits of 1998 in-use fuel, it is appropriate to take credit for these reductions in this retrospective look at progress. Due to technical and policy issues still being resolved, a range of benefits is provided for CaRFG2 that is dependent on the Reid vapor pressure (RVP) used in the predictive model.

Baseline Measure: Heavy-Duty Diesel Engine Particulate Matter Standard

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
Baseline	----	1996	1996

Change in Emission Reductions in 1999 (Tons per day in “1994 SIP currency”)			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0	0.76	0

SIP commitment: The 1.0 g/bhp-hr particulate matter standard for heavy-duty diesel engines that was implemented beginning in 1994 was considered a baseline measure in the 1994 SIP.

Adopted regulation and emission reductions: In the SIP, the baseline ROG emission inventory for heavy-duty diesel vehicles was adjusted to reflect ROG certification levels below the emission standard for 1994 and later model years based on early 1990’s engine certification emission rates. ARB staff later conducted another investigation of certification levels for 1994 through 1996 model year engines. The average certification level was found to be 40 percent lower than that assumed in the 1994 SIP. This lower certification level is due to the type of equipment engine manufacturers used to meet the 1.0 g/bhp-hr particulate matter standard -- which provided concurrent reductions in ROG emissions. We estimate that the benefits in 1999 are 0.76 tons per day of ROG reductions.

Baseline Measure: Consumer Products

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
Baseline	----	----	----

Change in Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0	(0.12)	0

SIP commitment: Existing regulations to reduce emissions from consumer products, including antiperspirants and deodorants, and aerosol adhesives, were considered baseline measures in the 1994 SIP.

Adopted regulation and emission reductions: ARB delayed the 25 percent VOC standard for aerosol adhesives from January 1, 1999 to January 1, 2002 due to difficulty in formulating products to meet this technology-forcing standard. The final limits for aerosol antiperspirants were scheduled to take effect on January 1, 1999. Due to industry difficulties in formulating complying products, we extended the effective date to January 1, 2001. We are still evaluating whether these limits will be technically feasible, and expect to address this issue in the next SIP revision. The implementation delays for these two baseline consumer product regulations result in a 0.12 tons per day shortfall in ROG emissions. We are covering this shortfall with other ARB measures.

Measure CP-3: Aerosol Paints

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
1995	1995	1996	1996

New Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0	0.3	0

SIP commitment: ARB did not take credit for emission reductions from new aerosol paint regulations in the San Joaquin Valley in 1999.

Adopted regulation and emission reductions: The first tier emission standards of the aerosol coatings regulation were implemented in 1996. The second tier standards were revised in 1998 and will now take effect in 2002. This

regulation provides an additional 0.3 tons per day of ROG benefits in 1999 that were not assumed in the 1994 SIP.

New Measure: Combustion Chamber Deposit Control

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
None	June 1998	None	June 1998

New Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0	0	5.1 - 7.2

SIP commitment: There is no SIP commitment for the control of combustion chamber deposits.

Adopted regulation and emission reductions: When oil refiners began producing Phase 2 cleaner-burning gasoline in 1996, they included deposit control additives to reduce combustion chamber deposits. These additives were not required by state regulation, but resulted in a decrease in NOx emissions from light and medium-duty vehicles. In June 1998, the Board adopted regulations to require deposit-control additives in cleaner-burning gasoline, and "lock-in" the benefits of reduced combustion chamber deposits. In "1994 SIP currency," this regulation provides an additional 5.1 - 7.2 tons per day of NOx emission reductions. This range of emission reductions is a conservative estimate of NOx reductions as measured in several studies. These studies have shown a decrease of five to seven percent in NOx emissions from on-road gasoline-fueled vehicles. Several studies are currently underway to more accurately quantify the emission reduction benefits from deposit control additives.

Baseline Measure: Vapor Recovery

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
Baseline	--	--	--

Change in Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0	TBD	0

The storage and transfer of gasoline for vehicle refueling is one of the most significant sources of hydrocarbon emissions in California. Vapor recovery systems are used to capture gasoline vapors both during the refueling of underground tanks by tanker trucks and refueling of vehicles at gasoline pumps. When working properly, the emission reduction benefits of these systems are significant. Unfortunately, in many cases, systems in the field do not control emissions to the certified level. As a result, significant emission reductions are being forgone. The performance and reliability of these systems needs to be improved to ensure that we achieve the expected reductions.

Local districts and ARB share concurrent authority and responsibility to regulate gasoline marketing operations. ARB and the California Air Pollution Control Officers Association are working together to find both near-term and long-term solutions to improve this program. An attorneys working group is exploring mechanisms for implementing vapor recovery improvements. ARB and the districts conducted joint inspections in 1999 to better define problem areas. In response, we are proposing these changes to the vapor recovery program: ensure onboard refueling vapor recovery compatibility with certain vapor recovery systems; apply real-time monitoring techniques, similar in concept to on-board diagnostics for vehicles, to allow immediate identification of equipment problems; and other program improvements. Improved enforcement efforts at the district level are also part of near-term solution, including a more aggressive enforcement and settlement program.

We are still developing an updated estimate of excess emissions from vapor recovery systems and intend to include those numbers in the final milestone compliance demonstration package to U.S. EPA. At ARB's March 2000 ARB Board meeting, we will propose new regulations as part of our enhanced vapor recovery program to improve emission controls at gasoline service stations. We are proposing to make vapor recovery systems compatible with newer vehicles and to require new computerized equipment that will self-diagnose and alert operators when repairs are needed. In addition to these changes, we are also working to improve our equipment certification procedures and encourage districts to improve their enforcement of vapor recovery regulations. We believe that if the Board approves the proposed improvements to the vapor recovery program in March, and joint district/ARB efforts to improve certification procedures and enforcement are successful, the vapor recovery program will be back on track.

STATUS OF OTHER STATE AGENCIES SIP MEASURES

BAR Measure: Enhanced Inspection and Maintenance Program

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
1996	1995	1996	1996

New Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
4.30	4.95	TBD	TBD

Since the adoption of the 1994 SIP, there have been a number of legislative and operational changes to the Enhanced Inspection and Maintenance (I/M) program which impact its effectiveness. Legislation signed by Governor Wilson in 1997 exempts new vehicles from smog check for the first four years, establishes and provides funding for a low-income repair assistance program, phases-in new cut-points over time, and exempts vehicles 30 years and older. The net effect of these changes has been to reduce the program effectiveness and the associated air quality benefits. In response, staff is evaluating the benefits of the program and how California can make up the resulting SIP shortfall through program improvements and other measures.

The results of the on-going BAR/ARB work to quantify the effectiveness of the Enhanced I/M program will be presented in a Spring 2000 report to the U.S. EPA. This report will include an analysis of whether the program meets federal performance standards and achieves the emission reductions identified in the 1994 SIP. The analysis will rely on emissions data from an extensive, random sample of in-use vehicles through roadside testing. We will not know the extent of the shortfall from Enhanced I/M until these analyses are complete. The report will evaluate the impact of potential program improvements and other actions to achieve additional reductions and maintain the integrity of the SIP.

DPR Measure: Pesticide Reduction Strategy

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual

Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status (1997 data)	
VOC	NOx	VOC	NOx
12.99	0	11.58	0

SIP commitment: The 1994 SIP contains a pesticide emission reduction commitment for the Department of Pesticide Regulation (DPR) -- a 20 percent reduction from 1990 levels by 2005 with interim milestones of 12 percent reduction in 1999 and 16 percent reduction in 2002. The reductions were expected to come through voluntary reduction strategies. However, DPR committed to adopt any regulations necessary to achieve the emission reductions by 1997. In 1994, DPR did not have a good reporting system in place to keep track of pesticide usage. As part of their SIP commitment, they agreed to develop a tracking system and update the 1990 pesticide baseline inventory. In the 1994 SIP, for the San Joaquin Valley (including the eastern portion of Kern County) the baseline pesticide inventory for 1990 was 63.9 tons per day. The 12.99 tons per day commitment represented the emission reductions necessary to offset growth and achieve a 12 percent reduction from the 1990 levels.

Adopted regulation and emission reductions: In 1997, DPR evaluated emission trends for pesticides through 1995, the most recent data available at that time, to determine if regulations were necessary. From 1990 through 1995, emissions from pesticides showed a strong downward trend, with all areas of the State showing more than 20 percent reduction by 1995. However, more recent data from 1996 and 1997 indicate an upward trend in pesticide VOC emissions. For the San Joaquin Valley, including the eastern portion of Kern County, DPR has recalculated the 1990 baseline inventory for pesticides and determined that actual 1990 levels were about ten percent lower than the 1990 levels assumed in the 1994 SIP. Based on the most recent data, pesticide emissions in 1997 are about 10 percent lower than the recalculated 1990 levels, short of the 12 percent SIP commitment for 1999. [We may update this calculation prior to submittal of the milestone report if 1998 data become available] In "1994 SIP currency", this translates to a 1.41 ton per day shortfall in VOC emissions. DPR plans to hold workshops in the summer and fall of 2000 to explore possible mitigation measures. We will also re-evaluate the pesticide commitment in the comprehensive revision to our statewide control strategy in 2001.

STATUS OF FEDERAL ASSIGNMENTS

In addition to aggressive state and local measures, the 1994 SIP included seven federal assignments. Although U.S. EPA did not believe that states have the authority to make federal assignments, they agreed that the federal government had the responsibility to reduce emissions from sources beyond the regulatory authority of the state. In conjunction with the ARB and interested stakeholders, U.S. EPA established a public consultative process to identify mobile source strategies to provide the necessary reductions from federal sources needed for attainment. Only one federal assignment was expected to provide emission reductions in nonattainment areas by 1999, Measure M-13.

Measure M-13: Marine Vessel Emission Standards and Operational Controls

Adoption Date		Implementation Date	
1994 SIP	Actual	1994 SIP	Actual
1996	TBD	1998	TBD

Emission Reductions in 1999 (Tons per day in "1994 SIP currency")			
1994 SIP		Current Status	
ROG	NOx	ROG	NOx
0	0.02	0	0

SIP commitment: This measure is structured in three parts. First, we envisioned emission standards for new diesel engines used in ocean-going vessels. Second, commercial ship traffic control measures, such as moving shipping lanes and other operational controls, could further reduce ocean-going ship emissions. And third, U.S.EPA would establish emission standards for engines used in captive fleets, such as tugboats. The San Joaquin Valley only took credit for emission reductions from the captive fleet regulation portion of this commitment.

Adopted regulation and emission reductions: In December 1998, U.S. EPA proposed emission standards for the captive fleet of diesel marine engines taking effect in 2004. Due to the delay in finalizing these regulations, there is a shortfall of 0.02 TPD of NOx from this sector in 1999.

SUMMARY FOR SAN JOAQUIN VALLEY*

ARB MEASURES	1994 SIP commitment		Projected emission reductions in "1994 SIP currency"	
	ROG	NOx	ROG	NOx
M3: Medium-duty vehicles	0.00	0.39	0.00	0.27
M4: Heavy-duty vehicle incentives	0.00	0.74	0.00	0.00
M8: Heavy-duty gas vehicles	0.00	0.04	0.00	0.00
Baseline: Small off-road engines	0.00	0.00	(1.65)	(0.05)
Baseline: CaRFG2 (additional benefits)	0.00	0.00	4.90	0.00
Baseline: Heavy-duty diesel engines (ROG benefit from PM standard)	0.00	0.00	1.70	0.00
Baseline: Consumer products	0.00	0.00	0.16	0.00
Baseline: Vapor recovery	0.00	0.00	(1.30)	0.00
New: Combustion chamber deposits	0.00	0.00	0.00	5.61
ARB Totals	0.00	1.17	3.81	5.83
BAR Measures				
Enhanced I/M	4.30	4.95	3.34	0.91
BAR Totals	4.30	4.95	3.34	0.91
DPR MEASURES				
Pesticides Strategy	12.99	0.00	12.99	0.00
DPR Totals	12.99	0.00	12.99	0.00
Federal Measures				
M13: Marine vessel engines	0.00	0.02	0.00	0.00
Federal Totals	0.00	0.02	0.00	0.00
Combined State and Federal Measures				
Combined Totals	17.29	6.14	20.14	6.73

* This summary reflects data provided to the San Joaquin Valley by ARB following the preparation of the preliminary report. In some cases the preliminary report expresses emission reductions in ranges, with the text explaining that final reductions would be dependent upon the completion of the evaluation of the Enhanced Inspection and Maintenance Program. The Enhanced I/M program has been finalized and the appropriate adjustments have been made to this table. The text of this preliminary progress report, however, has not yet been modified to reflect this data. A few additional adjustments to data have also been made by ARB that are not reflected in the text of this preliminary report.

