
Sacramento Area Regional Ozone Attainment Plan

November 15, 1994

Adopted by:
El Dorado County Air Pollution Control District
Feather River Air Quality Management District
Placer County Air Pollution Control District
Sacramento Metropolitan Air Quality Management District
Yolo-Solano Air Quality Management District

**El Dorado County Air Pollution Control District
Ron Duncan, Air Pollution Control Officer
2850 Fairlane Court, Bldg. C
Placerville, CA 95667
(916) 621-5300**

**Feather River Air Quality Management District
Ken Corbin, Air Pollution Control Officer
463 Palora Avenue
Yuba City, CA 95991
(916) 634-7659**

**Placer County Air Pollution Control District
Todd Nishikawa, Acting Air Pollution Control Officer
11464 B Avenue
Auburn, CA 95603
(916) 889-7130**

**Sacramento Metropolitan Air Quality Management District
Norm Covell, Air Pollution Control Officer
8411 Jackson Road
Sacramento, CA 95826
(916) 386-6650**

**Yolo-Solano Air Quality Management District
Ken Selover, Air Pollution Control Officer
1947 Galileo Court, Suite 103
Davis, CA 95616
(916) 757-3650**

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WHY IS A FEDERAL OZONE ATTAINMENT PLAN NEEDED?

The Sacramento Area has the fifth worst ozone air quality in the nation. While air quality has improved in recent years, exceedances of the health-based ozone air quality standard continue to occur. Emissions of air pollutants which form ozone must be reduced substantially in order to attain the federal air quality standard.

The federal Clean Air Act Amendments of 1990 set new deadlines for attaining the ozone standard. The Act also set specific planning requirements to ensure that the attainment goal is met. Foremost among these requirements is adoption and implementation of an ozone attainment plan. This proposed regional plan was developed to meet that requirement for the Sacramento Metropolitan Area. By law, the plan must be submitted to the U. S. Environmental Protection Agency (U.S. EPA) by November 15, 1994.

The ozone attainment plan must be submitted to U.S. EPA as part of California's State Implementation Plan (SIP). The California SIP includes plans for each of the state's nonattainment areas, along with rules and regulations and other control measures adopted by air districts and the Air Resources Board (ARB). The SIP consists of hundreds of individual elements (rules, regulations, and air quality plans for ozone, carbon monoxide and particulate matter, etc.).

Since 1990, numerous SIP submittals required by the 1990 Amendments have been made—including required rules for reasonably available control technology. In November 1993, the Sacramento region completed the first of the rate-of-progress plans which show how emissions will be reduced by 15% between 1990 and 1996. This plan updates that submittal. The attainment plan due in November 1994 must include the post-1996 rate-of-progress demonstrations—reductions of another 3% per year through the attainment date—and must identify a comprehensive regional strategy to reduce emissions to the level required for attainment.

HOW WAS THE SACRAMENTO REGIONAL ATTAINMENT PLAN DEVELOPED?

The plan was developed on a regional basis with the participation of the five air districts in the region, the Air Resources Board, and the Sacramento Area Council of Governments. U.S. EPA defines the Sacramento ozone nonattainment area to include Sacramento County, Yolo County, Solano County (a portion), Placer and El Dorado Counties (except mountain portions), and part of Sutter County adjacent to Sacramento County.

Several workshops on elements of this plan have been held by the Sacramento Metropolitan Air Quality Management District. A public workshop on this comprehensive regional plan was held to solicit input from the public, affected

industry, environmental groups, and governing board members. Public hearings were held in each air district in the region between November 3 and December 20, 1994.

HOW DOES THIS PLAN DIFFER FROM THE PROPOSED FIP?

The Sacramento regional attainment plan has been developed to meet the Act's SIP requirements. Like other states, California must submit an ozone attainment plan according to the Act's new deadlines. The proposed Federal Implementation Plan (FIP), which U.S. EPA is required to complete by February 1995, is not a result of any failure of the state or region to comply with the 1990 requirements—it is the result of a court order based on previous Clean Air Act requirements.

The proposed FIP developed by U.S. EPA does not represent an acceptable strategy for attaining the ozone standard in the Sacramento area. Many of the measures are technically infeasible and unworkable. However, once the U.S. EPA determines that the state's attainment plan meets SIP requirements, the FIP will no longer be needed, and U.S. EPA has indicated that it will rescind the FIP. For that reason, it is particularly critical in this region that SIP requirements be fully met on a timely basis. This SIP is intended to meet that goal and provide a mechanism for replacing the FIP.

WHAT DOES THE REGIONAL ATTAINMENT PLAN CONTAIN?

The plan consists of adopted measures, commitments to adopt new measures (including adoption and implementation schedules), emission inventories, air quality modeling results, contingency measures, and a demonstration of emission reductions sufficient for attainment and rate-of-progress milestones. The proposed new measures in the plan build upon the existing state and local air quality programs.

The technical documentation for the plan is contained in Appendices A - I. The control measures, both adopted and proposed, are described below.

WHAT ADOPTED STATEWIDE MEASURES ARE IN THE PLAN?

The plan includes all of the statewide measures adopted to date by the ARB or enacted by the State Legislature. The state measures adopted or enacted since 1990 are described below. The adoption dates of the ARB measures are listed in Table 1.

Table 1

ADOPTED MEASURES: ARB

MEASURE	YEAR ADOPTED
Consumer Products (antiperspirants & deodorants)	1989
Consumer Products-Phase I (16 product categories)	1990
Consumer Products-Phase II (12 additional products)	1992
Low Emission Vehicle Program (light duty vehicles)	1990
Off-Road Utility Engines (lawn & garden)	1990
Heavy Duty Off-Road Diesel Equipment Engines (> 175 hp)	1992
Off-Road Recreational Vehicles	1994
Urban Bus New Engine Standards	1993
Heavy Duty Diesel Smoke Enforcement Program	1990
Phase I Reformulated Gasoline	1990
Phase II Reformulated Gasoline	1992
Reformulated Diesel	1988

Low Emission Vehicle Program. Adopted by the ARB in 1990, this program will reduce average new vehicle emissions by 50-75% over the next ten years. This program establishes increasingly stringent emission levels, beginning in 1994, for four new classes of light and medium duty vehicles. Starting in 1998, two percent of the vehicles produced for sale in the state must be zero-emission vehicles. This percentage increases to five percent in 2001, and to ten percent in 2003.

Reformulated Fuels. ARB regulations require that cleaner formulations of gasoline and diesel fuel be sold throughout California. Phase I Reformulated gasoline became available in 1992, and Phase II will begin in 1996. And ARB also enacted a new standard for diesel fuel, which took effect in 1993.

Heavy Duty Equipment Standards. In 1992, ARB approved regulations for heavy duty off-road equipment with diesel engines of 175 horsepower or more. This includes earth moving machinery, off-highway trucks, and other equipment. (ARB is pre-empted from regulating engines less than 175 horsepower by federal law).

Light Utility Engines. In 1990, ARB adopted regulations to reduce emissions from utility equipment engines of less than 25 horsepower. This includes lawn and garden equipment such as mowers, string trimmers, blowers, chain saws, and edge trimmers. Also included is equipment such as pumps, generators, welding machines, portable refrigeration units, and compressors.

Off-Road Recreational Vehicles. In 1994, the ARB adopted new emission standards for off-road recreational vehicles.

Compliance Programs. ARB has adopted compliance programs, such as New Vehicle In-Use Testing, Smog Check, and heavy duty diesel inspections, to reduce air pollution from cars and trucks caused by equipment failure, poor maintenance, and tampering with emission control devices.

Consumer Products. ARB's first consumer products regulations were adopted in 1989 and 1990--one for antiperspirants and a second covering 16 product categories. In January 1992, the ARB added 10 more product categories. The regulations require reductions in the VOC content of each product category.

Enhanced Inspection and Maintenance. In 1993, the State Legislature enacted the legislation necessary to develop California's enhanced vehicle inspection and maintenance program. The Bureau of Automotive Repair has adopted the necessary implementing regulations except for those related to the pilot projects now underway.

WHAT ADOPTED DISTRICT MEASURES ARE IN THE PLAN?

Since passage of the 1990 Clean Air Act, districts in the Sacramento region have adopted additional stationary and area source measures which will provide emission reductions. Transportation control measures have also been evaluated and adopted in various jurisdictions. All of these measures provide additional benefits beyond the measures in place in 1990. The emission reductions from these measures and all other existing district programs are taken into account in the plan's attainment demonstration.

Table 2 lists the most recently adopted district measures. Most of these measures have been adopted in the past two years. In addition, districts in the region are in various stages of the rule-making process for a number of other rules.

Table 2

ADOPTED MEASURES: DISTRICTS

ROG MEASURE	AFFECTED DISTRICTS
Adhesives	Yolo-Solano
Architectural Coatings	Sacramento, El Dorado
Auto Refinishing	Yolo-Solano, El Dorado, Placer
Bakeries	Sacramento
Fugitive Hydrocarbon Emissions	Yolo-Solano
Graphic Arts	Sacramento, Yolo-Solano, El Dorado, Placer
Metal Parts & Products	Sacramento, Yolo-Solano
Organic Solvent Cleaning & Degreasing	El Dorado
Polyester Resin Operations	Yolo-Solano
Surface Prep & Clean-up	Yolo-Solano
Landfill Gas Control	Yolo-Solano, Placer
NOx MEASURE	AFFECTED DISTRICTS
Biomass Boilers	El Dorado, Placer
Boilers & Steam Generators	Yolo-Solano, El Dorado, Placer
Gas Turbines	Yolo-Solano, Placer
IC Engines	Yolo-Solano, El Dorado
New Source Review	Yolo-Solano, Placer, El Dorado

WHY ARE NEW MEASURES NEEDED?

The attainment plan must show that emissions in the Sacramento region will be reduced sufficiently to meet the federal ozone air quality standard. The plan must identify emissions targets that provide for attainment of the standard, and show how the targets will be reached. Emission targets are defined for both ozone precursor

pollutants--reactive organic gases (ROG) and oxides of nitrogen (NOx). The Clean Air Act requires that a sophisticated computer air quality modeling analysis be used to determine the emissions targets (also called "carrying capacities").

The air quality modeling analysis for the Sacramento region indicates that emissions must be reduced to approximately 137 tons per day (TPD) of ROG and 95 TPD of NOx in order to attain the federal ozone standard. A NOx emission target of 95 TPD was derived from 1999 model runs. To reflect the cleaner air coming into the region in 2005, the attainment target (carrying capacity) was increased by 3 TPD of NOx. This reduces the amount of new emission reductions needed by 3 TPD.

The emission targets represent a 39% ROG reduction and a 40% NOx reduction from the 1990 baseline levels of 222 TPD and 164 TPD, respectively. As shown by the emissions forecast in Table 3, reductions from existing controls are not enough to reach the emission targets. New measures at the federal, state, and local level are necessary in order to reach attainment.

Table 3

EMISSION REDUCTIONS NEEDED FOR ATTAINMENT

	NOx	ROG
Emissions Forecast	124	167
Attainment Target	98*	137
Shortfall (new reductions needed)	26	30

* Reflects the 2005 modeling boundary conditions

Table 4 summarizes the emission reductions from the new measures proposed in this plan. The reductions are categorized by the agency or agencies responsible for adopting and implementing the proposed measures. Table 4 also shows that one TPD of each pollutant is reserved for use by the community bank. This concept is explained in the discussion of the "bump-up" impacts.

Table 4

REDUCTIONS FROM PROPOSED NEW MEASURES

	NOx	ROG
ARB/U.S. EPA Mobile Measures	19	9
Districts/ARB Mobile NOx Measures	5	--
District Stationary/Area Measures	2	17
Consumer Products (ARB)	--	6
Pesticide Rule (DPR)	--	3
TCMs/Land Use	1	1
Community Bank	-1	-1
Total	26	35

HOW IS THE EMISSION TARGET SET?

As required by the Clean Air Act, an urban airshed model was used to determine the maximum emissions levels that show compliance with the federal air quality standard. A model specific to the Sacramento region was used for this plan. The model has been performance tested and meets both U.S. EPA and ARB guidance for urban air shed models used for air quality planning purposes.

The model was run with the future year emission forecasts based on existing controls to see if the standard would be attained. The model did not show attainment, so additional runs were done to determine how many more emission reductions would be needed. These model runs produced the attainment targets (carrying capacities) shown in Table 3. (Ongoing work to refine the precise effects of measures is being conducted, and the calculation of carrying capacity may change slightly as the modeling analysis is upgraded to reflect this information. The final demonstration submitted to U.S. EPA will reflect this improved analysis.)

WHY ARE BOTH NOX AND VOC CONTROLS NEEDED?

The air quality modeling analysis shows that attainment can be reached with different combinations of NOx and ROG control. Based on this work, it was concluded that the most feasible strategy must include reductions of each pollutant. A strategy to reduce only NOx, for example, would likely require reductions that are not foreseeable within the next ten years. In addition, a single pollutant strategy is not practical since existing statewide programs achieve reductions from both ozone precursors. The proposed plan is based on a mix of NOx and ROG reductions which the modeling indicates will achieve attainment. The mix chosen reduces NOx by a greater percentage than ROG, since NOx reductions were more effective on a tonnage basis.

WHAT IS THE EARLIEST FEASIBLE ATTAINMENT DATE FOR THE REGION?

Based on monitored ozone levels between 1988 and 1991, the Sacramento region is classified by the Clean Air Act as a serious nonattainment area and attainment is targeted by 1999 in the Act. However, the Act allows a serious area more time to attain--until 2005-- if it "bumps up" to a severe classification. Since the bump-up option would require the region to comply with several additional Clean Air Act requirements and because it would delay the advent of air that meets the federal standard, every possible strategy for reaching attainment by 1999 was explored.

In spite of this effort, no set of feasible controls could be identified to provide the needed reductions by 1999. On the mobile source side, a new round of emission controls beyond existing programs is needed. The ARB is proposing new measures as described below and the plan also anticipates new federal controls, such as a more stringent national truck standard. However, the benefits of these new programs will not be realized in the 1999 timeframe, which means a local program of extreme restrictions on industries, and a massive effort to accelerate the rate of vehicle turnover, would be needed. The assessment showed that even these efforts would not fill the entire emission reduction gap of about 40 TPD of NOx. It was concluded such a reduction is not possible by 1999--that level of reduction exceeds the entire NOx inventory for trucks in that year.

By 2005, however, the ability to provide the needed emission reductions improves significantly. State and federal measures will deliver between 25-30 TPD in new NOx reductions. This leaves a shortfall which can be met through a joint District/ARB mobile source strategy for the Sacramento region. Statewide measures will also provide additional ROG reductions of about 20 TPD for the region. Given the magnitude of the reductions needed for attainment and the timetables for new measures, 2005 is the earliest possible attainment date for the Sacramento region, and is the date proposed in this plan.

HOW ARE THE IMPACTS OF "BUMP-UP" ADDRESSED IN THE PLAN?

As was noted earlier, the region faces several additional requirements if it must bump-up its attainment date. The plan provides a mechanism to alleviate the impacts of the increased offset ratio that would result from the bump-up. The offset requirement for new and modified sources would be increased from the current 1.2 to 1 ratio, to 1.3 to 1. However, the districts in the region can cover the incremental increase through the creation of "community banks" which would contain reductions over and above what is needed for attainment. Thus, new sources seeking to locate in the region would not be penalized. Analysis of the region's offset needs for this purpose indicates that about 1 TPD for each ozone precursor would suffice. The extra reductions needed for the community banks are included in the attainment demonstration.

As a severe area, the region would also be required to establish employer-based trip reduction rules modeled after the Federal Employee Commute Option program. Such rules have been under development in the region for sometime, and it is anticipated that these programs will meet the federal requirement. The emphasis in the development of these programs has been to ensure the maximum flexibility possible as long as equivalent emission reductions are achieved.

Finally, about 25 additional sources in the region will be required to modify their existing permits to satisfy the requirements of "Title V" of the Clean Air Act. This will entail some additional effort for these sources and the districts.

WHAT NEW MEASURES ARE PROPOSED?

State and Federal Measures.

The following discussion summarizes the new measures that are proposed in this plan. More details are provided in Appendix D.

The plan includes proposed ARB and district mobile source measures for development and implementation by the 2005. The ARB measures were approved for inclusion in the statewide SIP on November 15, 1994. These measures would reduce emissions from on-road vehicles, off-road engines, and consumer products (see Table 5). A federal component of the SIP dealing with preempted sources and emissions from interstate trucks, boats, aircraft, and locomotives was also approved by the Board for inclusion in the SIP (see Table 6). A public hearing on the ARB measures will be held on November 9 and 10, 1994.

Table 5

STATEWIDE ADVANCED TECHNOLOGY MEASURES

CONTROL MEASURES	Adoption: Date	Implementation: Date	Implementing Agency
On-Road			
Accelerated ULEV Requirement for Medium-Duty Vehicles	1997	1998-2002	ARB
Heavy-Duty Diesel Vehicles; additional Nox reductions in California	1997	2002	ARB
Heavy-Duty Diesel Vehicles; early introduction of 2.0 g/bhp-hr NOx engines in fleets through incentives	-----	1994-2003	ARB
Heavy-Duty Gasoline Vehicles; lower emission standards in California	1997	1998-2002	ARB
Off-Road			
Non-Preempted Off-Road Diesel Equipment 2.5 g/bhp-hr NOx Standard	2001	2005	ARB
Non-Preempted Industrial Equipment, Gas & LPG; three way catalyst technology	1997	2000-2004	ARB

Table 6

NATIONAL ADVANCED TECHNOLOGY MEASURES

CONTROL MEASURES	Adoption Date	Implementation Date	Implementing Agency
On-Road			
Heavy-Duty Diesel Vehicles; National 2.0 g/bhp-hr NOx Standard	1997	2004	U.S. EPA
Off-Road			
Off-road Diesel Equipment 2.5 g/bhp-hr NOx Standard	2001	2005	U.S. EPA
Industrial Equipment, Gas & LPG; three way catalyst technology	1997	2000-2004	U.S. EPA
Pleasure Craft, National Fleet Emission Standards	1995	1998	U.S. EPA
Locomotives - National Emission Standards	1995	2000-2010	U.S. EPA

The ARB and federal measures alone will not be sufficient to meet the emission target for ozone attainment. Additional mobile source emission reduction programs at the local level will be needed in order to fill the gap. The ARB and district measures, in combination, will be needed as part of the programs described below.

Regional Program to Accelerate the Use of Cleaner On- and Off-Road Vehicles.

On-Road Heavy Duty Engines. Programs to reduce NOx emissions from heavy-duty vehicles are proposed in the plan. These measures would require fleet owners, when purchasing new and replacement vehicles, to purchase vehicles certified to low-NOx standards. The purchase requirement will be combined with a program to remove, or retrofit to 5 g/bhp-hr NOx levels, any pre-1991 model year engines that would otherwise be operating in the nonattainment area. A program of subsidies and incentives, supported by fees on motor vehicles, will be implemented to assist businesses to comply and encourage accelerated turnover of the fleet.

Non-Road Heavy Duty Engine. A companion measure to reduce NOx emissions from non-road vehicles by a combination of strategies is also proposed. One provision will affect companies that provide non-road vehicles, through rental and lease agreements, for use in the nonattainment area. These companies will be required to concentrate their new equipment, which meets new U.S. EPA and ARB emission standards, in the nonattainment area. This "enrichment" measure will have the effect of accelerating the introduction of new lower-emitting engines in the nonattainment area. A second measure will aim to accelerate the turnover of non-road vehicles and engines "resident" in the nonattainment area. This will be addressed through subsidies and incentives. A third provision, also driven by subsidies and incentives, will encourage the retrofit of existing vehicles and engines to lower-NOx configurations, as well as the early introduction of lower emitting on-road engines into non-road applications, wherever feasible. The provisions involving subsidies and incentives will be supported by local fees.

These measures require action by the U.S. EPA and the ARB, as well as by districts in the Sacramento nonattainment area. U.S. EPA and ARB would support this program by establishing low-NOx certification standards. The agencies would then require engine and vehicle manufacturers to supply some fraction of total sales, or to offer some number of models, certified to low-NOx standards beginning in 1997. Legislative authority to raise new funds needed for the subsidy and incentive programs would have to be obtained in order for the measure to be fully effective.

Stationary and Area Source Measures.

Consumer Products. On November 9 and 10, 1994, the ARB will hold a hearing on its part of the November 15, 1994 SIP submittal. The proposed SIP submittal includes a program to develop new consumer products regulations, which would reduce emissions another 25% by 2005.

Pesticides. The State Department of Pesticide Regulation is developing a program to reduce pesticide emissions by 30% by the 2005 attainment deadline.

District Measures. The proposed regional stationary and area source measures included in the attainment demonstration are listed below in Tables 7 and 8. The proposed adoption dates for these measures will also enable the region to meet rate-of-progress requirements.

Transportation Control Measures (TCMs) and Land Use Measures

The emission benefits of TCMs and land use measures are often considered long-term rather than short-term, which is the emphasis of this Plan. Benefits of these measures are often realized years after adoption. Thus, it is important that they be pursued in an expeditious manner. This Plan (Table 4) indicates a 1 TPD reduction in

NOx and ROG attributable to new TCMs and land use measures by the year 2005. These reductions originate from measures that have recently been adopted, (i.e. Sacramento Bikeway Master Plan Implementation Program, Sacramento County General Plan land use mitigation and transit oriented development policies), and employer trip reduction regulations which are either in place or required in all five air districts as a result of the 2005 attainment date.

Other TCMs and land use measures are and will continue to be pursued to assist in long-term air quality goals. Market based measures as well as seasonal and episodic measures are being investigated and may where feasible augment the technologically based controls contained in this plan as they are further defined. Transportation and land use controls will necessarily need to continue to play a role in achieving and maintaining air quality standards in the Sacramento area.

Table 7

PROPOSED ROG MEASURES: DISTRICTS

ROG MEASURE	AFFECTED DISTRICTS	ADOPTION DATE
Architectural Coatings	Yolo-Solano, Placer	April 1995
Adhesives	Sacramento, Placer, El Dorado	March 1995
Surface Prep & Clean Up	Sacramento, Placer, El Dorado	February 1995
Auto Refinishing	Sacramento	May 1995
Wood Products Coatings	Sacramento, Placer, El Dorado Yolo-Solano	April 1995
Landfill Gas Control	Sacramento, El Dorado	November 1995
Fugitive Emissions	El Dorado	April 1995
Polyester Resin Operations	Sacramento, El Dorado	December 1998
Semiconductor Manufacturing	Placer	February 1995
SOCMI Distillation & Reactors	Sacramento	September 1995
Underground Storage Tanks	Sacramento, Yolo-Solano	February 1995
Pleasure Craft Coating	Sacramento, El Dorado, Yolo-Solano, Placer	May 1997
Pleasure Craft Refueling	Sacramento, Placer, El Dorado Yolo-Solano	May 1997

Table 8

PROPOSED NOX MEASURES: DISTRICTS

NOX MEASURE	AFFECTED DISTRICTS	ADOPTION DATE
Boilers & Steam Generators	Sacramento	February 1994
Gas Turbines	Sacramento	February 1995
IC Engines	Sacramento, Placer	December 1995
Mobile Measures	All	December 1995
Residential Water Heaters	Sacramento, Placer, El Dorado Yolo-Solano	December 1995

HOW IS THE RATE-OF-PROGRESS REQUIREMENT MET?

The Sacramento region can satisfy the rate-of-progress requirement for 1990 to 1996 by relying on a combination of VOC and NOx reductions. The reductions for both pollutants are from previously adopted measures. However, new measures must be adopted in order to meet the post-1996 rate-of-progress targets. The same measures proposed for the attainment demonstration will be used to meet this requirement. Table 9 shows the reductions used to meet the required 1996, 1999, 2002, and 2005 milestone targets.

This plan revises the rate-of-progress plans previously submitted to meet the November 15, 1993 progress requirement of the Act. Specifically, the rulemaking commitments in the region's 1993 rate-of-progress plans are being updated and incorporated into the 1994 attainment plan. In the case of the Placer District, the transportation control measures in the 1993 rate-of-progress plan are being withdrawn and replaced with equivalent measures that are included as part of the attainment plan.

Table 9

**RATE-OF-PROGRESS MILESTONE TARGETS AND REDUCTIONS
(in TPD)**

	1996	1999	2002	2005
1990 Base Year VOC Inventory	211	211	211	211
Rate-of-Progress Target (VOC)	162	142	124	107
Reductions needed to meet target	49	69	87	104
Reductions from Adopted VOC & NOx Regulations (in VOC-Equivalents)	49	39	44	90
Reductions from Committal VOC & NOx Measures (in VOC-Equivalents)	--	25	39	14

HOW IS THE CONTINGENCY MEASURE REQUIREMENT MET?

The plan proposes an episodic control strategy (with seasonal components) to meet the contingency measure requirement. The primary strategy is to achieve improved compliance with vehicle speed limits. This would reduce NOx emissions since emissions increase with higher speeds. The strategy would involve public education and enhanced speed limit enforcement. The enforcement program would be focused in the urban area in order to maximize the cost-effectiveness of the program.

HOW IS ATTAINMENT DEMONSTRATED?

Attainment of the federal ozone standard in the Sacramento region is being demonstrated through a combination of adopted and proposed measures at the federal, state, and local level. The attainment demonstration relies on each involved agency doing its part. The proposed plan includes only enough emission reductions to meet the attainment target and provide for the community bank needed to address bump-up, as discussed above. If any measures are removed from the plan, they must be replaced with measures of equivalent reductions.

HOW CAN THE PLAN BE REVISED?

California's SIP is revised on an ongoing basis. Some revisions are submitted as new requirements of the federal Clean Air Act come due. However, other SIP revisions are made on an as-needed basis. The proposed ozone plan is just that—a plan. It reflects the best available information at this time; however, emission inventories, modeling analyses, and control strategies will continue to be updated and reevaluated. Revisions to this plan can be made at any time if new information indicates a change is needed.

APPENDIX A: Federal Planning Requirements

Federal Planning Requirements

Federal Clean Air Act

The first comprehensive national air pollution legislation was the federal Clean Air Act of 1970. In 1977, the federal Act was amended to require local plans for meeting national ambient air quality standards. The federal act was substantially amended again in 1990 to include new attainment deadlines and new planning requirements. The 1990 Act includes specific dates by which all areas of the county must meet the federal ozone standard. In order to meet this objective, the Act includes new requirements such as annual emission reduction targets, attainment demonstrations, additional pollution controls on new facilities, reformulated motor vehicle fuels, and new permit and compliance programs.

The 1990 Amendments require the Sacramento region and other areas which do not meet the federal ozone standard, to prepare a plan designed to achieve that standard. The first step in that process was the 1993 Rate-of-Progress Plan which required a 15 percent reduction between the years 1990 and 1996, in one of the pollutants which causes ozone--reactive organic gases (ROG). The next step is the development of a more comprehensive ozone attainment plan, which is due this November. This plan must demonstrate that the federal ozone standard will be achieved in the Sacramento region by 1990. If attainment cannot be demonstrated by 1999, a plan to attain the standard by 2005 must be submitted.

Attainment of Standards

Health-based state and federal ambient air quality standards have been developed for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulate matter less than 10 microns in diameter, and lead. In addition, California has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particulate. These pollutants are called "criteria" pollutants, and in most cases, the state standards are more protective of public health than the federal standards.

Air pollution control districts, along with ARB, are required to monitor air pollutant levels to determine if these standards are being met. If the air is clean enough to meet the standards, the area is designated as "attainment." If the air contains levels of pollution which violate a standard, the area is designated as "nonattainment." The Sacramento Metropolitan area is designated as nonattainment for the federal and state ozone standards, and the state particulate matter standard. In addition, a portion of the region is also nonattainment for the federal particulate matter standard and the carbon monoxide standard.

This plan addresses the federal ozone standard of 12 parts per hundred million (pphm). The Sacramento area continues to show exceedances of that standard with peaks of 15 pphm. The regional air quality model indicates that emissions reduction of about 39 percent ROG and 40 percent NOx are needed to reduce these peaks to the 12 pphm standard.

State Implementation Plan

The State Implementation Plan (or SIP) is the principal mechanism at the state and local level for complying with the federal Act. The SIP is a compendium of all the State's rules, regulations, and air quality plans needed to meet federal air quality standards. The U.S. EPA must approve or disapprove all SIPs. SIPs are amended on an ongoing basis as new rules are adopted, new plans developed, or any changes to overall control strategies are made.

November 15, 1994 SIP Requirements

Specific requirements of the federal Act which are due this November include: 1) a demonstration, based on U.S EPA approved photochemical modeling, that the federal ozone standard can be attained by the required date, with implementation of the proposed control strategy; 2) Post-1996 Rate of Progress, which provides for emissions reductions from 1996 to the attainment year of a least 3 percent per year; and 3) contingency measures which would take affect should a milestone be missed.

Previous Planning Efforts

The first federal clean air act plan (or SIP) for the Sacramento region was developed in 1979 and updated in 1982. The 1982 plan was unable to demonstrate that the ozone standard would be achieved, and was ultimately disapproved by U.S. EPA. Under the 1990 Federal Clean Air Act Amendments, EPA expanded the Sacramento Metropolitan nonattainment area to include all of Placer and El Dorado counties (except the Lake Tahoe Basin), and south Sutter County.

The five districts in the region also developed comprehensive air quality plans to meet the requirements of the California Clean air Act. These plans were adopted by the local governing boards in 1991 and 1992, and conditionally approved by ARB. This proposed plan builds upon the strategies which were identified in previous planning efforts, and includes new measures needed for attainment of the federal ozone standard.

Federal Implementation Plan (FIP)

The 1982 air quality plan for Sacramento did not show how the region would meet the federal ozone standard by 1987, as then mandated by the 1977 Clean Air Act. In

response, the Environmental Council of Sacramento asked that EPA disapprove the 1982 plan, and prepare a Federal Implementation Plan (FIP) to achieve the federal ozone standard. U.S. EPA has been unsuccessful in removing this obligation, even though the 1990 Amendments set new planning and attainment deadlines. Under court order the U.S. EPA must finalize the proposed FIP for the Sacramento region by February 14, 1995. This plan (SIP) is intended to replace the FIP.

Federal Sanctions

Failure to fully meet the requirements of the Federal Clean Air Act can lead to federal intervention in the local air pollution control program. Loss of federal highway funds and very stringent standards for new sources of pollution are mandated by the Act if federal requirements are not met.

APPENDIX B: STATE PLANNING REQUIREMENTS

STATE PLANNING REQUIREMENTS

This plan has been prepared primarily to satisfy the requirements of the federal Clean Air Act. However, the districts in the Sacramento region are also required to submit a triennial update to the 1991 air quality plans required by the California Clean Air Act (CCAA). This update is due to the ARB by December 31, 1994. To avoid duplication, the ARB has proposed that districts use the November 1994 federal ozone attainment plans to meet state requirements, wherever possible. Consequently, this plan is intended to satisfy both federal and state planning requirements.

Triennial Progress Report

Section 40924(b) of the California Health and Safety Code requires the districts to assess their air quality control programs every three years, beginning in 1994. This report is a regional update to the 1991 plans independently submitted by the districts.

This proposed plan represents a substantive reevaluation of the region's ozone control strategy. As a result, the plan proposes additional control measures not envisioned in the 1991 state plans. Rulemaking schedules have been updated and expanded to include new measures. In addition, a number of the rules proposed in the 1991 plans have been adopted.

The 1991 CCAA plans presented emission estimates for future years. Appendix C of this plan provides updated emission forecasts, based on revised growth factors for the region. The ARB has evaluated the ambient monitoring data for the region to determine the air quality trends during the preceding three years. This evaluation, along with an analysis of the required air quality indicators for the region, will be published in an ARB report scheduled for release this Fall.

Triennial Plan Revision

Section 40925(a) requires the districts in the region to revise their CCAA plan (on the same schedule as the triennial reports) to correct for deficiencies in meeting the measures of progress and to incorporate new data into the plan. The information presented in Appendix C: Regional Emission Inventory and Appendix D: Proposed Control Measures of the regional plan satisfy the CCAA requirement for a triennial plan revision in each of the districts. The proposed control measures are the next step toward attainment of the state ozone standard; the reductions from these measures represent substantive progress. The proposed control strategy effectively updates the 1991 CCAA plans for the districts in the Sacramento region.

APPENDIX C: Regional Emission Inventory

REGIONAL EMISSION INVENTORY

Two types of air pollutants contribute to ozone formation in the Sacramento region--reactive organic gases (ROG) and oxides of nitrogen (NOx). The sources of these pollutants include mobile sources, such as cars, trucks, off-road equipment, as well as stationary and area sources, including industrial processes, consumer products, and pesticides.

A summary of the Sacramento area emission inventories for NOx and ROG are shown in Tables C-1 and C-2, respectively. Sacramento County represents about 60% of the area's total emissions--the remaining are distributed among Placer, El Dorado, Yolo, and Solano counties. The portion of south Sutter County in the nonattainment area accounts for only 1% of the region's total emissions.

Tables C-1 and C-2 show the 1990 baseline emissions and the 1999 and 2005 emission forecasts based on the existing control program. The future year ROG forecasts show changes in emission trends over time. In 1990, mobile sources contributed 60 percent of total ROG emissions. In 2005, these sources will account for only 38 percent of ROG emissions. At the same time, without new controls, stationary and area source emissions would increase from 40 percent of the ROG inventory to 60 percent by the year 2005. In contrast, the NOx inventory continues to be dominated by mobile sources for the future years.

The regional emission inventories are based on expected growth rates of population, employment, industrial/commercial activity, and energy use. Motor vehicle emission calculations also include consideration of the fleet mix (vehicle type, model year, and accumulated mileage), vehicle miles traveled, speeds, and vehicle emission factors. Adjustments to the stationary/area source inventories have been made to reflect updated population growth projections for the Sacramento region (about 2% annual growth). Travel data from the Sacramento Area Council of Government's Regional Transportation Model is used in combination with ARB's vehicle emission factors to generate the on-road emission inventory.

Emission inventories continue to be updated and improved on an on-going basis. Following the summary tables, a more detailed emission inventory is provided. This inventory updates the 1990 baseline inventory submitted to USEPA with the 1993 Rate-of-Progress Plans. This updated 1990 baseline inventory was used in both the attainment demonstration and rate-of-progress calculations.

Table C-1

**EMISSIONS OF NO_x (tons per day)*
SACRAMENTO OZONE NONATTAINMENT AREA**

	1990	1999	2005
TOTAL EMISSIONS	164	131	124
STATIONARY:	12	14	15
MOBILE:	151	117	109
<i>On-Road</i>	118	85	80
<i>Non-Road</i>	34	32	29

MOBILE EMISSIONS*ON-ROAD*

Automobiles	48.8	30.0	23.9
Light/med Trucks	23.5	17.8	18.3
Heavy Duty Diesel Trucks	34.5	27.0	29.5
Heavy Duty Gas Trucks	9.8	9.3	9.7
Diesel Urban Bus	.7	.7	.9
Motorcycles	.2	.3	.4

NON-ROAD

Industrial Equipment	6.9	6.2	5.4
Non-Farm Equipment	6.9	5.2	4.5
Farm Equipment	5.5	4.8	4.0
Mobile Equipment	.8	.7	.5
Locomotives	10.1	9.7	9.6
Aircraft	1.7	1.9	2.0
Recreational Vehicles	2.3	3.0	3.2
Lawn and Garden Equipment	.1	.3	0.3

* Emissions for individual categories reflect data in ARB Statewide inventory as of 9/94. Summary data, and heavy duty diesel truck and non-farm equipment categories were updated 10/94. The update used a 2% annual growth rate for heavy duty trucks and a 2% annual population growth rate for other categories. 1999 and 2005 projections were adjusted as of 12/94 to fully account for emission reductions from all adopted mobile source measures

Table C-2

ROG EMISSIONS (TONS/DAY)*
SACRAMENTO OZONE NONATTAINMENT AREA

	1990	1999	2005
TOTAL EMISSIONS:	222	176	167
STATIONARY:	88	97	106
MOBILE:	134	79	61
<i>On-Road Mobile</i>	110	56	38
<i>Off-Road Mobile</i>	24	23	23

MOBILE EMISSIONS*ON-ROAD MOBILE*

Automobiles	70.6	36.0	23.4
Lt/Med Duty Trucks	29.0	14.2	9.9
Heavy Duty Gas Trucks	4.6	1.9	1.7
Heavy Duty Diesel Trucks	4.7	2.6	2.3
Motorcycles	.9	.7	.8
Urban Diesel Buses	.1	.1	.1

OFF-ROAD MOBILE

Recreational Boats	12.4	14.0	15.3
Trains	.4	.4	.4
Aircraft	1.3	1.4	1.4
Equipment (const/indust/farm)	3.4	3.0	3.1
Utility Lawn & Garden	5.1	3.0	1.8
Other	1.7	1.5	1.2

STATIONARY

Solvent/Coatings	48.7	56.0	62.3
Petroleum (prod/market)	10.4	9.7	9.8
Industrial Process	3.6	4.4	4.8
Pesticides	9.7	10.6	11.3
Livestock Waste	8.0	8.0	8.0
Ag Burning	2.9	3.3	3.6
Landfills	1.3	1.5	1.6
Bakeries	1.5	1.7	1.7
Other	2.1	3.0	3.5

* Emissions for individual categories reflect data in ARB statewide inventory as of 9/94. Summary data, and heavy duty diesel truck and non-farm equipment categories were updated 10/94. The update used a 2% annual growth rate for heavy duty trucks and a 2% annual population growth rate for other categories. 1999 and 2005 projections were adjusted as of 12/94 to fully account for emission reductions from all adopted mobile source measures

SUMMARY OF EMISSIONS
 IF ABLE TO MEET THE FOLLOWING REQUIREMENTS:
 IF CO EQ 9 OR 31 OR 33 OR 46 OR 57 OR 51 (SOUTHERN)
 OZONE SEASONAL EMISSIONS: (TONS PER DAY)
 NOX POLUTANTS:

REFLECTS DATA IN ARB STATEWIDE INVENTORY AS OF SEPTEMBER 1994

[illegible]

IF CO EQ 9 ON 31 OR 34 OR 57 OR 58 (SOUTHERN)
IF AB EQ 59 ON 46 OR 47 OR 50 (SOUTHERN)
SUMMARY OF EMISSIONS
NOX POLUTANT
OZONE SEASONAL EMISSIONS (TONS PER DAY)

SOURCE	TYPE
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
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86	86
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91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

REFLECTS DATA IN ARB STATEWIDE INVENTORY AS OF SEPTEMBER 1994

[illegible]

STUDY OF EMISSIONS
IF AB 32 OR 34
IF CO EQ 9 OR 51 OR 53 OR 57 OR 51 SOUTHERN)
OZONE SEASONAL EMISSIONS (TOXIS PER DAY)

REFLECTS DATA IN ARB STATEWIDE INVENTORY AS OF SEPTEMBER 1994

[illegible]

SUMMARY OF EMISSIONS

31 06 36 08 48 08 57 08 51 SOUTHERN I

Source	Type
1. <i>Journal of the American Medical Association</i>	Journal
2. <i>British Medical Journal</i>	Journal
3. <i>New England Journal of Medicine</i>	Journal
4. <i>Lancet</i>	Journal
5. <i>Annals of Internal Medicine</i>	Journal
6. <i>Journal of Clinical Investigation</i>	Journal
7. <i>Journal of Biological Chemistry</i>	Journal
8. <i>Journal of Neurology</i>	Journal
9. <i>Journal of Pathology</i>	Journal
10. <i>Journal of the Royal Society of Medicine</i>	Journal
11. <i>Journal of the American Society of Nephrology</i>	Journal
12. <i>Journal of the American Society of Hypertension</i>	Journal
13. <i>Journal of the American Society of Gerontology</i>	Journal
14. <i>Journal of the American Society of Geriatrics</i>	Journal
15. <i>Journal of the American Society of Aging</i>	Journal
16. <i>Journal of the American Society of Geriatric Medicine</i>	Journal
17. <i>Journal of the American Society of Geriatric Psychiatry</i>	Journal
18. <i>Journal of the American Society of Geriatric Neurology</i>	Journal
19. <i>Journal of the American Society of Geriatric Psychology</i>	Journal
20. <i>Journal of the American Society of Geriatric Social Work</i>	Journal
21. <i>Journal of the American Society of Geriatric Law</i>	Journal
22. <i>Journal of the American Society of Geriatric Ethics</i>	Journal
23. <i>Journal of the American Society of Geriatric History</i>	Journal
24. <i>Journal of the American Society of Geriatric Literature</i>	Journal
25. <i>Journal of the American Society of Geriatric Arts</i>	Journal
26. <i>Journal of the American Society of Geriatric Music</i>	Journal
27. <i>Journal of the American Society of Geriatric Dance</i>	Journal
28. <i>Journal of the American Society of Geriatric Theater</i>	Journal
29. <i>Journal of the American Society of Geriatric Film</i>	Journal
30. <i>Journal of the American Society of Geriatric Television</i>	Journal
31. <i>Journal of the American Society of Geriatric Radio</i>	Journal
32. <i>Journal of the American Society of Geriatric Internet</i>	Journal
33. <i>Journal of the American Society of Geriatric Mobile</i>	Journal
34. <i>Journal of the American Society of Geriatric Cloud</i>	Journal
35. <i>Journal of the American Society of Geriatric Big Data</i>	Journal
36. <i>Journal of the American Society of Geriatric Artificial Intelligence</i>	Journal
37. <i>Journal of the American Society of Geriatric Quantum</i>	Journal
38. <i>Journal of the American Society of Geriatric Nanotechnology</i>	Journal
39. <i>Journal of the American Society of Geriatric Space</i>	Journal
40. <i>Journal of the American Society of Geriatric Time</i>	Journal
41. <i>Journal of the American Society of Geriatric Energy</i>	Journal
42. <i>Journal of the American Society of Geriatric Matter</i>	Journal
43. <i>Journal of the American Society of Geriatric Force</i>	Journal
44. <i>Journal of the American Society of Geriatric Information</i>	Journal
45. <i>Journal of the American Society of Geriatric Knowledge</i>	Journal
46. <i>Journal of the American Society of Geriatric Wisdom</i>	Journal
47. <i>Journal of the American Society of Geriatric Experience</i>	Journal
48. <i>Journal of the American Society of Geriatric Understanding</i>	Journal
49. <i>Journal of the American Society of Geriatric Awareness</i>	Journal
50. <i>Journal of the American Society of Geriatric Perception</i>	Journal
51. <i>Journal of the American Society of Geriatric Sensation</i>	Journal
52. <i>Journal of the American Society of Geriatric Emotion</i>	Journal
53. <i>Journal of the American Society of Geriatric Thought</i>	Journal
54. <i>Journal of the American Society of Geriatric Imagination</i>	Journal
55. <i>Journal of the American Society of Geriatric Creativity</i>	Journal
56. <i>Journal of the American Society of Geriatric Innovation</i>	Journal
57. <i>Journal of the American Society of Geriatric Inspiration</i>	Journal
58. <i>Journal of the American Society of Geriatric Motivation</i>	Journal
59. <i>Journal of the American Society of Geriatric Passion</i>	Journal
60. <i>Journal of the American Society of Geriatric Love</i>	Journal
61. <i>Journal of the American Society of Geriatric Compassion</i>	Journal
62. <i>Journal of the American Society of Geriatric Kindness</i>	Journal
63. <i>Journal of the American Society of Geriatric Generosity</i>	Journal
64. <i>Journal of the American Society of Geriatric Gratitude</i>	Journal
65. <i>Journal of the American Society of Geriatric Optimism</i>	Journal
66. <i>Journal of the American Society of Geriatric Positivity</i>	Journal
67. <i>Journal of the American Society of Geriatric Hope</i>	Journal
68. <i>Journal of the American Society of Geriatric Faith</i>	Journal
69. <i>Journal of the American Society of Geriatric Trust</i>	Journal
70. <i>Journal of the American Society of Geriatric Integrity</i>	Journal
71. <i>Journal of the American Society of Geriatric Honesty</i>	Journal
72. <i>Journal of the American Society of Geriatric Humility</i>	Journal
73. <i>Journal of the American Society of Geriatric Modesty</i>	Journal
74. <i>Journal of the American Society of Geriatric Simplicity</i>	Journal
75. <i>Journal of the American Society of Geriatric Spontaneity</i>	Journal
76. <i>Journal of the American Society of Geriatric Authenticity</i>	Journal
77. <i>Journal of the American Society of Geriatric Vulnerability</i>	Journal
78. <i>Journal of the American Society of Geriatric Openness</i>	Journal
79. <i>Journal of the American Society of Geriatric Transparency</i>	Journal
80. <i>Journal of the American Society of Geriatric Accountability</i>	Journal
81. <i>Journal of the American Society of Geriatric Responsibility</i>	Journal
82. <i>Journal of the American Society of Geriatric Commitment</i>	Journal
83. <i>Journal of the American Society of Geriatric Dedication</i>	Journal
84. <i>Journal of the American Society of Geriatric Devotion</i>	Journal
85. <i>Journal of the American Society of Geriatric Loyalty</i>	Journal
86. <i>Journal of the American Society of Geriatric Fidelity</i>	Journal
87. <i>Journal of the American Society of Geriatric Constancy</i>	Journal
88. <i>Journal of the American Society of Geriatric Perseverance</i>	Journal
89. <i>Journal of the American Society of Geriatric Endurance</i>	Journal
90. <i>Journal of the American Society of Geriatric Patience</i>	Journal
91. <i>Journal of the American Society of Geriatric Tolerance</i>	Journal
92. <i>Journal of the American Society of Geriatric Forgiveness</i>	Journal
93. <i>Journal of the American Society of Geriatric Mercy</i>	Journal
94. <i>Journal of the American Society of Geriatric Compassion</i>	Journal
95. <i>Journal of the American Society of Geriatric Kindness</i>	Journal
96. <i>Journal of the American Society of Geriatric Generosity</i>	Journal
97. <i>Journal of the American Society of Geriatric Gratitude</i>	Journal
98. <i>Journal of the American Society of Geriatric Optimism</i>	Journal
99. <i>Journal of the American Society of Geriatric Positivity</i>	Journal
100. <i>Journal of the American Society of Geriatric Hope</i>	Journal
101. <i>Journal of the American Society of Geriatric Faith</i>	Journal
102. <i>Journal of the American Society of Geriatric Trust</i>	Journal
103. <i>Journal of the American Society of Geriatric Integrity</i>	Journal
104. <i>Journal of the American Society of Geriatric Honesty</i>	Journal
105. <i>Journal of the American Society of Geriatric Humility</i>	Journal
106. <i>Journal of the American Society of Geriatric Modesty</i>	Journal
107. <i>Journal of the American Society of Geriatric Simplicity</i>	Journal
108. <i>Journal of the American Society of Geriatric Spontaneity</i>	Journal
109. <i>Journal of the American Society of Geriatric Authenticity</i>	Journal
110. <i>Journal of the American Society of Geriatric Vulnerability</i>	

REFLECTS DATA IN ARB STATEWIDE INVENTORY AS OF SEPTEMBER 1994

[illegible]

SUMMARY OF EMISSIONS
 IF AB EQ 9 OR 31 OR 34 OR 40 OR 57 OR 511 SOUTHERN
 OZONE SEASONAL EMISSIONS (TONS PER DAY)
 REFLECTS DATA IN ARB STATEWIDE INVENTORY AS OF SEPTEMBER 1994

SOURCE	TYPE
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SEC NAME SEC NAME

IN AREA PRIMARY SOURCES

AGRICULTURAL		47233 FUEL COMBUSTION	AGRICULTURAL	ORCHARD HEATERS	
TOTAL	AGRICULTURAL				.000
	OIL AND GAS PRODUCTION				.000
		83071 FUEL COMBUSTION	PETROLEUM PRODUCTS		.000
		83198 FUEL COMBUSTION	LIQUID FUEL		.000
			BILLING MISC		.001
TOTAL	OIL AND GAS PRODUCTION				.001
	OTHER MANUFACTURING/INDUSTRIAL	47142 FUEL COMBUSTION	INDUS. (UNSPECIFIED)	NATURAL GAS	.089
TOTAL	OTHER MANUFACTURING/INDUSTRIAL				.000
	OTHER SERVICES AND COMMERCE	47153 FUEL COMBUSTION	COMMERCIAL		.000
		47177 FUEL COMBUSTION	DISTILLATE OIL		.007
			L.P.G.		.013
TOTAL	OTHER SERVICES AND COMMERCE				.002
					.022
TOTAL	OTHER SERVICES AND COMMERCE				.024

[illegible][illegible][illegible][illegible]

SUMMARY OF EMISSIONS
IF AB 18 SV OR 18
IF CO EQ 9 ON 31 OR 34 OR 57 OR 51 (SOUTHERN)
OZONE SEASONAL EMISSIONS (TONS PER DAY)

SOURCE TYPE

REFLECTS DATA IN ARB STATEWIDE INVENTORY AS OF SEPTEMBER 1994

AREA STATIONARY SOURCES SYNTHETIC SOLVENT USE DEGREASING	SCC	SCC NAME	EMS1990	EMS1999	EMS2005
TOTAL DEGREASING	46021	DEGREASING	1.451	1.422	1.417
	46022	DEGREASING	1.494	1.494	1.494
	46023	DEGREASING	1.001	1.001	1.002
	46054	DEGREASING	3.145	4.153	4.579
ARCHITECTURAL COATING	46753	SOLVENT USE	1.251	1.231	1.214
	46751	SOLVENT USE	0.493	1.592	1.830
TOTAL ARCHITECTURAL COATING	46748	COATING	11.632	14.846	17.159
	46749	COATING	3.910	5.195	6.309
OTHER SURFACE COATING	46750	SOLVENT USE	0.000	0.000	0.000
	46751	SOLVENT USE	0.000	0.000	0.000
	46752	SOLVENT USE	0.000	0.000	0.000
	46753	SOLVENT USE	0.000	0.000	0.000
	46754	SOLVENT USE	0.000	0.000	0.000
	46755	SOLVENT USE	0.000	0.000	0.000
	46756	SOLVENT USE	0.000	0.000	0.000
	46757	SOLVENT USE	0.000	0.000	0.000
	46758	SOLVENT USE	0.000	0.000	0.000
	46759	SOLVENT USE	0.000	0.000	0.000
	46760	SOLVENT USE	0.000	0.000	0.000
	46761	SOLVENT USE	0.000	0.000	0.000
TOTAL OTHER SURFACE COATING	46748	COATING	10.276	14.287	15.799
	46749	COATING	3.910	5.195	6.309
ASPHALT PAVING	46870	SOLVENT USE	1.342	1.751	1.957
	46871	SOLVENT USE	0.000	0.000	0.000
TOTAL ASPHALT PAVING	46870	SOLVENT USE	1.342	1.751	1.957
	46871	SOLVENT USE	0.000	0.000	0.000
PRINTING	66829	SOLVENT USE	1.825	2.367	2.644
	66829	SOLVENT USE	1.825	2.367	2.644
TOTAL PRINTING	66829	SOLVENT USE	1.825	2.367	2.644
	66829	SOLVENT USE	1.825	2.367	2.644
DOMESTIC	83082	SOLVENT USE	6.255	6.162	6.992
	83104	SOLVENT USE	6.255	6.162	6.992
TOTAL DOMESTIC	83082	SOLVENT USE	6.255	6.162	6.992
	83104	SOLVENT USE	6.255	6.162	6.992
INDUSTRIAL SOLVENT USE	46962	SOLVENT USE	14.225	14.022	15.883
	46962	SOLVENT USE	14.225	14.022	15.883
TOTAL INDUSTRIAL SOLVENT USE	46962	SOLVENT USE	14.225	14.022	15.883
	46962	SOLVENT USE	14.225	14.022	15.883
OTHER	66720	SOLVENT USE	0.002	0.002	0.003
	66720	SOLVENT USE	0.002	0.002	0.003
TOTAL OTHER	66720	SOLVENT USE	0.002	0.002	0.003
	66720	SOLVENT USE	0.002	0.002	0.003
TOTAL SOLVENT USE	46748	COATING	44.343	53.836	60.890
	46749	COATING	1.451	1.422	1.417
PETROLEUM PROCESS STORAGE & TRANSFER	81443	GAS EXTRACTION	1.451	1.422	1.417
	81443	GAS EXTRACTION	1.451	1.422	1.417
TOTAL PETROLEUM PROCESS STORAGE & TRANSFER	81443	GAS EXTRACTION	1.451	1.422	1.417
	81443	GAS EXTRACTION	1.451	1.422	1.417

SUPPLY OF EMISSIONS
IF AB EQ 34 OR 46 OR 57 OR 51 (SOUTHERN)
IF CO EQ 9 ON 31 OR 34 OR 39 OR 46 OR 57 OR 51 (SOUTHERN)
POLLUTANT
OZONE SEASONAL EMISSIONS, (TONS PER DAY)

REFLECTS DATA IN ARB STATEWIDE INVENTORY AS OF SEPTEMBER 1994

[illegible]

IF CO EQ 9 ON 51 OR 55 OR 56 OR 57 OR 58 SOUTHERN
OZONE SEASONAL EMISSIONS (TONS PER DAY)

REFLECTS DATA IN ARB STATEWIDE INVENTORY AS OF SEPTEMBER 1994

[illegible]

REFLECTS DATA IN ARB STATEWIDE INVENTORY AS OF SEPTEMBER 1994

[illegible]

SUMMARY OF EMISSIONS
IF AB EQ 35 OR NC
IF CO EQ 9 ON 31 OR 49 ON 57 OR 51(SOUTHERN)
NOX POLUTANT
OZONE SEASIAL EMISSIONS (TONS PER DAY)

REFLECTS DATA IN ARB STATEWIDE INVENTORY AS OF SEPTEMBER 1994

[illegible]

SUMMARY OF EMISSIONS
IF CO EQ 9 OR 31 OR 50 OR 57 OR 58 (NORTHERN)
OR 32 OR 33 OR 34 OR 35 OR 36 OR 37
OR 38 OR 39 OR 40 OR 41 (SOUTHERN)
PER DAY PER FURNACE
OZONE SEASONAL EMISSIONS (TONS PER DAY)

[illegible]

APPENDIX D: Proposed Control Measures

PROPOSED CONTROL MEASURES

The Sacramento nonattainment area violates both the state and federal ozone standards. In order to improve air quality and attain the ozone standards, it is necessary to reduce the amount of ROG and NOx emissions generated within the nonattainment area. Growth in population, vehicle usage, and business activity makes this a difficult task. All source categories of mobile, stationary and area sources have been evaluated to determine the potential for additional reductions.

The new measures to be adopted by state and federal agencies are discussed in the body of this plan. The ARB's hearing on its proposed SIP measures is scheduled for November 9 and 10, 1994. The proposed new regional control measures to be adopted by each district for stationary, area, and mobile sources are described below. Each new rule will be developed and formally adopted by the implementing agency's governing board in a public process. This involves public workshops and a public hearing to solicit input from affected sources and the public.

Rule differences currently exist between the Sacramento Area districts--this plan should correct that situation and result in uniform measures throughout the nonattainment area. The plan relies on the adoption and implementation of the proposed measures throughout the nonattainment area. Districts which have existing sources, but not an equivalent rule, are committing to adopt a rule consistent with the following proposals. All districts except Feather River (south Sutter County portion) have sources in several rule categories..

The proposed stationary and area source measures are important to the control strategy--ROG emissions from these sources will continue to grow unless new control measures are adopted in the region. Most of the proposed measures build upon commitments included in the districts' 1991 state air quality plans. These measures rely on technology that is proven and available and are consistent with the best available retrofit control technology (BARCT) requirements of state law and with rules currently in place in the other urban areas of the state.

Mobile source NOx measures are also critical to attainment in the Sacramento region since the NOx inventory is dominated by mobile source emissions. Although responsibility for setting new mobile source emission standards rests with federal and state agencies, a regional program is also needed as part of the attainment strategy. Thus, this plan proposes a regional mobile source program to accelerate the use of cleaner on-and off-road vehicles. The regional program would have an ARB component which would serve to ensure the availability of low NOx engines.

The proposed regional control measures fall in these general categories:

- Coatings and Solvents: These rules primarily target ROG emissions from products such as coatings, solvents, inks, stains, adhesives, and disposal of ROG containing materials.
- Combustion Sources: These rules target stationary combustion equipment, primarily designed to reduce NOx emissions.
- Petroleum Operations, Refueling, and Fugitive ROG Emissions: These rules pertain to operations and materials associated with the petroleum and chemical industries.
- Miscellaneous Stationary Sources: These rules relate to a variety of operations including, restaurants and bakeries, waste-related emissions, soil remediation, and waste burning.
- Mobile Sources: These rules apply to NOx emissions from on- and off-road heavy-duty vehicles and equipment.

Table D-1 lists the rules and the expected emission reductions in 2005, the proposed attainment year. Following the table, a one-page summary of each proposed measure is provided. First are the stationary/area ROG measures, followed by the stationary source NOx measures and the mobile source NOx measures. Each summary includes a description of the source category, the proposed method of control, implementation dates, and estimated emission reductions.

Table D-1

**ESTIMATED REDUCTIONS FROM PROPOSED REGIONAL MEASURES
(TPD)**

ROG Measures	Reductions
Adhesives	1.5
Architectural Coatings	1.7
Auto Refinishing	3.4
Fugitive Emissions	1.5
Graphic Arts	.5
Landfill Gas	1.3
Pleasure Craft Refueling	.2
Pleasure Craft Coatings	.2
Polyester Resin Operations	.2
Semiconductor Manufacturing	.2
SOCMI Distillation & Reactors	1.7
Surface Prep & Clean-up	3.9
Underground Storage Tanks	.2
Wood Products Coatings	.5
ROG Subtotal	17
NOx Measures	Reductions
Boilers & Steam Generators	1.0
Gas Turbines	.3
IC Engines	.5
Mobile Measures	5.0
Residential Water Heaters	.5
NOx Subtotal	7

STATIONARY/AREA MEASURES(ROG)

SOURCE CATEGORY: Architectural Coatings

SOURCE CATEGORY DESCRIPTION: Architectural surface coatings, or trade paints, are used primarily to coat the interior and exterior of houses and buildings, and other surfaces such as pavements, curbs and signs. ROG emissions result when the solvent which carries the coating material evaporates. Reformulation of the coatings with water or low solvent bases is currently the most practical and efficient way to reduce ROG emissions from this source category. Reformulated coatings are currently available.

EXISTING MEASURES: The Sacramento, El Dorado, and Placer Districts have architectural coating rules of varying stringency. In September 1994, El Dorado repeated their existing rule and adopted Rule 215 which conforms to this proposed control measure. Architectural coatings are used throughout the nonattainment area.

PROPOSED METHOD OF CONTROL: This control measure proposes to limit the ROG content of architectural coatings consistent with the limits specified in the ARB-CAPCOA Suggested Control Measure (SCM) for Architectural Coatings. These limits would apply to architectural coatings supplied, sold, applied, or manufactured in the nonattainment area.

REGULATORY HISTORY: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements. In addition, an architectural coatings rule is proposed in U. S. EPA's draft FIP. The FIP rule is more stringent; architectural coatings in small containers would no longer be exempt.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for architectural coatings are provided below in the Control Measure Summary. The 2005 forecast includes the benefits from the existing architectural coating rules in the region. An additional 15 percent reduction region-wide (2.7 tpd ROG) is expected from implementation of this proposed measure.

AFFECTED DISTRICTS: New Rule: Yolo-Solano; Amend current rule: Placer.

IMPLEMENTATION: Adoption: Placer in March 1995 with Yolo-Solano in April 1995.
Implementation: 1996.

CONTROL MEASURE SUMMARY: ARCHITECTURAL COATINGS

Summer Planning Inventory	1990	2005
ROG Inventory	11.6	17.2
ROG Reductions		1.7
ROG Remaining		15.5

SOURCE CATEGORY: Automotive Refinishing

SOURCE CATEGORY DESCRIPTION: Automotive refinishing coatings are used on motor vehicles and other mobile equipment. ROG emissions from the surface coating operations result from the evaporation of the organic solvents in the coatings. These emissions occur in a number of places in the operation including: application of the coating, during air drying of the part, and in the bake oven. The types of operations which use these coatings are primarily autobody repair and paint shops and automotive dealerships.

EXISTING MEASURES: The Yolo-Solano, Placer, and El Dorado Districts adopted a rule consistent with this proposed measure in 1994. Automotive refinishing operations exist in the Sacramento, Placer, Yolo-Solano, and El Dorado districts.

PROPOSED METHOD OF CONTROL: This proposed control measure will reduce emissions by requiring the use of low ROG coatings and an application method that achieves at least a 65% transfer rate. This control measure is based on the ARB-CAPCOA Suggested Control Measure (SCM) for Automotive Refinishing Operations. The Ventura, San Joaquin, Kern, Mohave Desert, San Luis Obispo, Santa Barbara, Yolo-Solano, South Coast, and Bay Area Districts have already adopted similar rules, and compliant coatings are available. On full implementation of this measure, the ROG limits for automotive coatings in the nonattainment area would not be allowed to exceed those specified in the rule, unless add-on control equipment is used which achieves similar reductions.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements. In addition, an automotive refinishing rule is proposed in U. S. EPA's draft FIP.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for auto refinishing are provided below in the Control Measure Summary. A total emission reduction of 75 percent region-wide (3.4 tpd ROG) is expected from implementation of this new rule.

AFFECTED DISTRICTS: New Rule: Sacramento.

IMPLEMENTATION: Adoption: Sacramento in May 1995. Implementation: 1996.

CONTROL MEASURE SUMMARY: AUTO REFINISHING

Summer Planning Inventory	1990	2005
ROG Inventory	3.1	4.6
ROG Reductions		3.4
ROG Remaining		1.2

SOURCE CATEGORY: Adhesives

SOURCE CATEGORY DESCRIPTION: Adhesives are substances designed to hold materials together. Generally, adhesives are considered as coatings for the surfaces being bonded. Although there are five basic coating types used in adhesives, most emissions result from solvent-based coatings. ROG emissions occur when the adhesive dries or cures.

Adhesives are used in almost every aspect of manufacturing. Adhesives are used heavily in the manufacturing of wood laminates, clothing and furniture. Large amounts of adhesives are also used in the construction industry; those uses include gluing wall and floor panels, installing floor carpets, attaching roofs, and installing water supply lines. Welding operations also use adhesives.

EXISTING RULES: The Yolo-Solano District adopted a rule consistent with this proposal in 1994; none of the other districts in the region has a current rule. Sources also exist in the El Dorado, Sacramento, and Placer Districts.

PROPOSED METHOD OF CONTROL: This new rule will reduce emissions by requiring the use of low-ROG adhesives, proper storage of materials, and the use of low emitting cleaners and cleaning systems. On full implementation of this measure, the ROG limits for specified adhesives in the nonattainment area would not be allowed to exceed those specified in the rule, unless add-on control equipment is used which achieves similar reductions. Currently compliant products are available and currently required in other urban areas of the State. This measure is similar to existing measures in the the Bay Area, Ventura, South Coast, and San Joaquin Districts.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements. In addition, an adhesives and sealants rule is proposed in U.S EPA's draft FIP.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for adhesives are provided below in the Control Measure Summary. An emission reduction of 50 percent region-wide (1.5 tpd ROG) are expected from implementation of this rule.

AFFECTED DISTRICTS: New Rule: Sacramento, Placer, El Dorado.

IMPLEMENTATION: Adoption: El Dorado and Placer in February 1995, Sacramento in May 1995
Implementation: 1996.

CONTROL MEASURE SUMMARY: ADHESIVES and SEALANTS

Summer Planning Inventory	1990	2005
ROG Inventory	1.8	3.0
ROG Reductions		1.5
ROG Remaining		1.5

SOURCE CATEGORY: Surface Preparation and Clean-up

SOURCE CATEGORY DESCRIPTION: Many commercial and industrial facilities use solvents for surface preparation, cleaning, or maintenance operations. These operations involve the cleaning of products, tools, equipment, the work area, and the storage and disposal of materials in the cleaning process. Solvent cleaning operations include the use of solvents to remove uncured coatings, inks, and adhesives, and contaminants such as dirt and oil.

EXISTING RULES: In May 1994, the Yolo-Solano District adopted a rule consistent with this proposed measure. No other district in the region has a rule for this source category.

PROPOSED METHOD OF CONTROL: This proposed control measure will require the use of solvents with low ROG content or low vapor pressure, specify cleaning devices and methods, and include storage and disposal requirements. This measure exempts sources covered by other source specific coating rules such as auto refinishing, wood products coatings, graphic arts, architectural coatings. Sources which use small quantities of solvents (1 quart or less) would also be exempt.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements. In addition, a surface preparation and clean-up rule is proposed in U.S EPA's draft FIP.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for surface prep and cleanup are provided below in the Control Measure Summary. An emission reduction of 65 percent region-wide (4.9 tpd ROG) is expected from implementation of this new rule.

AFFECTED DISTRICTS: New Rule: El Dorado, Placer, Sacramento.

IMPLEMENTATION: Adoption: February 1995; Implementation: 1996.

CONTROL MEASURE SUMMARY: SURFACE PREPARATION AND CLEAN-UP

Summer Planning Inventory	1990	2005
ROG Inventory	4.8	7.5
ROG Reductions		3.9
ROG Remaining		3.6

SOURCE CATEGORY: Wood Products Coatings

SOURCE CATEGORY DESCRIPTION: This category consists of coatings used on products such as cabinets, tables, chairs, beds, sofas, shutters, art objects, and any other objects made of solid wood, wood composition, or simulated wood material. Coatings used include stains, topcoats, sealers, fillers, primers, toners, and washcoats. Coatings applied to wood usually contain a high percentage of volatile solvents. Emissions occur during the application, drying, or cleaning of the equipment. Sources affected by a wood products coating rule would typically be household and office furniture manufacturers, wood refinishing shops, and some retail stores.

EXISTING MEASURES: In November 1994, The Placer District adopted a rule consistent with this proposal. None of the other districts in the nonattainment area have a rule for wood product coatings. Sources have been identified in the Sacramento, Placer, El Dorado, and Yolo-Solano districts.

PROPOSED METHOD OF CONTROL: This proposed control measure would limit the ROG content of various wood coatings, require the use of coating spray equipment that achieves at least a 65 percent transfer rate, and limit emissions from clean up solvent operations. On full implementation of this measure, wood coatings would be required to meet specified ROG limits unless add-on control equipment which achieves similar reductions is used. The proposed rule is consistent with existing rules in the Bay Area, Mojave Desert, San Diego, San Joaquin Valley, South Coast, and Santa Barbara districts.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements. In addition, a wood coatings rule is proposed in U.S. EPA's draft FIP.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for wood product coatings are provided below in the Control Measure Summary. A total emission reduction of 80 percent region-wide (0.5 tpd ROG) is expected from implementation of this new rule.

AFFECTED DISTRICTS: New Rule: Sacramento, El Dorado, and Yolo-Solano.

IMPLEMENTATION: Adoption: February 1995. Implementation: 1996.

CONTROL MEASURE SUMMARY: WOOD PRODUCTS COATINGS

Summer Planning Inventory	1990	2005
ROG Inventory	.5	.6
ROG Reductions		.5
ROG Remaining		.1

SOURCE CATEGORY: Graphic Arts

SOURCE CATEGORY DESCRIPTION: Graphic arts operations consist of five major printing processes: (1) lithography, (2) letterpress, (3) gravure, (4) screen printing, and (5) flexography. The industry produces a wide variety of products including advertising copies, flexible packaging, floor covering, magazines, newspaper supplements, posters, and wallpaper. ROG emissions from the printing processes occur mainly from the evaporation of solvents in inks, dampening solutions, and cleaning solutions.

EXISTING MEASURES: The El Dorado, Sacramento and Yolo-Solano Districts have current rules regulating graphic arts. El Dorado's Rule 231 was adopted in September 1994. Sacramento's Rule 450 was adopted in 1981 and amended in 1993, and Yolo-Solano adopted Rule 2.29 in May 1994. Rule 450 limits ROG emissions from gravure, web-faced screenprinting, flexographic printings, and coating and laminating operations within the flexible packaging field. Rule 2.29 sets ROG standards for lithography, letterpress, gravure, screen printing, and flexography operations. Sources have also been identified in the Placer district.

PROPOSED METHOD OF CONTROL: This proposed control measure will reduce emissions by limiting the ROG content of inks, solvents, and fountain solutions. In addition, there are restrictions on the application, storage and disposal of solvents. Closed containers would also be required for the disposal of cloth and paper used for cleaning. This measure is similar to existing measures in the Bay Area, Kern, San Diego, San Joaquin, Ventura, and South Coast Districts.

REGULATORY HISTORY: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for graphic arts are provided below in the Control Measure Summary. The 2005 forecast includes the benefits from the existing graphic arts rules in the region (except Yolo Solano's rule 2.29; benefits from this Rule is included in the region-wide calculation). An additional 20 percent reduction region-wide (0.5 tpd) is expected upon full implementation of this measure.

AFFECTED DISTRICTS: Placer adopted new graphics art rule November 3, 1994.

IMPLEMENTATION: Implementation: June 1995.

CONTROL MEASURE SUMMARY: GRAPHIC ARTS

Summer Planning Inventory	1990	2005
ROG Inventory	1.8	2.5
ROG Reductions		.5
ROG Remaining		2.0

SOURCE CATEGORY: Landfill Gas Control

SOURCE CATEGORY DESCRIPTION: Biological decomposition of waste contained in landfills leads to the production of gas, consisting primarily of carbon dioxide, methane, and other organic compounds, some of which are ozone precursors. The gas produced from this decomposition seeps through the layers of waste and soil until it reaches the surface and is emitted to the atmosphere.

EXISTING MEASURES: The Yolo-Solano and Placer Districts recently adopted new rules for this source category consistent with this proposal. None of the other districts in the region have rules restricting emissions from landfills. Landfills exist in the Sacramento, Placer, El Dorado, and Yolo-Solano Districts.

PROPOSED METHOD OF CONTROL: This proposed control measure will reduce emissions from municipal landfills by collecting and processing the landfill gases from the decomposition of waste. It is anticipated that this rule will require the installation of a gas collection system at all landfills with more than 500,000 tons of waste in place. Landfills that only accept hazardous waste or landfills with surface methane concentrations of less than 500 parts per million would be exempt from this rule.

It is similar to the ARB-CAPCOA Suggested Control measure and current rules in the Bay Area, Kern, Ventura, Santa Barbara, San Diego, and South Coast Districts.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements. In addition, a landfill gas rule is proposed in U.S. EPA's draft FIP.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for landfills are provided below in the Control Measure Summary. An emission reduction of 60 percent region-wide is expected upon full implementation of this measure.

AFFECTED DISTRICTS: New Rule: Sacramento, El Dorado.

IMPLEMENTATION: Adoption: El Dorado December 1994 and Sacramento in February 1995.
Implementation: Late 1996 in Yolo-Solano, Eldorado, and Placer. Late 1997 in Sacramento.

CONTROL MEASURE SUMMARY: LANDFILL GAS

Summer-Planning Inventory	1990	2005
ROG Inventory	1.8	2.2
ROG Reductions		1.3
ROG Remaining		.9

SOURCE CATEGORY: Pleasure Craft Coating Operations

SOURCE CATEGORY DESCRIPTION: Pleasure craft are vessels which are manufactured primarily for recreational purposes. Wood and fiberglass are the primary materials used in the construction of pleasure craft. To a lesser extent, steel and aluminum are used.

Pleasure craft coatings are applied during the manufacturing, repairing, and refinishing of recreational boats. Application methods include the use of brushes, sprayers, or rollers. Nearly all of the emissions from these operations are due to evaporative losses, most of which occur during the coating applications. Coatings are generally supplied as paint systems, with application of the coating in successive stages.

EXISTING MEASURES: No district in the nonattainment area has a rule for this source category. Pleasure craft coating operations occur in the Sacramento, Yolo-Solano, Placer, and El Dorado Districts.

PROPOSED METHOD OF CONTROL: This rule would reduce emissions by setting ROG limits for specified coatings and require a minimum transfer efficiency. In addition, surface preparation and cleaning procedures would be required. This rule is similar to an existing rule in the South Coast District.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for pleasure craft coatings are provided below in the Control Measure Summary. A total emission reduction of 70 percent region-wide is expected from implementation of this new rule.

AFFECTED DISTRICTS: New Rule: Sacramento, Yolo-Solano, El Dorado, Placer.

IMPLEMENTATION: Adoption: Placer in December 1994; Yolo-Solano in April 1995, El Dorado in April 1996, and Sacramento in 1998. Implementation: 1996-1999.

CONTROL MEASURE SUMMARY: PLEASURE CRAFT COATING OPERATIONS

Summer Planning Inventory	1990	2005
ROG Inventory	.2	.3
ROG Reductions		.2
ROG Remaining		.1

SOURCE CATEGORY: Polyester Resin Operations

SOURCE CATEGORY DESCRIPTION: The production of reinforced plastic materials through the process of combining polyester resin/styrene mixtures and glass fibers results in the release of styrene, a photochemically reactive compound. The potential for ROG emissions from fiberglass fabrication varies with the manner in which the resin is mixed, poured, manipulated, and cast. Polyester resin application methods include spray-up, hand lay-up, and casting methods. Emissions occur during the manufacturing and cleanup process.

Polyester resin products offer a combination of high strength with low weight. Operations utilizing polyester resin/styrene mixtures include boat building and repair, as well as the manufacture of synthetic marble, spas/hot tubs, surfboards, bathroom fixtures, panels, and swimming pools.

EXISTING MEASURES: Yolo-Solano adopted a rule in 1993. No other district in the nonattainment area has a rule for this source category. Sources have also been identified in the Sacramento, El Dorado, and Placer Districts.

PROPOSED METHOD OF CONTROL: This proposed control measure will reduce ROG emissions by requiring the use of low monomer and vapor suppressed resins, or the use of closed mold systems. In addition, high transfer efficiency spray guns or electrostatic spray equipment will be required for spraying operations. Low monomer and vapor suppressed resins are readily available and only cost 2-3 cents more per pound. Alternatively, sources can elect to comply by add-on control equipment that achieves an 85 percent efficiency. This proposed measure is based on ARB's BARCT/RACT determination and is consistent with current rules in the San Diego, Santa Barbara, Ventura, Bay Area, Ventura, and South Coast Districts.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for polyester resin operations are provided below in the Control Measure Summary. A total emission reduction of 50 percent region-wide is expected from implementation of this new rule.

AFFECTED DISTRICTS: New Rule: Sacramento, El Dorado, and Placer.

IMPLEMENTATION: Adoption: Placer in January 1996, El Dorado in February 1996, with Sacramento in 1998. Implementation: El Dorado and Placer in 1997; Sacramento in 1999.

CONTROL MEASURE SUMMARY: POLYESTER RESIN OPERATIONS

Summer Planning Inventory	1990	2005
ROG Inventory	.5	.5
ROG Reductions		.2
ROG Remaining		.3

SOURCE CATEGORY: Control of Fugitive Hydrocarbon Emissions

SOURCE CATEGORY DESCRIPTION: Emissions result from leaks which occur at chemical facilities, bulk terminals and plants, oil and gas production fields, and pipeline transfer stations. Sources of ROG emissions at these facilities are from process and transfer areas that contain a wide variety petroleum products and chemicals. These areas include valves, connectors, pumps, compressors, pressure relief valves, diaphragms, hatches, sight-glasses, and meters. For most facilities, the actual percentage of leaking components is small; however, due to the large number of components used, the resulting ROG emissions are significant.

EXISTING RULES: Placer's Rule 212 regulates fugitive emissions from bulk terminals. Sacramento's Rule 443 and 447 regulates fugitive leaks from chemical plants, bulk plants, and bulk terminals. Yolo-Solano adopted Rule 2.23 in March 1994; this rule applies to refineries, chemical plants, gasoline terminals, and oil and gas production fields. Sources also exist in the, El Dorado District.

PROPOSED METHOD OF CONTROL: Control strategies and technology to reduce fugitive ROG emissions include leak detection and repair programs and equipment design. Preventing components from leaking or decreasing the frequency and magnitude of such leaks is the most effective means of controlling fugitive ROG emissions. Leaks can be minimized and repaired by tightening, adjustment, or replacement of seals and by packing with relevant types of equipment. In addition, some equipment can be retrofitted with leakless components.

This measure will reduce emissions by establishing or lowering allowable leak levels for specified components, requiring improved leak detection and repair programs, and in some cases requiring the retrofits of gas-operated control valves. This measure is based on existing rules in the Bay Area District, and is consistent with ARB's RACT/BARCT guidance.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements. In addition, a fugitive hydrocarbon rule is proposed in U.S. EPA's draft FIP.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for fugitive emissions is provided below in the Control Measure Summary. The 2005 forecast includes the benefits from existing rules in the region (except Yolo-Solano's rule 2.23); benefits from this rule are included in the region-wide calculation. An emission reduction of 80 percent region-wide is expected from implementation of this rule.

AFFECTED DISTRICTS: New Rule: El Dorado.

IMPLEMENTATION: Adoption: April 1995. Implementation: 1999.

CONTROL MEASURE SUMMARY: FUGITIVE HYDROCARBON EMISSIONS

Summer Planning Inventory	1990	2005
ROG Inventory	1.8	1.8
ROG Reductions		1.5
ROG Remaining		.3

SOURCE CATEGORY: Vents on Underground Gasoline storage Tanks

SOURCE CATEGORY DESCRIPTION: The action of gasoline being removed and added to the retail gasoline storage tank causes vapor growth. As this growth occurs, the vapors escape to the atmosphere through open vents.

EXISTING MEASURES: Districts in the region currently require the use of ARB certified vapor recovery system to be used on all storage tanks used for gasoline dispensing except for tanks used primarily for fueling agricultural equipment.

PROPOSED METHOD OF CONTROL: The proposal is to add a pressure-vacuum valve to all open vented underground storage tanks for on-road fueling.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements.

CONTROL MEASURE EFFECTIVENESS: The estimated control efficiency is 7.5 percent.

AFFECTED DISTRICTS: Amend Current Rule: Sacramento, Yolo-Solano.

IMPLEMENTATION: Adoption: Yolo-Solano in January 1995 and Sacramento in February 1995.
Implementation: 1995.

**CONTROL MEASURE SUMMARY:
VENTS ON UNDERGROUND GASOLINE STORAGE TANKS**

Summer Planning Inventory	1990	2005
ROG Inventory	2.4	2.4
ROG Reductions		.2
ROG Remaining		2.2

SOURCE CATEGORY: SOCMI Distillation/SOCMI Reactors

SOURCE CATEGORY DESCRIPTION: This category concerns synthetic organic chemical manufacturing industries of which the Sacramento District has one source. The industry distills coconut oil for use in some food products and many industrial processes. Emission sources include valves and vents.

EXISTING MEASURES: None of the districts in the nonattainment area have a rule for these sources. Sources have been identified in the Sacramento District.

PROPOSED METHOD OF CONTROL: There is a CTG being developed by the U.S. EPA that will require a 98 percent weight reduction on this source category.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements.

CONTROL MEASURE EFFECTIVENESS: The estimated control efficiency is 95 percent.

AFFECTED DISTRICTS: New Rule: Sacramento.

IMPLEMENTATION: Adoption: September 1995. Implementation: 1997.

CONTROL MEASURE SUMMARY: SOCMI DISTILLATION/SOCMI REACTORS

Summer Planning Inventory	1990	2005
ROG Inventory	1.3	1.8
ROG Reductions		1.7
ROG Remaining		0.1

SOURCE CATEGORY: Semiconductor Manufacturing (Electronics Industry)

SOURCE CATEGORY DESCRIPTION: Semiconductor manufacturing encompasses all of the steps involved in producing a microchip from raw materials. Organic solvents are used during several steps in the manufacturing process to act as carriers or diluents for coatings, and to strip material from the surface of the circuits. Most of the solvents are collected in liquid form, and either reclaimed or disposed of as waste. Some solvents evaporate and are emitted to the atmosphere.

ROG emissions occur from the manufacturing process and solvent cleaning. In the production of microchips, a photoresist coating is used. The photoresist reacts upon exposure to ultraviolet light in a process similar to conventional photography. Both positive and negative photoresist photolithographic processes are used. ROG emissions from the positive photoresist process are about 1/10th of those from the negative photoresist process. The lower emissions result from a combination of lower volatility of positive resist solvent, the higher solids content of positive photoresists, and the inorganic developer used in the process.

EXISTING MEASURES: No district in the nonattainment area has a rule for this source category. Sources have been identified in the Sacramento and Placer districts.

PROPOSED METHOD OF CONTROL: This proposed control measure will reduce ROG emissions from photoresist operations by requiring the positive photoresist process for all semiconductor manufacturing, or the addition of control devices such as thermal incinerators or carbon adsorbers with a 90 percent efficiency. In addition, this rule would reduce emissions from clean up solvents by requiring installation of cleaning station covers and good housekeeping practices. This rule is based on current rules in the Bay Area and South Coast Districts.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for semiconductor manufacturing are provided below in the Control Measure Summary. An emissions reduction of 90 percent is estimated from those facilities currently employing a negative photoresist process, and 20 percent from clean-up solvents from all facilities. Overall, an emission reduction of 50 percent region-wide is expected from implementation of this new rule.

AFFECTED DISTRICTS: New Rule: Placer.

IMPLEMENTATION: Adoption: Placer in February 1995. Implementation: 1996.

CONTROL MEASURE SUMMARY: SEMICONDUCTOR MANUFACTURING

Summer Planning Inventory	1990	2005
ROG Inventory	.5	.5
ROG Reductions		.2
ROG Remaining		.3

SOURCE CATEGORY: Pleasure Craft Refueling

SOURCE CATEGORY DESCRIPTION: Pleasure craft fuel transfer refers to refueling pleasure boats from stationary gasoline tanks. Many pleasure craft dock and refuel within the nonattainment area. The fuel dispensing pumps do not have vapor recovery units, like those required at gas stations in California. Emissions from this category occur primarily in the summer ozone season.

For regulation of gasoline transfer, there are two vapor recovery systems: (1) Phase I which recovers the vapor generated during the transfer of gasoline from delivery trucks into storage tanks, (2) and Phase II, which recovers the vapors generated during the fueling of individual vehicles.

EXISTING MEASURES: No district in the nonattainment area has a rule for this source category. Pleasure craft refueling occurs throughout the nonattainment area.

PROPOSED METHOD OF CONTROL: This proposed control measure will reduce ROG emissions by requiring phase II vapor recovery systems for fueling pleasure craft to recapture gasoline vapors displaced from boat tanks during refueling. Implementing provisions would include a vacuum-assisted recovery system and an inexpensive soft rubber universal nozzle boot. The proposed controls are similar to these currently used for refueling of motor vehicles, and should achieve a control efficiency of 95 percent.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for pleasure boat refueling operations is provided below in the Control Measure Summary. Although vapor recovery nozzles can achieve a 95 percent efficiency, the overall control efficiency for this category is 50 percent because this control method cannot be applied to vessels with submerged fill-pipes and manifold dual tanks; these represent approximately 25 percent of the total emissions.

AFFECTED DISTRICTS: New Rule: Sacramento, Placer, El Dorado, Yolo-Solano.

IMPLEMENTATION: Adoption: March 1998. Implementation: 1999

CONTROL MEASURE SUMMARY: PLEASURE CRAFT REFUELING

Summer Planning Inventory	1990	2005
ROG Inventory	.5	.5
ROG Reductions		.2
ROG Remaining		.3

STATIONARY SOURCE NO_x MEASURES

SOURCE CATEGORY: Gas Turbines

SOURCE CATEGORY DESCRIPTION: Gas turbines are engines which consist of a compressor, a combustor, and a power turbine. Gas turbines are used to generate electricity during peak hours or to power mechanical equipment. The compressor draws in air, compresses the air, and feeds the air to the combustor. Air and fuel are mixed and united in the combustor with combustion gases directed to the turbine. The expansion of the combustion gases causes the turbine to rotate. The gases are then exhausted and may be used for process heat requirements. Gas turbines can burn a variety of fuels.

EXISTING MEASURES: Yolo-Solano adopted Rule 2.34 in July 1994 and Placer adopted Rule 250 in October 1994. None of the other districts in the nonattainment area has a rule for this source category. Gas turbines have also been identified in the Sacramento, and Placer Districts.

PROPOSED METHOD OF CONTROL: The proposed control measure would reduce NOx emissions by requiring lower NOx emission limits on existing gas turbines. It is anticipated that this control measure would affect existing gas turbines with an output of one megawatt (MW) or greater. Available technology includes: injection of steam into the combustor, modification of combustor designs, or post-combustion controls (such as selective catalytic reduction). The proposed rule is based on existing rules in other districts. Major metropolitan areas, including the Bay Area and South Coast Districts, have rules for this source category.

REGULATORY REQUIREMENTS: A rule for gas turbines is required as part of the NOx-RACT requirements of the Federal Clean Air Act. Emission reductions from this rule are also needed to meet federal ozone rate-of-progress and attainment requirements. In addition, a rule for gas turbines is proposed in U.S. EPA's draft FIP.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for gas turbines are provided below in the Control Measure Summary. The 2005 forecast does not include the benefits from Yolo-Solano's or Placer's new rules; benefits are included in the region-wide calculation. Many existing gas turbines already comply with the proposed emission limits, or would be exempt from the rule. A limited number of sources will be affected by this new rule; an overall emission reduction of 50 percent region-wide is expected from implementation of this new rule.

AFFECTED DISTRICTS: New Rule: Sacramento.

IMPLEMENTATION: Adoption: February 1995. Implementation: 1997.

CONTROL MEASURE SUMMARY: GAS TURBINES

Summer Planning Inventory	1990	2005
NOx Inventory	.6	.6
NOx Reductions		.3
NOx Remaining		.3

SOURCE CATEGORY: Internal Combustion Engines

SOURCE CATEGORY DESCRIPTION: A stationary reciprocating internal combustion (IC) engine is an engine used to provide mechanical work generated by a shaft. These engines range in horsepower from 50-5000, and are used for a variety of applications including electric power generation, oil and gas pumping/transport, oil/gas exploration, irrigation, and hoisting. There are two basic types of IC engines: spark-ignited (gasoline engines fueled by natural gas, field gas, or liquified petroleum gas), and compression engines (diesel engines).

EXISTING MEASURES: The Yolo-Solano and El Dorado districts adopted a rule consistent with this proposal in 1994. IC engines have been identified in the Sacramento and Placer districts.

PROPOSED METHOD OF CONTROL: This new control measure would reduce NOx emissions by establishing NOx limits for existing IC engines. Available technology includes: operational modifications, engine combustion modifications, or post-combustion controls. It is anticipated that this rule would apply to all IC engines 50 horsepower or greater that are fueled by natural gas, field gas, or liquified petroleum gas, or diesel. The proposed rule is based on existing regulations in other districts. Current rules exist in most major metropolitan areas in California, including the Ventura, San Diego, Kern, Bay Area, and South Coast Districts.

REGULATORY REQUIREMENTS: A rule for IC engines is required as part of the NOx-RACT requirements of the Federal Clean Air Act. Emission reductions from this rule are also needed to meet federal ozone rate-of-progress and attainment requirements. In addition, a rule for IC engines is proposed in U.S. EPA's draft FIP.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for IC engines are provided below in the Control Measure Summary. An overall emission reduction of 50 percent region-wide is expected from implementation of this measure. The 2005 forecast does not include the benefits from the new rules; benefits are included in the region-wide calculation.

AFFECTED DISTRICTS: New Rule: Sacramento, Placer.

IMPLEMENTATION: Adoption: Sacramento in February 1995 and Placer in December 1995
Implementation: Phased in beginning 1997.

CONTROL MEASURE SUMMARY: IC ENGINES

Summer Planning Inventory	1990	2005
NOx Inventory	1.0	1.0
NOx Reductions		.5
NOx Remaining		.5

SOURCE CATEGORY: Residential Water Heaters

SOURCE CATEGORY DESCRIPTION: Residential water heaters are small boilers; water heaters (up to 75,000 Btu per hour) are used to supply hot water for residences and businesses. Water is heated by burning utility grade natural gas, or liquified petroleum gas.

EXISTING MEASURES: In November 1994, the Yolo-Solano District adopted a rule consistent with this proposal. None of the other districts in the nonattainment area has a current rule for this source category.

PROPOSED METHOD OF CONTROL: This proposed control measure would require all new water heaters manufactured, sold and/or installed in the nonattainment area to meet a NOx limit of 40 nanogram calculated as weight equivalent NOx per joule of heat input. This limit can be met through currently available technologies such as low-NOx water heaters, electric water heaters, and solar water heaters. These emission limits are based on existing rules in other districts, including the Bay Area, Ventura, and South Coast Districts.

REGULATORY REQUIREMENTS: Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements. In addition, a rule for residential water heaters is proposed in U.S EPA's draft FIP.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories for residential water heaters are provided below in the Control Measure Summary. It is estimated that approximately 50 percent of the current water heaters already comply with this rule. An overall emission reduction of 20 percent region-wide is expected from implementation of this new measure.

AFFECTED DISTRICTS: New Rule: Sacramento, Placer, and El Dorado.

IMPLEMENTATION: Adoption: Placer in December 1995 and others in 1996. Implementation: 1995-1997.

CONTROL MEASURE SUMMARY: RESIDENTIAL WATER HEATERS

Summer Planning Inventory	1990	2005
NOx Inventory	1.8	2.7
NOx Reductions		.5
NOx Remaining		2.2

SOURCE CATEGORY: Commercial, Industrial, and Biomass Boilers & Steam Generators

SOURCE CATEGORY DESCRIPTION: A boiler or steam generator is a combustion source used to produce steam which is then used to produce mechanical power, thermal energy, or electricity. Industrial and commercial boilers produce hot water and/or steam by transferring radiant and convective heat from external controlled fuel combustion into water contained in tubular coils or enclosed vessels.

Small boilers are considered to have gross heat input duties up to 10 million Btu per hour; large boilers are considered to have gross heat input duties that exceed 10 million Btu per hour, and can range upwards to over 100 MMBtu/hr. Small boilers are generally used for space heating and supplying hot water to a building. Large boilers produce steam for industrial processes.

EXISTING MEASURES: The Yolo-Solano, El Dorado, and Placer Districts adopted rules for this source category in 1994. Sources have also been identified in Sacramento District.

PROPOSED METHOD OF CONTROL: This proposed control measure would reduce NOx emissions by establishing NOx limits for existing small and large commercial and industrial boilers and steam generators. The proposed rule is based on the Yolo-Solano rule. In addition to a measure based on the Yolo-Solano rule, the Placer and El Dorado Districts have proposed general biomass boiler rules which will address those units using biomass material as fuel. It is anticipated these rules will affect all boilers greater than 5.0 million Btu/hr gross input duty which were utilized at 10 percent or more of annual capacity factor in any of the last three calendar years (1990-1993). These limits can be met by improving combustion characteristics and/or retrofitting with NOx emission control equipment. Current rules exist in most major metropolitan areas in California, including the Bay Area, Ventura, San Joaquin, and South Coast Districts.

REGULATORY REQUIREMENTS: A rule for industrial and commercial boilers is required as part of the NOx-RACT requirements of the Federal Clean Air Act. Emission reductions from this rule are also needed to meet federal ozone rate-of-progress and attainment requirements. In addition, a rule for commercial and industrial boilers is proposed in U.S. EPA's draft FIP.

CONTROL MEASURE EFFECTIVENESS: An overall emission reduction of 20 percent region-wide is expected from implementation of this measure.

AFFECTED DISTRICTS: New Rule: Sacramento.

IMPLEMENTATION: Adoption: February 1995. Implementation: 1996-1997.

**CONTROL MEASURE SUMMARY:
COMMERCIAL, INDUSTRIAL, & BIOMASS BOILERS & STEAM GENERATORS**

Summer Planning Inventory	1990	2005
NOx Inventory	3.9	5.3
NOx Reductions		1.0
NOx Remaining		4.3

MOBILE SOURCE NO_x MEASURES

SOURCE CATEGORY: Off-road Heavy-Duty Motor Vehicles

SOURCE CATEGORY DESCRIPTION: This category includes self-propelled off-road vehicles other than recreational vehicles and some other small vehicles otherwise regulated. It does not cover self-propelled lawn-and-garden equipment. It does not cover portable equipment or engines regulated under stationary source regulations. The measure addresses self-propelled mobile equipment used for construction, mining, agriculture, and other such uses. These vehicles are major sources of NOx emissions in the nonattainment area.

EXISTING MEASURES: EPA and ARB emissions standards for new equipment and engines will go into effect for the first time in 1996. Currently, no agency has established any measures to require the purchase of low-emissions configurations of such vehicles or engines.

PROPOSED METHOD OF CONTROL: This control measure will reduce NOx emissions from nonroad vehicles by a combination of strategies. One provision will require companies that provide nonroad vehicles through rental and lease agreements for use in the nonattainment area to concentrate in the nonattainment area their new equipment meeting the new EPA and ARB emissions standards. This "enrichment" measure will have the effect of accelerating the introduction of new lower-emitting engines in the nonattainment area. A second measure will aim to accelerate the turnover of nonroad vehicles and engines "resident" in the nonattainment area. This will be addressed through subsidies and incentives. A third provision, also driven by subsidies and incentives, will encourage the retrofit of existing vehicles and engines to lower-NOx configurations, as well as the early introduction of lower-emitting on-road engines into nonroad applications wherever feasible.

This control measure requires action by the EPA and the ARB, as well as by the districts in the Sacramento nonattainment area. EPA and ARB must support this local program by establishing optional low-NOx certification standards. ARB intends to adopt these in 1995. Further, EPA and ARB may need to assist the district to ensure that this local measure can be applied to all heavy-duty nonroad vehicles in use in the nonattainment area, not the possibly limited subset that falls under current district authority. A registration program may be needed to accomplish this. Finally, ARB must support local efforts to obtain legislative authority to raise new funds needed for the subsidy and incentive programs.

REGULATORY REQUIREMENTS: No current local measures apply to nonroad. Emission reductions from this rule are needed to meet federal ozone rate-of-progress and attainment requirements.

CONTROL MEASURES EFFECTIVENESS: The 1990 baseline and 2005 projected inventories are shown below for this source category. The 2005 forecast includes the benefits from existing control programs and the other EPA and ARB mobile-source control programs as contained in the 1994 State Implementation Plan. This measure will provide an estimated 2 TPD NOx reduction in the nonattainment area in 2005.

AFFECTED DISTRICT: Sacramento Metropolitan, Placer, Yolo-Solano, El Dorado, and Feather River.

IMPLEMENTATION: Adoption: December 1995. Implementation: January 1997.

**CONTROL MEASURE SUMMARY:
OFF-ROAD HEAVY-DUTY MOTOR VEHICLES**

Summer Planning: Inventory	1990	2005
NOx Inventory	22	14*
NOx Reductions		2
NOx Remaining		12

- * reflects reductions from proposed U.S. EPA & ARB emission standards

SOURCE CATEGORY: On-Road Heavy-Duty Vehicles

SOURCE CATEGORY DESCRIPTION: This category includes trucks and other heavy-duty vehicles with Gross Vehicle Weight (GVW) ratings from 8500 pounds and up. The proposed measure affects most vehicles above 14,000 pounds GVW. It also applies to those trucks from 8,500 pound to 14,000 pounds not yet in low-emission categories established by the ARB low-emission vehicle program, for which requirements roll-in over a period of years. School buses are included, as well as intercity buses and transit buses. Heavy-duty vehicles are major sources of NOx emissions in the nonattainment area.

EXISTING MEASURES: Sacramento Metropolitan AQMD Rule 1003 requires that local fleets of 15 or more vehicles purchase low-emission vehicles when ordering new or replacement vehicles. Rule 1003 covers vehicles in all weight classes.

PROPOSED METHOD OF CONTROL: This control measure will reduce NOx emissions from heavy-duty vehicles by requiring fleets, when purchasing new and replacement vehicles, to purchase vehicles certified to low-NOx standards (or, in some cases, low NOx-plus-hydrocarbon standards.) The measure will apply to all non-interstate heavy-duty vehicle traffic in the nonattainment area. The purchase requirement will be combined with a program to remove or retrofit to 5 g/bhp-hr NOx levels (or lower) any pre-1991 model year engines that would otherwise be operating regularly in the nonattainment area. A program of subsidies and incentives will be implemented to assist business to comply and to encourage accelerated turnover of the fleet.

This control measure requires action by the ARB, as well as by the districts in the Sacramento nonattainment area. ARB must support this local program by establishing low-NOx certification standards, which it has stated it will do in 1995. If insufficient low-NOx engines are available to meet purchase requirements it may be necessary for ARB to adopt regulations requiring additional model availability of low NOx engines. Further, EPA and ARB may need to assist the districts to ensure that this local measure can be applied to all heavy-duty onroad vehicles in use in the nonattainment area, not the possibly limited subset that falls under current district authority. A registration program may be needed to accomplish this. Finally, ARB must support efforts to obtain legislative authority to raise new funds needed for the subsidy and incentive programs.

REGULATORY HISTORY: Only two purchase-requirement rules currently apply to heavy-duty vehicles; otherwise, emissions from these vehicles are regulated only through emissions standards that apply to new vehicles or engines. Sacramento Metropolitan AQMD Rule 1003 applies some of the vehicles that would be covered in this program, but this rule needs expansion and revision to meet attainment needs. The federal Clean Fuel Fleet Rule would cover a few additional vehicles, but California

has been granted a waiver from the federal program to avoid managing a program that overlapped with the California low emission vehicle program in some weight categories. A few incentive programs exist to encourage the purchase of low-emissions vehicles and the scrapping of older vehicles, but these are minor in scope compared to the need described.

CONTROL MEASURE EFFECTIVENESS: The 1990 baseline and 2005 projected inventories are shown below for this source category. The 2005 forecast includes the benefits from existing control programs and the other EPA and ARB mobile-source control programs as contained in the 1994 State Implementation Plan. This measure will provide an estimated 3 tpd NOx reduction in the nonattainment area in 2005.

AFFECTED DISTRICTS: Sacramento Metropolitan, Placer, Yolo-Solano, El Dorado, and Feather River.

IMPLEMENTATION: Adoption: December 1995. Implementation: January 1997.

**CONTROL MEASURE SUMMARY:
ON-ROAD HEAVY-DUTY VEHICLES**

Summer Planning Inventory	1990	2005
NOx Inventory	34	22*
NOx Reductions		3
NOx Remaining		19

* reflects EI adjustment + reductions from proposed U.S. EPA & ARB emission standards

APPENDIX E: Modeling Analysis

ARB SUMMARY: SACRAMENTO SIP MODELING BASE CASE SIMULATION AND CARRYING CAPACITY

INTRODUCTION

Violations of State and national ozone standards in the Sacramento area have been the concern of the air quality control agencies for quite some time. In 1987, a study was initiated to determine the data requirements for an Urban Airshed Model simulation of an ozone episode. The result of the study was a major data collection effort in the summers of 1989 and 1990.

After analyzing the data collected, two episodes emerged as candidates for modeling. The episodes chosen were August 7-9, 1990, with a peak ozone concentration of 16 pphm, and July 11-13, 1990, with a peak of 14 pphm. The original plan was to let a contract to Systems Applications International (SAI) to develop the base case for both episodes. The ARB would review the simulations and then perform the analysis of control strategies.

The initial work by SAI focused on the August episode. Considerable effort went into developing the August base case until it was discovered that the simulation was very sensitive to the southern boundary condition. Because of the time spent on the August episode, SAI could not address all of our concerns about July episode with the remaining resources. The following briefly describes our diagnostic analysis of the SAI July base case, a review of model performance, and an estimate of carrying capacity.

DIAGNOSTIC ANALYSIS

Our diagnostic review of the SAI July base case indicated a number of problem areas. We focussed our attention on winds, diffusion break fields, boundary conditions, and emissions.

We found the wind speeds in the mountainous terrain were over estimated by the mesoscale wind model. We corrected this problem by using the Diagnostic Wind Model in its place. In addition there were inconsistencies in the diffusion break field that were resolved by recalculating the diffusion break at several sites and interpolating the values across the grid.

We found some of the boundaries were impacted directly by sources which caused an overestimation of hydrocarbon species. In the top concentration file default concentrations were too high making the model less sensitive to changes in emissions. We corrected these problems by adding lateral boundary segments that

were morerepresentative and using EPA recommended clean default concentrations in locations where no data were available.

We also did a considerable amount of work on the emissions. The original simulation did not use the most recently available data and an old version of EMFAC for mobile sources.

MODEL PERFORMANCE EVALUATION

We discovered that as a result of these corrections, model performance improved. Estimates of the timing and magnitude of peak concentrations were closer to observed. Temporal variations of ozone at the high sites also followed observations more closely. Here we briefly describe model performance statistics, the spatial distribution of ozone during the peak period and temporal comparisons of predicted to observed concentrations.

Tables 1 and 2 show model performance statistics for the 1990 base year simulation (Base 11). Table 1 addresses peak performance while Table 2 shows other statistical measures for the simulation. Ozone statistics are shown for the EPA recommended threshold level of 6.0 pphm. The threshold represents the minimum value to be included in the calculations. Values in the table include data for the July 13 in excess of 6.0 pphm.

Table 1 shows peak performance on July 13, for stations with the highest observed ozone concentrations. The estimated peak concentrations are fairly close to observed peak values. The domain peak estimated with the Base 11 was 13.9 pphm on July 13 with an observed peak of 14.3. The domain peak is not located at a station. The estimated concentration at the Cool peak station is 13.6, less than 1.0 pphm different. The timing of peak concentrations varies from observed time of one to three hours. At the Cool station, the difference in timing is one hour.

Table 1
Peak Performance Base 11 Simulation
Ozone (pphm)
July 13

Station	Observed Concentration	Observed Time	Predicted Concentration	Predicted Time
ALL SITES	14.3	2000	13.6	1900
Auburn	14.0	1600	11.6	1900
Citrus Heights	10.0	1300-1500	9.8	1600
Colfax	13.0	1800	10.6	1800
Cool	14.3	2000	13.6	1900
Del Paso Manor	11.0	1300/1500	8.5	1500
Folsom	8.0	1500-1600	10.6	1700
Lincoln	13.9	1500	8.3	1900
Rocklin	12.0	1500-1600	12.0	1700
GRID MAXIMUM			13.9	1700

Table 2 includes statistics for the July 13 design day as compared to EPA model performance criteria. The model performance for ozone is well within established guidelines. The bias on July 13 was minus twelve percent. The negative bias indicates a tendency toward underprediction. Gross error for ozone was 18 percent.

Table 2
Model Performance Statistics
Ozone Concentrations > 6 pphm
July 13

Statistical Measure	Base Case 11	EPA Criteria
Unpaired Peak Prediction	-3%	+/- 15 - 20%
Normalized Bias	-12%	+/- 5 - 15%
Normalized Gross Error	18%	30 - 35%
Mean Absolute Bias (pphm)	-1.2	
Mean Absolute Error (pphm)	1.7	
Number of Values Used	116	

Graphical analyses of model performance were also evaluated as recommend in the EPA modeling guidelines. The spatial plot for ozone for the estimated peak hour on the third day of the simulation, July 13, showed peak ozone concentrations distributed along the I-80 corridor. The peak values for the modeling domain were observed at Auburn, Cool, Colfax, and Lincoln. The estimated concentration field showed good agreement with observations.

Temporal plots were evaluated for all measurement locations and species. Special attention was given to four elevated ozone stations in the modeling domain, Auburn (AUB), Colfax (CFX), Cool (COO), and Rocklin (ROC), shows the traces of the model estimated and observed concentrations appear to be in good agreement. The peak concentrations estimated by the Base 11 simulation are very close at Rocklin and Cool as is the timing of the peaks.

MODEL BASE CARRYING CAPACITIES

Fifteen across-the-board emissions reduction simulations were run with the 1990 base case model and a 1999 future emissions inventory and boundary conditions. The modeling inventory contains reductions for Enhanced I/M (Jan 94), Exhaust Emissions Standards and Test Procedures for 1996 and later Heavy Duty off-road Diesel (Jan

92), and Exhaust Emissions Standards and Test Procedures for 1985 and subsequent model Heavy Duty engines and vehicles (Jun 93).

The modeling inventory contains 181 tons per day of ROG and 120 tons per day of NOx in the Federal Non-Attainment Area. The current summer ozone planning inventory contains 184 tons of ROG and 142 tons of NOx but does not include the reductions noted above. Also, the planning inventory covers a larger portion of Placer and El Dorado Counties than does the modeling inventory.

The carrying capacities in Table 3 are based on attaining a peak concentration of 0.1249 ppm and were interpolated from the results of the emission reduction simulations and are reported relative to the modeling inventory.

Table 3
Carrying Capacities
(Tons per Day)

Carrying Capacity	
ROG	NOx
181	72
175	75
157	80
146	85
140	90
136	95

APPENDIX F: Attainment Demonstration

ATTAINMENT DEMONSTRATION

The Clean Air Act requires the state to submit a revision to the State Implementation Plan (SIP), by November 15, 1994, which demonstrates attainment of the federal ozone standard by the applicable attainment date (CAA section 182(c)(2)(A)). This demonstration must be based on photochemical modeling.

The modeling analyses in Appendix E indicate that substantial emission reductions will be required for attainment. Most of the new NOx reductions must come from mobile sources which account for the majority of the region's NOx emissions. Some of the necessary controls have already been adopted by the ARB and the U.S. EPA, but the region will not realize the full benefits of those regulations until after 2000. Even with full implementation of the existing programs, additional reductions are required. To fill the gap, the Sacramento region needs new federal and state mobile source standards, enhanced by local programs to accelerate the turnover of older vehicles and off-road equipment. It is not feasible to develop, adopt, and fully implement all of the new control programs by 1999 -- both regulatory development and technology design require substantial lead time.

The applicable attainment date for the Sacramento region is 1999, based on the region's classification as a "Serious" nonattainment area. However, the Act permits the state to request that EPA move or "bump-up" an area to the next higher classification and extend the time allowed for attainment. This bump-up process is appropriate for areas that must rely on longer term strategies to achieve the emission reductions required for attainment. As discussed above, the new programs that the Sacramento region must rely on to deliver the emission reductions needed for attainment are not feasible in the 1999 timeframe. Consequently, the ARB will request a bump-up for the Sacramento region, to a "Severe" classification with its extended deadline. This attainment demonstration is premised on a 2005 attainment date.

As required by the Clean Air Act, an urban airshed model was used to determine the maximum emissions levels (also called "carrying capacities") that show compliance with the federal air quality standard. Table F-1 shows emission targets for both ozone precursor pollutants--136 TPD of reactive organic gases (ROG) and 98 TPD of nitrogen oxides (NOx). The NOx carrying capacity from the 1999 model runs was adjusted by 3 TPD to reflect the cleaner air coming into the region in 2005. The mix chosen reduces NOx by a greater percentage than ROG, since NOx reductions were more effective on a tonnage basis. The table also defines the total reductions needed in the region, between 1990 and 2005, to show attainment.

TABLE F-1
CALCULATED ATTAINMENT DEMONSTRATION
(in TPD)

	ROG	NOx
1990 Base Year Inventory	222	164
Modeled Attainment Target (2005 adjusted)	137	98
Total Reductions* Needed (1990-2005)	86	66
Total Reductions* from Adopted Regulations and Planned Measures (1990-2005)	86	66

* Net of growth

Finally, the table shows that the control strategy contained in this plan will provide sufficient reductions to meet the attainment targets. The control strategy includes previously adopted and implemented measures, adopted measures that have yet to take effect, and planned measures that the responsible agencies will adopt in the future. Appendix D describes the planned measures that districts in the region are committing to adopt. The state and federal commitments are summarized in the body of this plan and detailed in the ARB's Control Plan for Mobile Sources and Consumer Products. These future measures would reduce emissions from recreational boats, locomotives, on-road heavy duty vehicles and off-road heavy-duty engines. The ARB will consider adoption of this control plan at its November meeting as part of the larger California SIP.

APPENDIX G: Rate-of-Progress Demonstration

RATE-OF-PROGRESS REQUIREMENTS

This rate-of-progress (ROP) element replaces all of the 15 Percent ROP Plans adopted by the districts in the region and submitted to U.S. EPA in 1993. This element also satisfies the requirements for a Post-1996 ROP Plan. Table G-1 shows how the Sacramento region meets the ROP requirements from 1996 through 2005. Please note that this appendix uses VOC, rather than ROG, for all calculations as required by U.S. EPA.

Table G-1

15% AND POST-1996 RATE-OF-PROGRESS TARGETS AND REDUCTIONS (in TPD)

	1996	1999	2002	2005
1990 Base Year VOC Inventory	211	211	211	211
VOC Inventory Projection*	175	167	163	159
Rate-of-Progress VOC Target**	162	142	124	107
Preliminary VOC Shortfall	13	25	39	52
VOC Reductions from Committal Measures	0	19	23	14
Total VOC Shortfall	13	6	16	38
NOx Substitution Used (in VOC-Equivalents)	13	6	16	38
Final Shortfall	0	0	0	0

* Net of growth

** See worksheets 1-4 for calculations

The Sacramento region can satisfy the rate-of-progress requirement for a 15 percent reduction in VOC emissions, from 1990 to 1996, by relying on adopted measures. However, adopted regulations must be supplemented with committal measures to meet the post-1996 rate-of-progress targets and to demonstrate attainment of the federal ozone standard by 2005. In each milestone year, the ROP targets are met with a combined VOC and NOx strategy, consistent with the attainment demonstration. VOC shortfalls are covered by applying reductions from VOC committal measures and by substituting available NOx credit on a percentage basis.

Table G-2 summarizes the creditable ROP reductions expected from committal measures to be adopted by the districts, state agencies, and the federal government. The bottom half of the table then shows the reductions from committal measures actually used to meet the ROP requirements in each milestone year.

Table G-2
RATE-OF-PROGRESS REDUCTIONS FROM COMMITTAL MEASURES
(in TPD)

	1996	1999	2002	2005
Available VOC Reductions from Committals				
- Enhanced I/M	—	5	6	5
- Regional Measures*	—	13	15	16
- State and Federal Measures**	—	1	2	12
Available NOx Reductions from Committals				
- Enhanced I/M	—	6	7	6
- Regional Measures*	—	4	5	7
- State and Federal Measures**	—	2	7	12
Reductions Used from Committal VOC Regulations	—	19	23	14
Reductions Used from Committal NOx Regulations (in VOC-Equivalents)	—	6	16	0
Total Reductions Used from Committals (in VOC-Equivalents)	0	25	39	14

* See Tables G-3 and G-4

** See ARB Control Plan for Mobile Sources and Consumer Products

The districts in the region must adopt new VOC and NOx controls. The individual rules, and their associated reductions in each milestone year, are listed in Table G-3 and Table G-4. The regional control strategy will reduce emissions by an additional 13 TPD of VOC and 4 TPD of NOx in 1999. By 2005, the emission reduction benefits increase to 16 TPD of VOC and 7 TPD of NOx.

Table G-3

**ESTIMATED VOC REDUCTIONS FROM REGIONAL COMMITMENT MEASURES
(in TPD)**

	1999	2002	2005
REGIONAL MEASURES			
Adhesives	1.2	1.3	1.4
Architectural Coatings	0.9	1.3	1.6
Auto Refinishing	2.1	2.6	3.2
Fugitive Emissions	1.4	1.4	1.4
Graphic Arts	0.4	0.5	0.5
Landfill Gas	1.2	1.2	1.2
Pleasure Craft Coating	0.2	0.2	0.2
Pleasure Craft Refueling	0.1	0.1	0.2
Polyester Resin Operations	0.2	0.2	0.2
Semiconductor Manufacturing	0.1	0.2	0.2
SOCMI Distillation & Reactors	1.4	1.5	1.6
Surface Preparation & Clean-up	3.0	3.3	3.6
Underground Storage Tanks	0.1	0.2	0.2
Wood Products Coatings	0.5	0.5	0.5
Total	13.0	14.6	16.0

Table G-4

**ESTIMATED NO_x REDUCTIONS FROM DISTRICT COMMITMENT MEASURES
(in TPD)**

	1999	2002	2005
REGIONAL MEASURES			
Mobile Measures	2.0	3.0	5.0
Gas Turbines	0.2	0.3	0.3
Residential Water Heaters	0.3	0.4	0.5
Boilers & Steam Generators	0.8	0.9	1.0
I/C Engines	0.3	0.4	0.5
Total	3.6	5.0	7.3

NO_x Substitution

The Clean Air Act and U.S. EPA guidance (December 1993) allow states to substitute reductions in NO_x emissions for the required rate-of-progress reductions in VOC emissions. Table G-5 shows the NO_x available for substitution from adopted regulations and commitment measures, as well as the NO_x credit actually used to substitute for VOC reductions.

According to U.S. EPA's guidance, substitution of NO_x reductions for required VOC reductions must be done on a percentage basis, rather than a straight ton-for-ton exchange. We used the ratio of the 1990 VOC and NO_x inventories to determine the substitution factors. NO_x reductions that have been substituted for VOC are expressed in "VOC-Equivalent" units. Since the NO_x inventory in the region is lower than the VOC inventory, a one TPD reduction in NO_x is "worth" more than one TPD of VOC-Equivalents.

Table G-5

**NOx AVAILABLE FOR SUBSTITUTION
(In TPD)**

	1996	1999	2002	2005
<i>All NOx Credit from Adopted Regulations*</i>	28	47	38	39
Enhanced I/M	—	6	7	6
New District Commitments	—	4	5	7
New State/Fed Commitments	—	2	7	12
<i>All NOx Credit from Commitments</i>	—	12	19	25
Total NOx Credit**	28	59	57	64
Sum of All NOx Used for Substitution in Previous Milestone Years	0	10	15	27
Net NOx Available for Substitution (NOx credit minus NOx used)	28	49	42	37
NOx Used for Substitution***				
— Actual NOx	10	5	12	29
— VOC-Equivalents	13	6	16	38

* See worksheets 5-8 for calculations

** Net of growth

*** NOx used for substitution in 1996 and 2005 is generated entirely by adopted measures; NOx used for substitution in 1999 and 2002 is generated by committal measures

To be creditable, the NOx reductions must be in excess of growth and must exclude reductions attributable to the Federal Motor Vehicle Control Program. Worksheets 5-8 show the calculations of available credit from emission reductions due to adopted NOx measures. Committal NOx measures will generate additional credit. NOx substitution must also be consistent with the modeled attainment demonstration. Table G-6 shows that the total NOx reductions substituted for VOC are consistent with the NOx control strategy for attainment in 2005, as determined by modeling.

Table G-6

**DEMONSTRATION THAT NO_x SUBSTITUTION
IS CONSISTENT
WITH THE ATTAINMENT STRATEGY
(in TPD)**

	NO_x Emissions
1990 Base Year Inventory	163
Total NO _x Reductions* Substituted for VOC Reductions to Meet the Rate-of-Progress Requirements through 2005	56
Inventory* after Rate-of-Progress Requirements are Met	107
Carrying Capacity as Determined by UAM Modeling	98

* Net of growth

Worksheet 1

Summary of 15 Percent VOC Emission Reductions for Rate of Progress Plans 1990-1996 Sacramento Federal Nonattainment Area

1. Rate-of-Progress 1990 Base Year Inventory (TPD of VOC)

Point Sources	9.0
Area Sources	69.2
Other Mobile	24.0
On-road Mobile	108.6
Total	210.8

2. Adjusted 1990 Base Year Inventory

Point Sources	9.0
Area Sources	69.2
Other Mobile	24.0
On-road Mobile	88.0
Total	190.2

3. 15 Percent Reduction

190.2	0.15	28.5
-------	------	------

4. Total Emission Reductions Needed for 1996

Required 15% Reductions	28.5
FMVCP & RVP Corrections	20.6
RACT Corrections	0.0
I/M Corrections	0.0
Total	49.1

5. 1996 Target Level of Emissions

1990 Rate of Progress Base Year Inventory
minus Total Reductions

210.8	-49.1	=	161.7
-------	-------	---	-------

6. 1996 Projected Inventory (Includes reductions from CA MV Program)

Point /Area Sources	85.7
Other Mobile	25.0
On-road Mobile	64.0
Total	174.7

7. Additional reductions needed over and beyond projected levels

1996 Projected Inventory - 1996 Target Inventory

174.7	-161.7	=	13.0 TPD
-------	--------	---	----------

Worksheet 2

Summary of 24 Percent VOC Emission Reductions
for Rate of Progress Plans 1990-1999
Sacramento Federal Nonattainment Area

1. Rate-of-Progress 1990 Base Year Inventory (TPD of VOC)

Point Sources	9.0
Area Sources	69.2
Other Mobile	24.0
On-road Mobile	108.6
Total	210.8

2. Adjusted 1990 Base Year Inventory

Point Sources	9.0
Area Sources	69.2
Other Mobile	24.0
On-road Mobile	85.3
Total	187.5

3. Required 24 Percent Reduction

$$187.5 \times 0.24 = 45.0$$

4. Total Emission Reductions Needed for 1999

Required 24% Reductions	45.0
FMVCP & RVP Corrections	23.3
Total	68.3

5. 1999 Target Level of Emissions

1990 Rate of Progress Base Year Inventory
minus Total Reductions

$$210.8 - 68.3 = 142.5$$

6. 1999 Projected Inventory (includes reductions from
CA MV Program)

Point /Area Sources	92.0
Other Mobile	22.0
On-road Mobile	53.0
Total	167.0

7. Additional reductions needed over and beyond
projected levels

1999 Projected Inventory - 1999 Target Inventory

$$167.0 - 142.5 = 24.5$$

Worksheet 3

Summary of 33 Percent VOC Emission Reductions of Rate of Progress Plans 1990-2002 Sacramento Federal Nonattainment Area

1. Rate-of-Progress 1990 Base Year Inventory (TPD of VOC)

Point Sources	9.0
Area Sources	69.2
Other Mobile	24.0
On-road Mobile	108.6
Total	210.8

2. Adjusted 1990 Base Year Inventory

Point Sources	9.0
Area Sources	69.2
Other Mobile	24.0
On-road Mobile	83.5
Total	185.7

3. Required 33 Percent Reduction

$$185.7 \times 0.33 = 61.3$$

4. Total Emission Reductions Needed for 2002

Required 33% Reductions	61.3
FMVCP & RVP Corrections	25.1
Total	86.4

5. 2002 Target Level of Emissions

1990 Rate of Progress Base Year Inventory
minus total reductions

$$210.8 - 86.4 = 124.4$$

6. 2002 Projected Inventory (includes reductions from CA MV Program)

Point /Area Sources	97.0
Other Mobile	22.0
On-road Mobile	44.0
Total	163.0

7. Additional reductions needed over and beyond projected levels

2002 Projected Inventory - 2002 Target Inventory

$$163.0 - 124.4 = 38.6$$

Worksheet 4

Summary of 42 Percent VOC Emission Reductions for Rate of Progress Plans 1990-2005 Sacramento Federal Nonattainment Area

1. Rate-of-Progress 1990 Base Year Inventory (TPD of VOC)

Point Sources	9.0
Area Sources	69.2
Other Mobile	24.0
On-road Mobile	108.6
Total	210.8

2. Adjusted 1990 Base Year Inventory

Point Sources	9.0
Area Sources	69.2
Other Mobile	24.0
On-road Mobile	82.5
Total	184.7

3. Required 42 Percent Reduction

$$184.7 \times 0.42 = 77.6$$

4. Total Emission Reductions Needed for 2005

Required 42% Reductions	77.6
FMVCP & RVP Corrections	26.1
Total	103.7

5. 2005 Target Level of Emissions

1990 Rate of Progress Base Year Inventory
minus Total Reductions

$$210.8 - 103.7 = 107.1$$

6. 2005 Projected Inventory (includes reductions from CA MV Program)

Point/Area Sources	101.0
Other Mobile	22.0
On-road Mobile	36.0
Total	159.0

7. Additional reductions needed over and beyond projected levels

2005 Projected Inventory - 2005 Target Inventory

$$159.0 - 107.1 = 51.9$$

Worksheet 5

Summary of Available NOx Reductions for Rate of Progress Plans 1990-1996 Sacramento Federal Nonattainment Area

1. Rate-of-Progress 1990 Base Year Inventory (TPD of NOx)

Point Sources	8.8
Area Sources	3.5
Other Mobile	34.3
On-road Mobile	117.6
Total	164.2

2. Adjusted 1990 Base Year Inventory

Point Sources	8.8
Area Sources	3.5
Other Mobile	34.3
On-road Mobile	122.0
Total	168.6

3. 1996 Projected Inventory (includes reductions from CA MV Program)

Point /Area Sources	13.6
Other Mobile	34.5
On-road Mobile	92.3
Total	140.4

4. Available NOx Reductions

1990 Adjusted Inventory - 1996 Projected Inventory

$$168.6 \quad -140.4 \quad = \quad 28.2$$

Worksheet 6

Summary of Available NOx Reductions for Rate of Progress Plans 1990-1999 Sacramento Federal Nonattainment Area

1. Rate-of-Progress 1990 Base Year Inventory (TPD of NOx)

Point Sources	9.0
Area Sources	4.0
Other Mobile	35.0
On-road Mobile	120.0
Total	168.0

2. Adjusted 1990 Base Year Inventory

Point Sources	9.0
Area Sources	4.0
Other Mobile	35.0
On-Road Mobile	130.0
Total	178.0

3. 1999 Projected Inventory (includes reductions from CA MV Program)

Point /Area Sources	14.0
Mobile	117.0
Total	131.0

4. Available NOx Reductions

1990 Adjusted Inventory - 1999 Projected Inventory

$$178.0 \quad -131.0 \quad = \quad 47.0$$

Worksheet 7

Summary of Available NOx Reductions for Rate of Progress Plans 1990-2002 Sacramento Federal Nonattainment Area

1. Rate-of-Progress 1990 Base Year Inventory (TPD of NOx)

Point Sources	8.8
Area Sources	3.5
Other Mobile	34.3
On-road Mobile	117.6
Total	164.2

2. Adjusted 1990 Base Year Inventory

Point Sources	8.8
Area Sources	3.5
Other Mobile	34.3
On-road Mobile	117.3
Total	163.9

3. 2002 Projected Inventory (includes reductions from CA MV Program)

Point/Area Sources	14.0
Mobile	112.0
Total	126.0

4. Available NOx Reductions

1990 Adjusted Inventory - 2002 Projected Inventory

$$163.9 - 126.0 = 37.9$$

Worksheet 8

Summary of Available NOx Reductions for Rate of Progress Plans 1990-2005 Sacramento Federal Nonattainment Area

1. Rate-of-Progress 1990 Base Year Inventory (TPD of NOx)

Point Sources	8.8
Area Sources	3.5
Other Mobile	34.3
On-road Mobile	117.6
Total	164.2

2. Adjusted 1990 Base Year Inventory

Point Sources	8.8
Area Sources	3.5
Other Mobile	34.3
On-road Mobile	116.8
Total	163.4

3. 2005 Projected Inventory (includes reductions from CA MV Program)

Point /Area Sources	15.0
Mobile	109.0
Total	124.0

4. Available NOx Reductions

1990 Adjusted Inventory - 2005 Projected Inventory

$$163.4 \quad -124.0 \quad = \quad 39.4$$

APPENDIX H: Rulemaking Schedules

Table H-1

RULEMAKING SCHEDULE: EL DORADO

RULE	ADOPTION DATE	IMPLEMENTATION DATE
Adhesives (New)	February 1995	May 1996
Fugitive Emissions (New)	April 1995	January 1999
Landfill Gas (New)	November 1995	November 1996
Mobile NOx Measures (New)	December 1995	January 1997
Pleasure Craft Refueling (New)	December 1998	May 1999
Pleasure Craft Coatings (New)	April 1996	January 1997
Polyester Resin Operations (New)	February 1996	January 1997
Surface Prep & Clean-up (New)	February 1995	January 1996
Wood Product Coatings (New)	April 1995	January 1996

Table H-2

RULEMAKING SCHEDULE: YOLO-SOLANO

RULE	ADOPTION DATE	IMPLEMENTATION DATE
Architectural Coatings (New)	April 1995	January 1996
Mobile NOx Measure (New)	December 1995	January 1997
Pleasure Craft Coatings (New)	April 1995	January 1996
Pleasure Craft Refueling	December 1998	May 1999
Soil Remediation (New)	May 1995	May 1995
Underground Storage Tanks (Revision)	January 1995	January 1996
Wood Product Coating (New)	February 1995	July 1996

Table H-3

RULEMAKING SCHEDULE: SACRAMENTO

RULE	ADOPTION DATE	IMPLEMENTATION DATE
Adhesives (New)	May 1995	May 1996
Auto Refinishing (New)	May 1995	May 1996
Boilers (New)	February 1995	May 1997
Gas Turbines (New)	February 1995	May 1997
IC Engines (New)	February 1995	May 1997
Landfill Gas (New)	February 1995	May 1997
Mobile NOx Measure (New)	December 1995	January 1997
Pleasure Craft Refueling(New)	May 1997	May 1999
Polyester Resin Operations (New)	December 1998	May 1999
Residential Water Heaters (New)	December 1995	May 1996
SOCMI Distillation & Reactors (New)	September 1995	May 1997
Surface Prep & Clean-up (New)	February 1995	May 1996
Underground Storage Tanks (New)	February 1995	May 1997
Wood Product Coatings (New)	February 1995	January 1996

Table H-4

RULEMAKING SCHEDULE: PLACER

RULE	ADOPTION DATE	IMPLEMENTATION DATE
Adhesives (New)	February 1995	December 1996
Architectural Coatings (Revision)	March 1995	December 1996
IC Engines (New)	December 1995	December 1996
Mobile NOx Measure (New)	December 1995	January 1997
Pleasure Craft Refueling (New)	December 1998	May 1999
Pleasure Craft Coating (New)	December 1994	December 1996
Polyester Resins Operations (New)	January 1996	January 1997
Residential Water Heaters	December 1995	December 1996
Semiconductor Manuf (New)	February 1995	December 1996
Surface Prep & Clean-up (New)	February 1995	December 1996

Table H-5

RULEMAKING SCHEDULE: FEATHER RIVER*

RULE	ADOPTION DATE	IMPLEMENTATION DATE
On-Road Mobile NOx Measure (New)*	December 1995	January 1997

- * No Sources currently; if development occurs in South Sutter County, construction equipment and truck fleets could be affected by the regional program. Off-Road program would not apply.

APPENDIX I: Revisions to 15% Rate-of-Progress Plans

Table I-1

Rules Replaced by State Measures *

Placer County Air Pollution Control District
Adhesives
Alternative Fuel Stations
Architectural Coatings
Autobody Refinishing
Can Coating Operations
Graphic Arts
Landfill Gas
Semiconductor Manufacturing
Solvent Degreasing
Surface Preparation & Cleanup
Synchronized Traffic Signals
Telecommute Centers
Transportation Management Association
Trip Reduction Ordinance
Vanpool Subsidy Program
Wood Furniture Coatings

- * These measures are being removed from the 15% Rate-of-Progress Plans (1990-1996) and replaced with reductions from California's motor vehicle control program. Most of these measures have been incorporated into this proposed attainment and post-1996 Rate-of Progress Plan.

Table I-2

Rules Replaced by State Measures*

Sacramento Metropolitan Air Quality Management District
Adhesives
Automotive Refinishing Operations
Commercial Bakeries
Gas Collection Systems for Sanitary Landfills
HOV Lane Milestones
Industrial Wastewater Treatment
Surface Preparation and Cleanup
Wood Products Coatings

Table I-3

El Dorado County Air Pollution Control District
Architectural Coatings
Automotive Refinishing
Graphic Arts
Solvent Degreasing

- * These measures are being removed from the 15% Rate-of-Progress Plans (1990-1996) and replaced with reductions from California's motor vehicle control program. Most of these measures have been incorporated into this proposed attainment and post-1996 Rate-of-Progress Plan.

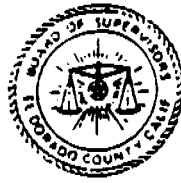
Table I-4

Rules Replaced by State Measures*

Yolo-Solano Air Pollution Control District
Adhesives
Architectural Coatings
Asphalt Paving
Auto/Truck Refinishing Operations
Fugitive Hydrocarbons
Graphic Arts
Metal Parts/Products Coating Operations
Organic Liquid Storage/Transfer
Pharmaceutical Manufacturing
Surface Preparation and Cleanup

- * These measures are being removed from the 15% Rate-of-Progress Plans (1990-1996) and replaced with reductions from California's motor vehicle control program. Most of these measures have been incorporated into this proposed attainment and post-1996 Rate-of-Progress Plan.

RESOLUTION AND ADDENDUM
EL DORADO COUNTY AIR POLLUTION CONTROL DISTRICT



RESOLUTION No. 321-94

OF THE BOARD OF SUPERVISORS OF THE COUNTY OF EL DORADO

WHEREAS, the Sacramento Metropolitan Area, which includes all of the El Dorado County Air Pollution Control District except for the Lake Tahoe Air Basin, is designated as a nonattainment area for the State and Federal Ozone standards;

WHEREAS, the Federal Clean Air Act Amendments of 1990 require that the Sacramento Metropolitan Area adopt a plan which (1) demonstrates that the federal ozone standard will be achieved throughout the nonattainment area by the applicable attainment date, and (2) which provides for reasonable progress in attaining the federal ozone standard;

WHEREAS, the California Clean Air Act requires an update of the 1992 El Dorado County Clean Air Act Plan;

WHEREAS, the El Dorado County Air Pollution Control District together with the other districts in the region has developed the Sacramento Area Regional Ozone Attainment Plan (the "Plan") and appropriate environmental documentation;

WHEREAS, the Plan (1) demonstrates that the federal ozone standard will be achieved throughout the Sacramento Metropolitan Area by the year 2005; (2) provides for the required 3% annual emission reductions in ozone precursors between the years 1996 and 2005;

WHEREAS, The California Air Resources Board published a proposed 1994 California State Implementation Plan for Ozone (proposed California SIP) on October 7, 1994;

WHEREAS, the proposed California SIP includes emission reductions from mobile sources, consumer products, pesticides, and inspection and maintenance;

WHEREAS, the emission reductions from these source categories are within the jurisdiction of the State of California and the United States;

WHEREAS, the El Dorado County Air Pollution Control District Board recognizes that, although the exact mix of control strategies and the specific emission reductions from each of the proposed California SIP control strategies may change when approved by the Air Resource Board, the California SIP will achieve the total emission reductions identified to demonstrate attainment and rate of progress.

BE IT RESOLVED, the Negative Declaration circulated for the Sacramento Area Ozone Attainment Plan has been completed in compliance with the California Environmental Quality Act and was presented to this Board for review and considered prior to approving this project;

BE IT FURTHER RESOLVED, the El Dorado County Air Pollution Control District Board approves and adopts the Sacramento Area Regional Ozone Attainment Plan with addendum including those measures identified for implementation by the El Dorado County District, approves the revision to the El Dorado County 1993 Rate of Progress Plan, approves the revised 1990 Baseline Emission Inventory, and also approves the update to the 1992 El Dorado County Clean Air Act Plan;

BE IT FURTHER RESOLVED, that the District's Governing Board hereby requests the California Air Resources Board to approve and include in the State Implementation Plan for the Sacramento Nonattainment Area emission reductions from the source categories within the jurisdiction of the State of California or the United States necessary to demonstrate attainment and rate of progress.

PASSED AND ADOPTED by the Board of Supervisors of the County of El Dorado at a regular meeting of said Board, held on the 13TH day of DECEMBER, 1994 by the following vote of said Board:

DIRECTORS William S. Bradley, Raymond J. Munding,
Ayes: J. Mark Nielsen, William N. Center, John E. Lator

ATTEST

DIXIE L. FOOTE

Clerk of the Board of Supervisors

By Margaret E. Moody
Deputy Clerk

Noes:
Absent:

none
none

William S. Bradley
Chairman, Board of Supervisors

WILLIAM S. BRADLEY, 1ST VICE-CHAIRMAN

I CERTIFY THAT:

THE FOREGOING INSTRUMENT IS A CORRECT COPY OF THE ORIGINAL ON FILE IN THIS OFFICE

DATE DECEMBER 13, 1994

ATTEST DIXIE L. FOOTE, Clerk of the Board of Supervisors of the County of El Dorado, State of California

By Margaret E. Moody
Deputy Clerk

ADDENDUM TO THE:

SACRAMENTO AREA PROPOSED REGIONAL OZONE ATTAINMENT PLAN

Insert at bottom of Page 12.

TCMs and Land Use Measures

The emission benefits of TCMs and land use measures are often considered long-term rather than short-term, which is the emphasis of this Plan. Benefits of these measures are often realized years after adoption. Thus, it is important that they be pursued in an expeditious manner. This Plan (Table 4) indicates a 1 TPD reduction in NOx and ROG attributable to new TCMs and land use measures by the year 2005. These reductions originate from measures that have recently been adopted by the Sacramento Metropolitan Air Quality Management District (i.e. Sacramento Bikeway Master Plan Implementation Program, Sacramento County General Plan land use mitigation and transit oriented development policies), and employer trip reduction regulations which are either in place or required in all five air districts as a result of the 2005 attainment date. Similar TCMs and land use proposals may be pursued by the El Dorado County Air Pollution Control District.

Other TCMs and land use measures are and will continue to be pursued to assist in long-term air quality goals. Market based measures as well as seasonal and episodic measures are being investigated and may where feasible augment the technologically based controls contained in this plan as they are further defined. Transportation and land use controls will necessarily need to continue to play a role in achieving and maintaining air quality standards in the Sacramento area.

RESOLUTION

FEATHER RIVER AIR QUALITY MANAGEMENT DISTRICT

FEATHER RIVER AIR QUALITY MANAGEMENT DISTRICT

IN RE:

RESOLUTION APPROVING
THE SACRAMENTO REGIONAL
ATTAINMENT PLAN

RESOLUTION NO. 1994- 13

WHEREAS, the Federal Clean Air Act Amendments of 1990 require that the Sacramento Metropolitan Area adopt a plan which demonstrates that the federal ozone standard will be achieved throughout the nonattainment area by the applicable attainment date, and which provides for reasonable progress in attaining the federal ozone standard;

WHEREAS, the Feather River Air Quality Management District (FRAQMD) together with the other districts in the Sacramento Metropolitan Area has developed the Sacramento Regional Ozone Attainment Plan (the "Plan") and appropriate environmental documentation;

WHEREAS, the Plan demonstrates that the federal ozone standard will be achieved throughout the Sacramento Metropolitan Area by the year 2005; and provides for the required 3% annual emission reductions in ozone precursors between the years 1996 to 2005;

WHEREAS, the California Air Resources Board published a proposed 1994 California State Implementation Plan for Ozone (proposed California SIP) on October 7, 1994;

WHEREAS, the proposed California SIP includes emission reductions from mobile sources, consumer products, pesticides, and inspection and maintenance;

WHEREAS, the emission reductions from these source categories are within the jurisdiction of the State of California and the United States;

WHEREAS, pursuant to Health and Safety Code 41650, the FRAQMD is the local authority authorized to determine the reasonable availability of the emission control measures identified in the Plan as control measures for those portions of the FRAQMD that are within the ozone nonattainment area and, at the local level, to approve the inclusion of those measures in the Plan; and

WHEREAS, the Plan identifies only two control measures applicable to the FRAQMD, namely those control measures for on-road and off-road heavy duty vehicles;

WHEREAS, the FRAQMD Board at its meeting on November 7, 1994 determined that waivers should be granted for farm equipment from the requirements of the control measures for on-road and off-road heavy duty equipment;

NOW, THEREFORE, BE IT RESOLVED, the Negative Declaration circulated for the Sacramento Area Ozone Attainment Plan has been completed in compliance with the California Environmental Quality Act and was presented to this Board for review and considered prior to approving this project;

BE IT FURTHER RESOLVED, the FRAQMD Board approved the Sacramento Regional Ozone Attainment Plan, a copy of which is attached hereto as Exhibit A, with the following conditions: (1) The control measure for off-road heavy duty vehicles shall not apply to the FRAQMD; (2) the control measure for on-road heavy duty vehicles shall provide an exemption for farm equipment.

BE IT FURTHER RESOLVED, the FRAQMD Board approved the 1990 Baseline Inventory contained in the Plan;

resol Ozone

BE IT FURTHER RESOLVED, the FRAQMD Board hereby requests the California Air Resources Board to approve and include in the State Implementation Plan for the Sacramento Nonattainment Area emission reductions from the source categories within the jurisdiction of the State of California or the United States necessary to demonstrate attainment and rate of progress.

AYES: Directors Benatar, Saunders, Mathews, Hilliard, Bechtel, Hart, Akin

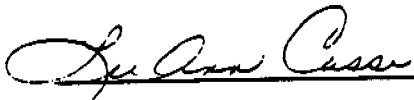
NOES: None

ABSENT: None

ABSTAIN: None


Chairman

ATTEST:
CLERK OF THE DISTRICT BOARD


Clerk

APPROVED AS TO LEGAL FORM


Joseph Cerullo, Board Legal Advisor

RESOLUTION AND ADDENDUM
PLACER COUNTY AIR POLLUTION CONTROL DISTRICT

BEFORE THE AIR POLLUTION CONTROL DISTRICT BOARD
COUNTY OF PLACER, STATE OF CALIFORNIA

RESOLUTION NO. 94-07

In The Matter Of: ADOPTION OF THE 1994 SACRAMENTO AREA REGIONAL OZONE
ATTAINMENT PLAN

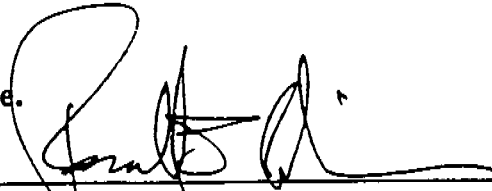
The following RESOLUTION was duly passed by the Air Pollution Control District Board
of the County of Placer at a regular meeting held December 20, 1994 by the following vote
on roll call:

Ayes: Sprague, Bloomfield, Lichau, McCord

Noes: None

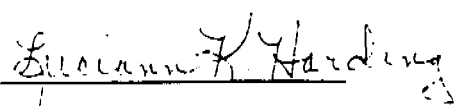
Absent: Crabb, Uhler

Signed and approved by me after its passage.



Chairman, Air Pollution Control District Board

Attest:
Clerk of said Board



Clerk of said Board

WHEREAS, the Sacramento Metropolitan Area, Which includes all of the Placer County
Air Pollution Control District except for the Lake Tahoe Air Basin, is designated as
nonattainment for State and Federal ozone standards;

WHEREAS, the Federal Clean Air Act Amendments of 1990 require that the Sacramento Metropolitan Area adopt a plan which (1) demonstrates that the federal ozone standard will be achieved throughout the nonattainment area by the applicable attainment date, and (2) which provides for reasonable progress in attaining the federal zone standard;

WHEREAS, the California Clean Air Act requires an update of the Placer County 1991 Air Quality Attainment Plan, adopted by this Board on April 7, 1992;

WHEREAS, the Placer County Air Pollution Control District (District) together with the other districts in the Sacramento Metropolitan Area has developed the Sacramento Area Regional Ozone Attainment Plan (the "Plan") and appropriate environmental documentation;

WHEREAS, pursuant to Health and Safety Code §41650, the District is the local authority authorized to determine the reasonable availability of the emission control measures identified in the Plan as District control measures for those portions of Placer County that are within the ozone nonattainment area and, at the local level, to approve the inclusion of those measures in the Plan; and

WHEREAS, the District has determined that the emission control measures identified in the Plan as District measures are reasonably available to the extent the District is authorized by law to implement them.

WHEREAS, the Plan (1) demonstrates that the federal ozone standard will be achieved throughout the Sacramento Metropolitan Area by the year 2005; (2) provides for the required 3% annual emission reductions in ozone precursors between the years 1996 to 2005;

WHEREAS, the California Air Resources Board published a proposed 1994 California State Implementation Plan for Ozone (proposed California SIP) on October 7, 1994;

WHEREAS, the proposed California SIP includes emission reductions from mobile sources, consumer products, pesticides, and inspection and maintenance;

WHEREAS, the emission reductions from these source categories are within the jurisdiction of the State of California and the United States;

WHEREAS, the Placer County Air Pollution Control District Board recognizes that, although the exact mix of control strategies and the specific emission reductions from each of the proposed California SIP control strategies may change when approved by the California Air Resources Board, the California SIP will achieve the total emission reductions identified to demonstrate attainment and rate progress.

BE IT RESOLVED, the Negative Declaration circulated for the Sacramento Area Ozone Attainment Plan has been completed in compliance with the California Environmental Quality Act and was presented to this Board for review and considered prior to approving this project;

BE IT FURTHER RESOLVED, the Placer County Air Pollution Control District Board, to the extent authorized by law, approves and adopts the Sacramento Area Regional Ozone Attainment Plan including those measures identified for implementation by the Placer County Air Pollution Control District, approves the revision to the Placer County 1993 Rate of Progress Plan, approves the 1990 Baseline Inventory contained in the Plan, and also approves the update to the Placer County 1991 Air Quality Attainment Plan;

BE IT FURTHER RESOLVED, that the District's Governing Board hereby requests the California Air Resources Board to approve and include in the State Implementation Plan for the Sacramento Nonattainment Area emission reductions from the source categories within the jurisdiction of the State of California or the United States necessary to demonstrate attainment and rate of progress.

ADDENDUM TO THE PLACER COUNTY DISTRICT PORTION OF THE SACRAMENTO AREA PROPOSED REGIONAL OZONE ATTAINMENT PLAN

Insert at bottom of Page 12.

TCM's and Land Use Measures

The emission benefits of TCM's and land use measures are often considered long-term rather than short-term, which is the emphasis of this Plan. Benefits of these measures are often realized years after adoption. Thus, it is important that they be pursued in an expeditious manner. This Plan (Table 4) indicates a 1 TPD reduction in NO_x and ROG attributable to new TCM's and land use measures by the year 2005. These reductions originate from measures that have recently been adopted, (i.e. Sacramento Bikeway Master Plan Implementation Program, Sacramento County General Plan land use mitigation and transit oriented development policies), and employer trip reduction regulations which are either in place or required in all five air districts as a result of the 2005 attainment date. TCM elements of the following plans and programs are necessary to achieve the emissions reductions and implement the trip reduction regulations in Placer County: (1) Placer County Transportation Planning Agency's Regional Transportation Plan, Congestion Management Program, Long Range Transit Plan, and Bikeway Master Plan Implementation Program; (2) Placer County Jurisdiction's General and Bikeway Plans; (3) South Placer Transportation Management Association's Rideshare and Transportation Control Measure Program; (4) Truckee - North Tahoe Transportation Management Association's Transportation Control Measure Program; and (5) Placer Transit Operator Short Range Transit Plans.

Other TCM's and land use measures are and will continue to be pursued to assist in long-term air quality goals. Market based measures as well as seasonal and episodic measures are being investigated and may where feasible augment the technologically based controls contained in this plan as they are further defined. Transportation and land use controls will necessarily need to continue to play a role in achieving and maintaining air quality standards in the Sacramento area.

RESOLUTION AND ADDENDUM

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

RESOLUTION NO. AQMD 94- 0014
THE BOARD OF DIRECTORS
OF THE SACRAMENTO METROPOLITAN AIR QUALITY
MANAGEMENT DISTRICT OF THE
STATE OF CALIFORNIA

WHEREAS the federal Clean Air Act ("CAA"), 42 USC §§ 7401 - 7671q, and the federal regulations promulgated thereon, establish a primary national Ambient Air Quality Standards ("NAAQS") for ozone of 0.12 parts per million as the level of air quality, allowing an adequate margin of safety, requisite to protect public health; and

WHEREAS the Sacramento Metropolitan Area ("SMA"), as defined in "Air Quality Designations and Classification, Final Rule," Federal Register, Vol. 56, No. 216, pages 56694-56856, includes the Sacramento Metropolitan Air Quality Management District ("District") as well as the Yolo-Solano Air Pollution Control District, the Placer County Air Pollution Control District, the El Dorado County Air Pollution Control District, and the Feather River Air Quality Management District; and

WHEREAS the SMA has exceeded the primary NAAQS for ozone in each year since the NAAQS were established, and has been designated a serious nonattainment area for ozone in the Federal Register, Vol. 56, No. 216, pages 56694-56856; and

WHEREAS, pursuant to the 1990 amendments of the CAA, 42 USC § 7511 mandates that serious nonattainment areas for ozone shall achieve the NAAQS standard no later than November 15, 1999; and

WHEREAS, pursuant to the 1990 amendments of the CAA, 42 USC § 7511a(c)(2) mandates the State of California, with respect to each serious nonattainment area within the State, to submit to the Environmental Protection Agency ("EPA") no later than November 15, 1994, a revision to the State Implementation Plan ("SIP") that demonstrates on the basis of photochemical grid modeling that the SIP as revised will provide for the attainment of the ozone NAAQS by November 15, 1999; and

WHEREAS, pursuant to the 1990 amendments of the CAA, 42 USC § 7511a(c)(2) mandates the State of California, with respect to each serious nonattainment area within the State, to submit to the EPA no later than November 15, 1994, a Post-1996 Rate of Progress (ROP) Plan for Ozone that includes control measures that will reduce emissions from ozone precursors by at least three percent annually from 1990 baseline emissions until the attainment date, and a "comprehensive, accurate and current inventory" of actual emission from all sources for the calendar year 1990; and

WHEREAS, pursuant to 42 USC § 7511a(c), the California Air Resources Board (CARB) has developed a photochemical grid model

for the SMA known as the Urban Airshed Model ("UAM") in order to determine the additional emission control measures necessary for the SMA to meet the ozone NAAQS deadline; and

WHEREAS, CARB and the Sacramento Area Council of Governments ("SACOG"), the District, other air districts in the SMA have employed the UAM to develop a strategy comprising the emission control measures necessary to meet the ozone NAAQS for the SMA; and

WHEREAS, the strategy developed using the UAM has demonstrated that the SMA will not achieve the ozone NAAQS until after November 15, 1999, but prior to November 15, 2005; and

WHEREAS, pursuant to 42 USC §§ 7511 and 7511a, air basins federally designated as severe--the next higher nonattainment designation--have an attainment date of November 15, 2005, for purposes of demonstrating attainment and rate of progress; and

WHEREAS, pursuant to 42 USC § 7511(b)(3), the State of California may request reclassification of the SMA to severe, and such a request must be granted by the EPA Administrator; and

WHEREAS, notwithstanding a reclassification of the SMA by the EPA Administrator to severe, the UAM has tested with an accuracy of plus or minus eighteen percent (18%) in predicting ozone violations, and the SMA may actually achieve attainment of the ozone NAAQS well before November 15, 2005, and possibly by November 15, 1999; and

WHEREAS, the EPA Administrator has discretion under 42 USC § 7411a(i) to adjust any applicable deadlines (except attainment dates) pertaining to the higher classification when a nonattainment area is reclassified to the higher classification; and

WHEREAS, the District has made substantial and continuous progress toward achieving the ozone NAAQS and does not presently have adopted rules meeting the additional mandates required of severe nonattainment areas under the CAA; and

WHEREAS, because of the unique meteorological conditions of the SMA and the development of few stationary sources in the SMA, the principal causes of ozone within the SMA are mobile sources, not stationary sources; and

WHEREAS, because the additional mandates for a severe classification impose emission limitations that primarily effect stationary sources, which have already been heavily regulated and will be subject to further regulations under the proposed Sacramento SIP to promote and enhance air quality, the District believes the immediate imposition of such additional severe mandates on the SMA, if reclassified to severe, will impose excessive costs with minimal impact in assisting the SMA to

achieve the ozone NAAQS more expeditiously; and

WHEREAS, on October 7, 1994 CARB published a proposed 1994 California State Implementation Plan for Ozone ("proposed California SIP"), which refers to the Sacramento Area Proposed Regional Ozone Attainment Plan prepared by CARB for the SMA; and

WHEREAS, the Sacramento Area Proposed Regional Plan for Ozone has been revised by CARB, the District, and the other air districts of the SMA and, as revised, is referred to herein as "the proposed Sacramento SIP" and is attached hereto as Attachment 3 and incorporated herein by reference; and

WHEREAS, the proposed California SIP includes emission reductions from mobile sources, consumer products, pesticides, and inspection and maintenance, which source categories are regulated under the jurisdiction of the State of California and the United States; and

WHEREAS, the proposed Sacramento SIP contains both emission reductions from mobile sources, consumer products, pesticides, and inspection and maintenance, which source categories are regulated under the jurisdiction of the State of California and the United States and other specific emission control measures that are regulated under jurisdiction of the District; and

WHEREAS, on November 9, 10, and 15, 1994, CARB held public hearings on the proposed California SIP, revised some provisions of the proposed California SIP based on public comment, and on November 15, 1994, approved the proposed California SIP as revised, the District recognizes the approved California SIP and the proposed Sacramento SIP will achieve the total emission reductions identified to demonstrate attainment and rate of progress for the SMA by the year 2005 as required by 42 USC § 7511a(c)(2) if the SMA is reclassified as severe; and

WHEREAS, the SMA's 1993 Rate of Progress Plan required by 42 USC § 7511a(b)(1) was returned to CARB as incomplete, and the proposed Sacramento SIP includes the revisions of the District, other SMA air districts, and CARB to the 1993 Rate of Progress Plan; and

WHEREAS, the Board of Directors of the District has reviewed the Negative Declaration for the District control measures identified in the proposed Sacramento SIP as well as the comments and responses to comments on the Negative Declaration; and

WHEREAS, the Board of Directors of the District finds that the Negative Declaration of environmental impact reflects their independent judgment; and

WHEREAS, the Board of Directors of the Sacramento Metropolitan Air Quality Management District has held a duly noticed public hearing and considered public comment on the

District control measures identified in the proposed Sacramento SIP; and

WHEREAS, pursuant to Health and Safety Code § 41650, the District is the local authority within the SMA that is authorized to determine the reasonable availability of the emission control measures identified in the proposed Sacramento SIP as District control measures and, at the local level, to approve the inclusion of those measures in the proposed Sacramento SIP; and

WHEREAS, the District recognizes that, to the extent authorized by federal and state law, the inclusion of the District's emission control measures in the proposed Sacramento SIP, upon the proposed Sacramento SIP's final approval by the District, CARB, and EPA, will cause those measures to become and remain federal law enforceable by EPA or any citizen until such time as the Sacramento SIP is amended, which cannot be accomplished absent approval from EPA; and

WHEREAS, the District has determined that the emission control measures identified in the proposed Sacramento SIP as District measures are reasonably available to the extent the District is authorized by federal and state law to implement them; and

WHEREAS, pursuant to Health and Safety Code §§ 40924(b) and 40925(a), the District is required to assess its air quality program every three years, beginning in 1994, with a Triennial Progress Report, and update its 1991 California Clean Air Act Plan with a Triennial Plan Revision;

WHEREAS, the Bay Area Air Quality Management District ("BAAQMD") has requested redesignation to attainment for ozone (Federal Register, Vol. 59, No. 187, pp. 49361-49370), and transport from the BAAQMD has been found to affect significantly adjacent geographical areas in nonattainment air basins such as the northern San Joaquin; and

WHEREAS, preliminary modeling using the UAM predicted considerable transport of oxides of nitrogen, a precursor emission to ozone, from the BAAQMD into the SMA; and

WHEREAS, the ROP and the attainment demonstration for the SMA do not address transport from the BAAQMD; and

WHEREAS, the BAAQMD request for redesignation includes a request for an exemption pursuant to 42 USC § 7511a(f) from the CAA requirement to implement reasonably available control technology ("RACT") on all major sources in the BAAQMD; and

WHEREAS, the District has not opposed the BAAQMD request for redesignation but reserves its right to participate in any lawful means of commenting upon the request, including the federal notice and comment procedures governing the EPA, and of affecting

the EPA determination on the request in order to assure that the transport of ozone precursors from the BAAQMD into the SMA is reduced to a level sufficient to eliminate any adverse impact on the attainment of NAAQS in the SMA; and

WHEREAS, the District believes that the BAAQMD should have the burden of demonstrating no adverse impact on the SMA NAAQS from the BAAQMD transport of oxides of nitrogen and that the requested exemption should not be granted until the BAAQMD provides that demonstration;

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Sacramento Metropolitan Air Quality Management District approves the Negative Declaration, approves the 1990 Baseline Inventory contained in the proposed Sacramento SIP, approves to the extent authorized by federal and state law its commitment to implement the District control measures in the proposed Sacramento SIP as its revision to the 1993 Rate of Progress Plan, approves to the extent authorized by federal and state law its commitment to implement the District control measures in the proposed Sacramento SIP as its contribution to the Post-1996 Rate of Progress Plan and the Attainment Demonstration for the Sacramento Metropolitan Area, and approves to the extent authorized by federal and state law its commitment to implement the District control measures in the proposed Sacramento SIP as its Triennial Progress Report and Triennial Plan Revision of the 1991 California Clean Air Act Plan; and

BE IT FURTHER RESOLVED that the District hereby objects to the reclassification of the SMA from serious to severe due to the significant adverse economic and social consequences which would result from such a reclassification. It is the prevalence of mobile sources, not stationary sources, which is the primary cause of the District's current nonattainment status. Because the ability to regulate those mobile sources is within the authority and jurisdiction of EPA and CARB, not the District, the District should not be subjected to the adverse impacts of reclassification. However, if the EPA Administrator reclassifies the SMA to severe, the EPA administrator should exercise her discretion to defer the additional deadlines to be imposed under the CAA on the SMA until at least November 15, 1999, at which time the District, notwithstanding the UAM, may be able to demonstrate attainment; and

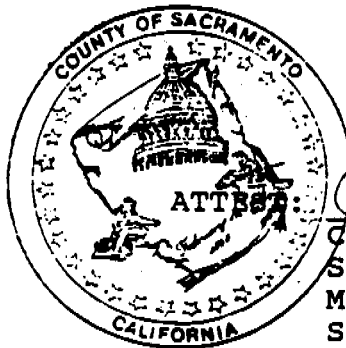
BE IT FURTHER RESOLVED that the District is concerned about the proposed action of the EPA to grant the exemption to the BAAQMD for RACT of major sources of oxides of nitrogen and directs its Air Pollution Control Officer with the assistance of his staff to investigate impacts upon the District of transport of ozone precursors from the BAAQMD and to respond to the EPA notice of proposed rulemaking to redesignate the BAAQMD to attainment for ozone by providing comments to the EPA to the extent feasible that will assure that the transport of ozone precursors from the BAAQMD into the SMA is reduced to a level

sufficient to eliminate any adverse impact on the attainment of NAAQS in the SMA;

BE IT FINALLY RESOLVED that the District Board directs staff to return annually with a report which identifies the District's progress in implementing the control measures identified in the proposed Sacramento SIP. The report will also identify any strategies which should be modified to assure attainment in the most cost effective and technologically feasible manner possible.

ON A MOTION by Director Steinberg, seconded by Director Holderness, the foregoing Resolution was passed and adopted by the Board of Directors of the Sacramento Metropolitan Air Quality Management District, State of California, this 1st of December, 1994 by the following vote, to wit:

AYES: Directors, Cox, Holderness, M. Johnson, Ortiz, Serna, Steinberg, Dickinson
NOES: Directors, None
ABSENT: Directors, Collin, T. Johnson



Christine A. Egan
Clerk of the Board
Sacramento Metropolitan Air Quality
Management District
State of California

Ryan Collins
Chairperson of the Board of Directors of the
Sacramento Metropolitan Air Quality Management District

By: _____

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FILED

DEC 1 1994

BOARD OF DIRECTORS
By Christine A. Egan
Clerk of the Board

In accordance with Section 25103 of the Government Code of the State of California a copy of this document has been delivered to the Chairman of the Board of Supervisors, County of Sacramento on

DEC 1 1994

Christine A. Egan
Deputy Clerk, Board of Supervisors

**PROPOSED ADDENDUM TO THE SACRAMENTO
DISTRICT PORTION OF:**

SACRAMENTO AREA PROPOSED REGIONAL OZONE ATTAINMENT PLAN

Insert at bottom of Page 12.

TCMs and Land Use Measures

The emission benefits of TCMs and land use measures are often considered long-term rather than short-term, which is the emphasis of this Plan. Benefits of these measures are often realized years after adoption. Thus, it is important that they be pursued in an expeditious manner. This Plan (Table 4) indicates a 1 TPD reduction in NO_x and ROG attributable to new TCMs and land use measures by the year 2005. These reductions originate from measures that have recently been adopted, (i.e. Sacramento Bikeway Master Plan Implementation Program, Sacramento County General Plan land use mitigation and transit oriented development policies), and employer trip reduction regulations which are either in place or required in all five air districts as a result of the 2005 attainment date.

Other TCMs and land use measures are and will continue to be pursued to assist in long-term air quality goals. Market based measures as well as seasonal and episodic measures are being investigated and may where feasible augment the technologically based controls contained in this plan as they are further defined. Transportation and land use controls will necessarily need to continue to play a role in achieving and maintaining air quality standards in the Sacramento area.

RESOLUTION AND ADDENDUM
YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT

Resolution 94-28
ADOPTING THE SACRAMENTO AREA PROPOSED REGIONAL
OZONE ATTAINMENT PLAN

WHEREAS, the Sacramento Metropolitan Area (SMA), which includes all of the Yolo-Solano Air Quality Management District, is designated as a nonattainment area for the State and Federal ozone standards;

WHEREAS, the federal Clean Air Act Amendments of 1990 (CAAA) require that the Sacramento Metropolitan Area (SMA) adopt a plan that (1) demonstrates that the federal ozone standard will be achieved throughout the nonattainment area by the applicable attainment date, and (2) that provides for reasonable progress in attaining the federal ozone standard;

WHEREAS, the California Clean Air Act requires an update to the 1992 Yolo-Solano Air Quality Attainment Plan;

WHEREAS, the Yolo-Solano Air Quality Management District, together with the other districts in the region, has developed the Sacramento Area Regional Ozone Attainment Plan (the Plan) and appropriate environmental documentation;

WHEREAS, the Plan (1) demonstrates that the federal ozone standard will be achieved throughout the Sacramento Metropolitan Area by the year 2005; (2) provides for the required 3% annual emission reductions in ozone precursors between the years 1996 and 2005;

WHEREAS, the California Air Resources Board (ARB) published a proposed 1994 California State Implementation Plan for Ozone (California SIP) on October 7, 1994;

WHEREAS, the Sacramento Area Proposed Regional Plan for Ozone has been revised by ARB, the District and other air districts of the SMA and as revised, and is attached hereto as Exhibit A and incorporated herein by reference;

WHEREAS, the proposed California SIP includes emission reductions from mobile sources, consumer products, pesticides and inspection and maintenance;

WHEREAS, the emission reductions from these source categories are within the jurisdiction of the State of California and the United States;

WHEREAS, the Bay Area Air Quality Management District (BAAQMD) has requested redesignation to "attainment" for ozone (Federal Register, Vol. 59, No.

1 Solano Air Quality Management District, approves the revision to the Yolo-Solano
2 1993 Rate of Progress Plan and also approves the update to the 1992 Yolo-Solano
3 Clean Air Act Plan;

4 **BE IT FURTHER RESOLVED**, that the District's Governing Board hereby
5 requests the California Air Resources Board to approve and include in the State
6 Implementation Plan for the Sacramento Nonattainment Area emission reductions
7 from the source categories within the jurisdiction of the State of California or the
8 United States necessary to demonstrate attainment and rate of progress;

9 **BE IT FURTHER RESOLVED** that the District is concerned about the
10 proposed action of the EPA to grant the exemption to the BAAQMD for RACT of
11 major sources of oxides of nitrogen and directs its Air Pollution Control Officer to
12 investigate impacts on the District of transport of ozone precursors from the
13 BAAQMD and to respond to the EPA notice of proposed rulemaking to redesignate
14 the BAAQMD to "attainment" for ozone by providing comments to the EPA to the
15 extent feasible that will assure that the transport of ozone precursors from the
16 BAAQMD into the Sacramento Area is reduced to a level sufficient to eliminate any
17 adverse impact on the attainment of NAAQS in the Sacramento Area.

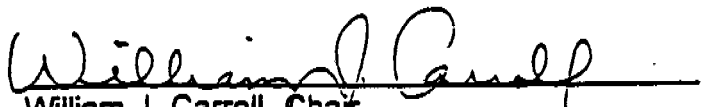
18 **PASSED AND ADOPTED** by the Board of Directors of the Yolo-Solano Air
19 Quality Management District this 14th day of December, 1994 by the following vote:

20 **AYES:** Carroll, Chapman, DeMars, Erickson, Fleming, Kondylis, Rubier, Sandy,
21 Siefertman, H. Thomson, S. Thomson, Wolk.

22 **NOES:** None.

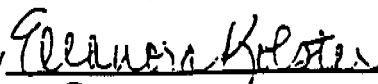
23 **ABSENT:** Marchand, Tuttle.

24 **ABSTENTION:** None.

25 
26 William J. Carroll, Chair
27 Yolo-Solano Air Quality Management District

28 **ATTEST:**

Eleanora Kolster, Clerk
To the Board of Directors

By 
Deputy

resroao

**PROPOSED ADDENDUM TO THE YOLO-SOLANO
DISTRICT PORTION OF:**

SACRAMENTO AREA PROPOSED REGIONAL OZONE ATTAINMENT PLAN

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Other TCMs and land use measures are and will continue to be pursued to assist in long-term air quality goals. Market based measures as well as seasonal and episodic measures are being investigated and may where feasible augment the technologically based controls contained in this plan as they are further defined. Transportation and land use controls will necessarily need to continue to play a role in achieving and maintaining air quality standards in the Sacramento area.